Wheat, Wheat Flour, and Semolina

Investigation No. 22-54

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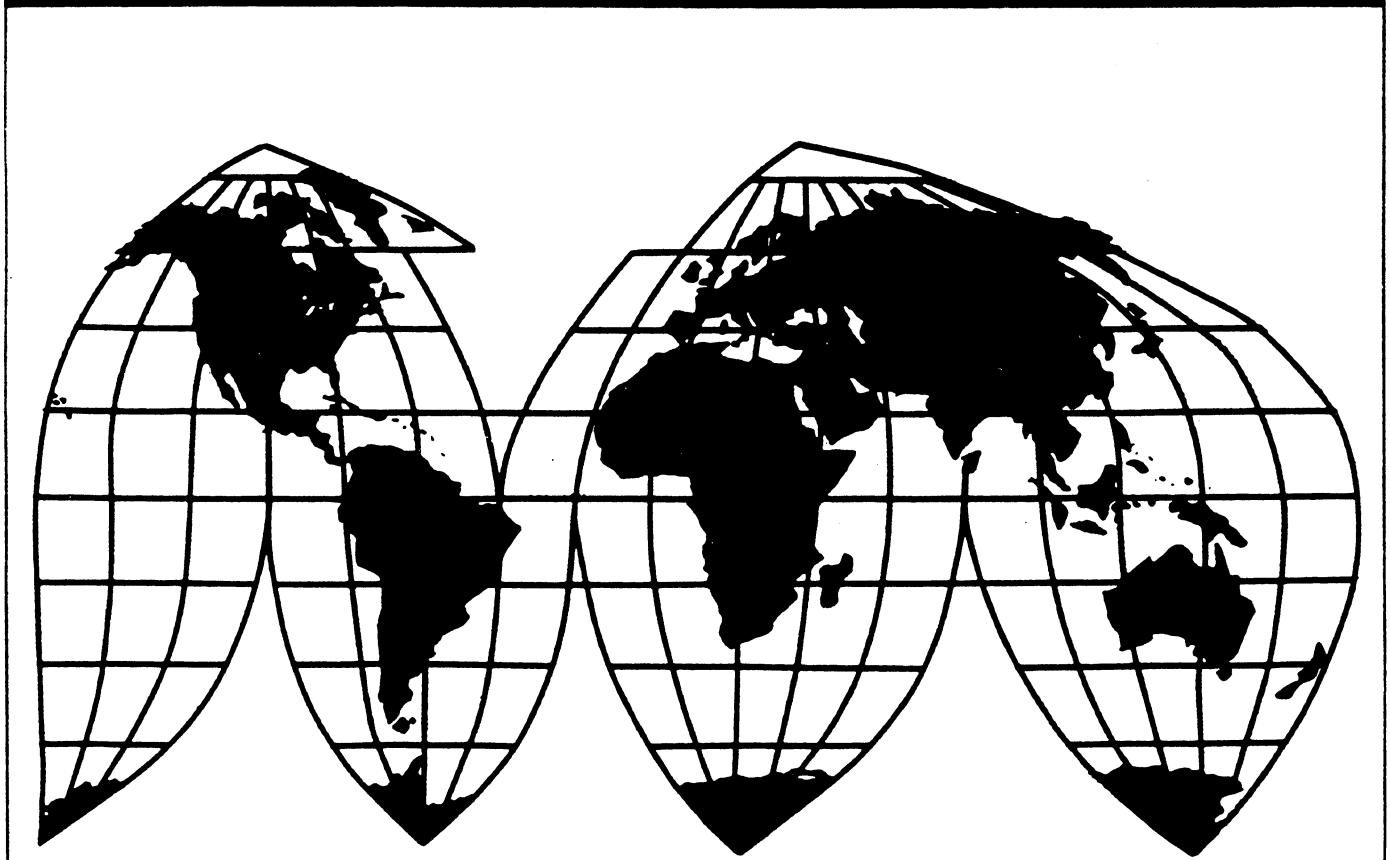
U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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Wheat, Wheat Flour, and Semolina

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CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

Note.--Information that would reveal confidential operations of individual concerns may not be published and therefore has been deleted from this report. Such deletions are indicated by asterisks.

PART I

FINDINGS, RECOMMENDATIONS, AND VIEWS OF THE COMMISSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
July 15, 1994

REPORT TO THE PRESIDENT ON
INVESTIGATION NO. 22-54

Wheat, Wheat Flour, and Semolina

FINDINGS:

Chairman Watson, Vice Chairman Nuzum, and Commissioner Crawford find that (1) wheat, wheat flour, and semolina are not being imported under such conditions and in such quantities as to render, or tend to render, ineffective the USDA wheat program; and that (2) the evidence of the recent impact of increased wheat imports, which is concentrated in one region of the United States and two segments of the wheat market, could support the President finding either material interference or no material interference.

Commissioners Rohr and Newquist find that wheat, wheat flour, and semolina, classified under Harmonized Tariff Schedule of the United States (HTS) heading 1001, heading 1101, and subheading 1103.11.00, respectively, are being imported into the United States under such conditions and in such quantities as to materially interfere with the price support, payment, and production adjustment programs conducted by the U.S. Department of Agriculture (USDA) for wheat.

Commissioner Bragg finds that wheat, wheat flour, and semolina, classified under Harmonized Tariff Schedule of the United States (HTS) heading 1001, heading 1101, and subheading 1103.11.00, respectively, are being imported into the United States under such conditions and in such quantities as to materially interfere with the USDA program for wheat based on material interference with the payment component of the program.

RECOMMENDATIONS:

Chairman Watson, Vice Chairman Nuzum, and Commissioner Crawford recommend that, should the President find action to be appropriate, he take action as follows[1] to remedy the adverse impacts identified in the record--

(1) Non-durum wheat

- no change in current duty rates on non-durum wheat for the first 1,000,000 metric tons[2] entering, or withdrawn from warehouse for consumption, annually.

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[1] Chairman Watson, Vice Chairman Nuzum, and Commissioner Crawford decline to recommend any limitations on wheat flour or semolina. They find that, given the negligible levels of imports of wheat flour or semolina, there is insufficient justification for taking any restrictive action on such imports.

[2] Chairman Watson and Commissioner Crawford view this as a minimum level of imports that should be permitted to enter without additional duties, should the President determine to take action.

- ten percent (10%) additional tariff on quantities of non-durum wheat that exceed 1,000,000 metric tons[2] entering, or withdrawn from warehouse for consumption, annually for two years beginning in crop year 1994/1995.

(2) Durum wheat

- no change in current duty rates on durum wheat for the first 500,000 metric tons[2] entering, or withdrawn from warehouse for consumption, annually.

- ten percent (10%) additional tariff on quantities of durum wheat that exceed 500,000 metric tons[2] entering, or withdrawn from warehouse for consumption, annually for two years beginning in crop year 1994/1995.

(3) Temporary and Subject to Conditions

- The limited tariff increases suggested on a portion of the imports are to be tied to the continued existence of a number of market conditions currently existing in the United States and Canada, including depreciation of the Canadian dollar relative to the U.S. dollar; Canadian rail subsidies; nontransparent marketing practices of the Canadian Wheat Board; surpluses of Canadian feed wheat; extraordinary demand for feed wheat in the United States; and unusual U.S. durum wheat market conditions in recent years.

- Such limitations should terminate two years from their date of imposition, unless extraordinary circumstances otherwise dictate.

Commissioners Rohr and Newquist recommend that the President impose one of the following three alternative forms of relief--

(1) an import quota in the aggregate amount of 900,000 metric tons per crop year on imports of wheat, wheat flour, and semolina, to be divided as follows--

(A) for wheat, other than durum wheat, and wheat flour, 540,000 metric tons per crop year;

(B) for durum wheat and semolina, 360,000 metric tons per crop year;

(2) for imports of wheat, other than durum wheat, and wheat flour, a fee (duty) in the amount of 35 percent ad valorem, in lieu of the existing rate of duty, and for imports of durum wheat and semolina, a duty in the amount of 15 percent ad valorem, in lieu of the existing rate of duty; or

(3) a tariff-rate quota system, as follows--

(A) for wheat, other than durum wheat, and wheat flour, a duty of 50 percent ad valorem, in lieu of the existing rate, on imports of such articles that exceed 150,000 metric tons per year, beginning with crop year 1994-95, with imports within such quota during the period of any action to enter at the current rate of duty; and

(B) for durum wheat and semolina, a duty of 25 percent ad valorem, in lieu of the existing rate, on imports of such articles that exceed 150,000 metric tons per year, beginning with crop year 1994-95, with imports within such quota during the period of any action to enter at the current rate of duty.

Commissioner Bragg recommends that the President impose a tariff-rate quota system on wheat, wheat flour, and semolina as follows--

(1) for wheat, other than durum wheat, a duty of 10 percent ad valorem, in addition to existing rates of duty, on imports of such articles that exceed 800,000 metric tons per year, beginning with crop year 1994-95, with imports within such quota during the period of any action to enter at the current rate of duty;

(2) for wheat flour, a duty of 10 percent ad valorem, in addition to existing rates of duty, on imports of such articles that exceed 60,000 metric tons per year, beginning with crop year 1994-95, with imports within such quota during the period of any action to enter at the current rate of duty;

(3) for durum wheat, a duty of 10 percent ad valorem, in addition existing rates of duty, on imports of such articles that exceed 500,000 metric tons per year, beginning with crop year 1994-95, with imports within such quota during the period of any action to enter at the current rate of duty; and

(4) for semolina, a duty of 10 percent ad valorem, in addition to existing rates of duty, on imports of such articles that exceed 10,000 metric tons per year, beginning with crop year 1994-95, with imports within such quota during the period of any action to enter at the current rate of duty.

Background

On November 17, 1993, the Commission received a letter from the President stating that he had been advised by the Secretary of Agriculture, and that he agreed with the Secretary, "that there is reason to believe that wheat, wheat flour, and semolina are being or are practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment program for wheat conducted by the Department of Agriculture."

As directed by the President, on January 18, 1994 the Commission instituted investigation No. 22-54 under section 22(a) of the Agricultural Act (7 U.S.C. 624(a)) to determine whether wheat classified under Harmonized Tariff Schedule of the United States

(HTS) heading 1001, wheat flour classified under HTS heading 1101, and semolina classified under HTS subheading 1103.11.00 are being or are practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment program conducted by the U.S. Department of Agriculture (USDA) for wheat.

Notice of the institution of the Commission's investigation and of a hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* of January 26, 1994 (59 F.R. 3736). The Commission held public hearings in Bismarck, North Dakota, Shelby, Montana, and Washington, D.C., on April 7, April 8, and April 28, 1994, respectively, in order to afford interested parties an opportunity to present information to the Commission and otherwise to be heard.

REPORT TO THE PRESIDENT
INV. NO. 22-54, WHEAT, WHEAT FLOUR AND SEMOLINA
VIEWS OF CHAIRMAN WATSON, VICE CHAIRMAN NUZUM AND COMMISSIONER CRAWFORD

JULY 15, 1994

I. BACKGROUND INFORMATION

Section 22 Authority

The purpose of section 22 is to protect farm programs by authorizing the imposition of import restrictions if imports impair or interfere with those programs. Specifically, section 22 permits the President to impose such import restrictions as are necessary if, after investigation and report by the Commission of its findings and recommendations, he determines that "any article or articles are being or are practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with," any USDA program.[1]

Material interference has been defined by the Commission in past cases as "more than slight interference but less than major interference."[2] When determining whether material interference is occurring or would occur the Commission has examined factors such as: (1) the available supply of imports, including import levels, changes in import volumes, world production, and world stocks of the imported product; (2) pricing data, including the relationship between import prices, U.S. prices, and the support price; (3) information relating to domestic supply and demand, including volumes and trends regarding U.S. production and U.S. demand; and (4) data relating to the Government programs, including Commodity Credit Corporation (CCC) outlays,[3] CCC surpluses, and changes in the cost to the Government of running a program.[4] When assessing materiality, the Commission has analyzed any increases in imports, any additional USDA expenditures that result from

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[1] 7 U.S.C. § 624(a). The President may also take emergency action pending completion of the Commission's investigation. See 7 U.S.C. § 624(c).

[2] Certain Dairy Products, Inv. No. 22-53, USITC Pub. 2659 at 8 (July 1993); Cotton Comber Waste, Inv. No. 22-51, USITC Pub. 2334 at A-17 (Nov. 1990); Certain Articles Containing Sugar, Inv. No. 22-46, USITC Pub. 1462 (1983) at 30, n.11; Sugar, Inv. No. 22-45, USITC Pub. 1253 (1982) at 7; Casein and Lactalbumin, Inv. No. 22-44, USITC Pub. 1217 (1982).

[3] The CCC is a federally owned and operated corporation within the USDA created to stabilize, support, and protect farm income and prices through loans, purchases, payments, and other operations, but not through appropriations. All money transactions for agricultural price and income support and related programs are handled through the CCC. The CCC also helps maintain balanced, adequate supplies of agricultural commodities and helps in their orderly distribution.

[4] See, e.g., Certain Dairy Products, Inv. No. 22-53, USITC Pub. 2659 at 8 (July 1993); Sugar, Inv. No. 22-45, USITC Pub. 1253 at 7 (1982); Certain Articles Containing Sugar, Inv. No. 22-48, USITC Pub. 2626 at 11-16 (Apr. 1993); Certain Tobacco, Inv. No. 22-47, USITC Pub. 1644 at 5-6 (1985); Peanuts, Inv. No. 22-52, USITC Pub. 2369 at 12-13 (Mar. 1991); Nonfat Dry Milk and Animal Feeds Containing Milk or Milk Derivatives, Inv. No. 22-34, USITC Pub. 633 at 10 (1973). The term "practically certain" means that the probability of articles being imported in such quantities and under such conditions as to cause material interference is highly likely. See Certain Articles Containing Sugar, Inv. No. 22-48, USITC Pub. 2626 at 8 (Apr. 1993). Mere speculation as to future imports that will cause harm to a program is not sufficient. Id.; Certain Tobacco, Inv. No. 22-43, USITC Pub. 1174 at 3 (1981); accord H.R. Rep. No. 1166, 76th Cong., 1st Sess. 2 (1939) ("practically certain" addresses investigations in which it is known to "a point of overwhelming certainty" that the agricultural program would be ineffective in the absence of protection).

increased imports of a product, and whether the goals of the program are being met.[5] We follow this approach in the present investigation.[6]

II. DISCUSSION OF MARKET CONDITIONS

A. Conditions in the U.S. Wheat Market

During the past few years, the U.S. wheat market has witnessed significant changes in market conditions as the result of several unusual factors. Supply in the United States and Canada, the principal source of U.S. imports, has been disrupted by disease, flooding and frosts. These unpredictable changes have affected both the quantity and the quality of wheat production. Demand conditions have been altered by rising prices for products that compete with wheat such as corn, rising consumer demand, changing exchange rates, and declining tariffs. Such supply and demand changes are normally followed by adjustments in markets, such as changing prices and movements of goods from regions with abundant supplies to regions with scarcity. U.S. wheat market adjustments, and the supply and demand conditions that caused them, are discussed below.

B. Supply Conditions

The U.S. wheat market has two important sources of supply: U.S. production and Canadian production.[7] Supplies of U.S.-produced wheat have been most directly affected by the Midwest floods and Southeast drought in 1993 and sharply increased U.S. wheat exports. U.S. wheat production in crop year 1993/94 suffered some losses from the extraordinary flooding in 1993.[8] However, the flooding and drought also significantly reduced supplies of feed grains, such as corn, which compete with wheat in its use as feed, thereby reducing overall feed supplies.[9] Total U.S. wheat exports increased from 27.9 million metric tons

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[5] Certain Articles Containing Sugar, Inv. No. 22-48, USITC Pub. 2626 at 11, 21 (Apr. 1993); Cheeses, Inv. No. 22-31, TC Pub. 567 at 6 (1973). In some circumstances, the Commission has been required to assess the impact of imports of one product on price support programs governing another product. When doing so, the Commission has examined whether the imports are likely to displace the products that are the subject of USDA's programs and the magnitude of any such displacement. See, e.g., Casein and Lactalbumin, Inv. No. 22-44, USITC Pub. 1217 (1982).

[6] Although it was requested during the investigation, we do not make a finding under section 705(5) of the U.S.-Canada Free Trade Agreement. Section 705(5) places requirements on the President before imposing import relief under section 22. It does not affect the Commission's authority under section 22. See 7 U.S.C. § 624(a), (f); United States-Canada Free Trade Agreement Implementation Act of 1988 section 101(a)(3), P.L. 100-449, 102 Stat. 1851 (Sept. 28, 1988); Statement of Administrative Action: The United States -- Canada Free-Trade Agreement Implementation Act at 36, reprinted in, "Communication from the President of the United States," House Document 100-216, 100th Cong., 2d Sess. 198 (1988); S. Rep. 509, 100th Cong., 1st Sess., pt. 2 at 50 (1988), U.S. Code Cong. & Admin. News 2444-2445.

[7] U.S. ending stocks, which carry over from one crop year to the next, constitute another source of U.S. supply. Ending stocks have moved upward somewhat since 1991/92. The relatively small movements suggest that supply has not been significantly altered by changes in end-stocks. However, ending stocks of durum wheat have fallen. Table 15, Report at II-36. Supply has also been affected by acreage reductions; 7.3 million acres were set aside in 1992/93 and 5.7 million acres in 1993/94. Report at II-18.

[8] Table 12, Report at II-32.

[9] The effects of the Midwest floods and Southeast drought are cited in: U.S.D.A. Feed: Situation and Outlook Report, FDS-329, (May 1994) at 5. This report cites U.S.D.A. preliminary estimates of a 33 percent decrease in the total 1993/94 corn crop over the previous year. Production of other feed grains also fell as follows: sorghum down 36 percent, barley down 13 percent, and oats down 30 percent. Consumption of corn for feed use fell nine percent.

(MT) in 1990/91 to 35.3 million MT in 1992/93; the percentage of total U.S. wheat production exported rose from 37.5 percent in 1990/91 to 52.8 percent by 1992/93.[10]

Durum wheat production has been declining[11] for different reasons. Despite the generally higher prices of durum wheat, on average, relative to other wheat varieties, farmers have had an incentive to shift from durum to higher yield crops in order to earn overall larger incomes on their planted acreage.[12] In addition, large year-to-year price fluctuations have created uncertainty regarding durum prices which further discouraged production.

While durum wheat production was down, more of what was produced went into export markets; the percentage of U.S. durum production exported rose from 34.1 percent in 1990/91 to 46.3 percent by 1992/93.[13] Supplies of U.S.-produced durum wheat were further reduced by large export volumes. At the same time, average prices for durum and other wheat in the United States were rising. The average value per bushel of wheat received by U.S. farmers has increased from $2.61 in 1990/91 to $3.24 in 1992/93, but then is estimated to have dropped slightly to $3.20 in 1993/94. Durum wheat prices have risen from a low of $2.24 per bushel in August 1991 to $5.78 in March 1994.[14]

C. Supply of Canadian Wheat to the U.S. Market

The amount of Canadian wheat available to U.S. markets is affected both by Canadian production and by pricing factors. Unusual frost damage in 1992/93 and disease in 1993/94 forced the downgrading of large amounts of Canadian wheat from food to feed use.[15] The overabundant feed wheat supplies in Canada thus were available to ease feed grain supply reductions in the United States.[16]

At the same time, several factors coalesced to make Canadian wheat more affordable to the U.S. market. The Canadian dollar has depreciated 12 percent against the U.S. dollar, in both nominal and real terms, since 1990.[17] This has made Canadian goods less expensive for U.S. purchasers. Declining U.S. duties on wheat imports from Canada have further facilitated Canadian exports to the U.S. market.[18] The Canadian Wheat Board (CWB), as the near exclusive marketing agent for Canadian wheat, has been able to facilitate the movement

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[10] Tables 8 and 13, Report at II-25 and II-33.

[11] See Table 8, Report at II-25.

[12] The USDA support programs do not distinguish among varieties of wheat; per bushel target prices are the same regardless of the variety of wheat produced. The more bushels produced per acre, the greater the payments, after adjusting for average yield requirements. Post-Hearing Brief of National Pasta Association at 13.

[13] Tables 8 and 13, Report at II-25 and II-33. In the durum market segment, nearly one half of U.S. durum production was exported in 1992/93, the majority of which was subsidized by EEP. Tables 13 and 14, Report at II-33 and II-34.

[14] For average wheat value, see Table F-1, Report at F-3. For durum prices, see Table 28, Report at II-62.

[15] For example, the percentage of Canadian Red Spring wheat classified as feed wheat increased from one percent of the total in 1991 to 39 percent in 1992 and 22 percent in 1993. Responses to Commission Questions, the Canadian Wheat Board, Appendix.

[16] Data submitted by the Canadian Wheat Board indicate that the amount of Canadian feed wheat imports as a percent of total Canadian wheat imports has increased from 20.7 percent in 1992/93 to 50.6 percent in 1993/94. Data for 1993/94 increases are partial year data (July to March). INV-R-107 at 2.

[17] Report at II-79.

[18] Duties on wheat from Canada, the source of nearly all wheat imports, fell from $0.21/bushel in 1988 to the current tariff of $0.08. As a percentage of 1992/93 import prices ($342/MT), the duty has fallen from 5.75 percent to 2.24 percent. For pricing data, see Table K-1, Report at K-4. For duties, see Report at II-11. The reduction in tariffs is a result of the 1988 U.S.- Canada Free Trade Agreement.

of supplies to high price markets, such as the United States. Finally, Canadian subsidies[19] for rail transport of wheat have absorbed some producer costs and allowed Canadian producers to deliver their export wheat to U.S. markets at a lower cost.

D. Demand Conditions

During this period of disrupted supply conditions, U.S. wheat demand increased. 1993 witnessed a surge in feed wheat demand[20] as a result of adverse conditions in other feed markets, particularly corn. Use of wheat for feed normally varies by its cost relative to alternative feed grains such as corn, and its quality. The 1993 Midwest floods and Southeast drought removed substantial corn acreage from production and reduced yields.[21] Overall corn production was thus substantially diminished.[22] The short supply of corn also had the effect of increasing its market price.[23] The result was less corn at higher prices, creating abnormally greater demand for feed wheat.[24]

Meanwhile, the United States continued to experience rising demand for food quality wheat. U.S. consumption of wheat for food rose by 7.6 percent from 1990/91 to 1993/94.[25] However, reduced production and significant volumes of U.S. durum exports were affecting U.S. consumption of durum.[26] Consumption of durum, the wheat input to pasta, fell slightly from 1990/91 to 1993/94.[27] Imports of Canadian durum eased the tight U.S. supply, but were a partial response to inadequate supplies of milling quality U.S. durum. Increased imports of finished pasta products were the other response.[28]

E. Summary

In sum, the last few years have seen disruptions in wheat supply and demand in the U.S. market. In the U.S. durum wheat market, U.S. supply was reduced as producers shifted to other wheat varieties and exported a greater volume of wheat production. Canadian durum was available to provide adequate supplies to purchasers in the United States. Reduced duties, rail subsidies, and a stronger U.S. dollar relative to the Canadian dollar together contributed to the attractiveness of Canadian durum.

Similarly, in the feed wheat segment of the industry, the United States experienced supply reductions in total feed grain supplies as a result of the 1993 Midwest floods and Southeast drought. Low quality Canadian wheat was available to satisfy the U.S. demand.

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[19] See Report at II-52, n. 117, and II-55-56.

[20] U.S. consumption of feed wheat increased by more than 50 percent from 1992/93 to 1993/94 to reach about one-fourth of total U.S. wheat consumption. Table F-1, Report at F-3.

[21] See supra note 9.

[22] Id.

[23] Corn prices increased by about 25 percent in 1993/94 over the previous year. Prices of sorghum, another important feed grain, increased by about 24.3 percent during the same period. USDA Feed: Situation and Outlook Report, FDS-329, (May 1994) at 28 and 29.

[24] Demand for feed wheat and other feed grains was also increasing due to increasing inventories of livestock and increasing use of corn for ethanol production. USDA Feed: Situation and Outlook Report, FDS-329, (May 1994) at 5 and 6.

[25] U.S. consumption of wheat for food increased from 749 million bushels in 1989/90 to an estimated 845 million bushels in 1993/94. See Table F-1, Report at F-3.

[26] Table A-1, INV-R-118 at 6.

[27] Consumption of durum fell from 1.9 million metric tons in 1990/91 to an estimated 1.8 million in 1993/94. Table A-1, INV-R-118 at 6.

[28] In 1993, the United States imported 280,432 metric tons of durum wheat equivalent in the form of pasta, a 29 percent increase in pasta imports in 1990. Pre-Hearing Brief of the National Pasta Association, Exhibit 3 at 16.

Reduced tariffs, rail subsidies, and a stronger U.S. dollar relative to the Canadian dollar contributed to the attractiveness of Canadian feed wheat.

III. THE EFFECTS OF IMPORTS ON THE GOALS OF THE FARM PROGRAM

In this investigation, the Commission has been directed by the President to analyze whether "imports of wheat, wheat flour and semolina are materially interfering with the price support, payment and the production adjustment program conducted by the Department of Agriculture for wheat." To understand whether there is material interference in the federal wheat program, we must examine the purposes of these programs and determine whether and how they are being affected by wheat imports. The primary purposes of the agricultural programs under review can be summarized as follows:

1) Control the costs of farm support programs,
2) Support farm prices and income,
3) Assure consumers adequate supplies at reasonable prices,
4) Maintain a balanced flow of supply,
5) Promote trade, and
6) Promote conservation.[29]

The extensive record in this investigation leads to a conclusion that wheat imports have furthered four of the six primary purposes of the programs, and have had no material effect on a fifth. Wheat imports have contributed to an increase in the cost of farm support programs through increases in USDA deficiency payments. However, even that additional cost is small as a percentage increase in total support program payments. Each of the five primary goals is considered below.

1. Control Costs of Farm Support[30]

The effects of wheat imports on program costs have been limited to increases in USDA deficiency payments; imports have slightly depressed prices which in turn has led to increased deficiency payments to farmers to cover the difference between target prices and market prices.

The total cost of the USDA wheat program during the past five crop years has ranged from $1.1 billion in 1989/90 to $3 billion in 1990/91.[31] The Commission's empirical model estimates that the additional cost to the program attributable to the price effects of wheat imports is about $63 million in 1992/93.[32] We emphasize that this figure represents the cost attributable to the total volume of imports. No party has suggested removing

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[29] Various other purposes are also noted but there is no evidence in the record that wheat imports have had any effects.

[30] Cost control is an explicit goal in both the Agricultural Act of 1961, P.L. 87-128 (Aug. 8, 1961), 7 U.S.C. § 1282 note; Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965).

[31] These figures do not include government wheat payments under the Export Enhancement Program. The dollar costs reported here are selected from the crops years 1989/90 to 1993/94; data for 1993/94 are projections as of May 1994. See Table II-3, INV-R-098.

[32] The average annual increase in deficiency payments due to imports over the 1990/91 to 1993/94 period is $50 million. An alternative simulation model developed by the Commission estimates that deficiency payments would have been roughly $4 to $11 million lower if imports had been limited to one million metric tons of non-durum wheat and 0.5 million metric tons of durum wheat. See Appendices A & B attached to these views.

imports completely from the U.S. market. This $63 million figure only represents 3.4 percent of the $1.9 billion in total government payments under the wheat support program in 1992/93, not including export subsidies.[33] This effect on the program's cost is small when viewed in the context of the overall goals of the wheat program.

2. Income and Price Support[34]

A second primary purpose of the federal wheat program is to maintain income and price support for farmers. Income support for U.S. wheat growers is provided through deficiency payments based on differences between market prices, loan rates and established target prices. Price support is provided through nonrecourse loans at the announced price support loan rate.[35]

Farmer income support varies largely as a function of target price levels rather than market price levels. Up to 85 percent of the eligible planted wheat acreage receives full protection[36] from any decline in market prices through USDA deficiency payments; farmers are paid the difference between the market price for this wheat and the target price level. The target price for wheat has not been affected by wheat imports; it has remained at $4 per bushel since 1990/91.

The record also indicates that farmers have not lost income from an inability to sell their crops. There have been virtually no forfeitures of unsold commodities to the USDA.[37]

Therefore, neither price support nor wheat farmer income was adversely affected by wheat imports.

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[33] See INV-R-098 for data on total wheat program payments and INV-R-118 for empirical model results.

[34] 15 U.S.C. § 714 (establishing the CCC for, inter alia, "stabilizing, supporting, and protecting farm income and prices"); Agriculture and Food Act of 1981, P.L. 97-98, 95 Stat. 1213 (Dec. 22, 1981) (an Act to, inter alia, "provide price and income protection for farmers"); Food and Agriculture Act of 1977, P.L. 95-113, 91 Stat. 913 (Sept. 29, 1977) (an Act to, inter alia, "provide price and income protection for farmers"); Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965) (an Act to, inter alia, "maintain farm income" and "stabilize prices"); Agricultural Act of 1964, P.L. 88-297, 78 Stat. 173 (Apr. 11, 1964) (an Act to, inter alia, "maintain income of . . . wheat producers"); Agricultural Act of 1961, P.L. 87-128 (Aug. 8, 1961), 7 U.S.C. § 1282 note ("policy of Congress . . . [inter alia] afford farmers the opportunity to achieve parity of income with other economic groups"); Agriculture Act of 1956, sec. 102, P.L. 84-540, 70 Stat. 188 (May 28, 1956) ("policy of Congress . . . to [, inter alia,] protect and increase farm income"); Agriculture Act of 1949, P.L. 81-439, 63 Stat. 1051 (Oct. 3, 1949) (an Act "To stabilize prices of agricultural commodities"); Agriculture Act of 1948, P.L. 80-897, 62 Stat. 1247 (July 3, 1948) (an Act to, inter alia, "stabilize prices of agricultural commodities");Agricultural Adjustment Act of 1938 sec. 2, P.L. 75-430, 52 Stat. 31 (Feb. 16, 1938) (declaration of policy to, inter alia, "assist[] farmers to obtain, insofar as practicable, parity prices . . . and parity of income"); Agricultural Marketing Act of 1929 sec. 1(a), Chp. 24, 46 Stat. 11 (June 15, 1929) (declaring intention that "the industry of agriculture will be placed on a basis of economic equality with other industries").

[35] See Report beginning at II-12 for a full description of U.S. wheat programs.

[36] Target price deficiency payments are limited to $50,000 per wheat farmer. In practice, less than two percent of wheat farmers have reached their limit. There is no limitation on how much of a wheat crop can be placed under loan, provided the producer complies with the wheat program provisions. Also, no deficiency payments are made when market prices are above target prices.

Production from ineligible acreage may be sold at market prices. The price effects of imports on such production would result in a negligible impact on farmer income.

[37] Payments under the price-support loan program were zero in 1989/90 and had risen to $8 million in 1992/93. Table II-3, INV-R-098.

3. Assure Consumers Adequate Supplies at Reasonable Prices[38]

The third primary purpose of the federal wheat program is to assure consumers adequate supplies of farm products at reasonable prices. This purpose encompasses two related objectives: adequate supplies and reasonable prices.

U.S. production of feed grains was inadequate to meet U.S. demand last year, creating a short supply and necessitating additional feed wheat. U.S. supplies of durum have also been inadequate during the last two years, due both to reduced U.S. durum production and the large volumes of U.S. production sent into export markets. In both cases, imports have furthered the goal of assuring consumers adequate supplies.

Assuring reasonable prices for consumers is a related objective. As prices are determined by supply and demand conditions, it is understandable that the additional supplies available to American consumers from imports helped to hold prices down during a period of rising demand. Wheat prices would have been an estimated 3.3 cents higher per bushel in 1992/93 alone, about a one percent increase, without the imports.[39] Such a price increase would have caused a drop in domestic use of wheat by an estimated 24 million bushels, or about a 2.3 percent decrease. Viewed from the perspective of the stated goal, American consumers would consume 24 million fewer wheat bushels without the imports than they would with the imports. Therefore, the presence of imports in the U.S. market has also furthered the goal of assuring adequate supplies at reasonable prices.

4. Maintain a Balanced Flow of Supply[40]

Fourth, the programs seek to maintain a balanced flow of agricultural products. As discussed in Part II.B, Supply Conditions, the U.S. wheat market in recent years has experienced certain supply disruptions. U.S. durum wheat supplies have been reduced as a result of shifts from durum to higher yielding wheat varieties and larger export volumes. Feed wheat supply reductions resulted from poor harvests. During these periods of short supply, wheat imports have been the major factor in maintaining stable supplies in both segments of the U.S. wheat market. Thus imports have helped to hold U.S. supplies at stable levels adequate to satisfy U.S. demand. Imports therefore furthered this objective.

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[38] Food Security Act of 1985, P.L. 99-198, 99 Stat. 1354 (Dec. 23, 1985) (an Act to, inter alia, "ensure consumers an abundance of food and fiber at reasonable prices"); Agriculture and Food Act of 1981, P.L. 97-98, 95 Stat. 1213 (Dec. 22, 1981) (an Act to, inter alia, "assure consumers an abundance of food and fiber at reasonable prices"); Food and Agriculture Act of 1977, P.L. 95-113, 91 Stat. 913 (Sept. 29, 1977) (an Act to, inter alia, "assure consumers an abundance of food and fiber at reasonable prices"); Agriculture and Consumer Protection Act of 1973, P.L. 93-86, 87 Stat. 221 (Aug. 10, 1973) (an Act to, inter alia, "assur[e] consumers of plentiful supplies of food and fiber at reasonable prices"); Agriculture Act of 1961, P.L. 87-128 (Aug. 8, 1961), 7 U.S.C. § 1282 note ("policy of Congress to . . . assure consumers of a continuous, adequate, and stable supply of food and fiber at fair and reasonable prices"); Agricultural Adjustment Act of 1938, P.L. 75-430, 52 Stat. 31 (Feb. 16, 1938) (declaration of policy to, inter alia, "assist[] consumers to obtain an adequate and steady supply of . . . commodities at fair prices").

[39] Table 37, INV-R-118 at 8.

[40] Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965) (an Act to, inter alia, "assure adequate supplies of agricultural commodities"); Agricultural Act of 1956 sec. 102, P.L. 84-540, 70 Stat. 188 (May 28, 1956) ("policy of the Congress . . . to provide for . . . orderly flow of such agricultural commodities in interstate and foreign commerce"); Agricultural Act of 1954, P.L. 83-690, 68 Stat. 897 (Aug. 28, 1954) (an Act to, inter alia, "provide for greater stability in agriculture"); Agricultural Adjustment Act of 1938, P.L. 75-430, 52 Stat. 31 (Feb. 16, 1938) 16, 1938) (declaration of policy to, inter alia, "provide an orderly, adequate, and balanced flow of . . . commodities"); see also 15 U.S.C. § 714 (establishing the CCC to, inter alia, "assist[] in the maintenance of balanced and adequate supplies of agricultural commodities").

5. Promote Trade with Friendly Nations[41]

The fifth primary purpose of the federal farm program is to promote trade with friendly nations. Trade includes both imports and exports. Exports are expressly encouraged by this stated goal. U.S. wheat farmers have responded by moving large volumes of their production into export markets.

The other side of trade is imports. The movement of imports into U.S. markets is by definition consistent with a stated purpose of promoting trade. Therefore, the imports furthered both the import and the export goals of promoting trade.[42]

6. Promote Conservation[43]

The sixth primary purpose of our agricultural programs is to promote resource conservation. Among other programs, the 1990 Farm Bill provides for the Conservation Reserve Program.[44] The Conservation Reserve Program is a long term retirement program for highly erodible land.[45] Under the program, farmers contract with USDA for periods of 10 or 15 years, accepting annual payments from USDA in return for removing land from agricultural use and converting it to vegetative cover. In 1994, nearly 11 million wheat acres were enrolled in the Conservation Reserve Program.[46] Although farmers have the right to withdraw from the program before the expiration of the contract, there are severe financial penalties for doing so. Wheat acreage enrolled in the Conservation Reserve Program has risen steadily between crop year 1989/90 and 1993/94, an increase of over 22 percent. Thus wheat imports have furthered this important program purpose.

IV. FINDINGS

As the above discussion indicates, the extent of any adverse impact by imports of wheat, wheat flour and semolina is very small, and evident only in increased government expenditures for wheat deficiency payments. All other purposes of the USDA programs for wheat appear to be either unaffected by or enhanced by the presence of increased imports. We find, therefore, that wheat, wheat flour, and semolina are not "being or ... practically certain to be imported into the United States under such conditions or in such quantities as to render or tend to render ineffective ... the price support, payment and production adjustment program conducted by the Department of Agriculture for wheat" (emphasis added).

Similarly, the small proportion of deficiency payment costs accounted for by the increased imports is not sufficient, in and of itself, to justify a conclusion that imports are "materially interfering" with the price support, payment and production adjustment program

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[41] Agriculture Act of 1961, P.L. 87-128, 7 U.S.C. § 1282 note (Aug. 8, 1961) note ("policy of Congress to . . . expand foreign trade in agricultural commodities with friendly nations"); see also, e.g., Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965) (an Act to, inter alia, "promote foreign trade"); Agricultural Marketing Act of 1929 sec. 1(a), Chp. 24, 46 Stat. 11 (June 15, 1929) (declaring Congress's intention to "stabilize the currents of interstate and foreign commerce in the marketing of agricultural commodities and their food products").

[42] The statutes contain numerous other stated goals. The record compiled in this investigation contains no evidence that the wheat imports had any effect on these goals during the years under review.

[43] See, e.g., Food, Agricultural, Conservation and Trade Act of 1990, P.L 101-624, 104 Stat. 3577 (§ 1231 dealing with conservation of erodible crop land); See, also id. at 3584 (§ 1237 dealing with restoring and protecting wetlands).

[44] Id. at 3576. See also Report at II-18.

[45] Report at II-18.

[46] Id.

for wheat. From the overall perspective of the purposes and operations of the wheat program, which is a unified national program for all classes of wheat, the relatively small adverse impact of wheat imports also supports a finding by the President of "no material interference." Nevertheless, we recognize that, particularly in the current fiscal environment of the U.S. Government, additional deficiency payments costs in excess of $50 million are not trivial. Moreover, there are certain regional and intra-industry aspects to this issue that the President may want to consider, which could allow the President, given the broad scope of the statute, to make an affirmative finding of "material interference." We feel it is important to address these additional considerations in our views.

Different effects in different segments of the wheat market

Durum imports, although steadily rising in recent years, are not a significant source of any adverse impact for several reasons: (1) durum production currently accounts for only 3 percent of wheat production in the United States;[47] (2) durum production in the United States has been declining steadily since the 1990/91 crop year;[48] (3) durum is a high-valued wheat class with low substitutability with other classes, such that durum prices are generally at the high end of the range of wheat prices;[49] (4) average prices for durum are frequently above the U.S. target price;[50] and (5) prices for durum in the two most recent crop years increased substantially,[51] notwithstanding the fact that durum imports were increasing to their highest levels ever.[52]

If the question asked of us had been whether imports of durum alone are materially interfering with the USDA wheat program, the evidence would point to a negative determination. The question we have been asked to answer, however, is directed at imports of all wheat, durum and non-durum, as well as wheat flour and semolina.

Compared with the gradual increase in durum wheat imports, nondurum wheat imports increased rapidly in 1993/94.[53] For the most part, the increase is attributable to imports of lower quality wheat. For example, imports of hard red spring wheat graded neither #1 or #2 accounted for all of the 92.1 percent higher level of total hard red spring wheat imports in June 1993-March 1994 as compared with June 1992-March 1993.[54]

This increase in imports of lower grade wheat in the last year of the period reflects two conditions discussed above: a surplus of feed quality wheat in Canada and a strong demand in the United States for feed quality wheat. Data collected support the contention that a large portion of the wheat imports were in fact destined for use as feed grain.[55] While feed markets are admittedly not a prime "target" market for U.S. wheat producers, feed use

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[47] Over the period of investigation, durum production accounted for between 3 and 5 percent of total wheat production. Table 12, Report at II-32.

[48] Table 29, Report at II-65; see also, USDA posthearing brief at chart, U.S. Durum Production and Imports, following p. 18 of att. 1.

[49] Id.; see also USDA posthearing brief at chart, U.S. Monthly Durum Prices vs. Lowest Price All Other U.S. Wheat, following p.18 of att. 1.

[50] Id.

[51] Id.; see also, prehearing brief of the National Grain Trade Council at 14.

[52] Table 19, Report at II-40.

[53] Id.

[54] Imports of all hard red spring were 660,724 mt in June 1993-March 1994 as compared with 343,949 mt in June 1992-March 1993. Imports of hard red spring graded neither #1 nor #2 were 597,454 mt in June 1993-March 1994 as compared with 280,821 mt in June 1992-March 1993. This represents an increase of 112.8 percent for the lower grade hard red spring. Memorandum INV-R-098.

[55] Report at II-51.

nevertheless accounts for a significant share of the overall U.S. market.[56] Feed markets contribute to overall sales by the domestic industry, and the loss of a portion of this market to imported wheat reduces those sales.

These volumes of low-grade Canadian wheat depressed the market prices of the wheat sold as feed grain. By operation of the U.S. deficiency payments program, these lowered prices for feed wheat therefore resulted in somewhat higher deficiency payment outlays.

Regional effects concentrated in Montana/North Dakota

Another factor complicating the analysis of material interference in this investigation has been the disproportionate regional effects of competition with imports. Kansas and North Dakota are consistently the two largest wheat-producing states in this country, together accounting for almost one-third of all wheat acreage in the United States.[57] The types of wheat harvested in these two regions, however, do not significantly overlap. Kansas is the leading producer, in terms of acreage, of winter wheat (hard red winter, soft red winter, and soft white) and produces virtually no durum or spring wheat.[58] North Dakota, on the other hand, is the leading producer of durum and of spring wheat, and produces virtually no winter wheat.[59] North Dakota's neighboring state of Montana is the second-largest producer of durum and also of spring wheat.[60]

The imports of wheat are concentrated in two classes -- durum and spring wheat. In the United States, the geographic areas producing durum and spring wheat are concentrated in the same region -- the northern tier states of North Dakota and Montana. In crop year 1993/94, North Dakota and Montana together accounted for 95 percent of total durum acreage harvested, and 69 percent of total spring wheat acreage harvested.[61] Thus, while Montana and North Dakota account for only about one-quarter of total U.S. wheat production, these two states produce close to three-quarters of the wheat varieties that face direct competition with imports from Canada.

The geographic distribution of wheat production in the United States is not simply a matter of chance or choice. The length of the growing season in particular, along with soil and climatic conditions generally, somewhat limit the ability of farmers in northern tier states to shift acreage out of durum and spring wheat production. Canadian farmers are likewise constrained by these factors.[62] Thus, the degree of competition between Prairie Province farmers north of the border, and Montana and North Dakota farmers south of the border is not likely to change, and heightens the regional character of this dispute.

Whereas the adverse effects of imported Canadian wheat are small when considered in the context of a national wheat program covering all areas of the country and all varieties

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[56] Table F-1, Report at F-3; Washington hearing transcript at 149.

[57] Table 10, Report at II-28.

[58] Id. For instance, in crop year 1993/94, all of Kansas' estimated harvested acreage of wheat is of winter wheat. Id.

[59] Id. For instance, in crop year 1993/94, out of North Dakota's estimated total harvested acreage of wheat of 10,800 acres, around 10,670 acres is of durum or other spring wheat. Id.

[60] Montana also harvests almost an equivalent amount of winter wheat acreage. In 1993/94, Montana's estimated harvested acreage of winter wheat is about 2,500 acres while its estimated harvested acreage of durum and other spring wheat is estimated to be just over 2,750 acres. Montana accounts for only a very small amount of total durum production (North Dakota alone accounts for over 85 percent of U.S. durum production). Id.

[61] In contrast, five other States (Kansas, Oklahoma, Texas, Colorado, and Washington) were the top producers of winter wheat in 1993/94, accounting for nearly 60 percent of the U.S. total. Table 10, Report at II-28.

[62] Memorandum on trip to Winnipeg at 7.

of wheat, these effects are more visible at the immediate and direct level of regional impact. For example, the recent increase in imports of wheat has strained transportation infrastructure and disrupted marketing efforts, particularly during this last crop year, in the U.S.-Canada border area of Montana. Farmers claim that, because of the local transportational overload, they have been unable to market their 1993/94 crop and, therefore, risk forfeiting wheat to the CCC.[63] These allegations find support in data on the volume of wheat placed under loan while awaiting sale. Wheat under loan in Montana totalled 28 million bushels on April 1, 1994; this represents a 100-percent increase from the volume of wheat under loan in Montana on April 1, 1993 (14 million bushels).[64] If these farmers are in fact impeded in their efforts to transport and market their crop, they may be forced to forfeit wheat to the CCC.

We note that the U.S. Government has adopted, through legislation, a national approach to farm programs, and section 22 neither requires nor prohibits regional effects to be taken into account. Nevertheless, these disparate regional effects are part of the market realities.

Conditions giving rise to adverse impact

Section 22 requires a determination of whether wheat is being imported "under such conditions and in such quantities" as to cause material interference. The statute thus recognizes that it is not simply a question of the volumes of wheat being imported, but the conditions under which they are entering the U.S. market that are important as well.

We find that there are several conditions which gave rise to the small adverse impact of wheat imports, particularly during the most recent two-year period. First, there were certain developments on the U.S. side of the border -- primarily the shortage of high-protein-content wheat as a result of poor harvest conditions, and the shortage of corn availability in the feed grains market as a result of floods in the mid-west. These conditions are short-term, rather than long-term, however, and are unlikely to continue in the future.

Unfavorable weather and poor harvests in the United States were not the only conditions contributing to the increased imports, however. On the Canadian side of the border, similar weather problems led to excess supplies of low-quality spring wheat and low-protein-content durum. In addition, rail subsidies from the Canadian Government, through the Western Grain Transportation Act, provides a cost advantage to Canadian grain exported to the U.S. market.

Finally, we note that, unlike conditions in the U.S. market, the marketing of Canadian wheat is handled almost exclusively through the Canadian Wheat Board. As the sole seller of Canadian wheat for export, the CWB is able to exert greater influence over the prices it receives for sales of Canadian wheat than its competitors can in marketing U.S. wheat. Furthermore, on any given day, the prevailing market prices in the United States for various classes and grades of U.S. wheat are widely known through public channels, particularly open trading on the commodity market.[65] This is not the case, however, with respect to competing prices of Canadian wheat, which are fiercely protected by the CWB as proprietary information. The combination of its legal control over all Canadian exports and its nontransparent pricing policies give it a competitive advantage over its U.S. competitors.

The conditions discussed above have together enabled Canadian wheat to enter U.S. markets in increased quantities during the last two-year period. These considerations should

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[63] E.g., Shelby transcript at 51.

[64] USDA posthearing brief at charts following p. 31 of att. 1. In comparison, less wheat was under loan in North Dakota as of April 1994. Id. This fact reflects the relatively strong demand for durum wheat during 1993/94.

[65] Report at II-59.

be taken into account by the President in determining whether and for what duration any action against imports may be justified.

Conclusion

In conclusion, we find that (1) wheat, wheat flour and semolina are not being imported under such conditions and in such quantities as to render, or tend to render, ineffective the USDA wheat program, and that (2) the evidence of the recent impact of increased wheat imports, which is concentrated in one region of the United States and two segments of the wheat market, would support the President finding either material interference or no material interference by such imports. In our view, the President has sufficient discretion under the statutory authority of section 22, if he so chooses, to weigh the considerations of regional impact and concentrated market effects in deciding whether to impose import relief.

V. REMEDY RECOMMENDATION

Section 22 of the Agricultural Adjustment Act of 1933, as amended, provides that if, on the basis of the Commission's "investigation and report to the President of findings and recommendations made in connection therewith, the President finds the existence of such facts", he shall impose fees or quantitative limitations on the articles which are the subject of the investigation.[66] In discussing remedial options available to the President herein, we are mindful of the discretion provided to the President to reach his own factual conclusions based on the views expressed in the Commission's report and the information contained in the Commission's record.

Should the President determine, therefore, to impose fees or quantitative limitations on imports of wheat,[67] in order to remedy the adverse impact identified in this investigation, we recommend the following:

(1) Non-durum wheat

- no change in current duty rates on non-durum wheat for the first 1,000,000 metric tons[68] entering or withdrawn from warehouse for consumption annually

- ten percent (10%) additional tariff on quantities of non-durum wheat that exceed 1,000,000 metric tons[68] entering or withdrawn from warehouse for consumption annually for two years beginning in crop year 1994/1995[69]

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[66] 7 U.S.C. Section 624 (b). The statute directs the President to impose such relief as necessary in order that the entry of the articles subject to investigation will not render or tend to render ineffective or materially interfere with USDA programs.

[67] We decline to recommend that any limitations be placed on imports of wheat flour or semolina. Given the negligible imports of wheat flour and semolina during the period covered in this investigation, there is insufficient justification for taking any restrictive action at this time. Report at II-42, Table 20.

[68] Chairman Watson and Commissioner Crawford view this as a minimum level of imports that shall be permitted to enter without additional duties, should the President determine to take action.

[69] This type of limited tariff increase on a portion of imports is known as a "tariff-rate quota". The Commission gathered its data in terms of "crop years". A crop year runs for a twelve month period (continued...)

(2) Durum wheat

- no change in current duty rates on durum wheat for the first 500,000 metric tons[68] entering or withdrawn from warehouse for consumption annually

- ten percent (10%) additional tariff on quantities of durum wheat that exceed 500,000 metric tons[68] entering or withdrawn from warehouse for consumption annually for two years beginning in crop year 1994/1995

(3) Temporary and Subject to Conditions

- The limited tariff increases on a portion of the imports are to be tied to the continued existence of a number of market conditions currently existing in the United States and Canada, including: depreciation of the Canadian dollar relative to the U.S. dollar; Canadian rail subsidies; nontransparent marketing practices of the Canadian Wheat Board; surpluses of Canadian feed wheat for sale; extraordinary demand for feed wheat in the United States; and unusual U.S. durum wheat market conditions in recent years.

- Such limitations shall terminate two years from their date of imposition, unless extraordinary circumstances otherwise dictate.

The proposed remedy addresses the adverse effects identified in this record with fewer costs to the economy than more restrictive remedies. The record shows that below certain import levels, imports of both durum and non-durum wheat have not had any adverse impact on the USDA wheat program. A more restrictive remedy would likely substantially disrupt the U.S. wheat market, resulting in reduced national income, higher prices and increased costs to downstream industries and consumers.[70] Our recommended approach, on the other hand, avoids excessive interference with wheat market dynamics and minimizes adverse effects on other sectors of the economy and consumers of wheat products.[71] Due to the unique conditions existing in the durum market, we make separate recommendations for durum and for non-durum wheat.

Our remedy recommendation focuses on the slight adverse impact that imports of wheat have had on the entirety of the price support payment and production adjustment

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[69] (...continued)
from June 1 to the end of May. Report at II-4, note 11. The Harmonized Tariff Schedule (HTS) of the United States for 1994 establishes wheat quota quantities for 12-month periods beginning May 29. Report at Appendix G-7. Although we have framed our recommendation in terms of crop years, we note that section 9904 of the HTS establishes quotas for some agricultural products on a calendar year basis. We believe it is most appropriate to establish a tariff-rate quota on a crop year basis because it consistently utilizes existing data and because the current domestic wheat crop has not yet completed harvest.

[70] See, EC-R-055 at 8.

[71] In addition, this approach provides a more flexible response mechanism should U.S. demand increase.

programs for wheat.[72] This adverse impact is discernible through increased government expenditures for deficiency payments. We expect that the remedy described herein will have the effect of supporting domestic wheat prices and consequently lowering the total expenditures for USDA deficiency payments.[73] Because deficiency payments are tied closely to domestic wheat prices, it can be expected that any action taken to support U.S. wheat prices will either lower or stabilize deficiency payments.[74]

Should this remedy be adopted by the President, it should be temporary and tied to the continued existence of certain conditions in the U.S. and Canadian markets. As discussed above, the record compiled by the Commission identifies several factors that have given rise to the conditions we currently find in the U.S. wheat market. Some of these factors relate to developments on the Canadian side of the border and some to developments on the U.S. side of the border. It is important to note that it is the simultaneous existence of these factors that has led to the adverse effects identified in the record. Many of these conditions are currently in flux and should be carefully monitored. Any remedy imposed by the President should, therefore, take into consideration the continued existence of these factors.

With respect to Canadian practices, such conditions include Canadian Wheat Board non-transparent marketing practices and transportation rail subsidies. In addition, there has been a significant and gradual depreciation of the Canadian dollar against the U.S. dollar over the past several years that continues to affect the cost of, and the demand for, Canadian imports. Moreover, we note that the availability of Canadian grain storage capacity continues to decline possibly affecting Canadian production levels.[75]

The record indicates that there also have been certain highly unusual and significant changes in the composition of Canadian imports beginning in crop year 1992/1993 that are not likely to be repeated. The most important of these changes involves the increase in U.S. imports of Canadian feed wheat.[76] Prior to crop year 1992/1993 there were no reported imports of feed wheat. Data indicate, however, that approximately 46% of the increase in all Canadian wheat imported into the United States in crop year 1992/1993 was feed wheat used for feed purposes. In crop year 1993/1994, this figure far exceeded 100% of the increase.[77] In addition, imports of durum wheat increased substantially in crop year 1992/1993.[78]

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[72] We note that the only element of the price support, payment, and production adjustment program for wheat being adversely impacted by imports are deficiency payment programs.

[73] We note that although USDA did not recommend a particular level of import restriction that would remedy interference, it concluded that a tariff-rate quota is the appropriate restriction. See EC-R-067 at 6.

[74] The USDA wheat program is designed to provide substantial deficiency payments to farmers, regardless of the impact of imports. For example in crop year 1992/1993 deficiency payments in the approximate amount of $1.37 billion were made to U.S. farmers. Report at II-21. It is estimated that elimination of all imports in that crop year would affect less than 5% of those payments. Report at II-91, Table 37.

[75] Although Canadian storage capacity remains quite limited, Canadian ending stock levels of wheat have increased and have apparently become burdensome. USDA has, in fact, indicated that Canadian farmers are likely to reduce their plantings of wheat in 1994/1995. Report at II-57.

[76] This change is most likely related primarily to severe crop damage in Canada in the 1992/1993 Canadian crop year which runs from August 1 through July 31. This crop damage led to the unexpected grading of increased quantities of Canadian wheat as Canadian Western Feed Wheat. See generally Report at II-51, II-57.

[77] See Report at II-40, Table 19; Memorandum INV-R-107 dated June 21, 1994. Data indicate that some portion of the imported wheat that is graded by Canada as feed wheat is, in fact, milled for human consumption.

[78] Imports of durum increased 40% between crop year 1991/1992 and 1992/1993. The share of the quantity of U.S. consumption of durum wheat imports increased during this period from 17% to 25%. INV-R-098, Table 8 (Revised).

At the same time that the supply of Canadian feed wheat increased, a demand in the United States for feed wheat has been created by severe weather in the midwestern and southeastern United States in 1993 and a resultant corn crop shortage. USDA has, however, recently raised its 1994/1995 harvest forecast for corn to near record levels indicating that current U.S. demand for feed wheat as a corn substitute is unlikely to continue.[79] There is also some uncertainty in regard to U.S. durum planting despite current high durum prices and current durum shortage.[80]

Consideration should also be given to the level of U.S. wheat exports in future years. U.S. exports of wheat and wheat flour have become increasingly significant in recent crop years and greatly affect availability of U.S. wheat in the U.S. market.

We are also mindful that the adverse impact of the increase in wheat imports is particularly apparent in those regions in proximity to Canada and to main transportation arteries. While we recognize that the President may determine that relief is appropriate based on these regional and segmented impacts, we note that changes in the market conditions described above are likely to affect any such impact that imports may currently have.

We also recommend that any limitations imposed on wheat imports by the President be terminated two years from the date of their imposition, unless extraordinary circumstances indicate otherwise. We believe that two years is sufficient time to allow the U.S. wheat market to stabilize given current extraordinary market conditions and wheat planting cycles.

Our approach provides that there should be no change in current duty rates for the first 1,000,000 metric tons of non-durum wheat imports. This level corresponds approximately to the total non-durum imports in crop year 1992/1993. As discussed above, discernible evidence of an adverse impact by the imports did not materialize until the latter part of crop year 1992/1993.[81]

In regard to imports of durum wheat, our approach provides no change in current duty rates on durum wheat for the first 500,000 metric tons. This level also corresponds approximately to the total durum imports in crop year 1992/1993. Although durum wheat imports have been steadily rising, they do not appear to be a major source of adverse impact for the reasons stated above.[82] Our approach is also based, in part, on the uncertainty regarding any increases in future production of durum wheat by U.S. farmers and the current short supply of U.S. durum wheat given consumer demand.

In order to evaluate the likely effects on the U.S. market of various limited tariff increases, we have used a computable partial equilibrium (simulation) model developed by

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[79] See U.S. Raises Harvest Forecast, Prompting Some to Cut Food Inflation Projections, *The Wall Street Journal*, July 13, 1994. Given the recent projection for a strong U.S. corn crop it is unlikely that the U.S. demand for Canadian feed wheat will continue. Moreover, it is unlikely that the severe weather conditions that took place in Canada during the 1992/1993 and 1993/1994 crop years will be repeated. Assuming that the market does not see a repeat of these unique supply-demand conditions in regard to feed wheat it remains to be seen whether there will be a corresponding shift in the composition of imports.

[80] Report at II-33.

[81] USDA has asserted that if imports were sufficiently restricted, total deficiency payments to farmers would be reduced substantially from 1991 through 1994. See EC-R-067 at 5. We suggest, however, that the focus of remedial action should not be limited solely to decreasing the amount of deficiency payments made to U.S. farmers. Moreover, we believe that data for crop years 1992/1993 and 1993/1994 are most relevant.

[82] We note that at the same time that Durum imports have been increasing, average durum prices received by farmers have steadily increased. For example average durum prices rose from $3.06 in June 1993 to $5.78 in March of 1994. Prehearing Brief on Behalf of the National Pasta Association at Table 2.

the Commission's Office of Economics.[83] Modeling results indicate that a 10% tariff rate quota on non-durum imports would have a modest but not insignificant positive effect on both U.S. producers and domestic prices and production.[84]

In regard to durum imports, economic modeling also indicates that our approach would have a modest but not insignificant positive effect on both U.S. producers and domestic prices and production.[85]

Conclusion

In conclusion, we recommend that, if the President finds the facts justify imposition of trade relief, he impose a 10 percent tariff increase on imports of durum wheat in excess of 500,000 tons and on imports of non-durum wheat in excess of 1,000,000 tons. Such relief should terminate in two years and be tied to certain conditions as discussed above.

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[83] This model is based on well established principles of economics that organize available evidence on relevant economic relationships. The model relates the imposition of duties, the removal of duties, or other price changes of imported goods to the resulting impact on U.S. producers and consumers of similar products.

We note that the base year used for the model is the 1992/1993 crop year. The model measures, therefore, what the effect would be of a specified tariff-rate quota given market conditions in crop year 1992/1993. This year was chosen rather than the 1993/1994 crop year because use of the latter year would necessitate use of certain projections.

[84] See Appendix A attached to these views.

[85] See Appendix B attached to these views.

VIEWS OF COMMISSIONER ROHR AND COMMISSIONER NEWQUIST

WHEAT, WHEAT FLOUR, AND SEMOLINA
INV. NO. 22-54

SUMMARY

On January 18, 1994, at the request of the President of the United States, the Commission initiated an investigation under section 22 of the Agricultural Adjustment Act[86] to determine whether wheat, wheat flour, and semolina are being or are practically certain to be imported into the United States under such conditions or in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment programs conducted by the Department of Agriculture for wheat, and to report its findings and recommendations at the earliest practicable date.[87] Pursuant to this request, and consistent with the longstanding Commission interpretation and application of section 22, we must make two findings. First, we must make a determination of whether imports have materially interfered with the wheat programs. Second, if, and only if, we do so find, we must recommend such relief as will remedy the situation.

We have determined that wheat, wheat flour, and semolina are being imported into the United States under such conditions and in such quantities as to materially interfere with the wheat price support, payment, and production adjustment programs conducted by the Department of Agriculture and the goals of those programs as set forth by the Congress of the United States.[88] To remedy this material interference, we recommend that the President limit wheat imports to levels roughly equivalent to their average volume for the crop years 1989/90 through 1992/93. This will reduce the effect of imports on deficiency payments significantly. We find that this level of imports can be achieved either through the use of a quota, a tariff, or a tariff rate quota. The specific levels of these alternative tariffs and quotas are as follows:

Option 1 - QUOTA

Overall	**900,000** metric tons
Durum and semolina	**360,000** metric tons
All other wheat and wheat flour	**540,000** metric tons

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[86] 7 U.S.C. § 624.
[87] A copy of the President's letter to the Commission is contained in Appendix A of the Commission's Report (Report).
[88] In this investigation we focused on these programs because they were the only USDA programs identified by the USDA and the President as requiring investigation.

Option 2 - TARIFF

Overall	**33** percent *ad valorem*
Durum and semolina	**15** percent *ad valorem*
All other wheat and wheat flour	**35** percent *ad valorem*

Option 3 - TARIFF RATE QUOTA

Durum and semolina	below **150,000** metric tons - current rates above **150,000** metric tons - **25** percent *ad valorem*
All other wheat and wheat flour	below **150,000** metric tons - current rates above **150,000** metric tons - **50** percent *ad valorem*

MATERIAL INTERFERENCE WITH THE UNITED STATES WHEAT PROGRAM

Section 22(a) of the Agricultural Adjustment Act requires us to look both to the mechanics of the wheat programs and the goals and objectives of those programs. Imports of wheat, wheat flour, and semolina have materially interfered with the operation of the wheat programs by significantly inflating the amount of the deficiency payments that must be made to U.S. farmers. Equally significant, we find that these imports have materially interfered with the general goals and objectives of farm programs as enunciated by Congress.[89]

The U.S. Wheat Program and U.S. Wheat Farming

The USDA programs for wheat consist of three separate elements: the price support program, the income support program, and the production adjustment program.[90] The price support program provides a minimum price in the form of nonrecourse loans at an announced "price support" loan rate.[91] The income support program involves direct payments to farmers, the principal form of which is a deficiency payment based on the difference between market prices or loan rates, and established target prices.[92] The production adjustment program operates to reduce the acreage planted by program participants when supplies are projected to be excessive -- it is administered through the Conservation Reserve Program, the Farmer-owned Reserve, and the annual set-aside program (acreage reduction).[93] The

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[89] Many of the Congressional declarations of policy are of general application, relating to programs covering several agricultural products, including wheat.

[90] Agricultural Adjustment Act of 1949, P.L. 81-439 (codified at 7 U.S.C.§§ 1445b et seq; 1445e; 16 U.S.C. §§ 3830-3836), as amended by, Food Security Act of 1985, P.L. 99-198; Food, Agriculture, Conservation, and Trade Act of 1990, P.L. 101-624; Omnibus Budget Reconciliation Act of 1990, P.L. 101-508; Omnibus Budget Reconciliation Act of 1993, P.L. 103-66.

[91] Report at II-13.

[92] Report at II-13.

[93] Report at II-12, II-17-21. The acreage reduction requirements (ARPs) are set for wheat based on the year-end stocks-to-use ratio. The 1989/90-1993/94 ARPs ranged from 0 to 15 percent, resulting in acreage reductions ranging from zero to over 10 million acres. Report at II-17.

operation of these programs is described in detail in the Commission's report accompanying these findings and recommendations.[94]

The data on the operation of these programs reflect the many factors which affect American wheat farmers, including overall trends in consumption, production efficiency, weather, government policy objectives, and imports. The price support program has been administered in recent years to minimize government intervention in the market. The price support loan rates have been set at levels sufficiently below both target prices and the market price to discourage forfeitures to the government. In the sense that there have been no forfeitures in recent years, it has been successful. Direct government expenditures under the price support program are therefore not at issue.

At the same time, however, the amount of wheat under loan has increased significantly. In the 1989/90 crop year, 3.1 million metric tons of wheat were placed under loan. Apart from an aberrational high year in 1990/91, the amount of wheat being placed subject to the loan program has steadily increased, from 3.9 million tons in 1991/92 to 6.5 million tons in 1992/93, and to a projected 7.0 million tons for the 1993/94 crop year.[95] While this does not increase direct government expenditures over the course of a crop year, it does signal an increasing reliance on the government rather than marketplace disciplines.

The production adjustment programs operate by limiting the amount of land which participating farmers may devote to producing wheat. In the 1992/93 crop year, the set aside was at 5 percent while in 1993/94 the annual set-aside was zero. A significant amount of land, however, remains out of production in the other portions of the production adjustment program.

The amounts payable to farmers under the government income support program, specifically the "deficiency payments," have also fluctuated significantly over time. Deficiency payments increased progressively on a per bushel basis from $0.32 to $1.28 to $1.35 from the 1989/90 crop year through the 1991/92 crop year. They declined to $.79 in the 1992/93 crop year. They are projected to increase to $1.05 in the 1993/94 crop year.[96] Total deficiency payments made by the U.S. government followed a slightly different trend, increasing dramatically from 1989/90 to 1990/91 from $572 million to $2.4 billion, decreasing to $2.2 billion in 1991/92 and to $1.4 billion in 1992/93, and increasing to an estimated $1.9 billion for the 1993/94 crop year.[97]

The changes in the operations of the government programs reflect fluctuations in the overall wheat sector of the U.S. farm economy in recent years. Acreage planted for all types of wheat increased slightly from 76.6 million acres in 1989/90 to 77.2 million acres in 1990/91, fell to 70.1 million acres in 1991/92, and then increased somewhat to 72.2 million acres in 1993/94.[98] Acreage harvested followed a similar trend.[99] Significant portions of land are due to be "retired" from parts of the production adjustment program in the immediate future crop years and will be eligible to be returned to the production of wheat. Production, measured in metric tons, increased sharply from 1989/90 to 1990/91, from 55.1 million tons to 74.4 million tons. This was followed by a substantial decline in 1991/92, to 53.8 million tons, and then a recovery in 1992/93 and 1993/94 to 66.9 and 65.8 million tons, respectively.[100]

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[94] A description of these programs is set forth in the Report at II-12-21.
[95] Report at II-14, Table 1 (converted to metric tons on the basis of 0.0272 tons per bushel).
[96] Report at II-14, Table 1.
[97] Report at II-21, Table 4.
[98] Report at II-32, Table 12.
[99] Id.
[100] Id.

Ending stocks of wheat increased markedly from 1989/90 to 1990/91, from 14.6 million tons to 23.5 million tons, before falling off in the following year, to 12.8 million tons, and then increasing moderately, to 14.4 million tons in 1992/93. Stocks in 1993/94 are estimated to increase slightly over the previous year.[101]

U.S. producer export shipments accounted for about half of U.S. wheat harvested production during the period examined. Exports in 1989/90 totaled 32.1 million tons, then fell to 27.9 million tons in 1990/91. Exports then increased to 33.4 million tons in the next crop year, and reached 35.3 million tons in 1992/93.[102] Durum exports fluctuated only by small amounts over the period of the Commission's investigation. During the 1989/90 crop year, durum exports reached the level of 1.2 million metric tons. After falling to 1.1 million metric tons in 1990/91, exports returned to the 1.2 million ton level in 1991/92 and increased only marginally in 1992/93, with a further very small increase projected for the 1993/94 crop year.[103]

Deficiency payments are based on the difference between the target price and the national average market price received by farmers during the first five months of the marketing year.[104] The national average price of wheat is a composite average price of the five major classes of wheat, calculated by the USDA from a monthly survey of U.S. wheat farmers.[105] In 1989/90, the average price received by farmers was $3.72 per bushel, which fell to $2.61 per bushel in 1990/91. The average price rose in 1991/92 and 1992/93, to $3.00 and $3.24 per bushel, respectively. The estimated average price for 1993/94 is $3.20.[106]

Of particular importance to this investigation is the recent trend in imports. The volume of imports of all types of wheat nearly doubled from crop year 1989/90 to crop year 1990/91, and continued to climb in crop year 1991/92. In 1992/93, import volume exceeded 1.5 million metric tons, a quadrupling of its level at the beginning of the period examined.[107] Import volumes of most of the major categories of wheat, wheat flour and semolina increased from 1989/90 to 1992/93 and in the interim period 1993 compared with interim period 1992.[108] Between the 1989/90 and 1992/93 crop years durum imports increased 146 percent, Canadian western red winter wheat imports increased over 3,000 percent,[109] red spring wheat imports increased 198 percent, soft white spring wheat imports increased 21,000 percent,[110] all other wheat imports increased over 1,100 percent, wheat flour imports increased 516 percent, and semolina imports increased 826 percent.[111]

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[101] Report at II-36, Table 15.
[102] Report at II-33, Table 13.
[103] Report at II-33, Table 13.
[104] The method for calculation of deficiency payment has been changed for the 1994/95 crop year. See Report at II-15.
[105] Staff report at II-15 and n.52.
[106] Report at II-14, Table 1.
[107] Imports during the interim period 1993 were substantially higher than during interim period 1992. Id.
[108] Data on imports of wheat are discussed in detail in the report at II-24-43 and Table 19, Report at II-40.
[109] Data on imports of this product were not specifically broken out in 1989/90 and 1990/91, so the price increase reflects a shorter time period.
[110] Data for imports of this product were not broken out for 1989/90 and 1990/91, so the price increase reflects a shorter time period.
[111] Report at II-43, II-30, and Table 20, Report at II-42.

Effect of Imports on the Operation of the U.S. Wheat Program

The changes in the overall levels of the USDA programs and the operations of U.S. farmers which these programs affect, as stated before, reflect many variables including the increases in imports noted above. Our principal task in this investigation has been to identify the effects of the imports on the wheat programs and determine whether these effects constitute material interference, notwithstanding the impact of any other factor. Our quantitative analysis of the impact of these imports on the operation of the USDA wheat programs is based, in substantial part, on extensive modeling performed by the Commission staff, in conjunction with the submissions of the parties participating in the Commission's investigation.

Both the parties in support of, and in opposition to, a finding of material interference submitted quantitative estimates of the effects of imports on the USDA wheat programs based upon some form of modeling analysis. In particular, the Commission received four detailed economic submissions from the interested parties to the proceeding: a model used by the Canadian Wheat Board (CWB), submitted by Sumner, Alston, and Gray (SAG analysis); an analysis used by the U.S. Wheat Associates and the National Association of Wheat Growers; the USDA's estimates of effects (USDA analysis); and an analysis used by the Millers National Federation, the National Pasta Association, and the National Grain Trade Council.

The four detailed economic submissions of the interested parties differed greatly in the type and size of analyzed events; type of modeling framework chosen; time frame chosen as analysis periods; and, in particular, their results, which are the effects of wheat imports on the costs of the USDA programs.[112] These four modeling analyses estimated cost effects which ranged from the low cost effect estimates of the SAG study to the high cost effect estimates of the USDA. In reaching our conclusion, we have focused on the SAG and USDA estimates of the cost effects of the imports because these studies were structurally more complete than the other submissions, and because their cost effect estimates establish the range of effect estimates for all four submissions.

None of the four economic submissions contested the basic proposition that imports have increased U.S. wheat program costs to some degree. The question, therefore, was not whether imports affected U.S. wheat program costs, but rather the magnitude of the effects. For example, the estimates of the additional payments made as a result of U.S. wheat imports range from the $171 million average annual cost over the 1991/92 - 1994/95 period estimated by the USDA to SAG's estimates of from only $8 million to $9.9 million per year for 1993/94 - 1994/95 based on similar import levels.

In our view, the SAG analysis understates the effect of the imports through a design which assumes that the effects of imports are almost entirely dissipated through exports and the feed grain market, with little or no effect on stocks. The USDA analysis overestimates the effect of the imports by assuming that the feed grain market and export market have virtually no effects on the U.S. market and emphasizing the effect of imports on stocks.[113]

Because of the variance in the alleged impacts of U.S. wheat imports, we employed two distinct quantitative devices to develop the most precise estimates possible of the effects of the imports. First, we looked at the issue as an empirical question, and estimated the degree of effects that U.S. wheat imports have had on wheat program costs in an econometric framework (the "empirical analysis"). As the second approach, we examined the results of a partial equilibrium simulation model (the "simulation analysis") incorporating elasticity estimates, based on information collected in the investigation, from existing economic empirical literature, and submitted by the parties.

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[112] Report at II-92.
[113] Report at Table 38 and accompanying text, Report at II-93-95.

Both analyses generated ranges of cost effects on U.S. wheat programs of wheat imports. The simulation analysis generated a wide range of effects, depending upon assumptions about elasticity of substitution, supply and demand. The empirical analysis' econometric estimates fell at the low end of the simulation analysis' range.

The results of the empirical analysis conducted in this investigation provide credible estimates of the effects of the imports on prices, deficiency payments, domestic use, and ending stocks of wheat.[114] Imports reduced the average price per bushel received by U.S. farmers by amounts that increased from 1.34 cents per bushel during the 1989/90 crop year to 3.28 cents per bushel during the 1992/93 crop year and 4.41 cents per bushel in 1993/94. Imports caused an increase in domestic use of wheat by 207,000 tons in the 1989/90 crop year, increasing to 647,000 tons in the 1992/93 crop year and 952,000 tons in the 1993/94 crop year. At the same time, the imports also resulted in increases in ending stocks of from 166,000 tons in the 1989/90 crop year to 449,000 tons in the 1992/93 crop year and 672,000 tons in the 1993/94 crop year. In particular, the model indicates that deficiency payments resulting from supply increases, due to imports, have increased from $21.44 million in 1989/90 to $62.98 million in 1992/93 and $83.79 million in 1993/94, for an average of $44.4 million annually.[115]

The declines in prices, and increases in stocks and deficiency payments are tangible interferences with the USDA programs. The rapid increase in imports exacerbates these effects. Imports in 1993/94 are estimated to have an adverse effect on wheat prices that is 229 percent greater that the price effect of the imports just four crop years earlier.[116] The imports' effect on stocks increased 300 percent over the same period.[117] The rise in deficiency payments from 1989/90 to 1993/94 represents an increase of 291 percent.[118] These are the fluctuations that resulted solely from imports of wheat, wheat flour, and semolina. Imports over the five year period of investigation cost U.S. taxpayers 222 million dollars in the form of higher deficiency payments.[119]

The empirical analysis that produced these results was directly estimated from the data reflecting relationships of U.S. wheat use, supply, and stocks on the price used to calculate wheat deficiency payments.[120] We note, however, that the results of the Commission's empirical model are biased downward, particularly because of its reliance on data generated before the rapid increases in imports observed in recent years.[121] Thus, the effects of imports on the USDA deficiency payment program are actually greater than those depicted by the empirical model. We therefore also considered the results of the simulation model which generated a much larger range of effects. To narrow this range, we chose to input conservative elasticities into the simulation analysis because such elasticities appear most appropriate given the results of the empirical analysis. Thus, we can use the results of the simulation analysis to correct for the downward biases in the empirical analysis in order to develop our best estimates of the effects of the imports.

Adjusting for the downward bias in our empirical analysis, we conclude that imports in the U.S. market increased deficiency payments by an amount in excess of $75 million in 1992/93 and in excess of $95 million in the recently concluded 1993/94 crop year. This rate of increase in deficiency payments is tied directly to the increased volume of imports of

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[114] Report at II-91, Table 37.
[115] Table 37 and accompanying text, Report at II-90-91.
[116] Report at II-91, Table 37.
[117] Id.
[118] Id.
[119] Id.
[120] See Commission Memorandum, INV-R-118, July 7, 1994; Report at II-87-92.
[121] Report at II-90-92 (detailing the shortcomings of the empirical analysis which required certain variables to be overstated, thereby diminishing the effects of imports).

wheat, wheat flour, and semolina. The question which we must answer is whether this amount of interference is "material." We note that the tools necessary to quantify the specific effect of imports on deficiency payments or any other part of a USDA program have never before been available to the Commission in a section 22 investigation. We recognize that, given the manner in which the market operates, any level of imports has some marginal effect on price and thus on deficiency payments. Accordingly, any benefit consumers gain from import-induced lower prices is, to some degree, offset by the additional payments which they must make as taxpayer under the USDA programs. We believe that when imports cause increases in deficiency payments in the range of $75 million to $95 million, as they have during the last two crop years, there is no question that they have materially interfered with the programs.

Effect of Imports on The Goals and Objectives of the U.S. Wheat Programs

Although the increase in deficiency payments attributable to the imports is an important and tangible measure of the material interference being caused by imports, it is not the only interference that imports have caused. Imports are also interfering with the goals of the USDA wheat program in other ways that, although less subject to a quantitative analytical approach, are no less important to our assessment. Any quantitative approach is limited to the data that are available. Because imports did not enter the United States in significant quantities until after the U.S.-Canada Free Trade Arrangement took effect, and many types of data have never before been collected on a sufficient basis, any quantitative approach is limited. Although we cannot readily quantify the degree to which imports interfere with these goals, we cannot ignore this type of interference.

For example, stability of farm income is one of the important objectives of the wheat program.[122] However, sufficient data are simply unavailable to make a quantitative assessment of the effects of imports on the income of U.S. farmers. USDA farm income data are too outdated and limited in detail. For the Commission itself to collect sufficient data on farm income would be both excessively costly and impossible to gather in a reasonable time frame for this investigation. Because the data do not exist does not mean that imports have had no effect or even only a minimal effect on income.

Our data show imports have had an increasingly greater effect on domestic price. The data also show a significant shift from acreage planted in durum, which face the most extensive direct import competition, to other varieties of wheat. We have also previously noted the increasing volume of wheat being placed under loan rather than sold immediately on the market. It therefore appears that in an attempt to maintain income in the face of increased competition, farmers are switching to other varieties of wheat as well as having to utilize the government program rather than sell their wheat on the open market. This suggests that imports are having an adverse impact on farm income.

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[122] See Agriculture and Food Act of 1981, P.L. 97-98, 95 Stat. 1213 (Dec. 22, 1981) (an Act to, inter alia, "provide price and income protection for farmers"); Food and Agriculture Act of 1977, P.L. 95-113, 91 Stat. 913 (Sept. 29, 1977) (an Act to, inter alia, "provide price and income protection for farmers"); Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965) (an Act to, inter alia, "maintain farm income"); Agricultural Act of 1964, P.L. 88-297, 78 Stat. 173 (Apr. 11, 1964) (an Act to, inter alia, "maintain the income of . . . wheat producers"); Agriculture Act of 1956, sec. 102, P.L. 84-540, 70 Stat. 188 (May 28, 1956) ("policy of Congress . . . to, [inter alia,] protect and increase farm income"); Agricultural Marketing Act of 1929 sec. 1(a), Chp. 24, 46 Stat. 11 (June 15, 1929) (declaring intention that "the industry of agriculture will be placed on a basis of economic equality with other industries").

A second, more recent, objective of U.S. farm policy has been to reduce the dependence of farmers on government intervention.[123] The USDA has attempted, consistent with this policy, to administer the wheat programs that reduces government intervention in the market. The data, however, show increasing reliance on the USDA programs in the form of increasing amounts of wheat placed under loan to the USDA. The USDA indicated that as of April 1, 1994, there were 105 million bushels of wheat under loan compared with 88 million bushels one year prior, even though U.S. wheat production in 1993/94 was below that of 1992/93.[124] The USDA indicated that imports encouraged U.S. producers to seek additional USDA loans, increasing USDA net outlays under the price support program by $27 million during fiscal years 1991-94.[125] Moreover, as discussed above, deficiency payments and farmers' dependence on those payments have increased dramatically in recent years. Imports are, thus, compromising the goal of reducing government intervention in the market and increasing farmers' reliance on USDA support.

Yet another important goal of U.S. farm policy is to achieve stable supply conditions in the U.S. market to benefit both suppliers and consumers.[126] Evidence gathered in this investigation also shows that wheat imports are adversely affecting the stability of supply conditions in the U.S. market, resulting in the ironic situation of the world's largest wheat exporter becoming dependent on imports of wheat, particularly durum. At our hearings, several witnesses from milling interests expressed their concern that the imports are the result of "shortages" in the U.S. market, particularly of durum, and that imports are necessary to balance supply and demand. Numerous farmers, however, testified that, as a result of increasing imports of durum, they have "planted away" from durum to other varieties of wheat.

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[123] See Agricultural Act of 1961, Pub. L. No. 87-128, § 2, 75 Stat. 294 (Aug. 8, 1961), codified at, 7 U.S.C. § 1282 note (this section of the 1961 Act was never codified in the U.S. Code but was placed as a note after section 1282 of title 7); see also Testimony of USDA Acting Assistant Secretary Collins, Hearing Transcript at 50; 15 U.S.C. § 714 (stating purpose for creating CCC).

In S. Rep. No. 145, the Senate Committee on Agriculture, Nutrition, and Forestry stated that a shift occurred in Federal farm policy during the 1960s. S. Rep. No. 145, 99th Cong., 1st Sess. 1, reprinted in 1985 U.S. Code Cong. & Ad. News, Vol. 3, 1676. According to this report, the paramount features of farm policy from the Great Depression until the late 1960s was direct Federal involvement in the planting and marketing decisions of farmers. In the late 1950s, a transition in farm policy began due to rising Government costs and inventories. By 1965, Congress and the Administration agreed to revise certain features of the farm programs. Price supports were reduced in order to provide a lower price floor and let market forces, particularly foreign demand, find the real value and price level. Id. at 3, 1985 U.S. Code Cong. & Ad. News, Vol. 3, 1,676-77. See also, e.g., Agriculture and Food Act of 1981, P.L. 97-98, 95 Stat. 1213 (Dec. 22, 1981) (an Act to, inter alia, "assure consumers an abundance of food and fiber at reasonable prices"); Food and Agriculture Act of 1977, P.L. 95-113, 91 Stat. 913 (Sept. 29, 1977) (an Act to, inter alia, "assure consumers an abundance of food and fiber at reasonable prices").

[124] Hearing statement of Keith Collins, Acting Assistant Secretary for Economics, USDA, Apr. 28, 1994, p. 14.

[125] Id.

[126] Agriculture and Consumer Protection Act of 1973, P.L. 93-86, 87 Stat. 221 (Aug. 10, 1973) (an Act to, inter alia, "assur[e] consumers of plentiful supplies of food and fiber at reasonable prices"); Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965) (an Act to, inter alia, "assure adequate supplies of agricultural commodities"); Agricultural Act of 1956 sec. 102, P.L. 84-540, 70 Stat. 188 (May 28, 1956) ("policy of the Congress . . . to provide for . . . orderly flow of such agricultural commodities in interstate and foreign commerce"); Agricultural Act of 1954, P.L. 83-690, 68 Stat. 897 (Aug. 28, 1954) (an Act to, inter alia, "provide for greater stability in agriculture").

The data relating to these assertions are particularly compelling. Imports of wheat (by quantity and value) were most significant with regard to durum,[127] with imports accounting for 30 percent of the market in crop year 1989/90, 33 percent in 1992/93, and a projected 41 percent in crop year 1993/94.[128] This occurred while consumption increased from 1989/90 to 1991/92.[129] Consumption of wheat flour, rose by 7 percent during 1989/90 to 1992/93. Consumption of semolina increased much more rapidly during the period examined, for an overall increase of 41 percent.[130]

Although U.S. production of durum surged between crop year 1989/90 and 1990/91, it subsequently steadily declined, and is estimated to have declined further in 1993/94.[131] Acreage harvested in durum wheat declined steadily over the period of investigation and, in 1993/94, reached its lowest level since 1970.[132] The volume of imports of semolina increased dramatically from crop year 1989/90 to 1991/92, then declined thereafter during the period of investigation.[133]

The data show, therefore, that the principal reason for the decline in durum supply and U.S. farmers "planting away" from durum was the disappearance of the traditional price premium for durum, caused in large part by increasing imports of durum.[134] In contrast to the situation on U.S. farms, plantings of durum in Canada, the principal exporter to the United States, are expected to increase by as much as 50 percent this year.[135] We find that the decline in the durum price premium and the abandonment of the durum market in the United States are not due solely to producer choice. Indeed, in two of the five crop years examined, yields for durum were actually greater than those for spring wheat.[136] Moreover, plantings of all wheat combined over the five-year period also generally declined.[137] Rather, the evidence discussed above shows that it was the decline of the traditional durum price premium, which is directly related to imports of durum, that is destabilizing the durum supply conditions in the United States. Thus, imports are interfering with the goal of assisting consumers in obtaining an adequate and steady supply of agricultural commodities at fair prices, and providing an orderly, adequate, and balanced flow of agricultural commodities.[138]

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[127] Durum wheat held the largest quantity-based share of wheat imports in all crop years and in all periods examined except June-December 1993, when red spring wheat held the largest share. Report at II-39 and Table 19, II-40.

[128] Report at II-24, Table K-1, Report at K-3.

[129] Report at II-24. Consumption fell slightly after 1991/92 but remained high in absolute terms. Id.

[130] Report at II-30, Table 11. Comparison of the interim periods shows a slight decline.

[131] Data on U.S. production of durum are discussed in detail in the report at II-31 and Table 12, Report at II-32. Semolina production increased steadily from 1989/90 to 1992/93, Report at II-36; however, this production likely relies in part on imports of durum inputs.

[132] Report at II-31 & n.83 and Table 10, Report at II-28. In addition, durum stocks are expected to fall in crop year 1993/94. Table 15 and accompanying text, Report at II-36.

[133] Report at II-42, Table 20.

[134] Transcript of Shelby hearing at 65, 78-79, 132; Posthearing Brief of Farmers Union at 1.

[135] Report at II-31, n.84.

[136] Table 12, Report at II-32.

[137] Id.

[138] See Agricultural Adjustment Act of 1938, Pub. L. 430 § 2, 52 Stat. 31, 75th Cong., 3d Sess. (1938) (amending the Soil Conservation and Domestic Allotment Act), codified as amended at, 7 U.S.C. § 1282; see also S. Rep. No. 145, 99th Cong., 1st Sess. 1, reprinted in 1985 U.S. Code Cong. & Ad. News, Vol. 3, 1676 ("The aim of Federal farm policy is to induce elements of predictability into the inherently unpredictable business of farming"); see also Testimony of Acting Assistant Secretary Collins, Hearing Transcript at 50 (the objective of the programs is to stabilize, support, and protect the prices and incomes of wheat producers).

Another goal of the U.S. farm program is the preservation of the family farm.[139] The destabilization of the market, which is clearly apparent with respect to durum, but is also present with regard to other varieties of wheat, is significantly affecting family farms, making such farms more vulnerable to the "inherently unpredictable business of farming."[140] This result has the untoward effect of frustrating the Congressional goal of providing family farmers with an adequate income[141] and of generally encouraging, promoting, and strengthening the family farm.[142]

Finally, it is a stated goal of the USDA programs to promote "trade between friendly nations."[143] To accomplish this goal, countries must operate under conditions in which trade interests are balanced. To the extent any wheat-producing country promotes its exports to the United States but inhibits the ability of U.S. farmers to export to its market, this fundamental goal of the programs is compromised. The testimony we received in our field hearings contained numerous examples of U.S. farmers' failed attempts to market their wheat in Canada, due to the influence of the Canadian Wheat Board.[144] We do not believe that the "expanding foreign trade" goal of the program is satisfied when imports are allowed to enter the United States without restriction while U.S. exports are artificially restricted by nonmarket considerations. To the extent imports of wheat, particularly those from Canada, continue to enter the United States in such high volumes, while U.S. exports are not similarly free, the imports will materially interfere with the goal of expanding foreign trade in agricultural commodities with friendly nations.

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[139] See e.g., Agricultural Act of 1961, P.L. 87-128, 7 U.S.C. § 1282 note (Aug. 8, 1961) ("policy of Congress to . . . recognize the importance of the family farm as an efficient unit of production and as an economic base for towns and cities in rural areas and encourage, promote, and strengthen this form of farm enterprise"); Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965) (an Act to, inter alia, "afford greater economic opportunity to rural areas").

[140] See S. Rep. No. 145, 99th Cong., 1st Sess. 1, reprinted in 1985 U.S. Code Cong. & Ad. News, Vol. 3, 1676.

[141] See Agricultural Adjustment Act of 1938, Pub. L. 430 § 2, 52 Stat. 31, 75th Cong., 3d Sess. (1938) (amending the Soil Conservation and Domestic Allotment Act), codified as amended at, 7 U.S.C. § 1282. See also Agriculture and Food Act of 1981, P.L. 97-98, 95 Stat. 1213 (Dec. 22, 1981) (an Act to, inter alia, "provide price and income protection for farmers"); Food and Agriculture Act of 1977, P.L. 95-113, 91 Stat. 913 (Sept. 29, 1977) (an Act to, inter alia, "provide price and income protection for farmers"); Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965) (an Act to, inter alia, "maintain farm income"); Agricultural Act of 1964, P.L. 88-297, 78 Stat. 173 (Apr. 11, 1964) (an Act to, inter alia, "maintain income of . . . wheat producers"); Agriculture Act of 1956, sec. 102, P.L. 84-540, 70 Stat. 188 (May 28, 1956) ("policy of Congress . . . to [, inter alia,] protect and increase farm income"); Agricultural Marketing Act of 1929 sec. 1(a), Chp. 24, 46 Stat. 11 (June 15, 1929) (declaring intention that "the industry of agriculture will be placed on a basis of economic equality with other industries").

[142] See id.; see also H.R. Rep. No. 271, Part 1, 99th Cong., 1st Sess. 8, reprinted in 1985 U.S. Code Cong. & Ad. News, Vol. 2, 1111. Agricultural Act of 1961, P.L. 87-128, 7 U.S.C. § 1282 note (Aug. 8, 1961) ("policy of Congress to . . . recognize the importance of the family farm as an efficient unit of production and as an economic base for towns and cities in rural areas and encourage, promote, and strengthen this form of farm enterprise").

[143] See Agricultural Act of 1961, Pub. L. No. 87-128, § 2, 75 Stat. 294 (Aug. 8, 1961) (expand foreign trade in agricultural commodities with friendly nations), codified at, 7 U.S.C. § 1282 note. See also, e.g., Food and Agriculture Act of 1965, P.L. 89-321, 79 Stat. 1187 (Nov. 3, 1965) (an Act to, inter alia, "promote foreign trade"); Agricultural Marketing Act of 1929 sec. 1(a), Chp. 24, 46 Stat. 11 (June 15, 1929) (declaring Congress's intention to "stabilize the currents of interstate and foreign commerce in the marketing of agricultural commodities and their food products").

[144] See e.g. Transcript of hearing in Shelby, MT at 58.

RECOMMENDATIONS FOR RELIEF

Section 22 requires the Commission, if it finds that imports materially interfere with USDA programs, to recommend to the President a remedy that will limit imports to prevent that material interference. Because we have affirmatively found such material interference to exist, we are making recommendations to the President that we conclude will eliminate that interference.

Traditionally, the Commission has made recommendations in the form of either quotas, tariffs, or tariff rate quotas. The various forms of relief can be designed to have comparable effects on the USDA programs through their effects on volume and price. The difference among these forms of relief is largely based on the "certainty" of the effects they have on volume or price. A quota has more certain volume effects, but its price effect will depend on the dynamics of the market. A tariff has more certain effects on price, but its volume effects are much less certain. A tariff rate quota, incorporating elements of both, has effects which fall between the other two approaches. In this investigation, we have chosen to present our recommendations in all three forms. We have chosen specific quota levels, tariffs, and tariff rate quotas that achieve a comparable effect on the U.S. wheat program.

The simulation analysis which we used in this investigation provided us with the basic estimates of effects which we used in designing our remedy. In particular it provides us with a basis on which to find equivalent levels for our quota, tariff and tariff rate quota. It also allows us to look at both the costs and benefits of these remedies.[145] We stress, however, that this analysis is at best a simplified approximation of the reality of a complex and dynamic market, and that its results are not exact. We therefore tempered our reliance on the quantitative analyses with our recognition of these realities and limitations.

Our specific recommendations are as follows:

QUOTA

Overall	900,000 metric tons
Durum and semolina	360,000 metric tons
All other wheat and wheat flour	540,000 metric tons

In proposing an overall quota of 900,000 metric tons, we have taken several factors into account. We note that 900,000 metric tons is a level roughly equivalent to, and in fact slightly higher than, the average imports of wheat for the period between the 1989/90 crop year and the 1992/93 crop year. This is the appropriate representative period because it includes years of both high and low imports and does not include the current crop year for which data is less probative and reflects the pendency of this investigation. We also note that this level of imports is close to the level of imports during the 1990/91 crop year for which our estimate of the import effect on deficiency payments is between 35-40 million dollars.

[145] Any restriction on imports will have the effect of increasing the price of wheat. This results in a cost to consumers. The higher prices benefit producers, which is, of course, the purpose of the agricultural program, to offset some of this loss. In addition the higher prices reduce deficiency payments which benefits consumers who must pay the taxes to support these deficiency payments. Finally, any tariff based remedy results in higher tariff revenues, which also offset the costs of the higher prices within the U.S. economy as a whole.

In recommending a quota we are particularly mindful that the effect of an overall quota tends to shift imports into higher value products within the quota. If a quota is chosen as the appropriate remedy, therefore, it is possible that import shifts to the higher value durum wheat imports could unintentionally result in worsening the situation of U.S. durum farmers and the objectives of the U.S. wheat program. To prevent this shift, we therefore propose that any quota should be divided between durum and semolina as one category and all other wheat and wheat flour as a second category. In recent years, imports of durum constituted roughly 40 percent of total imports, while all other wheat constituted 60 percent of the total. We propose, therefore, to maintain these percentages and recommend that 40 percent of the 900,000 tons, or 360,000 tons, be allocated to durum, while 60 percent of the total, or 540,000 tons, be allocated to all other wheat.[146]

We estimate that the imposition of a quota at 900,000 metric tons will raise prices by an overall amount of no more than 70 to 80 million dollars, while improving farm revenues by 20 to 30 million dollars. In addition, the quota will also reduce deficiency payments by an estimated 30 to 35 million dollars. Thus, while remedying the interference with the U.S. wheat program, which is what our recommendation is required to achieve, the overall effect of the quota will have somewhat greater costs to the overall economy than it will provide benefits to the economy.

TARIFF

Overall	33 percent *ad valorem*
Durum and semolina	15 percent *ad valorem*
All other wheat and wheat flour	35 percent *ad valorem*

In order to achieve results equivalent to a 900,000 ton overall quota, the necessary tariff is between the range of 28 and 40 percent. This range arises from different assumptions that can be made of the elasticities of substitution, demand, and supply in the wheat market. We believe that a tariff of approximately 33 percent is appropriate to achieve the desired result. Because this is an *ad valorem* tariff, it will obviously have a somewhat greater effect on the higher value types of wheat such as durum. Because the amount of such effect is uncertain, we also recommend that an comparable effect can be achieved by placing separate tariffs on durum and semolina and on all other wheat and wheat flour. The tariffs necessary on the two different categories are different because the substitution, demand, and supply characteristics of the markets for the wheat in the two categories are different. We estimate that the imposition of a duty of 15 percent on durum will limit durum import to the approximately 360,000 ton level proposed in our quota recommendation, while a duty of 35 percent will reduce all other wheat and wheat flour imports to the corresponding 540,000 ton level.

We estimate that the overall impact on the economy of a tariff will be positive. In general, the tariff will increase prices between 35 and 40 million dollars more than it will directly increase revenues to U.S. wheat farmers. However, the revenue generated by the

[146] We also considered whether it was necessary to further subdivide the durum category between durum and semolina and the all other category between all other wheat and wheat flour. We do not believe that current conditions in the market, specifically limited additional milling capacity in Canada, the principal exporting country, make such further splitting of the quota necessary.

tariff reduces any negative price effect on the U.S. economy to a range between 10 and 20 million dollars. We must also figure in the benefit to the United States in the form of the reduced deficiency payments, which are a principal focus of our remedy. When the reduction in deficiency payments of roughly 35 million dollars is added, the tariff is likely to result in an overall positive impact on the U.S. economy in excess of 20 million dollars.

TARIFF RATE QUOTA

Durum and semolina	below 150,000 metric tons - current rates above 150,000 metric tons - 25 percent *ad valorem*
All other wheat and wheat flour	below 150,000 metric tons - current rates above 150,000 metric tons - 50 percent *ad valorem*

In order to establish an equivalent tariff rate quota, we must determine both an appropriate volume level and tariff level to impose on imports. We believe that it may be appropriate to allow some certain volume of imports to continue to enter the United States at current tariff levels, and then impose a higher tariff on imports in excess of a set volume. The higher the volume level is set, the higher the additional tariff must be to achieve equivalent overall volume and deficiency payments results. We are also mindful that section 22 limits any ad valorem tariff to 50 percent, and the quota portion of the tariff rate quota must be determined in light of that limitation. We find that allowing 150,000 tons of durum and semolina to enter the United States at current rates and imposing a 25 percent duty on imports over that level will accomplish results comparable to our basic quota and tariff recommendations, with respect to durum. Similarly, allowing 150,000 tons of all other wheat and wheat flour and imposing a 50 percent duty on imports over that level will have comparable effects on that category of imports.

We estimate the effects of this tariff rate quota applied to durum, as detailed above, will be negligible. Higher prices, when added to increased tariff revenues and decreased deficiency payments net to zero. Applying this tariff rate quota on other wheat imports will have an overall effect that is positive at a level significantly below that of the "straight" tariff. We estimate that the producer gain, consumer loss and tariff revenue all net to a loss of approximately 25 million dollars. The 35 million dollar gain from reduced deficiency payments more than offsets this effect so that the overall effect of a tariff rate quota should be positive.

CONCLUSION

Based on the information provided in this investigation and our analysis of the data on the effect of wheat, wheat flour, and semolina imports on the USDA wheat programs, we find that imports have materially interfered with the U.S. wheat programs, and we recommend to the President that he impose one of the above-described forms of relief to remedy that material interference.

VIEWS OF COMMISSIONER BRAGG

WHEAT, WHEAT FLOUR, AND SEMOLINA
INV. NO. 22-54

I. SUMMARY AND RECOMMENDATION

On November 16, 1993, the President directed the United States International Trade Commission (the "Commission") to undertake an investigation pursuant to section 22 of the Agricultural Adjustment Act[147] to determine whether

> wheat classified under Harmonized Tariff Schedule of the United States (HTS) heading 1001, wheat flour classified under HTS heading 1101.00.00, and semolina classified under HTS subheading 1103.11.00 are being or are practically certain to be imported into the United States under such conditions or in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment program conducted by the Department of Agriculture for wheat, and to report its findings and recommendations at the earliest practicable date.[148]

After a thorough review of all of the information on the investigative record, I have determined that wheat, wheat flour, and semolina classified under headings 1001 and 1101.00.00, and subheading 1103.11.00, respectively, are being imported into the United States under such conditions and in such quantities as to materially interfere with the payment component of the overall program conducted by the Department of Agriculture for wheat. I find that the other two primary components of the USDA wheat program referred to in the President's letter, the price support program and the production adjustment program, are not experiencing material interference as a result of imports of wheat, wheat flour, and semolina.

In order to remedy the material interference with the USDA wheat program, I recommend that the President impose a 10 percent tariff-rate quota beyond the applicable existing rates of duty for wheat. Such a remedy would take effect when import levels exceed 500,000 metric tons of durum and 800,000 metric tons of "all other wheat." I further recommend that the President impose a tariff rate quota on imports of wheat flour and semolina. This remedy would assess a 10 percent tariff beyond the existing duty on imports in excess of 60,000 metric tons of wheat flour, and 10,000 metric tons of semolina.

In developing my remedy recommendation, I identified a time period when imports of wheat, wheat flour and semolina were entering the United States at levels that I believe were not causing material interference to the USDA's wheat program. In my view, the period between crop years 1991/92 and 1992/93 is the point at which imports began to materially interfere with the USDA wheat program. My remedy recommendation is designed to restore import volumes to these pre-interference levels.

In formulating my recommendation, I have attempted to allow for changes in U.S. market conditions, such as changes in domestic demand and supply due to weather and other factors, that may account for changes in the level of imports. I have also attempted to avoid

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[147] 7 U.S.C. § 624.

[148] A copy of the President's letter to the Commission is contained in Appendix A of the Commission's Report (Report).

any market distortions that may arise should a shortage of supply of wheat, wheat flour or semolina in the United States arise in the future. I have proposed separate tariff-rate quotas for durum and for all other wheat because I find the level of U.S. consumption and of imports of these two categories of wheat to be substantially different. I also believe that separate remedies are appropriate because prices for durum are considerably higher than for all other wheat and I wish to avoid a situation in which a disproportionate share of total imports might be filled by the higher value durum wheat. Finally, I propose tariff-rate quotas on imports of wheat flour and semolina in order to prevent the possibility that importers could circumvent duties on wheat by importing wheat flour and semolina.

My specific recommendation to the President includes the following target levels for imports, after which additional duties in the amount of 10 percent would become effective. With respect to durum wheat, I find import levels in 1992/93 to be very close to the level at which material interference began and therefore I propose a target level of 500,000 metric tons. In the "all other wheat" category, I note that imports increased by 115.7 percent from 487,322 metric tons in 91/92 to 1,051,049 metric tons in 1992/93.[149] Given this rapid increase in imports of such wheat, I propose a target level of 800,000 metric tons. With respect to wheat flour, I propose a target level of 60,000 metric tons, equal to 1992/93 crop year imports, and I propose a target level of 10,000 metric tons for semolina. I note that 1992/93 imports of semolina were less than 500 metric tons, but my proposed target level is less than one percent of 1992/93 apparent U.S. consumption of semolina.

Finally, I recommend that any remedy imposed by the President should terminate at the end of the 1996/97 crop year, unless the President finds at that time that conditions in the United States market for wheat, wheat flour and semolina make continuation of the remedy necessary to prevent material interference with the USDA wheat program. Any continuation of the remedy should be subject to review by the President in order to assess whether the remedy may be removed without a recurrence of material interference to the wheat program.

II. BACKGROUND INFORMATION

A. Section 22 Authority

The purpose of section 22 is to authorize the imposition of tariffs or other import restrictions if it is found that imports impair or interfere with farm programs or increase their overall cost. Specifically, section 22 permits the President to impose such remedies as he believes are necessary if, after investigation and report by the Commission of its findings and recommendations, he determines that "any article or articles are being or are practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with," any USDA program.[150]

As discussed above, the President's letter requested that the Commission determine whether imports of wheat, wheat flour, and semolina are being or are practically certain to be imported into the United States under such conditions or in such quantities as to (1) render or tend to render ineffective, or (2) materially interfere with, certain elements of the USDA program for wheat. I have not discussed whether imports have rendered the USDA program for wheat ineffective because the materially interference standard is more easily met. Therefore, I have focused my discussion on the "materially interfere" language of the statute.

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[149] Report at II-40, Table 19.

[150] 7 U.S.C. § 624(a). The President may also take emergency action pending completion of the Commission's investigation. See 7 U.S.C. § 624(c).

The statute does not define the term "material interference."[151] Furthermore, neither the statutory language, legislative history, nor past Commission practice provides a great deal of guidance to the Commission in making its determination under section 22(a) whether material interference to a USDA program has occurred, or is practically certain to occur. In previous section 22 investigations, the Commission has examined the following factors in assessing whether material interference has taken place or is practically certain to occur: (1) the available supply of imports, including import levels, changes in import volumes, world production, and world stocks of the imported product; (2) pricing data, including the relationship between import prices, U.S. prices, and the support price; (3) information relating to domestic supply and demand, including volumes and trends regarding U.S. production and U.S. demand; and (4) data relating to the Government programs, including Commodity Credit Corporation (CCC) outlays,[152] CCC surpluses, and changes in the cost to the Government of running a program.[153] I also note that in determining material interference, the Commission has considered not only whether the stated goals of the USDA program are being met, but also the level of additional USDA expenditures that have resulted from the imports under investigation.[154]

B. Past Section 22 Investigations involving Wheat

The Commission has conducted a number of previous investigations under section 22 involving Wheat and wheat products[155] and has recommended that the President impose quotas on wheat imports on several occasions.[156] In 1941 the President imposed quotas on imports of wheat and wheat products and those quotas remained in effect until 1974, although they were modified three times to provide certain exemptions in extenuating circumstances.[157] In 1974, in response to the recommendation of the Commission, the President suspended the

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[151] The Commission itself has stated only that material interference is "more than slight interference but less than major interference." See Certain Dairy Products, Inv. No. 22-53, USITC Pub. 2659 at 8 (July 1993); Cotton Comber Waste, Inv. No. 22-51, USITC Pub. 2334 at A-17 (Nov. 1990); Certain Articles Containing Sugar, Inv. No. 22-46, USITC Pub. 1462 (1983) at 30, n.11; Sugar, Inv. No. 22-45, USITC Pub. 1253 (1982) at 7; Casein and Lactalbumin, Inv. No. 22-44, USITC Pub. 1217 (1982).

[152] The CCC is a federally owned and operated corporation within the USDA created to stabilize, support, and protect farm income and prices through loans, purchases, payments, and other operations, but not through appropriations. All money transactions for agricultural price and income support and related programs are handled through the CCC. The CCC also helps maintain balanced, adequate supplies of agricultural commodities and helps in their orderly distribution. Report at II-12.

[153] See, e.g., Certain Dairy Products, Inv. No. 22-53, USITC Pub. 2659 at 8 (July 1993); Sugar, Inv. No. 22-45, USITC Pub. 1253 at 7 (1982); Certain Articles Containing Sugar, Inv. No. 22-48, USITC Pub. 2626 at 11-16 (Apr. 1993); Certain Tobacco, Inv. No. 22-47, USITC Pub. 1644 at 5-6 (1985); Peanuts, Inv. No. 22-52, USITC Pub. 2369 at 12-13 (Mar. 1991); Nonfat Dry Milk and Animal Feeds Containing Milk or Milk Derivatives, Inv. No. 22-34, USITC Pub. 633 at 10 (1973).

[154] See Certain Articles Containing Sugar, Inv. No. 22-48, USITC Pub. 2626 at 9-11 (Apr. 1993); Certain Tobacco, Inv. No. 22-47, USITC Pub. 1644 at 5-6, 9-10, 11, 19-20, 23, 44-46, 50-51, 62-63, 64,66-67 (Feb. 1985). Similarly, when assessing materiality or lack of materiality in terms of a section 22(d) investigation of changed circumstances, the Commission has compared the additional USDA expenditures likely to result from a quota modification with the level of USDA's expenditures for the entire price-support program at issue. Peanuts, Inv. No. 22-52, USITC Pub. 2369 at 17-18 (Mar. 1991); Cotton Comber Waste, Inv. No. 22-51, USITC Pub. 2334 at 20-21, 22, 29-30 (Nov. 1990)' Cheeses, Inv. No. 22-31, TC Pub. 567 at 6 (1973).

[155] These included wheat flour, semolina, crushed or cracked wheat, and similar products.

[156] Report at II-4.

[157] Global quotas effective during this period were allocated among countries on the basis of average annual U.S. imports of the covered products during the period 1929-40. Canada received 99.4 percent of the quota for wheat and 95.4 percent of the quota for milled wheat products. Report at II-3.

quotas for a limited period of time, but subsequently took no action to reinstate the quotas, which have remained suspended to date.[158]

III. ANALYSIS OF MATERIAL INTERFERENCE TO THE USDA WHEAT PROGRAM

The President's letter requested that the Commission examine three components of the USDA program for wheat to determine whether material interference has occurred or is practically certain to occur as a result of imports. These three components are: 1) the price support program, 2) the payment (income support) program, and 3) the production adjustment program.[159] Wheat program activities are funded through the USDA's Commodity Credit Corporation (CCC), the Government-owned legal entity for financing the USDA's commodity programs.[160]

A. The Price Support Program

The price support program operates by offering wheat farmers nonrecourse loans at an announced "price support" loan rate.[161] A participating farmer pledges his wheat crop as collateral to the government, and then receives a 9-month loan on the amount pledged at a predetermined interest rate per bushel.[162] If market prices are at or below the loan rate, the farmer may keep the loan and forfeit his crop to the government, which then holds this forfeited grain in storage. If market prices are above the loan rate when the loan expires, as generally occurred during the period of the current investigation, the farmer may sell his crop on the open market and repay the loan plus interest.

USDA argued that wheat imports materially interfered with the wheat program because those imports encouraged U.S. wheat farmers to place more of their wheat under loan and that the increased wheat placed under loan resulted in an increase of $27 million in net outlays under the program in FY 1991-94.[163] I am not persuaded, however, that an increase in the amount of U.S.-grown wheat placed under loan necessarily suggests that this component of the USDA's wheat program has suffered material interference. I believe a more relevant indicator of material interference is the amount of wheat actually forfeited to the USDA under the program.[164] In this regard, I note that from 1989/90 to 1993/94, the

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[158] Wheat and Milled Wheat Products, Inv. No. 22-38, TC Pub. 675 (May 1974).

[159] Agricultural Adjustment Act of 1949, P.L. 81-439 (codified at 7 U.S.C. 1421, et seq.), as amended by, Food Security Act of 1985, P.L. 99-198; Food, Agriculture, Conservation, and Trade Act of 1990, P.L. 101-624; Omnibus Budget Reconciliation Act of 1990, P.L. 101-508; Omnibus Budget Reconciliation Act of 1993, P.L. 103-66.

[160] See 15 U.S.C. § 714. The CCC has no separate staff; the Agricultural Stabilization and Conservation Service (ASCS) actually operates the program through some 2,800 county offices and its headquarters in Washington, DC. Report at II-12.

[161] Report at II-13.

[162] The basic loan rate is calculated as 85 percent of the moving average of the market price of wheat, calculated over the last 5 years, with the high and low figures deleted. Report at II-13 & Table 1, Report at II-14. The USDA may reduce the basic loan rate by up to 20 percent when the end stocks-to-use ratio reaches adequately high levels. Id. In such cases, the "Findley loan rate" comes into play, and is the actual loan rate for which farmers are eligible. Id. This lower loan rate has been in effect since it was first authorized in 1985. Id. The announced loan rate is a national average, which is then converted into local rates for grades at specified county locations. Id. The national average basic loan rate for wheat of average quality in 1993/94 was $2.86 per bushel; the Findley loan rate was $2.45 per bushel. Id.

[163] Transcript of Washington Hearing at 14; Report at II-14.

[164] As noted above, when wheat is not forfeited, the farmer repays the amount of the loan plus interest.

loan rate has been substantially below prevailing market prices, and, with the exception of a small amount of wheat forfeited in 1990, no wheat was forfeited to the USDA during 1989/90 to 1993/94.[165]

USDA acknowledged the lack of forfeitures, but asserted that the level of forfeitures is likely to increase in the future to such a degree that the Commission should find that those future imports are practically certain to cause material interference with this component of the USDA program.

In light of the absence of forfeitures under the USDA loan program, I find little evidence that imports of wheat, wheat flour, or semolina have materially interfered with the USDA's price support program. Furthermore, I find that the evidence of such an increase in imports is not sufficiently "real and imminent" to justify a finding that imports of wheat are "practically certain" to interfere with the program.[166]

B. The Production Adjustment Program

The second component of the USDA wheat program, the production adjustment program, permits the USDA to reduce the acreage planted among program participants when wheat supplies are projected to be excessive. The program operates through the use of either the Conservation Reserve Program, the Farmer-owned Reserve, or set-aside programs (acreage reduction).[167] Acreage taken out of production through an ARP must be put into approved conservation uses (e.g., the Acreage Conservation Reserve (ACR)). The Conservation Reserve Program (CRP), a long-term retirement program for erodible land, is available to both wheat program participants and nonparticipants. Under this program, producers submit bids for a 10- or 15-year contract, stating the annual payment they would accept to convert this land to vegetative cover. The USDA then pays an annual rent to farmers to keep this land in conservation use.

Approximately 11 million acres of wheat farmland were voluntarily enrolled in the CRP in 1993/94. The USDA's costs for wheat acreage in the CRP increased from 1989/90 to 1993/94.[168] However, during 1989/90, the USDA lowered the ARP from 10 percent of the wheat acreage base to zero, meaning farmers were allowed to plant more of their wheat base, and the USDA announced an ARP of zero for the 1994/95 crop.[169] Given that the amount of land enrolled in the set-aside program has not exceeded 15 percent of the base over the period examined and that the USDA did not set-aside any acreage in the most recent period, I find that this element of the USDA wheat program has not been materially interfered with by imports of wheat.[170]

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[165] Report at II-14.

[166] See Certain Tobacco, Inv. No. 22-47, USITC Pub. 1644 at 5 (Feb. 1985); Certain Tobacco, Inv. No. 22-43, USITC Pub. 1174 at 3 (1981) ("Mere speculation as to future imports that will cause harm to a program is not sufficient.").

[167] Report at II-12, 17-21. The acreage reduction requirements (ARPs) are set for wheat based on the year-end stocks-to-use ratio. The 1989/90-1993/94 ARPs ranged from 0 to 15 percent, resulting in acreage reductions of from between zero and over 10 million acres. Report at II-17.

[168] Report at II-18. The costs to USDA from the CRP are divided into annual rental payments and a 50-percent cost for cover crops and improvements for the land. The farmer pays the other 50 percent of the cover crop and land improvement expenses.

[169] Report at Table 1, II-14.

[170] Report at II-14.

C. The Payment Program

Evidence collected in this investigation, however, does indicate that the third component of the USDA wheat program, the payment program, is being materially interfered with by imports. This portion of the program provides deficiency payments to farmers based on the difference between market prices, loan rates, and established target prices.[171] Farmers participating in the target price option are eligible to receive deficiency payments when the market price for wheat is below the established target price.[172]

During 1989/90 to 1993/94, deficiency payments for wheat were based on the difference between the target price and the national average market price received by farmers during the first 5 months of the marketing year.[173] With the 1994/95 crop, the deficiency payment rate will be based on the difference between the target price and the higher of the loan rate or "price."[174]

I find that the large and rapidly increasing volume of imports has had an adverse impact on U.S. market prices and has caused a significant increase in the overall level of deficiency payments. For this reason, I find material interference to this portion of the USDA's wheat program.

As a primary indication of material interference, I note that the volume of imports of wheat increased significantly over the five year period examined by the Commission. Import volumes of most of the major categories of wheat, wheat flour, and semolina increased from 1989/90 to 1992/93 and in June-December 1993 compared with June-December 1992.[175] The volume of imports of all types of wheat nearly doubled from crop year 1989/90 to crop year 1990/91, and continued to climb in crop year 1991/92. In 1992/93, import volume exceeded 1.5 million metric tons, a four fold increase over the level of imports at the beginning of the period examined.[176] Between 1989/90 and 1992/93, durum imports increased 146 percent, red spring wheat imports increased 198 percent, and all other wheat imports increased over 1,700 percent. In addition, imports of Canadian western red winter wheat and soft white spring wheat increased exponentially from crop year 1991/92 to 1992/93.[177]

The volume of imports of wheat flour also increased by 70 percent between crop year 1989/90 and 1990/91, declined slightly in crop year 1991/92, then increased nearly 275

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[171] Report at II-14. Other payments known as loan deficiency payments from marketing loans; so-called "0/92 and 50/92" payments; and emergency compensation ("Findley") payments are also available.

[172] A minimum target price for the 1986-95 crops was established in the 1985 and 1990 Farm Bills. The Secretary of Agriculture establishes the annual target price through regulation.

The deficiency payment rate is equal to the difference between the target price and the higher of the average market price received by farmers or the basic loan rate. During 1989/90 to 1993/94, the target price remained at $4.00 per bushel, except during 1989/90, when it was $4.10 per bushel.

Deficiency payments are determined by multiplying the deficiency payment rate times a grower's eligible acreage times a yield established for program purposes. Farmers can receive deficiency payments on up to 85 percent of their established wheat acreage base, depending upon the actual area planted to wheat. Accordingly, when an acreage reduction program (ARP) is in effect, farmers can receive payments on up to 85 percent of their established crop acreage base less any required acreage reduction.

[173] The loan rate was below the 5-month average market price each year during this period.

[174] "Price" is the lower of either (1) the 12-month average market price or (2) the 5-month average price plus 10 cents per bushel.

[175] Data on imports of wheat are discussed in detail in the Report at II-24-43 and Table 19.

[176] Imports during June-December 1993 were substantially higher than during June-December 1992. Id.

[177] These products were not reported separately in the 1989/90 or 1990/91 crop years.

percent in crop year 1992/93 for an overall increase of 516 percent.[178] The volume of imports of semolina increased dramatically from crop year 1989/90 to 1991/92, then declined thereafter for an overall increase of 826 percent.[179] [180]

My analysis of the impact of imports of wheat, wheat flour, and semolina on the USDA payment program for wheat is based, primarily, on the model created by the Commission staff.[181] The Commission's model was developed to estimate the portion of the increases in the level of USDA deficiency payments to wheat farmers that are attributable to the presence of imports in the U.S. market. During 1989/90 to 1993/94, total deficiency payment rates rose irregularly from $0.32 per bushel to a projected $1.05 per bushel.[182] The model indicates that deficiency payments resulting from supply increases equal to the levels of imports of wheat, wheat flour, and semolina have increased from $21.44 million in 1989/90 to $83.79 million in 1993/94, for an average of $44.4 million annually.[183] This rise in deficiency payments from 1989/90 to 1993/94 due to increases in wheat imports were $222 million over the five-year period of investigation.[184] Such import-related payments increased by 305.2 percent over that period.[185] I find that this increase constitutes material interference.

In examining the impact of wheat imports on USDA deficiency payments, I have examined the effect of those imports on wheat prices in the United States, because the level of deficiency payments to U.S. wheat farmers would be expected to increase if imported wheat lowered the prices that those farmers received for their wheat in the U.S. market. The Commission requested pricing data for five wheat products produced in the United States and Canada.[186] Insufficient questionnaire data are available, however, to show price trends for Canadian products. Price comparisons between United States and Canadian wheat also were inconclusive. However, given that domestic and imported wheat of similar grades are highly substitutable commodity products, persistent underselling or overselling would be unexpected in this market.

Average prices of Canadian wheat were below those of the U.S. products in 28 instances, with margins of underselling as high as 12.8 percent. Canadian average prices were above U.S. average prices in 33 instances, however, with margins as high as 20.0 percent. In two instances, the prices were equal.[187]

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[178] Data on wheat flour imports are discussed in detail in the Report at II-39-43 and Table 20, at II-42.

[179] Report at II-43, II-30, and Table 20, II-42.

[180] Report at II-42-43 and Table 19, at II-40.

[181] Report at II-86. Several other models and/or economic arguments were submitted by parties arguing both in support of and against material interference; however, I have relied primarily on the Commission's models because I find them to be the most objective and the most empirically justifiable of all of the submissions. This is true even in light of the acknowledged shortcomings of one of the Commission's models that may have led to an underestimation of the effects on deficiency payments in the latter years of the period of investigation as wheat imports surged. See Report at II-80-96. The Commission models, in addition to the modeling techniques and conclusions of various parties, are discussed in detail in the Report.

[182] Report at II-14, Table 1.

[183] Report at II-90-91, and Table 37 and accompanying text.

[184] Id.

[185] Id.

[186] Report at II-79.

[187] In 27 possible price comparisons for hard red spring wheat, the Canadian product was higher in 19 comparisons and lower in 8. Id. In 36 possible price comparisons for durum, Canadian imports were higher in 14 comparisons, lower in 20, and equal in 2. Id. There is some indication of geographical location affecting price, with both U.S. and Canadian products priced lower in markets closer to producing areas. Id. at II-79.

The fact that wheat is a commodity product also suggests that the presence of imports of wheat in the U.S. market, which grew substantially over the period of investigation, increased the total wheat supply and reduced the market price. This, in turn, resulted in an increase in the overall level of deficiency payments by the Department of Agriculture. The decline in the unit values of imports, particularly Canadian imports, over the period of investigation, along with an increase in import volumes, supports the conclusion that imports of wheat have adversely affected the price of wheat in the United States.[188]

The National Grain Trade Council and the Canadian Wheat Board argued that wheat imports have not materially interfered with the USDA wheat program because a large percentage of the recent imports of wheat were imports of feed quality wheat that does not compete for markets with milling quality wheat.[189]

I find that imports of "feed" wheat, as well as wheat for human consumption, adversely affected the U.S. wheat program. Most imports of feed wheat come from Canada. While the HTS does not distinguish between feed- and food-grade wheat, some volume of Canadian "feed wheat" was reportedly blended with higher grade wheat and was used as milling-grade wheat in the United States,[190] the effect of which is to lower prices for domestic food-grade wheat and to increase deficiency payments.

Feed wheat exports from Canada increased from 13,800 metric tons in crop year 1990/91 to 1.1 million metric tons in crop year 1993/94.[191] It is likely that even if imports of wheat were originally imported for feed purposes, they did and could continue to displace some of the domestic production of food-grade wheat.

CONCLUSION

Based on the information collected in this investigation and my analysis of the data and the effect of wheat, wheat flour, and semolina imports on the USDA wheat programs, I find that the overall program is materially interfered with and recommend to the President that he impose the above described forms of relief to remedy that material interference.

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[188] From 1989/90 to 1992/93 durum wheat import unit values per metric ton declined from $153 to $143, hard red spring wheat import unit values declined from $163 to $132, white wheat import unit values declined from $140 to $134, and from 1990/90 to 1992/93. Report at Table K-1, at K-4.

[189] Transcript of Washington Hearing at 213.

[190] Report at II-52-53. The principal grade of wheat exported as feed wheat is Canada western feed wheat (CWFW). The CWB estimates that in normal years, only 10 to 12 percent of Canadian wheat is classified as CWFW. In crop year 1992/93, however, export sales of feed wheat were greater in part because of the increased propensity of U.S. millers to blend feed wheat with milling grades of U.S. wheat and because of increased crop damage to Canadian wheat that year.

The CWB estimated that 72 percent of CWFW exports to the United States were sold to animal feed manufacturers (rather than used for blending) in crop year 1992/93, and 86 percent in crop year 1992/94. The remaining CWB exports were sold mainly to U.S. millers. Report at II-52-53.

[191] Id.

PART II

INFORMATION OBTAINED IN THE INVESTIGATION

INTRODUCTION

On November 17, 1993, the Commission received a letter from the President stating that he had been advised by the Secretary of Agriculture, and that he agreed with the Secretary, "that there is reason to believe that wheat, wheat flour, and semolina are being or are practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment program for wheat conducted by the Department of Agriculture."[1]

As directed by the President, the Commission instituted investigation No. 22-54 under section 22(a) of the Agricultural Adjustment Act (7 U.S.C. 624(a))[2] to determine whether wheat classified under Harmonized Tariff Schedule of the United States (HTS) heading 1001, wheat flour classified under HTS heading 1101, and semolina classified under HTS subheading 1103.11.00 are being or are practically certain to be imported into the United States under such conditions or in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment program conducted by the U.S. Department of Agriculture (USDA) for wheat.

Notice of the institution of the Commission's investigation and of a hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* of January 26, 1994 (59 F.R. 3736).[3] The Commission held public hearings in Bismarck, ND, Shelby, MT, and Washington, DC on April 7, April 8, and April 28, 1994, respectively, in order to afford interested parties adequate opportunity to present information and data for consideration by the Commission.[4]

BACKGROUND AND PREVIOUS INVESTIGATIONS

Section 22 (7 U.S.C. 624) authorizes the President to impose fees or quotas on articles that he finds are being or are practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with, certain domestic commodity programs of USDA. In 1941 (in Inv. No. 22-3), the U.S. Tariff Commission (now the Commission) determined in effect that wheat and wheat flour fit for human consumption were practically certain to be imported under such conditions and in such quantities as to interfere materially with USDA price support programs for wheat. After reviewing the Commission's findings, on May 29, 1941, President Roosevelt issued Presidential Proclamation No. 2489 establishing, effective on that date, absolute annual global import quotas of 800,000 bushels of wheat fit for human consumption and 4 million pounds of milled wheat products fit for human consumption.[5] These quotas essentially remained in effect through 1974, although they were modified three times to provide certain exemptions in extenuating circumstances.[6]

Global quotas effective during this period were allocated among countries on the basis of average annual U.S. imports of the covered products during the period 1929-40. Canada received 99.4 percent of the quota for wheat and 95.4 percent of the quota for milled wheat products.

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[1] A copy of the President's letter is presented in appendix A.

[2] The Commission's institution notice incorrectly cited section 22(d) of the Agricultural Adjustment Act as the statutory authority under which this investigation was instituted.

[3] Copies of the Commission's *Federal Register* notices are presented in appendix B.

[4] Lists of witnesses appearing at the public hearings are presented in appendix C.

[5] These included wheat flour, semolina, crushed or cracked wheat, and similar products.

[6] These exceptions were made for distress shipments of experimental or seed wheat, for purchases by the War Food Administrator, and for certain wheat flour used for religious and ritual purposes in Passover matzo production.

On October 31, 1973, President Nixon requested the Tariff Commission to institute an investigation under section 22 (inv. No. 22-38) to determine whether the import quotas on wheat and milled wheat products could be suspended without rendering or tending to render ineffective, or materially interfering with, USDA wheat programs, or substantially reducing the amount of products processed in the United States from domestic wheat. On January 15, 1974, the Tariff Commission made an interim report to the President, finding that the quotas on wheat and milled wheat products could be suspended through June 30, 1974, without rendering or tending to render ineffective, or materially interfering with, USDA wheat programs, or reducing substantially the amount of products processed in the United States from domestic wheat.[7] In response to the Commission's recommendation, the President suspended the quotas through June 30, 1974.

On May 10, 1974, the Commission made its final report in inv. No. 22-38 to the President.[8] The Commission recommended that the President issue a proclamation suspending the import quotas on wheat and milled wheat products for a 1-year period, July 1, 1974, to June 30, 1975, inclusive.[9] The President adopted the Commission's recommendation, and decided to suspend the quotas. The President took no action to reinstate the quotas after June 30, 1975, and they have remained suspended to date.

In 1990, the Commission conducted an investigation regarding Durum wheat under section 332(g) of the Tariff Act of 1930.[10] The report contained information on, among other topics: (1) descriptions of the U.S. and Canadian Durum wheat industries; (2) statistical analyses of U.S. and Canadian Durum production, consumption, exports, imports, and import market shares; (3) descriptions of the current conditions of trade in Durum wheat between the United States and Canada, including information on prices, exchange rates, transportation costs, and marketing practices; and (4) descriptions of U.S. or Canadian government programs assisting Durum wheat producers and processors. On June 22, 1990, the Commission reported the results of its investigation to the House Committee on Ways and Means and Senate Committee on Finance.

THE PRODUCTS

Wheat

Description of Wheat Classes

Wheat (genus *Triticum*), the seed of an annual cereal grass, is the leading food grain of the temperate climate regions of the world. Wheat is generally categorized as hard or soft wheat on the basis of kernel characteristics. In addition, wheat varieties are distinguished depending on whether the wheat is planted in the spring or in the winter. Winter wheat is sown in the fall and starts growing before cold weather halts activity. After lying dormant during the winter, the wheat plants resume growth in the spring. Spring wheat is sown in the spring as soon as the ground can be worked, and grows until harvested. The composition of the 1993 U.S. wheat crop, according to USDA data, was as follows:[11]

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[7] United States Tariff Commission, *Wheat and Milled Wheat Products*, Inv. No. 22-38, TC Publication 643, Jan. 1974.

[8] United States Tariff Commission, *Wheat and Milled Wheat Products*, TC Publication 675, May 1974.

[9] Commissioner Leonard dissented, recommending instead that the quotas be indefinitely suspended.

[10] USITC, *Durum Wheat: Conditions of Competition between the U.S. and Canadian Industries*, inv. No. 332-285, USITC publication 2274, June 1990.

[11] The 1993 crop was grown during crop year 1993/94; U.S. crop years run from June 1 to May 31.

	Share of U.S. wheat crop (Percent)
Hard Red Winter	44
Hard Red Spring	21
Soft Red Winter	17
White	15
Durum	3
Total	100

Durum wheat

Durum wheat is a hard wheat, grown mainly in the spring, and is generally milled into a coarser meal (called semolina) rather than a flour. Durum's principal applications are in the production of semolina, a meal used for making macaroni, spaghetti, vermicelli, and similar pasta products.[12]

Hard wheat

Hard wheat has a kernel that is high in protein and gluten content.[13] It is produced in areas with hot summers and moderate rainfall. The flour made from hard wheat readily absorbs water and produces an elastic and tenacious dough well suited to commercial bread baking. Wheat cereal breakfast foods to be prepared by the consumer, such as farina, are also generally made from hard wheat. The principal classes of hard wheat grown in the United States are Hard Red Winter wheat and Hard Red Spring wheat. Hard White wheat is an experimental hard wheat not yet grown in significant commercial volume in the United States.[14]

Soft wheat

Soft wheat has a kernel relatively low in protein content. It is produced in areas of abundant rainfall and moderate temperature. The flour made from soft wheat is used primarily for baking cakes, crackers, biscuits, and pastry. Prepared breakfast foods, such as wheat flakes, are made from soft wheat. Soft Red Winter wheat is the leading soft wheat, and Soft White wheat the second-leading soft wheat.

USDA Grading Standards

USDA recognizes eight classes of wheat: Hard Red Winter, Hard Red Spring, Soft Red Winter, Soft White, Durum, Hard White, Unclassed, and Mixed wheat (appendix D). The classes Hard Red Spring wheat, Soft White wheat, and Durum wheat are further divided into subclasses, while there are no subclasses for the remaining classes.

Each class and subclass is divided into five U.S. numerical grades and U.S. Sample grade, with grade No. 1 being the highest quality and Sample grade the lowest. The five USDA numerical

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[12] Defined in 21 CFR 137.320.

[13] According to *Webster's New World Dictionary*, "gluten is a gray, sticky, nutritious protein substance containing gliadin, found in wheat and other grains; it gives dough its tough, elastic quality." Gluten is also extracted from wheat, and sold commercially to wheat millers for blending with low-protein flour.

[14] Hard White wheat only became a separate wheat class beginning in 1990; U.S. production is limited to California and Kansas. U.S. Wheat Associates, 1993 Crop Quality Report, p. 22.

grades are distinguished using the test weight per bushel, and the percentage of damaged kernels, foreign material, shrunken and broken kernels, defects, and wheat of other classes.[15]

Although there are five numerical grades per class, U.S. wheat has typically met the standards of the top three grades. For instance, in 1992, the USDA Federal Grain Inspection Service (FGIS) inspected 34 million lots of U.S. wheat destined for export, and classified 91 percent as U.S. No. 2, 6 percent as U.S. No. 1, 2 percent as U.S. No. 3, and the remaining 1 percent as U.S. No. 4 or worse.[16] FGIS inspects virtually all U.S. wheat exports, but only a portion of domestic wheat shipments.[17] There are no comparable data for USDA grades of domestic shipments because voluntary FGIS inspection occurs on only a portion of the domestic crop.

Special grades may be further provided to emphasize special qualities or conditions affecting the value of wheat. Special grades are added to and made a part of the USDA grade designation, but do not affect the numerical grade designation. The protein level (as a percentage of the total grain weight) may be used to distinguish a special grade.

Protein content levels are frequently specified in contracts in both domestic and international transactions for U.S. wheat. Millers and bakers usually need a specific and constant protein level, depending on their customers' needs. The protein level of wheat produced each year varies greatly, depending on growing conditions.[18] In years when the protein level in either the Hard Red Winter crop or the Hard Red Spring wheat crop is lower than normal, flour millers frequently purchase the other hard class to "blend-up" the average protein level of the flour. The price premium that millers pay (the "protein premium") can be quite high in some years, such as 1993, when the overall protein level of the wheat crop was low. After receiving the wheat, millers typically perform their own quality tests, and may blend wheats together before milling in order to meet customer specifications.

Comparison of U.S. to Canadian Grades

The Canadian Government (Canadian Grain Commission (CGC)) provides for seven Canadian wheat classes: Red Spring wheat, Western Utility wheat, Soft White Spring wheat, Western Winter wheat, Eastern Winter wheat, Amber Durum wheat, and Prairie Spring wheat.[19] For the leading Canadian wheat, Western Red Spring (CWRS), there are 5 grades--No. 1, No. 2, No. 3, Canada Western Feed, and Final Grade (the lowest quality grade). For Amber Durum wheat, there are six grades, also including a Final Grade.

In addition to these primary Canadian grades for domestic wheat, there is a second set of Canadian standards called "export standards," that applies mainly to terminal elevators for export shipments.[20] These export standards generally require higher test weights, but the tolerances for foreign material are more relaxed. The export standards apply at most to the top three grades of each class of wheat.[21]

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[15] See appendix D.

[16] See appendix D.

[17] Domestic wheat is generally graded by the private elevator or terminal. The elevator or terminal may use its own or an outside laboratory for performing grade and protein analysis. If requested, FGIS will also grade samples of domestic wheat by using laboratory analysis.

[18] Walter Heid, Economic Research Service (ERS), USDA, U.S. Wheat Industry, Aug. 1979, p. 13.

[19] See appendix E for Canadian grading standards.

[20] USITC publication 2274, June 1990, p. 5-1.

[21] Those wheat grades to which an export standard applies include No. 1, No. 2, and No. 3 CWRS wheat; No. 1 and No. 2 Canada Utility wheat; Canada Feed; No. 1, No. 2, and No. 3 Canada Western Amber Durum; and No. 1, No. 2, and No. 3 Canada Western Soft Spring.

The Canadian Wheat Board (CWB) also provides for three special grades based upon protein content for CWRS No. 1 and CWRS No. 2.[22] The CWB provides for a 14.5-percent protein grade for CWRS No. 1, a 13.5-percent CWRS No. 2, and a 13.5-percent CWRS No. 2.

Two of the most important criteria for the Canadian grades are the extent of varietal control and visual testing. Other grade determinants include the percentage of wheat that is sprouted, damaged, off-colored (smudged, or darkened), shrunken, or broken; and the percentage of foreign matter permitted. Through licensing, the CGC controls the varieties that Canadian farmers can grow and sell in Canada with the goal of controlling the grade characteristics of the Canadian wheat classes. This practice contrasts with the U.S. system, where virtually any wheat variety can be grown and traded. Traditional Canadian visual factors in controlling grades are used to ensure uniformity of the grade within each crop year.[23]

In 1991/92, about 67 percent of the volume of Canadian exports of wheat to all countries consisted of CWRS No. 1 wheat, 10 percent Canadian Western Amber Durum, and 5 percent CWRS No. 2.[24] The other types of Canadian wheat exports (each with 1 percent or less of reported exports) were Soft White Spring, CWRS not elsewhere specified, White Winter, Western Red Winter, and Seed. Additionally, 10 percent of total exports were reported as "wheat, not elsewhere specified."

Uses

The five primary U.S. wheat classes--Hard Red Spring, Hard Red Winter, Soft Red Winter, Soft White, and Durum--vary considerably in the end uses to which they are put. In general, all wheat (with the exception of wheat grown expressly for seed for planting) is planted with the expectation that it will end up being milled and used in food, although a sizable amount ends up being fed to livestock each year. Therefore, the desirable milling qualities strongly influence wheat characteristics. The primary uses of these five wheat classes are shown below:[25]

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[22] See appendix E for CWB payments for principal grades of wheat.

[23] USITC publication 2274, p. 5-2.

[24] S. Hammond, *Grain and Feed Annual*, prepared by U.S. Embassy, Ottawa, Apr. 8, 1993, p. 17.

[25] *The Wheat Grower: Wheat Facts*, 1988, p. 9., and Joy Harwood, Mack Leath, and Walter Heid, USDA, ERS, *The U.S. Milling and Baking Industries*, Dec. 1989, p. 17.

Classes	Qualitative factors	Primary food use
Hard Red Winter	Good milling and baking characteristics, wide range of protein levels	All flours, but primarily bread flour, blended with weaker wheats for bread flour, whole wheat breads
Soft White	Low protein[26]	Breakfast cereals, oriental noodles, crackers, donuts, layer cakes, foam cakes
Soft Red Winter	Low protein	Flour for cakes, pastries, quick breads, crackers, snack foods
Hard Red Spring	Excellent protein level and milling qualities	All flour, primary bread flour, white bakers' bread and rolls
Durum	Highest protein level	Semolina for pasta products

There is a high degree of substitution between Hard Red Spring and Hard Red Winter, depending on the protein levels. Figure 1 indicates the degree of substitution between the classes as a result of protein levels.

In the United States, most wheat is milled into flour and meal and further processed to make products for human consumption. Wheat is also used in significant quantities for seeding and as livestock feed, and in small amounts for the manufacture of starch, gluten, and some industrial products. During 1989/90 to 1993/94, food use of wheat in the United States accounted for 68 percent of domestic consumption (disappearance), feed and residual use accounted for 23 percent, and seed use accounted for 8 percent.[27] Domestic food use of wheat increased at an average annual rate of 3.1 percent annually from 749 million to 845 million bushels during these 5 years (see appendix F). The "feed and residual" use of wheat has been quite volatile, with animal feeding of wheat rising during years when wheat quality is low, or when large crops render wheat feeding cost-competitive to such alternative feed grains as sorghum or corn.

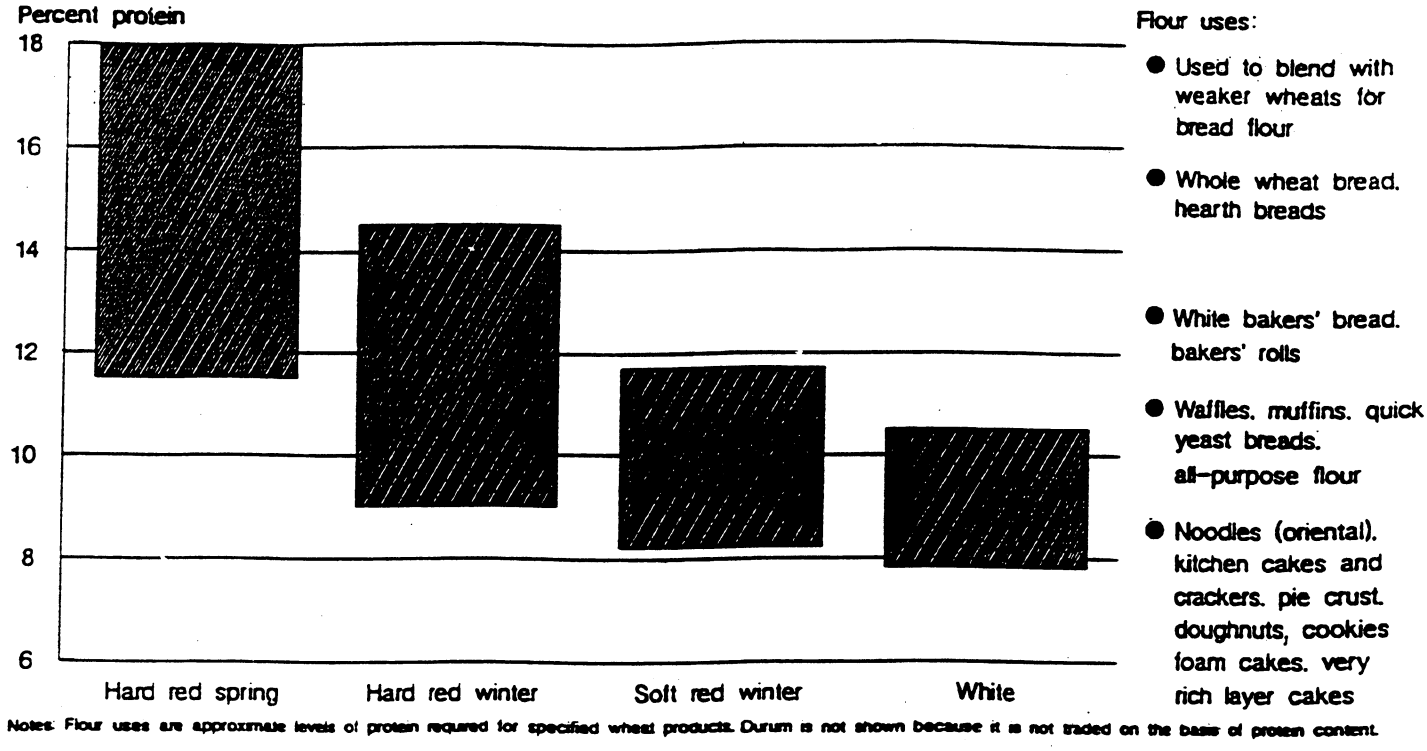
Wheat Flour and Semolina

Description of Flour Types and Semolina

In domestic markets, there are a large number of wheat flours tailored to specific food uses; semolina is also sold under different specifications, depending on the needs of the pasta producer.[28] Ordinary white-bread flour for bakers and food institutions is the leading domestic flour, accounting

[26] High-protein Hard White Wheat is grown in very small amounts in the United States.
[27] USDA, ERS.
[28] More than 15 types of wheat flour and semolina are defined for domestic commerce; see 21 CFR, ch. 1, sec. 137.

Figure 1
Wheat: Protein range and flour uses of major wheat classes



Notes: Flour uses are approximate levels of protein required for specified wheat products. Durum is not shown because it is not traded on the basis of protein content.

Source: USDA, ERS, *The U.S. Milling and Baking Industries*, prepared by Joy Harwood, Mack Leath, and Walter Heid, Dec. 1989, p. 17.

for slightly over half of domestic flour shipments in 1987 (the most recent year for which data are available). The leading types of flour shipments in the United States in 1987 were as follows:[29]

	Shipments (1,000 cwt)	Share (Percent)
White flour:		
Export shipments	17,310	5
Domestic shipments:		
Bakers and institutional white bread-type	173,029	53
Bakers and institutional soft-type	47,333	14
Self-rising family flour	3,664	1
All other family flour	38,977	12
Shipments to blenders and processors:		
For use in food products	9,796	3
For use in nonfood products	3,062	1
Other than white flour:		
Whole wheat	5,383	2
Durum flour and semolina	26,728	8
Other, including farina	2,023	1
Total	327,305	100

Uses

About 85 percent of U.S. wheat flour consumed in recent years was used by food processors to make bakery items such as breads, cakes, crackers, cookies, and pastas, and for the production of breakfast cereals, soups, gravies, and other prepared foods.[30] The remaining 15 percent of U.S. wheat flour consumed was used directly by retail consumers as packaged family flour and bakery mixes. During the period examined, the total amount of wheat flour used in various applications is shown in the following tabulation, based on data compiled in response to Commission questionnaires (*in thousands of metric tons*):

	Crop year--				June-Dec.--	
	1989/90	1990/91	1991/92	1992/93	1992	1993
Pasta production	369	387	404	392	***	***
Baked goods production	7,336	7,614	8,397	9,075	5,450	5,734
Cereal goods production	***	***	***	***	68	70
Other goods/uses	***	***	***	***	***	***
Total	7,977	8,281	9,101	9,766	5,822	6,157

Total U.S. wheat flour consumption rose steadily from 319 million hundredweight (cwt) in 1989 to 362 million cwt in 1993, an annual average 3.1-percent rise, according to USDA. On a per capita basis, U.S. flour consumption rose from 129 pounds to 140 pounds per-capita during the period, the highest level since 1947.

[29] U.S. Bureau of the Census, 1987 Census of Manufactures: Grain Mill Products, table 6a-1.
[30] Harwood, Leath, and Heid, p. 1.

Manufacturing Processes

Flour millers grind and sift wheat into flour and millfeeds, separating the outer bran and germ from the inner, more digestible endosperm. The outer kernel portions are typically used as millfeeds for livestock, while the endosperm is processed into flour. Flour millers are the leading U.S. processors of wheat, although breakfast food, pet food, and feed manufacturers also process wheat.[31]

Millers of the different types of wheat are found throughout the United States. Most mills specialize in the milling of either hard or soft wheats. Multiple-plant companies often have separate soft-wheat milling plants, hard-wheat milling plants, and Durum milling plants. Durum milling plants tend to specialize solely in the production of semolina and, in recent years, some individual Durum mills have become "captive" or dedicated operations of, and located adjacent to, large pasta manufacturers.

Substitutability

The degree of substitutability among the different flours depends on the end use of the flour in the food product. Semolina tends to be a separate product competing largely within this class, although farina is a substitute for semolina in certain pasta products. Farina meets all the desired characteristics of semolina except that it is derived from Hard Red Spring or Hard Red Winter wheat.

U.S. Tariff Treatment

Imported wheat, wheat flour, and semolina are classified for tariff purposes under HTS headings 1001 (wheat) and 1101 (wheat flour) and subheading 1103.11.00 (statistical reporting number 1103.11.0020) (semolina).[32] Durum wheat and all other wheat (except seed wheat) enter at a column 1-general rate of duty of 0.77 cents per kilogram. Eligible imports from Canada (the supplier of over 99 percent of U.S. wheat imports during 1989-93) are dutiable in 1994 at 0.3 cents per kilogram, equivalent to 2.3 percent ad valorem equivalent (AVE), under the North American Free Trade Agreement (NAFTA).[33] Imports of seed wheat (except Durum seed) are dutiable at 6.3 percent under column 1-general, and 2.5 percent if they are eligible goods of Canada under the NAFTA. The U.S. preferential duty rate on imports of wheat from Canada has declined since the implementation of the U.S.-Canadian Free Trade Agreement (now suspended; superseded by the NAFTA) from 0.77 cents per kilogram in 1988 to the current 0.3 cents per kilogram.

U.S. imports of wheat flour and semolina are dutiable in 1994 at the column 1-general rate of 1.1 cents per kilogram, while eligible goods of Canada are dutiable at 0.4 cents per kilogram (nearly all U.S. imports of wheat flour and semolina during 1993 entered from Canada). In 1994, U.S. imports of wheat flour and semolina from Canada had AVE duty rates of 1.3 percent and 1.2 percent, respectively.

Notes 2(B) and 3(b) to HTS chapter 11 define the tariff classification criteria for wheat flour and semolina. Thus, imports of farina, entering under HTS statistical reporting number 1103.11.0040, and other milled wheat products entering under HTS subheading 1104 are not considered to be within the scope of this investigation because they were not specifically referenced in the letter from the President. Also excluded from consideration in the investigation are meslin

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[31] Ibid., pp. 1-2.

[32] See appendix G for a copy of the appropriate sections of the HTS relating to wheat, wheat flour, and semolina, including legal notes and rates of duty.

[33] The NAFTA rate is not automatically given to imports from Canada, however; importers must claim it for each shipment.

(which is a mixture of wheat and rye, generally in proportions of two to one) and meslin flour; both meslin and meslin flour are believed to be traded in negligible amounts.[34]

HTS heading 9904.20.10 sets forth the suspended section 22 quotas on U.S. imports of wheat fit for human consumption provided for in heading 1001, and on imports of milled wheat products fit for human consumption provided for in headings 1101, 1103, and 1104. As noted previously, these restrictions were imposed on U.S. imports of wheat and milled wheat products from 1941 through 1974, when the President acted on Commission advice that the suspension of the import quotas would not render or tend to render ineffective or materially interfere with the programs for wheat conducted by the USDA, or reduce substantially the amount of any products processed from wheat.[35]

U.S. GOVERNMENT PROGRAMS AFFECTING WHEAT

Introduction

The stated purpose of U.S. agricultural policy is ". . . to extend and revise agricultural price support and related programs, to provide for agricultural export, resource conservation, farm credit, and agricultural research and related programs, to ensure consumers an abundance of food and fiber at reasonable prices, and for other purposes...."[36] U.S. Government support for wheat began during World War I, and since then the Government has pursued price and production objectives through a number of different policies, including (1) price support and payment programs (e.g., nonrecourse loans and direct payments (deficiency payments)); (2) production adjustment programs (e.g., the Conservation Reserve Program, Farmer-owned Reserve, and set-aside programs (acreage reduction)); and (3) the Export Enhancement Program.[37]

The Food Security Act of 1985 (P.L. 99-198) (the 1985 Farm Bill) revised the permanent farm support legislation (the Agricultural Adjustment Act of 1949 (P.L. 81-439)) to provide price support and production adjustment programs for wheat crops harvested from 1986 through 1990. The Food, Agriculture, Conservation, and Trade Act of 1990 (P.L. 101-624) (the 1990 Farm Bill) revised the permanent farm support legislation to provide price support and production adjustment programs for wheat crops harvested from 1991 through 1995. Less sweeping changes in the Agricultural Adjustment Act of 1949 were later made in the Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508) and the Omnibus Budget Reconciliation Act of 1993 (P.L. 103-66).[38]

The November 16, 1993 letter from the President indicated that the Commission should specifically examine the issue of imports materially interfering with "the price support, payment and production adjustment program conducted by the Department of Agriculture for wheat." There are other USDA programs outside this specific program for wheat which may influence U.S. wheat markets, and, therefore, these are also discussed below.

Wheat program activities are funded through the USDA's Commodity Credit Corporation (CCC), the Government-owned legal entity for financing the USDA's commodity programs. The CCC has no separate staff; the Agricultural Stabilization and Conservation Service (ASCS) actually operates the program through some 2,800 county offices and its headquarters in Washington, DC.[39]

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[34] Meslin is classified under HTS statistical reporting number 1001.90.2095, and meslin flour under HTS number 1101.00.0090.

[35] United States Tariff Commission, *Wheat and Milled Wheat Products*, TC Publication 675, May 1974.

[36] U.S. House of Representatives, Committee of Conference, Food, Agriculture, Conservation, and Trade Act of 1990, conference report 101-916 ("Conference Report"), Oct. 22, 1990, p. 1.

[37] USDA, *Food Grains: Background for 1990 Farm Legislation*, Ag. Econ. Bull. 602, prepared by C. Edwin Young et. al., Aug. 1990, p. 23.

[38] U.S. Congressional Research Service (CRS), *Farm Commodity Programs: Wheat*, prepared by Carl Ek, Oct. 6, 1993, p. 2.

[39] Ibid.

Wheat is one of a number of crops for which annual price and income support programs are established by law. Other program crops include various feed grains, cotton, and rice. To participate in the wheat program and receive wheat program benefits, farmers must (1) enroll in the annual program and (2) establish a wheat acreage base. The wheat acreage base is a 5-year moving average of acres planted and considered planted for wheat.[40] Farmers may voluntarily enroll in the annual wheat program through their county ASCS offices.

Annual wheat program benefits include income (deficiency) payments, price support (crop loans), and storage payments for wheat placed in the farmer-owned reserve. In return for program benefits, participating farmers in certain years are required to take land out of production as mandated by USDA. In addition, farmers must meet general eligibility requirements or standards for environmental and conservation restrictions.

Annual Price Support and Payment Programs

Price support for wheat growers is provided through nonrecourse loans at the announced "price support" loan rate. Income support is provided through deficiency payments based on differences between market prices, loan rates, and established target prices.

Nonrecourse Loans

The "nonrecourse loan" has been the basic wheat price support mechanism since 1934.[41] A participating farmer can pledge his wheat crop as collateral to the CCC, and then receive a 9-month loan on the amount pledged at a predetermined rate per bushel. If market prices are above the loan rate when the loan expires, the farmer would repay the loan plus interest and sell his crop on the market.[42] If market prices are at or below the loan rate, the farmer would keep the loan, forfeit his crop to the CCC, and the USDA holds this forfeited grain in storage.[43]

The loan rate is announced by the Secretary of Agriculture as part of the annual wheat program. A formula for establishing the minimum loan rate was included in both the 1985 and 1990 Farm Bills. The basic loan rate is calculated as 85 percent of the moving average of the market price of wheat, calculated over the last 5 years, with the high and low figures deleted. The USDA may reduce the basic loan rate by up to 20 percent when the end stocks-to-use ratio reaches adequately high levels. In such cases, the "Findley loan rate" comes into play, and is the actual loan rate for which farmers are eligible. This lower loan rate has been in effect since it was first authorized in 1985. The announced loan rate is a national average, which is then converted into local rates for grades at specified county locations. The national average basic loan rate for wheat of average quality in 1993/94 was $2.86 per bushel; the Findley loan rate was $2.45 per bushel (table 1).[44]

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[40] This requires program participants to have a history of planting wheat.

[41] CRS, p. 2.

[42] Interest rates charged on loans tend to be favorable to farmers because this rate is the short-term rate charged by the U.S. Treasury rather than the generally higher commercial loan rates charged by banks or production credit associations.

[43] The CCC has "no recourse" but to accept the crop as payment for the loan.

[44] The split year, such as 1993/94, refers to the crop marketed from June 1 to May 31. For the 1994/95 crop, the Secretary announced a loan rate of $2.58 per bushel, which exceeds both the minimum allowable floor of $2.32 per bushel and the 1993/94 Findley rate of $2.45 per bushel.

Table 1
Wheat: U.S. wheat program provisions, crop years 1989/90-1993/94

Provisions	1989/90	1990/91	1991/92	1992/93	1993/94[1]
	Percent of base				
Acreage reduction program	10.0	5.0	15.0	5.0	0
	Value *(dollars per bushel)*				
Target price	$4.10	$4.00	$4.00	$4.00	$4.00
Basic loan rate	2.58	2.44	2.52	2.58	2.86
Findley loan rate	2.06	1.95	2.04	2.21	2.45
Deficiency payment	.32	1.28	1.35	.79	1.05
Average price received by farmers	3.72	2.61	3.00	3.24	3.20
	Quantity *(million bushels)*				
Total wheat quantity placed under loan	114	405	143	240	258

[1] Projected as of May 1994.

Source: C. Edwin Young, N. Childs, J. Harwood, and W. Lin, *Food Grains, Background for 1990 Farm Legislation, Ag. Info. Bull. 602,* Aug. 1990; USDA, *ASCS Commodity Fact Sheet,* various issues; USDA *Wheat Situation and Outlook Report,* WHS-305, Feb. 1994. Posthearing brief of USDA, Attachment 1, p. 57.

During 1989 through 1993, because of reductions in the loan rate, there have been fewer loans actually placed.[45] The 240 million bushels placed under the USDA loan program in the 1992/93 market year represented nearly 10 percent of the 2.5 billion bushels produced in that year.[46] Virtually no wheat placed under the loan program was forfeited to the USDA during 1989/90 to 1993/94.[47]

USDA did indicate that as of April 1, 1994, there were 105 million bushels of wheat under loan compared with 88 million bushels 1 year prior even though U.S. wheat production in 1993/94 was below that of 1992/93.[48] USDA indicated that imports encouraged U.S. producers to seek additional USDA loans, increasing USDA net outlays under the price support program by $27 million during FY 1991-94.[49]

[45] A single year, such as 1989, refers to the crop marketed from June 1 of that year to May 31 of the following year.
[46] USDA, *Wheat, ASCS Commodity Fact Sheet*, Nov. 1993.
[47] There were 200,000 bushels forfeited in 1990; otherwise no wheat was forfeited during this period.
[48] Hearing statement of Keith Collins, Acting Assistant Secretary for Economics, USDA, Apr. 28, 1994, p. 14.
[49] Ibid.

Direct Payments

Direct payments consist of deficiency payments based on established target prices; loan deficiency payments from marketing loans; so-called "0/92 and 50/92" payments; and emergency compensation ("Findley") payments. Deficiency payments are paid in two tranches. Forty to 50 percent of the projected deficiency payment is paid in advance ("advance deficiency payments"). Advance deficiency payments are made in the 2 months after the sign-up period ends, or during May and June. If the final deficiency payment is less than the amount paid to the producer, the producer must repay the overpaid amount. Final payments are made 7 months after the end of the crop year, or around December.

Target price deficiency payments

Participating farmers are eligible to receive deficiency payments when the market price for wheat is below a target price that is established for wheat.[50] The deficiency payment rate is equal to the difference between the target price and the higher of the average market price received by farmers or the basic loan rate. During 1989/90 to 1993/94, the target price remained at $4.00 per bushel, except during 1989/90, when it was $4.10 per bushel.

Deficiency payments are determined by multiplying the deficiency payment rate times a grower's eligible acreage times a yield established for program purposes. Farmers can receive deficiency payments on up to 85 percent of their established wheat acreage base, depending upon the actual area planted to wheat.[51] Accordingly, when an acreage reduction program (ARP) is in effect, farmers can receive payments on up to 85 percent of their established crop acreage base less any required acreage reduction.

During 1989/90 to 1993/94, deficiency payments for wheat were based on the difference between the target price and the national average market price received by farmers during the first 5 months of the marketing year.[52] With the 1994/95 crop, the deficiency payment rate is based on the difference between the target price and the lower of either (1) the 12-month average market price or (2) the 5-month average price plus 10 cents per bushel. As seen in table 1, during 1989/90 to 1993/94, deficiency payment rates rose irregularly from $0.32 per bushel to a projected $1.05 per bushel.

Additional payments can be made to farmers based on the Findley loan rate. The Findley payment rate is the difference between the basic loan rate and the higher of the announced Findley loan rate or the national weighted-average market price received by farmers for the entire market year. There have been no Findley payments made since 1987.

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[50] A minimum target price for the 1986-95 crops was established in the 1985 and 1990 Farm Bills. The Secretary of Agriculture establishes the annual target price through regulation.

[51] The 15 percent of the base acres that are not eligible for deficiency payments are known as "normal flex acreage" (NFA) or "triple base." Farmers may plant this flex acreage in wheat, oilseeds, other program crops, or simply idle this land. Wheat or other crops planted on NFA land are, however, eligible for price support loans. USDA officials indicated that for wheat, approximately 50 percent of the NFA in recent years has been planted to alternative crops, and attributed this percentage to the presence of imports. Washington transcript, p. 79.

[52] The national average price of wheat is a composite average price of the five major classes of wheat, based on a monthly survey of U.S. farmers conducted by the USDA National Agricultural Statistics Service (NASS) and published in Agricultural Prices.

Marketing loan deficiency payments

Starting in 1993, a marketing loan program was put in place for wheat. Under a marketing loan, a farmer can place the crop under loan as discussed previously. The farmer has the option, however, to pay off the loan at the current posted county price (PCP) rather than at the loan rate. The PCP is the prevailing cash wheat price at either Kansas City or at gulf ports, adjusted for transportation costs to the particular county where the farmer is located. The farmer can repay the loan at the lower PCP rate, and then resell his wheat in the commercial county market. The difference between the PCP and the loan is referred to as a loan deficiency payment (LDP).[53]

Farmers who do not place wheat under loan may also receive deficiency payments based on the PCP. In this case the LDP is the LDP rate times the quantity of wheat for which the LDP is requested, and is otherwise eligible to be placed under loan. The use of LDP has been very limited since 1993 as few counties have had prices lower than the loan rate. In 1993, most LDPs to farmers were for Soft Red Winter wheat located in certain Texas counties, and total LDPs paid (as of August 1993) to farmers were less than $1 million.[54]

0/92 and 50/92

Wheat producers also may underplant their permitted wheat acres and receive deficiency payments on a portion of the underplanted acreage. Producers under the so-called "0/92" or "50/92" acreage reduction option may place all or up to 50 percent of their permitted acreage in conservation uses. Producers may alternatively plant this acreage with a minor oilseed crop (canola, sunflower, or mustard seed), and receive up to 92 percent of the wheat deficiency payments that would have accrued to this acreage. The "0/92" and "50/92" options were changed to "0/85" and "50/85" beginning with the 1994 crop. Thus, deficiency payments will be paid on 85 percent of the permitted acreage.[55]

Economic returns and payment limitations

For purposes of illustration, an example of a wheat farm with a 1,000 acre base is shown in figure 2. Under this situation, the farmer would have received a total deficiency payment of about $32,000 in 1993.

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[53] The LDP, however, is different from a regular deficiency payment in that the LDP is based on the actual number of bushels produced and eligible for loan. Regular deficiency payments are tied to the grower's program yield.

[54] Joy Harwood and Craig Jagger, USDA, *Agricultural Outlook,* "Marketing Loan Payments Realized," Sept. 1993, p. 22.

[55] CRS, p. 4.

Figure 2
Wheat: Economic returns under the wheat program to a U.S. farmer, 1993

Producer's wheat acreage base:	Assume 1,000 acres base
Maximum number of acres eligible for deficiency payments	850 acres[1]
Times farm program payment yield	x 37 bushels/acre
Equals total production eligible for deficiency payments	= 31,450 bushels
Times estimated per-bushel deficiency payment (difference between target price of $4.00/bu and national average market price of $2.97/bu)	x $1.03[2]
Equals producer's total estimated wheat deficiency payment for 1993	= $32,394

[1] 1,000 acres, minus 150 acres (15 percent) ineligible because of triple base. There was a zero acreage reduction (ARP) for that year.
[2] ASCS estimate of May 1994.

Note.--This does not include any LDP payments.

Source: Adapted from Carl Ek, Congressional Research Service, p. 5; and USDA data.

Both the 1990 and 1985 Farm Bills established a payment limitation for regular deficiency payments paid to individual farmers equal to $50,000. The 1990 Farm Bill also set a total $75,000 limit for an individual farmer receiving nonrecourse loan gains, marketing loan deficiency payments, and Findley deficiency payments.

Production Adjustment[56]

The USDA has authority to reduce the acreage planted when supplies are projected to be excessive. The acreage reduction requirements (ARPs) are set for wheat based on the year-end stocks-to-use ratio. The 1989/90-1993/94 ARPs ranged from 0 to 15 percent, resulting in acreage reductions of from zero to over 10 million acres (table 2). Acreage taken out of production through an ARP must be put into approved conservation uses (e.g., the Acreage Conservation Reserve (ACR)).

[56] USDA, ASCS, *Background Information: Production Adjustment/Price Support Programs*, Dec. 1992.

Table 2
Wheat: U.S. acreage and yield, crop years 1989/90-1993/94

Item	1989/90	1990/91	1991/92	1992/93	1993/94[1]
	Quantity (*million acres*)				
Area in wheat:					
Planted	76.6	77.2	69.9	72.3	72.2
Harvested	62.2	69.3	57.7	62.4	62.6
Set aside:					
Acreage reduction	6.1	2.2	10.1	3.3	0.0
Diverted	0.0	0.0	0.0	0.0	0.0
0-92	3.5	5.3	5.5	4.0	5.3
Subtotal	9.6	7.5	15.6	7.3	5.3
Conservation Reserve Program	8.8	10.3	10.4	10.6	10.8
National base acreage	91.1	90.8	89.6	89.6	89.6
	Quantity (*bushels per acre*)				
Yield per harvested acre	32.7	39.5	34.3	39.4	38.3

[1] Forecast data.

Source: USDA, *Wheat Situation and Outlook Report,* WHS-305, Feb. 1994.

Conservation Reserve Program

The Conservation Reserve Program (CRP), a long-term retirement program for erodible land, is available to both wheat program participants and nonparticipants. Under this program, producers submit bids for a 10- or 15-year contract, stating the annual payment they would accept to convert this land to vegetative cover. The USDA then pays an annual rent to farmers to keep this land in conservation use. As seen in table 2, there were nearly 11 million acres of wheat farmland voluntarily enrolled in the CRP in 1993/94.

The costs to USDA from the CRP are divided into annual rental payments and a 50-percent cost for cover crops and improvements for the land. The farmer pays the other 50 percent of the cover crop and land improvement expenses. The USDA's costs for wheat acreage in the CRP have been as follows (*in millions of dollars*):

Crop year	Rental costs	50%-improvement cost	Total
1989/90	426	40	466
1990/91	501	32	533
1991/92	506	4	510
1992/93	518	7	525
1993/94	531	7	538

The farmer must contract land for the CRP for a term of 10 years or 15 years (if trees are planted on the land enrolled). While it is possible for a farmer to withdraw from the CRP, the agreement between USDA and the farmer provides for severe financial penalties, and repayment of USDA payments, if such withdrawal occurs. There have been few, if any, early withdrawals of land from the CRP.

Farmer-owned Reserve

Congress created the farmer-owned reserve (FOR) in 1977. Under this program, farmers have been able to store wheat and other crops on their farms. In return, they receive a 3- to 5-year nonrecourse loan and a 26.5-cents-per-bushel annual storage payment. The purpose of the program is to increase grain stocks in order to enhance food security, while minimizing the government's role in holding these stocks.

The only nonrecoverable cost to the government under the FOR is the annual storage payment of 26.5 cents per bushel. Such costs were as follows (*in millions of dollars*):

Crop year	Cost
1989/90	18
1990/91	0[1]
1991/92	16
1992/93	6
1993/94	5

[1] Storage costs were prepaid in 1989/90.

Wheat held in the FOR has been reduced from a peak of 27 million metric tons in 1982 to 136,000 metric tons in 1993/94.[57] USDA has not allowed wheat into the FOR since 1990/91. Whether or not wheat is allowed into the FOR depends on the projected ending stocks-to-use ratio, market prices for the 90 days preceding December 15 of the current crop year, and the quantity of wheat in the FOR. While FOR stocks have noticeably declined, however, overall stocks have not as the FOR is only one of several factors determining stock levels (table 3). Since 1991/92, decreases in FOR stocks have been more than offset by increased commercial stocks, resulting in an increase in total stocks of nearly 4,000 metric tons.

The law authorizing the FOR requires that whenever the market price for wheat is determined to be equal to or more than 95 percent of the established target prices, storage payments must be stopped. This situation continues until wheat prices have been below the "stop storage payment" level for more than 90 consecutive days. USDA stopped storage payments on November 30, 1993, for wheat pledged to the CCC for FOR loans.[58] These payments, however, were renewed on March 2, 1994.

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[57] USDA, ASCS, *Wheat, commodity fact sheet,* Nov. 1993; conversation with ASCS staff, Mar. 16, 1994.
[58] *Milling and Baking News*, Dec. 7, 1993, p. 10. Storage payments were also stopped for corn and sorghum in November.

Table 3
Wheat: U.S. ending stocks,[1] crop years 1989/90-1993/94

(1,000 metric tons)

Item	1989/90	1990/91	1991/92	1992/93	1993/94[2]
Farmer-owned reserve	3,917	381	1,360	762	136
CCC inventory	3,182	4,434	4,134	4,080	4,080
Outstanding loans	816	5,902	544	1,278	1,632
Other (including commercial stocks)	6,664	12,838	6,800	8,269	10,146
Total	14,579	23,555	12,838	14,389	15,994

[1] On May 31.
[2] Projected.

Notes.--Data for 1993/94 are USDA projections as of Feb. 1994; totals may not add due to rounding.

Source: USDA, *Wheat Situation and Outlook Report*, WHS-305, Feb. 1994.

Disaster Payments

Under the wheat program, disaster payments may be made to wheat producers who are eligible for program benefits and for whom Federal crop insurance is not available. Disaster payments, however, are only made at the Secretary of Agriculture's discretion if losses create an economic emergency too serious to be mitigated by crop insurance or other Federal aid. Since 1985, USDA has made no disaster payments under the wheat program.

Congress, however, has provided separate disaster relief under special appropriation bills during 1989/90 to 1993/94. These disaster payments are not part of the wheat program. Such disaster payments to wheat farmers ranged from $470 million in 1989/90 to $40 million in 1990/91; disaster relief in 1993/94, a year with extensive flooding in leading Midwestern States, amounted to an estimated $213 million.[59]

Program Activity

There were about 475,000 U.S. farmers with 69 million acres enrolled in the wheat program in 1993/94 (table 4). In that year, farmers took 6 million acres out of wheat production to comply with farm program provisions.

Participating farmers in 1993/94 accounted for 87 percent of the total 78 million wheat acres of both participating and nonparticipating farmers. In 1992/93, participating farmers accounted for 83 percent of the 79 million acre total. These data exclude acreage in the long-term CRP program.

Annual USDA payments (termed "CCC net outlays") for the wheat program can vary widely depending on growing and market conditions. CCC net outlays peaked in FY 1985 at $4.7 billion, but declined thereafter to $53 million in FY 1989.[60] Thereafter, CCC net outlays began rising again,

[59] USDA, ERS. In 1991/92, such disaster relief amounted to $68 million, and in 1992/93 to $107 million.
[60] CRS, p. 7.

Table 4
Wheat: Operating characteristics of the U.S. wheat program, crop years 1989/90-1993/94

Item	1989/90	1990/91	1991/92	1992/93	1993/94[1]
Number of farms participating	433,758	463,859	462,882	433,990	475,107
Acreage on participating farms (*1,000 acres*)	64,370	66,696	67,644	65,650	68,500
Acreage reduction on participating farms (*1,000 acres*)	9,581	7,521	15,924	7,321	5,666
Total acreage on participating and nonparticipating farms (*1,000 acres*)[2]	82,315	80,492	79,202	78,874	78,322
Deficiency payments (*million dollars*):	572	2,420	2,245	1,370	1,905

[1] Preliminary estimate as of Mar. 1, 1994.
[2] National acreage allotment base.
[3] Not available.

Source: USDA, ASCS, *ASCS Commodity Fact Sheet,* Nov. 1993, pp. 7-8; and USITC staff conversations with ASCS staff, June 8, 1994.

reaching $2.4 billion in FY 1993.[61] Information in table 4 indicates that during crop years 1989/90 to 1993/94, wheat deficiency payments rose irregularly from nearly $600 million to nearly $2.0 billion.

Other USDA Programs

Export Enhancement Program

Congress created the Export Enhancement Program (EEP) in 1985 under the 1985 Farm Bill, and continued it in the 1990 Farm Bill. The purpose of the program is to allow U.S. agricultural exporters to lower their export prices in selected markets characterized by unfair competition, particularly the European Union (EU).[62] Exporters receive bonuses that allow them to reduce the price of the U.S. agricultural product in the designated foreign market. Prior to November 1991, EEP bonuses were paid in commodity certificates; thereafter, the bonuses have been paid in cash.[63]

EEP assistance is available for a wide variety of agricultural products, including wheat. Since the program's inception, the vast majority of EEP sales have been of wheat, followed by feed grains

[61] USDA, *Agricultural Outlook,* Oct. 1993, p. 62.
[62] USDA, *Farmline,* July 1991, p. 4.
[63] USDA, Office of Public Affairs, "USDA Changes Payment Mechanism for EEP and DEIP," Nov. 6, 1991.

(barley), wheat flour, and vegetable oil.[64] The EEP bonuses for wheat and wheat flour accounted for 88 percent of the total value of all EEP bonuses of $967 million in FY 1993, as shown in table 5.

Table 5
Wheat and wheat flour: Share of total EEP bonuses, and total EEP bonuses, fiscal years 1989-93

Fiscal year	Share of total EEP bonuses-- Wheat	Wheat flour	Wheat and wheat flour	Total EEP bonuses for all commodities
	(*Percent*)			(*Million dollars*)
1989	85	9	94	338
1990	78	4	82	312
1991	84	4	88	917
1992	84	3	87	968
1993	80	8	88	967

Note.--Data are not strictly comparable to those in table 6.

Source: USDA, ERS.

U.S. exports of wheat under the EEP fluctuated between 12 million and 20 million metric tons annually during crop years 1989 through 1993 (table 6). In crop year 1992/93, about 41 percent of the 20 million metric tons of U.S. wheat exports consisted of Hard Red Spring wheat; 34 percent of Hard Red Winter wheat, 19 percent of Soft Red Winter wheat, 4 percent of Durum wheat, and 2 percent of Soft White wheat.

Bonuses paid for wheat rose sharply from $14 per metric ton in crop year 1989/90 to $46 per metric ton in crop year 1993/94. Total expenditures for EEP wheat bonuses rose from $174 million to $696 million during this period.

The effect of the EEP in the U.S. wheat market was discussed in two previous Commission investigations.[65] In those investigations it was reported that the EEP tends to lower world prices for wheat. It was also noted that EEP bonuses place a wedge between U.S. and world prices for wheat by raising the U.S. domestic price of wheat relative to the world price.

Export Credit Guarantee Program

USDA provides a guarantee of private credit used to finance the purchase of U.S. wheat and other eligible agricultural products. The GSM-102 credit guarantee provides credit for loans of up to 3 years, and the GSM-103 credit guarantee provides credit for loans of 3 to 10 years in duration.[66] Credit guarantee programs focus on maintaining U.S. sales levels abroad by assisting U.S. exporters to consummate sales in countries with foreign exchange constraints. In recent years, newly independent states of the former U.S.S.R. have figured most prominently in these credit guarantee efforts, although developing countries have also benefited. In FY 1991, credit guarantee allocations

[64] Karen Ackerman and Mark Smith, USDA, ERS, Commercial Export Assistance, May 1993; and "The Export Enhancement Program," *Outlook for U.S. Agricultural Exports,* May 27, 1993.

[65] USITC publication 2274; USITC, *Dry Peas and Lentils: Conditions of Competition Between the United States and Canada in Third-Country Markets,* inv. No. 332-335, USITC publication 2627, Apr. 1993.

[66] Ackerman and Smith, p. 1.

Table 6
Wheat and wheat flour: U.S. exports under the EEP and EEP bonuses, crop years 1989/90-1993/94

Item	1989/90	1990/91	1991/92	1992/93	1993/94[1]
Wheat exports:					
Volume (*1,000 metric tons*)	12,181	14,421	20,375	20,283	15,063
Total value of bonus (*million dollars*)	174	529	964	650	696
Average bonus per metric ton	$14	$37	$47	$32	$46
Wheat flour exports:					
Volume (*1,000 metric tons*)	237	510	253	757	447
Total value of bonus (*million dollars*)	13	38	25	78	63
Average bonus per metric ton	$55	$75	$99	$103	$142

[1] Through Feb. 4, 1994.

Note.--Data are not strictly comparable to those in table 5.

Source: Compiled from official data of USDA.

for wheat and wheat flour totaled $800 million under the GSM-102 and GSM-103 programs, with 99 percent of the credit destined for wheat.[67]

In FY 1992, there were 13 million metric tons of wheat and wheat flour exported under GSM export credit programs, as compared with nearly 21 million tons under the EEP (table 7). An additional 3 million tons were exported in FY 1992 under concessional programs of Public Law 480 and for humanitarian relief and international development. Total U.S. wheat exports under the three programs (excluding overlap between credit sales and EEP) accounted for 78 percent of U.S. exports in FY 1992.

State Government Programs

There are few programs of major importance at the State level in the United States. The USDA-State Cooperative Extension Service provides assistance to all farmers. Some States, such as North Dakota, provide financial assistance for young farmers seeking to purchase a farm.[68]

Other state programs are the marketing and research programs for wheat funded by grower assessments ("checkoffs"). There are approximately 30 States that have a mandatory checkoff program to fund marketing and research efforts for wheat. Funds are used mainly to support university research and foreign and domestic market promotion. The amount of the checkoff varies by state, but typically consists of one-half to 1 cent per bushel. In July 1993, North Dakota extended its checkoff (one-half cent per bushel) to all wheat sold within the State, whether grown within the State, in other States, or in Canada.[69]

[67] USDA, ERS, Foreign Agricultural Trade of the United States, Jan-Feb. 1993, p. 13.
[68] USITC publication 2274, pp. 4-7.
[69] *Milling and Baking News*, July 20, 1993, p. 14.

Table 7
Wheat and wheat flour: U.S. exports under U.S. Government programs, and share of total U.S. wheat and flour exports, fiscal years 1989-92

Fiscal year	EEP	GSM-export credit	P.L. 480 and concessional	Total U.S. wheat and flour exports	Share of programs[1]
	(*Million metric tons*)			(*Percent*)	
1989	17.9	8.9	4.0	37.8	68
1990	12.8	7.7	3.0	28.0	70
1991	15.2	8.2	4.5	26.8	83
1992[2]	21.1	13.3	3.2	34.3	78

[1] Total exports under EEP, GSM export credit, and P.L. 480 and concessional sales less estimated overlap between export credit and EEP sales divided by total exports.
[2] Preliminary data.

Source: USDA, ERS.

THE U.S. MARKET

Wheat

Apparent U.S. Consumption

Data on apparent U.S. consumption of wheat, by major classes, are presented in table 8.[70] These data, based on USDA statistics, are presented as the sum of wheat "supply" (beginning stocks plus production plus imports) minus exports and ending stocks. Data on beginning stocks, ending stocks, and exports are not presented separately in the table.

Total apparent U.S. consumption of wheat increased irregularly over the period examined. Consumption increased markedly between 1989/90 and 1990/91, then declined steadily over the next 2 crop years, and is expected to increase slightly in crop year 1993/94. This pattern was mirrored by all separate classes of wheat except Durum, consumption of which first increased through crop year 1991/92, then fell slightly thereafter.[71]

Imports of wheat were most significant with regard to Durum and Hard Red Spring wheat. Imports took a generally increasing share of the U.S. Durum market, accounting for 30 percent of the market in crop year 1989/90, 33 percent in 1992/93 and a projected 41 percent in crop year

[70] USDA does not compile production or consumption data on the broad category of "feed wheat;" nor do any alternative compilations of such data exist; USDA posthearing submission of May 10, 1994. Feed wheat may be of any class of wheat, if such wheat is deemed unsuitable for milling purposes. Therefore, "feed wheat production" may vary from year to year depending on weather conditions and, thus, the overall quality of the crop.

The Commission did collect limited data on imports of wheat for "nonhuman" consumption. Those data are presented in appendix H.

[71] Parties in opposition to section 22 restrictions noted that Durum consumption is expected to grow in the future in line with expected increases in pasta consumption. Washington transcript, p. 252.

Table 8
Wheat: U.S. production, U.S. imports, and apparent U.S. consumption, by wheat classes, crop years 1989/90-1993/94[1] [2]

(1,000 metric tons)

Item	1989/90	1990/91	1991/92	1992/93	1993/94[3]
Durum wheat:					
U.S. production	2,502	3,318	2,829	2,638	1,878
U.S. imports	544	544	517	735	816
Apparent consumption	1,822	2,067	2,339	2,258	2,230
Hard Red Spring wheat:					
U.S. production	11,778	15,096	11,723	19,094	13,872
U.S. imports	218	190	435	925	1,524
Apparent consumption	6,120	6,501	5,902	6,963	7,317
Hard Red Winter wheat:					
U.S. production	19,339	32,613	24,534	26,275	29,186
U.S. imports	0	0	0	27	27
Apparent consumption	11,914	18,632	13,899	13,410	14,226
Soft Red wheat:					
U.S. production	14,933	14,878	8,840	11,614	10,962
U.S. imports	0	0	0	0	0
Apparent consumption	5,766	7,317	7,045	5,875	6,120
Soft White wheat:					
U.S. production	6,827	8,514	5,957	7,235	9,438
U.S. imports	272	299	136	245	218
Apparent consumption	1,741	2,856	1,768	1,904	2,938
All wheat:					
U.S. production	55,379	74,419	53,883	66,858	65,334
U.S. imports	1,034	1,034	1,088	1,932	2,585
Apparent consumption	27,363	37,373	30,954	30,410	32,831

[1] USDA data on imports and exports include the wheat-equivalents of flour, semolina, pasta, and wheat by-products. Some of these products are not within the scope of this investigation.
[2] Totals may not add because of rounding.
[3] Projected, as of May 1994.

Note: Data were converted using the ratio: 1 bushel = 0.0272 metric ton.

Source: USDA, ERS.

1993/94. With regard to all classes of wheat, imports are projected to reach nearly 8 percent of apparent consumption in crop year 1993/94.[72]

[72] Based on projections made in May 1994. Parties in support of section 22 restrictions generally estimated current import levels at 8 percent of domestic consumption; e.g., Shelby transcript, pp. 76, 91. Parties in opposition to such restrictions estimated current import levels at approximately 2.5 percent of consumption; e.g., CWB response to Commission questions, May 5, 1994, tab 7. The difference in estimates is primarily attributable to whether exports are included in the estimate of the size of the U.S. market.

U.S. Farmers and Acreage Planted

The number of farmers actually producing wheat in the United States is not precisely known; it is likely that the number is between 400,000 and 500,000 farmers.[73] The 1987 Census of Agriculture, however, specifically identified wheat farmers in 46 of the 50 States (table 9).

Wheat production, although it can be found in virtually all 50 States, is concentrated in the Northcentral States. Table 10 shows the distribution of wheat acreage, based on acreage harvested, in the United States during the period examined.

As seen from table 10, acreage devoted to Durum and Spring wheat is greatest in the Northcentral States, with North Dakota having by far the largest share of acreage in both crops. In crop year 1992/93, North Dakota accounted for 88 percent of Durum acreage and 50 percent of Spring acreage. Minnesota and South Dakota are also significant producers of Spring wheat, but aside from North Dakota, only Montana produces significant quantities of Durum.

By contrast, Winter wheat production is concentrated in the southern plains, with Kansas being the largest producer, accounting for 26 percent of Winter wheat production in crop year 1992/93. Among States producing Durum and Spring wheat, only Montana produces significant quantities of Winter wheat. When the wheat market is viewed as a whole, Kansas and North Dakota have traded places as the Nation's largest wheat-producing State (in terms of acreage) since crop year 1989/90.

U.S. Importers/Merchants

Imports of wheat enter the United States under HTS heading 1001. Because the request letter from the President defined the scope of this investigation as covering all imports under this heading, the Commission sent questionnaires to 109 firms importing significant quantities of product under this heading in either fiscal year 1990, 1991, 1992, or January-October 1993, according to the Customs Net Import File (CNIF). These firms were, accordingly, identified as "grain merchants," and received the "grain merchant's questionnaire." The Commission also collected data on imports from U.S. flour millers (via a "miller's questionnaire") and pasta producers (via either a "miller's questionnaire" or a "grain merchant's questionnaire," as appropriate).[74] The Commission sent questionnaires to 38 firms known to mill wheat flour and to 20 firms known to be producers of pasta.[75]

The Commission received usable data on imports and/or domestic purchases of wheat from 49 companies. Sixteen firms reported that they did not import wheat from any source, and that all their wheat purchases were made domestically. With regard to wheat classes, of those firms reporting imports, more firms reported imports of Hard Red Spring wheat than any other class. Overall, companies responding to the Commission's questionnaire accounted for 99 percent, by volume, of 1992 imports from all sources, based on official Commerce data.

Importers of wheat can be classified into several categories. The largest firms tend to be so-called "grain traders," such as ***, whose business it is to market wheat worldwide, and who procure such wheat from a wide variety of sources. U.S. flour millers are the second-largest (in terms of volume) group of wheat importers. Individual farmers and grain elevators also import

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[73] Shelby transcript, p. 82. As table 4 indicates, approximately 475,000 farmers are expected to participate in the USDA wheat program in crop year 1993/94.

[74] Pasta producers were sent both types of questionnaires in the event that such firms milled wheat flour or semolina for later use in pasta production. Of the 20 pasta producers contacted with a questionnaire, none reported that they did any milling of wheat in their facilities.

[75] Millers were chosen based on their relative size as detailed in the 1994 *North American Grain and Milling Annual.* Pasta-producing firms were identified based on contacts with the National Pasta Association.

Table 9
Wheat: Number of farms harvesting wheat and total quantity harvested, by states, 1987

State	Number of farms	Quantity harvested (*Metric tons*)
Alabama	1,914	133,389
Arizona	443	217,382
Arkansas	5,329	904,155
California	2,841	1,088,136
Colorado	6,992	2,219,003
Connecticut	7	82
Delaware	630	49,722
Florida	639	33,918
Georgia	4,704	360,944
Idaho	7,706	2,264,400
Illinois	21,356	1,328,747
Indiana	18,294	837,461
Iowa	1,345	32,096
Kansas	38,638	7,969,573
Kentucky	5,361	346,854
Louisiana	1,067	126,616
Maine	33	680
Maryland	3,112	184,035
Massachusetts	7	163
Michigan	10,327	447,848
Minnesota	20,238	2,664,702
Mississippi	1,991	263,160
Missouri	12,683	868,768
Montana	10,375	3,911,442
Nebraska	18,124	2,089,667
Nevada	114	29,838
New Jersey	551	23,664
New Mexico	1,229	239,904
New York	2,390	98,518
North Carolina	7,747	410,475
North Dakota	28,245	6,764,042
Ohio	26,086	1,154,694
Oklahoma	18,644	3,086,248
Oregon	3,890	1,411,000
Pennsylvania	9,719	208,461
South Carolina	3,097	205,578
South Dakota	15,273	2,479,035
Tennessee	4,579	346,800
Texas	19,386	2,671,774
Utah	1,711	194,453
Vermont	18	408
Virginia	4,339	219,395
Washington	5,562	3,122,070
West Virginia	376	8,595
Wisconsin	4,193	115,219
Wyoming	924	196,058
All other States	8	54
Total, All states	352,237	51,329,226

Source: U.S. Department of Commerce, Bureau of the Census, *1987 Census of Agriculture*.

Table 10
Wheat: U.S. harvested acreage, by classes and by leading states, crop years 1989/90-1993/94

(1,000 acres)

Wheat class and State	1989/90	1990/91	1991/92	1992/93	1993/94[1]
Durum wheat:					
North Dakota	3,000	3,050	2,850	2,150	1,820
Montana	335	235	179	157	114
Arizona	84	44	39	44	50
All other States	254	178	129	98	66
Total	3,673	3,507	3,197	2,449	2,050
Spring wheat (except Durum):[2]					
North Dakota	7,250	7,700	6,850	9,100	8,850
Montana	3,400	2,450	2,400	2,450	2,650
Minnesota	2,550	2,750	2,070	2,750	2,250
South Dakota	2,050	2,100	1,750	2,500	2,020
Idaho	560	450	460	640	540
All other States	1,197	425	1,570	629	441
Total	17,007	15,875	15,100	18,069	16,751
Winter wheat:[3]					
Kansas	8,900	11,800	11,000	10,700	11,100
Oklahoma	5,700	6,300	5,000	5,900	5,400
Texas	3,000	4,200	2,800	3,800	3,700
Colorado	2,200	2,550	2,300	2,300	2,550
Washington	1,300	2,200	700	2,000	2,500
Montana	1,500	2,500	1,800	2,100	2,450
All other States	18,909	20,351	15,806	15,093	16,146
Total	41,509	49,901	39,406	41,893	43,846
All wheat:					
Kansas	8,900	11,800	11,000	10,700	11,100
North Dakota	10,330	10,750	9,790	11,420	10,800
Oklahoma	5,700	6,300	5,000	5,900	5,400
Montana	5,235	5,185	4,379	4,707	5,214
Texas	3,000	4,200	2,800	3,800	3,700
South Dakota	3,520	3,789	3,117	3,733	3,488
Washington	2,270	2,480	2,150	2,420	2,790
Idaho	1,370	1,370	1,160	1,440	1,390
All other States	21,864	23,409	18,307	18,291	18,764
Total	62,189	69,283	57,703	62,411	62,646

[1] Estimated.
[2] Includes Hard Red Spring and Soft Red Spring wheat.
[3] Includes Hard Red Winter, Soft Red Winter, and Soft White wheat.

Note.--Because of rounding, figures may not add to the totals shown.

Source: USDA, *Crop Production,* 1991 and 1993 summaries.

wheat from time to time.[76] Lastly, many of the firms listed on the CNIF were Canadian exporters that act as importers for either their U.S. affiliates or for unrelated firms.

For example, during the period January-October 1993, of the 10 largest importers of wheat, the top 4 were grain traders, 4 were Canadian firms, 1 was a flour miller, and the remaining firm was a customs broker. In value terms, the vast majority of imports in that period were handled by grain-trading companies. Further, importing firms sourced almost exclusively from Canada, with far smaller volumes being imported from European countries such as France.

Grain trading companies tend to have offices scattered throughout the United States, and are generally headquartered in the Midwest.[77] Notwithstanding this, actual imports from Canada are highly concentrated in the Great Lakes ports and along the borders between North Dakota and/or Montana and the Canadian Prairie Provinces of Alberta, Manitoba, and Saskatchewan.[78] The following tabulation shows the distribution of wheat imports from Canada during the period August 1992-July 1993, based on official Commerce import statistics (*in 1,000 metric tons*):

Port of entry	Volume of imports
St. Albans, VT	19.9
Buffalo, NY	220.5
Detroit, MI	122.3
Chicago, IL	0.1
Cleveland, OH	218.5
Duluth, MN	391.7
Pembina, ND	220.4
Great Falls, MT	223.8
Seattle, WA	11.8
	1,429.0

Wheat Flour and Semolina

Apparent U.S. Consumption

Data on apparent U.S. consumption of wheat flour and semolina, based alternatively on official statistics and on responses to Commission questionnaires, are presented in table 11 and appendix I. As with data on wheat, USDA data define apparent consumption of wheat flour and semolina as the difference between supply (beginning stocks plus production plus imports) less ending stocks and exports. Data presented in table 11 include all elements of this equation except beginning and ending stocks.

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[76] Neither farmers nor elevators are often listed as importers of record; rather, their U.S. customs brokers often act as importers of record on their behalf. Further, U.S. wheat farmers tend to sell their output directly either to elevator companies or to flour millers. Shelby transcript, p. 143. It would be unusual for a farmer to deal directly with grain trading companies.

[77] For example, ***.

[78] Parties in support of section 22 restrictions noted that for Durum, most imports enter the United States through the ports of Duluth, MN, and Cleveland, OH. Washington transcript, p. 163.

Table 11
Wheat flour and semolina: U.S. production, imports, exports, and apparent consumption, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

(1,000 metric tons)

Item	Crop year--				June-Dec.--	
	1989/90	1990/91	1991/92	1992/93	1992	1993
Wheat flour:						
U.S. production	14,839	15,162	15,006	15,744	7,557	7,222
Imports	10	16	16	59	37	58
Exports	1,048	793	999	1,070	506	467
Apparent consumption	13,818	14,386	14,024	14,733	7,088	6,813
Semolina:						
U.S. production	1,022	1,201	1,316	1,446	857	837
Imports	(1)	1	2	(1)	(1)	(1)
Exports	2	3	8	8	5	4
Apparent consumption	1,020	1,199	1,310	1,439	852	833

[1] Less than 500 metric tons.

Source: Compiled from official statistics of USDA and the U.S. Department of Commerce.

Data on apparent consumption of wheat flour and semolina, compiled from responses to Commission questionnaires, are presented in appendix I.

Apparent consumption of wheat flour first increased slightly in crop year 1990/91, then declined in crop year 1991/92 to slightly above its initial level. Consumption climbed in crop year 1992/93 by 5 percent over its crop year 1991/92 level. When the interim June-December periods are compared, however, consumption can be seen to have declined. Further, current estimated U.S. per-capita flour consumption is 140 pounds, the highest level since 1947.[79]

Unlike flour consumption, semolina consumption increased steadily during the period examined, for an overall climb of 41 percent. Comparisons of the interim period data show a slight decline, however.

U.S. Producers/Millers

As noted earlier in the section of this report entitled "The U.S. Market: Wheat," the Commission sent questionnaires to 58 firms known to produce or suspected of producing wheat flour and/or semolina.[80] This list was generated by reference to various business digests such as the *1994 Grain & Milling Annual* of *Milling and Baking News*. The Commission received responses from 48 firms, 20 of which indicated that they did not produce any of the products covered in this

[79] Prehearing brief of Rogers and Wells, p. 9, quoting *Milling and Baking News*, Mar. 22, 1994.
[80] These included 38 millers and 20 pasta producers.

investigation.[81] Thus, 27 firms provided data in response to the Commission's questionnaire, and 11 firms failed to respond to the Commission's request for data or provided unusable data.[82] Responding firms account for virtually 100 percent of 1993 production, according to the *Grain and Milling Annual*.

Of responding millers, 26 reported production of wheat flour and 12 reported production of semolina. Of those firms reporting production of wheat flour in crop year 1993, only *** percent of such production was of Canadian-grown wheat.

As with grain merchants, U.S. flour and semolina millers are well dispersed geographically throughout the United States. Most larger companies tend to be headquartered in the Midwest, but one large miller *** is in ***, and companies such as ***, while based in ***, respectively, have milling facilities in multiple locations.

U.S. Importers

The Commission identified importers of wheat flour and semolina in a fashion similar to that used for importers of wheat. The Commission sent questionnaires to firms importing significant quantities of product under HTS heading 1003 (for wheat flour) and HTS statistical reporting number 1103.11.0020 (for semolina), according to the CNIF. Such firms were among the 127 firms to which the Commission sent grain merchant's questionnaires. Of the 51 firms reporting usable data in response to that questionnaire, 10 firms reported imports of wheat flour and only 1 firm reported imports of semolina.

For the most part, significant importers of wheat flour were producers of exotic specialty breads, primarily Indian or Middle Eastern varieties.

THE U.S. INDUSTRY

Wheat

U.S. Production, Acreage, and Yields

Data on U.S. production, planted and harvested acreage, and yield, by major classes of wheat, are presented in table 12. Production of Durum surged notably between crop year 1989/90 and 1990/91, then began a gradual decline, with production projected to total only 73 million bushels in crop year 1993/94.[83] By contrast, yields for Durum increased overall during the period examined, peaking at nearly 40 bushels per acre in crop year 1992/93. Of the wheat varieties covered in this investigation, Durum held the smallest share of total wheat production. In light of current high prices

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[81] Most of these firms were pasta producers who reported that they do not produce wheat flour and/or semolina, but rather purchase those products. The majority of such firms, therefore, responded to the grain merchant's questionnaire.

[82] None of these firms is considered to be a major miller of flour; of the 11 firms, 6 are pasta producers that are unlikely to have milling facilities.

[83] Parties testified at the Shelby hearing that in crop year 1993/94, acreage planted in Durum wheat was the lowest in 35 years. Shelby transcript, pp. 65, 78. In particular, as seen in table 10, acreage planted in Durum in Montana in crop year 1992/93 was less than half its level in crop year 1989/90. Parties in support of section 22 restrictions argued that this decline resulted from the disappearance of the traditional price premium (which had ranged up to $2.00 over Hard Red Spring wheat) for Durum. Shelby transcript, pp. 78-79, 132; posthearing brief of National Farmers Union, p. 1.

Table 12
Wheat: U.S. acreage, yields, and production, by classes, crop years 1989/90-1993/94

Item	1989/90	1990/91	1991/92	1992/93	1993/94[1]
Durum wheat:					
Planted acreage:					
Area (*million acres*)	3.8	3.6	3.3	2.5	2.2
Share of total wheat (*percent*)	5.0	4.7	4.7	3.5	3.0
Harvested acreage (*million acres*)	3.7	3.5	3.2	2.4	2.1
Yield (*tons/acre*)	0.68	0.95	0.88	1.08	0.96
Production:					
Quantity (*1,000 metric tons*)	2,508.8	3,329.3	2,828.8	2,643.8	1,991.0
Share of total wheat (*percent*)	4.6	4.5	5.2	4.0	3.0
Hard Red Spring wheat:					
Planted acreage:					
Area (*million acres*)	16.5	16.2	14.0	17.8	17.4
Share of total wheat (*percent*)	21.5	21.0	20.0	24.6	24.1
Harvested acreage (*million acres*)	15.9	15.4	13.5	17.2	16.3
Yield (*tons/acre*)	0.74	0.98	0.87	1.11	0.88
Production:					
Quantity (*1,000 metric tons*)	11,791.2	15,087.8	11,728.6	19,094.4	14,285.4
Share of total wheat (*percent*)	21.4	20.3	21.8	28.6	21.7
Soft Red Winter wheat:					
Planted acreage:					
Area (*million acres*)	13.4	14.2	11.4	10.5	10.7
Share of total wheat (*percent*)	17.5	18.4	16.3	14.5	14.8
Harvested acreage (*million acres*)	12.0	12.8	9.5	8.6	9.3
Yield (*tons/acre*)	1.25	1.17	0.94	1.36	1.17
Production:					
Quantity (*1,000 metric tons*)	14,930.1	14,881.1	8,845.4	11,617.1	10,953.4
Share of total wheat (*percent*)	27.1	20.0	16.4	17.4	16.6
Hard Red Winter wheat:					
Planted acreage:					
Area (*million acres*)	37.5	38.0	35.5	36.3	36.4
Share of total wheat (*percent*)	49.0	49.2	50.6	50.2	50.4
Harvested acreage (*million acres*)	26.1	32.6	27.4	29.3	30.1
Yield (*tons/acre*)	0.74	1.00	0.90	0.90	0.97
Production:					
Quantity (*1,000 metric tons*)	19,339.2	32,607.4	24,529.0	26,277.9	29,201.9
Share of total wheat (*percent*)	35.1	43.8	45.5	39.3	44.3
Soft White wheat:					
Planted acreage:					
Area (*million acres*)	5.4	5.2	5.9	5.2	5.5
Share of total wheat (*percent*)	7.0	6.7	8.4	7.2	7.6
Harvested acreage (*million acres*)	4.5	5.0	4.2	4.8	5.2
Yield (*tons/acres*)	1.52	1.69	1.42	1.51	1.82
Production:					
Quantity (*1,000 metric tons*)	6,555.2	8,524.5	5,956.8	7,246.1	9,436.7
Share of total wheat (*percent*)	11.9	11.5	11.1	10.8	14.3
Total wheat, all classes:					
Planted acreage (*million acres*)	76.6	77.2	70.1	72.3	72.2
Harvested acreage (*million acres*)	62.2	69.3	57.7	62.4	63.0
Yield (*tons/acre*)	0.89	1.07	0.93	1.07	1.05
Production (*1,000 metric tons*)	55,124.5	74,430.1	53,888.6	66,879.4	65,868.4

[1] Estimated data.

Source: USDA, NASS and ERS (estimates).

for Durum, estimates of U.S. plantings of Durum in crop year 1994/95 range from 11 to 18 percent in excess of 1993/94 levels.[84]

The largest volume of wheat produced in the United States during the 5-year period was Hard Red Winter wheat, accounting for between 35 and 46 percent of total wheat production. Hard Red Winter wheat production fluctuated irregularly, with high production levels in crop years 1990/91 and 1993/94. As with Durum, yields generally increased.[85]

Total acreage planted in wheat over the 5-year period generally declined. Plantings were high in crop years 1989/90 and 1990/91, then declined in crop year 1991/92, by over 7 million acres, then remained fairly constant in crop years 1992/93 and 1993/94. Yields fluctuated between 0.89 and 1.07 tons per acre. Production surged to over 79 million tons in crop year 1990/91, then declined markedly in crop year 1991/92, before recovering in crop year 1992/93 to 10 percent below its peak 1990/91 level.

U.S. Producers' Export Shipments

U.S. producers exported significant quantities of wheat during the period examined, both commercially and under the EEP.[86] Total exports by U.S. producers are shown in table 13.

Table 13
Wheat: U.S. exports of domestic product, by types, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

(1,000 metric tons)

Type	Crop year--				June-Dec.--	
	1989/90	1990/91	1991/92	1992/93	1992	1993
Durum wheat	1,226	1,132	1,208	1,221	623	637
Wheat and meslin seed[1]	140	172	167	147	142	19
Wheat, n.e.c.	30,706	26,611	32,063	33,932	18,739	19,215
Total	32,073	27,914	33,438	35,299	19,504	19,871

[1] Trade in meslin is believed to be negligible.

Source: Compiled from official statistics of the U.S. Department of Commerce.

U.S. exports of wheat first declined in crop year 1990/91 from their level in crop year 1989/90, then increased in crop year 1991/92 to an amount 4 percent above that of crop year 1989/90. Such exports continued to advance slightly in crop year 1992/93, and again when the interim June-December periods of 1992 and 1993 are compared. Movements in Durum exports paralleled those for exports of all classes of wheat, except that the peak year for Durum exports during the 5-year period was crop year 1989/90 rather than crop year 1991/92.

[84] Canadian plantings of Durum are expected to increase even more, by over 50 percent, or 5.6 million acres. *Wall Street Journal*, Apr. 29, 1994; Washington transcript, p. 159.

[85] Parties to the proceeding generally agree that, historically, yields for Spring wheat have exceeded those for Durum. Shelby transcript, p. 90. As seen from table 12, however, in two of the five crop years examined, yields for Spring wheat were actually less than those for Durum. At the Washington hearing, parties in support of section 22 restrictions acknowledged that differences in yields between Durum and Hard Red Spring wheat were not substantial. Washington transcript, p. 176.

[86] It is estimated that generally nearly half of U.S. wheat production is exported. Shelby transcript, p. 143.

Substantial volumes of exports were also made under the EEP during the period examined. Total volumes of wheat exported under the EEP, the bonuses associated with such exports, and the average per-ton bonus, on a crop-year basis, are presented in table 14.

Of the various classes of wheat, EEP exports of Hard Red Winter wheat accounted for the largest volume in all years but crop year 1992/93, when Spring wheat held the largest share. Total bonuses increased dramatically between crop years 1989/90 and 1991/92, peaking at nearly $1 billion in that year. Total and average EEP bonuses are expected to increase again in crop year 1993/94 over their crop year 1992/93 level. Average bonuses were generally lower for White wheat and for Soft Red Winter wheat than for other varieties.

U.S. Stocks/Inventories

Ending stocks of wheat over the period comprising crop years 1989/90 through 1992/93 are shown in table 15. Such stocks first increased markedly in crop year 1990/91, by 61 percent over their level in crop year 1989/90, then declined even more strongly in the next crop year, to a level 12 percent below that of crop year 1989/90. Stocks rose moderately in crop year 1992/93, and are expected to continue to do so, by 6 percent, in crop year 1993/94.[87]

Much of the change in total wheat stocks can be attributed to movements in stocks of Hard Red Winter and Hard Red Spring wheat. By contrast, Durum showed far less variability during the period from crop year 1989/90 through crop year 1991/92; in addition, Durum stocks are expected to fall in crop year 1993/94, while stocks of other wheat varieties (except for Soft Red wheat) are predicted to increase.

Parties in support of section 22 restrictions argued that there is a strong correlation between ending stock levels and future prices.[88] For further discussion of this issue, see the section of this report entitled "Economic Considerations and Modeling Results."

Wheat Flour and Semolina

U.S. Production

Domestic production of wheat flour and semolina is presented alternatively in this report based on USDA data and on responses to Commission questionnaires. Data on wheat flour and semolina production, based on publicly available data (U.S. Department of Commerce, Bureau of the Census, *Flour Milling Products,* various issues), are presented in the tabulation below (*in 1,000 metric tons*):

	Crop year--				June-Dec.--	
	1989/90	1990/91	1991/92	1992/93	1992	1993
Wheat flour . .	14,839	15,162	15,006	15,744	7,557	7,222
Semolina	1,022	1,201	1,316	1,446	857	837

Commission questionnaire data on this indicator are presented in appendix J.

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[87] The experience of individual States, however, diverges considerably from the overall trend. Montana wheat stocks, for example, on Mar. 1, 1994, stood 32 percent higher than on Mar. 1, 1993, and were the highest since 1987. Shelby transcript, p. 29. With regard to wheat stocks kept under loan, USDA notes further that it has recently revised its estimate of nationwide loan placements upward by over 12 million bushels, with the largest increases accounted for by Montana (5.9 million bushels) and North Dakota (3 million bushels). Posthearing brief of USDA, attachment 1, p. 37.

[88] Shelby transcript, p. 73; posthearing brief of USDA, attachment 1, p. 33.

Table 14
Wheat: EEP bonuses for wheat, by classes, crop years 1989/90-1993/94

Wheat class	1989/90	1990/91	1991/92	1992/93	1993/94[1]
	Quantity *(1,000 metric tons)*				
Spring:					
Hard Red Spring:					
Northern Spring/Dark Northern Spring	2,507	1,548	4,692	6,327	2,220
Hard Red Spring, other	404	109	1,088	468	202
Spring, other	684	1,844	1,479	1,622	3,126
Subtotal	3,595	3,501	7,259	8,417	5,548
Hard Red Winter	3,883	5,349	10,745	6,819	5,608
Soft Red Winter	3,822	4,009	1,096	3,834	2,924
Durum	700	1,022	930	893	428
White	180	540	344	320	555
Total	12,180	14,421	20,375	20,283	15,063
	Total bonus *(1,000 dollars)*				
Spring:					
Hard Red Spring:					
Northern Spring/Dark Northern Spring	35,107	45,744	233,397	201,487	93,553
Hard Red Spring, other	5,713	5,162	52,684	14,616	9,156
Spring, other	6,902	75,003	70,711	48,337	116,156
Subtotal	47,722	125,909	356,792	264,440	218,865
Hard Red Winter	71,312	206,067	517,794	230,982	285,096
Soft Red Winter	41,599	144,359	30,030	114,418	151,158
Durum	12,488	37,836	45,773	31,737	18,973
White	835	14,440	13,427	7,988	22,220
Total	173,956	528,611	963,816	649,565	696,312
	Average bonus *(per metric ton)*				
Spring:					
Hard Red Spring:					
Northern Spring/Dark Northern Spring	$14.01	$29.55	$49.75	$31.84	$42.14
Hard Red Spring, other	14.14	47.22	48.43	31.20	45.33
Spring, other	10.09	40.68	47.80	29.81	37.15
Average	13.27	35.96	49.15	31.42	39.45
Hard Red Winter	18.37	38.52	48.19	33.87	50.83
Soft Red Winter	10.88	36.00	27.40	29.84	51.70
Durum	17.84	37.02	49.21	35.54	44.30
White	4.63	26.72	39.02	24.99	40.00
Total	14.28	36.65	47.31	32.03	46.22

[1] As of Feb. 4, 1994.

Source: USDA, Foreign Agricultural Service (FAS).

Table 15
Wheat: U.S. ending stocks, by wheat classes, crop years 1989/90-1993/94[1]

(1,000 metric tons)

Item	1989/90	1990/91	1991/92	1992/93	1993/94[2]
Hard red winter wheat	5,848	9,792	5,277	5,552	6,886
Hard red spring wheat	4,216	7,534	3,482	4,627	5,225
Soft red wheat	870	2,176	1,115	1,170	844
White wheat	2,312	2,366	1,469	1,742	1,823
Durum wheat	1,360	1,686	1,496	1,334	463
All classes	14,606	23,555	12,838	14,425	15,241

[1] Totals may not add because of rounding.
[2] Projected, as of May 1994.

Source: USDA, ERS.

U.S. Producers' U.S. and Export Shipments

U.S. and export shipments of wheat flour and semolina, based on responses to Commission questionnaires, are presented in table 16. The volume of U.S. shipments of wheat flour increased slightly, by 8 percent, from crop year 1989/90 to crop year 1990/91, before accelerating its increase in crop years 1991/92 and 1992/93, for a total increase over the 4-year period of 35 percent. U.S. shipments also increased when the interim June-December periods are compared. Value-based data show generally similar trends, except for a decline in crop year 1990/91. This anomaly reflected a sharp drop in the unit value of U.S. shipments in that year; otherwise, unit values moved upward throughout the period examined, although 1989/90 remained the high point. The quantity and dollar value of export shipments of wheat flour fluctuated at 3-5 percent of total shipments.

U.S. shipments of semolina, in quantity terms, moved upward steadily throughout 1989/90-1992/93. Value-based data show similar trends, except for a small drop in crop year 1990/91. Both the quantity and value of U.S. shipments of semolina increased as well in June-December 1993, when compared with the corresponding 1992 period, with shipment volume increasing 10 percent. Unit values fell overall from 1989/90 to 1992/93, and reversed direction when the interim periods are compared. U.S. firms did not report any export shipments of semolina during the period examined.

Export shipments by U.S. producers of wheat flour and semolina, based on Commerce data, are presented in table 17. Exports of flour fell sharply in 1990/91 from their level in 1989/90, whereas semolina exports nearly doubled. Semolina exports continued their rapid advance in crop years 1991/92 and 1992/93, while flour exports reversed direction, climbing in crop year 1992/93 to a level greater than that of crop year 1989/90. Exports of both flour and semolina declined in June-December 1993, when compared to the corresponding period of 1992.

Table 16
Wheat flour and semolina: Shipments by U.S. producers, by products and by types, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Wheat flour:						
Company transfers	543	636	713	725	411	412
Domestic shipments	8,919	9,702	10,971	12,203	5,119	5,433
Subtotal	9,462	10,338	11,684	12,928	5,530	5,845
Exports	512	416	***	520	***	***
Total	9,974	10,755	***	13,448	***	***
Semolina:						
Company transfers	***	***	***	***	***	***
Domestic shipments	***	***	***	***	***	***
Subtotal	1,050	1,111	1,237	1,328	537	590
Exports	0	0	0	0	0	0
Total	1,050	1,111	1,237	1,328	537	590
	Value *(million dollars)*					
Wheat flour:						
Company transfers	121	120	143	155	87	87
Domestic shipments	2,402	2,090	2,750	3,064	1,220	1,300
Subtotal	2,523	2,210	2,893	3,218	1,307	1,387
Exports	124	49	***	118	***	***
Total	2,646	2,258	***	3,336	***	***
Semolina:						
Company transfers	***	***	***	***	***	***
Domestic shipments	***	***	***	***	***	***
Subtotal	249	234	252	280	109	130
Exports	0	0	0	0	0	0
Total	249	234	252	280	109	130
	Unit value *(per metric ton)*					
Wheat flour:						
Company transfers	$222	$188	$201	$213	$212	$211
Domestic shipments	277	221	257	257	246	247
Average	274	219	253	255	244	244
Exports	241	117	196	227	210	210
Average	273	215	252	254	243	243
Semolina:						
Company transfers	***	***	***	***	***	***
Domestic shipments	***	***	***	***	***	***
Average	238	211	204	211	203	221
Exports	(1)	(1)	(1)	(1)	(1)	(1)
Average	238	211	204	211	203	221

[1] Not applicable.

Note.--Because of rounding, figures may not add to the totals shown. Unit values are calculated from the unrounded figures, using data of firms supplying both quantity and value information.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 17
Wheat flour and semolina: U.S. exports of domestic merchandise, by products, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

(1,000 metric tons)

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
Wheat flour	1,048	793	999	1,070	506	467
Semolina	2	3	8	8	5	4
Total	1,049	796	1,007	1,077	511	471

Note: Totals may not add because of rounding.

Source: Compiled from official statistics of the U.S. Department of Commerce.

U.S. Stocks/Inventories

Data on U.S. ending inventories (stocks) of wheat flour and semolina, as compiled from responses to Commission questionnaires, are shown in table 18. Ending inventories of wheat flour increased irregularly over the entire period examined, but declined when the interim June-December periods are compared. Semolina ending stocks generally increased, although they showed a slight dip in crop year 1990/91.

Table 18
Wheat flour and semolina: End-of-period inventories of U.S. producers, by products, as of May 31, 1990-93, and as of Dec. 31, 1992, and Dec. 31, 1993

Item	As of May 31-- 1990	1991	1992	1993	As of Dec. 31-- 1992	1993
	Quantity *(metric tons)*					
Wheat flour	141,268	191,066	182,950	223,138	207,843	204,539
Semolina	13,878	13,535	15,982	16,658	15,423	18,477
	Ratio to U.S. shipments *(percent)*					
Wheat flour	1.9	2.5	2.1	2.4	1.9	1.8
Semolina	1.5	1.3	1.4	1.3	1.4	1.6

Note.--Ratios are calculated using data of firms supplying both numerator and denominator information. Part-year inventory ratios are annualized.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

As a ratio to preceding-period U.S. shipments, ending inventories of wheat flour increased overall over the 4-year period. Semolina stocks fluctuated irregularly as a ratio to U.S. shipments.

Alternatively, data on wheat flour stocks (including semolina), as compiled from Census data (U.S. Department of Commerce, Bureau of the Census, *Flour Milling Products,* various issues), are presented in the tabulation below (*in 1,000 metric tons*):

	As of May 31--				As of Dec. 31--	
	1990	1991	1992	1993	1992	1993
Wheat flour and semolina	349	368	265	277	249	256

U.S. IMPORTS

Wheat

This section presents data on imports of wheat, by class, as compiled from official U.S. import statistics.[89] Import data based on responses to Commission questionnaires are presented in appendix K.

The volume of imports from all sources nearly doubled from crop year 1989/90 to crop year 1990/91, and continued to climb in crop year 1991/92. In crop year 1992/93, import volume exceeded 1.5 million metric tons, a quadrupling of its level at the beginning of the period examined (table 19). Imports during June-December 1993 also showed a substantial increase over those in the corresponding period of 1992.

Import volumes for individual classes of wheat showed similar trends to wheat imports as a whole; in particular, imports of Durum increased by 40 percent between crop year 1991/92 and crop year 1992/93.[90] Imports of Durum wheat were generally higher than other varieties, but imports of Red Spring wheat became increasingly important by the end of the period.[91] Durum wheat held the largest quantity-based share of wheat imports in all crop years and in all periods examined except June-December 1993, when Red Spring wheat held the largest share.

Unit values of wheat imports, including Durum and Red Spring, generally declined from crop year 1989/90 to crop year 1992/93.[92] Except for Durum and graded varieties of Red Spring wheat, these unit values declined as well when the interim June-December periods are compared.

Wheat Flour and Semolina

Imports of wheat flour enter the United States under HTS heading 1101, whereas imports of semolina enter under the specific HTS statistical reporting number 1103.11.0020. Data presented in the body of this report are compiled from official Commerce statistics. The Commission also

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[89] Official data presented here do not separate imports from Canada from imports from all other sources. As seen from the questionnaire data presented in appendix K, however, imports from countries other than Canada were insignificant during the period examined. Trends in imports from Canada exactly parallel trends in total imports throughout the period.

[90] Value-based data show similar trends. Parties in opposition to section 22 restrictions alleged that Durum imports have remained fairly steady in recent years; Washington transcript, p. 214.

[91] In particular, ungraded Red Spring wheat showed the greatest increase between crop year 1991/92 and crop year 1992/93, in contrast to earlier years, when higher-quality grades of Spring wheat were more prevalent. USDA posthearing brief, attachment 2, p. 10.

[92] Unit values of Durum imports actually rose between crop year 1991/92 and crop year 1992/93, contrary to the trend for all wheat imports.

Table 19
Wheat: U.S. imports for consumption, by classes, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	Crop year-- 1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(metric tons)*					
Durum wheat:						
Seed	(1)	2,833	5,007	597	20	338
Other	(1)	349,270	362,905	508,498	329,046	332,309
Total	207,013	352,103	367,912	509,095	329,066	332,647
Seed wheat and meslin, except Durum seed	366	1,097	4,645	3,113	1,566	8,567
Red Spring wheat:						
Grade No. 1	(1)	14,468	67,561	50,192	42,640	28,292
Grade No. 2	26,268	0	18,265	15,816	15,816	21,010
Other	(1)	25,892	150,672	304,907	212,750	410,306
Total	124,481	40,360	236,498	370,915	271,205	459,607
White Winter wheat	(1)	(1)	81,556	173,150	127,135	99,585
Canadian Western Red Winter wheat	(1)	(1)	271	8,921	1,808	19,620
Soft White Spring wheat	(1)	(1)	178	37,297	27,309	9,141
Other wheat	36,865	301,526	168,819	460,766	229,439	302,832
Total, all wheat	368,725	695,085	859,879	1,563,257	987,529	1,231,998
	Value *(1,000 dollars)*					
Durum wheat:						
Seed	(1)	366	640	84	4	67
Other	(1)	53,364	48,798	74,071	47,909	50,110
Total	36,748	53,730	49,438	74,155	47,913	50,177
Seed wheat and meslin, except Durum seed	112	163	651	457	274	1,364
Red Spring wheat:						
Grade No. 1	(1)	1,586	8,929	7,070	6,006	4,043
Grade No. 2	4,156	0	3,161	2,088	2,088	3,849
Other	(1)	3,339	22,311	40,964	30,560	52,081
Total	19,590	4,926	34,401	50,122	38,654	59,973
White Winter wheat	(1)	(1)	10,661	21,878	15,891	11,773
Canadian Western Red Winter wheat	(1)	(1)	44	1,011	204	2,186
Soft White Spring wheat	(1)	(1)	18	4,726	3,746	976
Other wheat	5,187	33,849	22,352	53,351	29,134	35,295
Total, all wheat	61,637	92,667	117,565	205,701	135,815	161,744
	Unit value *(per metric ton)*					
Durum wheat:						
Seed	(1)	$129	$128	$141	$204	$198
Other	(1)	153	134	146	146	151
Total	$178	153	134	146	146	151
Seed wheat and meslin, except Durum seed	307	148	140	147	175	159
Red Spring wheat:						
Grade No. 1	(1)	110	132	141	141	143
Grade No. 2	158	(2)	173	132	132	183
Other	(1)	129	148	134	144	127
Total	157	122	145	135	143	130
White Winter wheat	(1)	(1)	131	126	125	118
Canadian Western Red Winter wheat	(1)	(1)	162	113	113	111
Soft White Spring wheat	(1)	(1)	101	127	137	107
Other wheat	141	112	132	116	127	117
Total, all wheat	167	133	137	132	138	131

See footnotes at end of table.

Table 19--Continued
Wheat: U.S. imports for consumption, by classes, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	Crop year-- 1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity of imports *(percent)*					
Durum wheat:						
Seed	[1]	[3]	1	[3]	[3]	[3]
Other	[1]	50	42	33	33	27
Total	56	51	43	33	33	27
Seed wheat and meslin, except Durum seed	[3]	[3]	1	[3]	[3]	1
Red Spring wheat:						
Grade No. 1	[1]	2	8	3	4	2
Grade No. 2	7	0	2	1	2	2
Other	[1]	4	18	20	22	33
Total	34	6	28	24	27	37
White Winter wheat	[1]	[1]	9	11	13	8
Canadian Western Red Winter wheat	[1]	[1]	[3]	1	[3]	2
Soft White Spring wheat	[1]	[1]	[3]	2	3	1
Other wheat	10	43	20	29	23	25
Total, all wheat	100	100	100	100	100	100
	Share of total value of imports *(percent)*					
Durum wheat:						
Seed	[1]	[3]	1	[3]	[3]	[3]
Other	[1]	58	42	36	35	31
Total	60	58	42	36	35	31
Seed wheat and meslin, except Durum seed	[3]	[3]	1	[3]	[3]	1
Red Spring wheat:						
Grade No. 1	[1]	2	8	3	4	2
Grade No. 2	7	0	3	1	2	2
Other	[1]	4	19	20	23	32
Total	32	5	29	24	29	37
White Winter wheat	[1]	[1]	9	11	12	7
Canadian Western Red Winter wheat	[1]	[1]	[3]	[3]	[3]	1
Soft White Spring wheat	[1]	[1]	[3]	2	3	1
Other wheat	8	37	19	26	21	22
Total, all wheat	100	100	100	100	100	100

[1] Not specially provided for during the entire crop year.
[2] Not applicable.
[3] Less than 0.5 percent.

Note: Shares may not add due to rounding.

Source: Compiled from official statistics of the U.S. Department of Commerce.

requested questionnaire recipients to report imports of wheat flour and semolina. Those data are presented in appendix L.

The quantity of imports of wheat flour first increased dramatically, by 70 percent, between crop year 1989/90 and 1990/91, before declining slightly in crop year 1991/92 (table 20). This volume nearly quadrupled in crop year 1992/93. Import volume in the period June-December 1993 almost totaled the volume of imports in the entire crop year 1992/93. The increase in the volume of imports of wheat flour between June-December 1992 and June-December 1993 was primarily due to rapid increases in imports of Hard Red Spring wheat flour and nonspecified varieties of wheat flour. Value-based data show similar trends. Unit values fluctuated irregularly, but generally fell over the period examined.

Table 20
Wheat flour and semolina: U.S. imports for consumption, by products, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	Crop year--				June-Dec.--	
	1989/90	1990/91	1991/92	1992/93	1992	1993
	Quantity *(metric tons)*					
Wheat flour:						
Hard Red Spring Wheat	(1)	270	529	5,094	484	11,580
Durum wheat	(1)	2,935	1,573	6,213	2,951	5,319
White Winter wheat	(1)	4,378	75	11,794	11,631	483
Other wheat[2]	(1)	8,665	13,486	35,755	21,799	41,081
Total	9,548	16,248	15,663	58,855	36,866	58,463
Semolina	19	598	1,545	176	131	4
	Value[3] *(1,000 dollars)*					
Wheat flour:						
Hard Red Spring wheat	(1)	110	220	1,430	201	2,835
Durum wheat	(1)	1,408	673	2,389	1,185	2,082
White Winter wheat	(1)	518	18	1,655	1,613	129
Other wheat[2]	(1)	4,132	5,678	11,470	6,841	13,754
Total	4,621	6,167	6,589	16,944	9,840	18,800
Semolina	4	154	355	51	34	3
	Unit value *(per metric ton)*					
Wheat flour:						
Hard Red Spring wheat	(1)	$406	$415	$281	$416	$245
Durum wheat	(1)	480	428	384	401	391
White Winter wheat	(1)	118	243	140	139	267
Other wheat[2]	(1)	477	421	321	314	335
Average	$484	380	421	288	267	322
Semolina	187	258	230	292	263	752

[1] Not specially provided for during the entire crop year.
[2] May include small amounts of meslin flour.
[3] Landed, duty-paid value.

Source: Compiled from official statistics of the U.S. Department of Commerce.

The patterns of imports of semolina, both in terms of quantity and value, were similar to those for wheat flour, except that semolina imports fell sharply in crop year 1992/93, whereas imports of wheat flour continued to increase. Semolina imports dropped to minuscule levels in June-December 1993, when compared to the corresponding 1992 period. Unit values generally rose during the 4-year period.

THE WORLD MARKET

World Wheat Production and Trade

Although both world production and consumption rose during 1989/90 to 1993/94, world stocks of wheat remained at high levels. During this period, world production of wheat rose by 27 million tons, and world consumption by 31 million tons, but ending stocks still rose (table 21). World ending stocks of wheat rose by 22 million tons, from 121 million to 143 million tons during 1989/90 to 1993/94, as shown in the following tabulation (*in million metric tons*), as compiled from official USDA statistics:[93]

Country or region	Crop year 1989/90	1990/91	1991/92	1992/93	1993/94
Australia	3.0	2.8	2.9	5.0	5.7
Canada	6.4	10.3	10.1	12.2	13.1
EU	13.0	16.5	22.8	25.5	21.7
United States .	14.6	23.6	12.8	14.4	15.2
Others	83.9	92.2	80.1	89.2	87.3
Total	121.0	145.4	128.7	146.3	143.0

World exports and imports of wheat generally declined during this same period. World exports of wheat and wheat flour initially rose from about 102 million tons in 1989/90 to 110 million tons in 1992/93, but thereafter declined to 99 million tons in 1993/94 (table 22). World imports fell in a similar pattern from 102 million to 100 million tons, respectively. The two largest import markets, the former U.S.S.R. and China, together purchased 12 million tons less in 1993/94 than in 1989/90.

The larger world stocks of wheat and generally stagnant import markets have generally led to lower world market prices and sharp competition among the leading wheat exporters, the United States, Canada, the European Union, Australia, and Argentina, to retain market share. Prices of the leading exported wheat classes declined during 1989/90 to 1992/93 (figure 3). In 1993/94, the prices of the higher protein wheat exports (U.S. Dark Northern Spring, and the two Canadian wheat classes) generally rose, induced in part by lower supplies of the high-protein wheats grown in that year. Prices of the ordinary or lower protein wheat classes (U.S. No. 2 Hard Winter and Argentine wheat) in 1993/94, however, remained at levels below those of 1989/90.

The European Union

The role of the EU in world wheat trade has become increasingly important, because it has accounted for about 20 percent of world wheat exports during the past 5 years (table 22). For a number of years, the United States has complained about the EU export and internal subsidy program for wheat, grain, and oilseeds which allegedly disrupted and unfairly interfered with world markets.

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[93] USDA, *World Agricultural Supply and Demand Estimates*. The 1993/94 data are USDA estimates as of May 1994.

Table 21
Wheat and wheat flour: World production and consumption, by major countries, crop years 1989/90-1993/94

Item	1989/90	1990/91	1991/92	1992/93[1]	1993/94
	Quantity *(million metric tons)*				
Production:					
Argentina	10.2	10.9	9.9	9.7	9.5
Australia	14.2	15.1	10.6	16.2	18.0
Canada	24.8	32.1	31.9	29.9	27.8
China	90.8	98.2	96.0	101.6	105.0
Eastern Europe[3]	40.8	41.3	38.3	26.4	30.5
European Union	82.0	84.7	90.4	84.8	80.5
India	54.1	49.9	55.1	55.1	56.5
Former U.S.S.R	87.2	101.9	72.0	88.5	82.8
United States	55.4	74.5	53.9	66.9	65.4
All other countries	73.5	79.5	84.2	82.0	84.3
World total	533.0	588.1	542.3	561.4	560.2
Consumption:					
China	104.5	106.0	111.0	109.1	110.8
Former U.S.S.R	100.2	112.7	101.3	95.8	92.6
United States	27.0	37.4	30.9	30.4	33.8
All other countries	300.5	307.6	315.8	309.3	326.3
World total	532.2	563.7	559.0	544.6	563.5
	Share of total world production *(percent)*				
Argentina	1.9	1.9	1.8	1.7	1.7
Australia	2.7	2.6	2.0	2.9	3.2
Canada	4.7	5.5	5.9	5.3	4.9
China	17.0	16.7	17.7	18.1	18.6
Eastern Europe[2]	7.7	7.0	7.1	4.7	5.4
European Union	15.4	14.4	16.7	15.1	14.3
India	10.2	8.5	10.2	9.8	10.0
Former U.S.S.R	16.4	17.3	13.3	15.9	14.7
United States	10.4	12.7	9.9	11.9	11.6
All other countries	13.8	13.5	15.5	14.6	15.0
World total	100.0	100.0	100.0	100.0	100.0

[1] Estimated data.
[2] Excludes former East Germany.

Note.--Because of rounding, figures may not add to the totals shown.

Source: USDA, FAS, and World Agricultural Outlook Board.

Table 22
Wheat and wheat flour: World trade, by major countries, crop years, 1989/90-1993/94

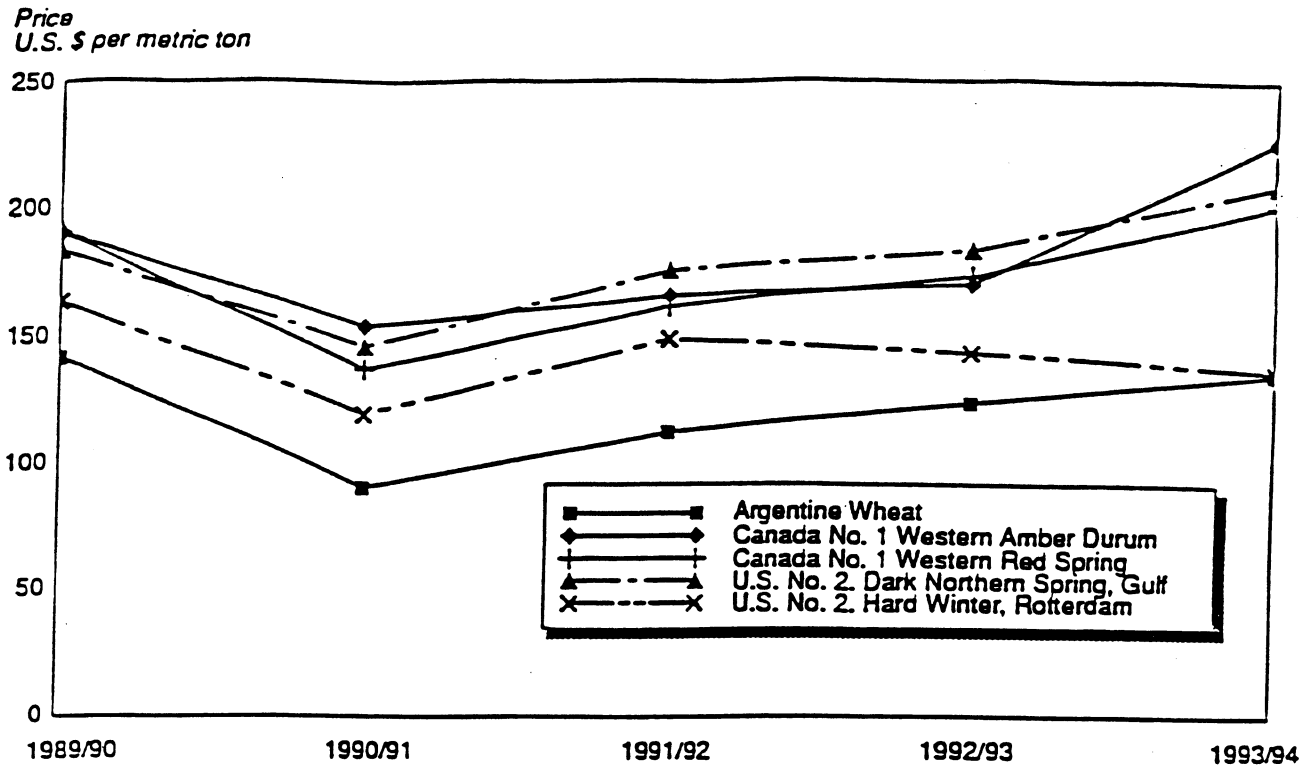
Item	1989/90	1990/91	1991/92	1992/93[1]	1993/94[2]
	Quantity *(million metric tons)*				
Exports:					
Argentina	5.6	4.7	5.5	7.2	5.2
Australia	10.8	11.8	8.2	9.1	12.1
Canada	17.0	20.5	23.3	21.5	18.5
European Union	21.3	20.7	21.9	22.0	18.5
Former U.S.S.R	6.0	8.5	.6	6.6	7.3
United States	33.5	28.3	35.1	37.0	33.0
All other countries	7.8	7.0	14.3	6.3	5.4
World total	102.0	101.6	108.9	109.7	100.0
	Share of world exports *(percent)*				
Argentina	5.5	4.6	5.1	6.6	5.2
Australia	10.6	11.6	7.5	8.3	12.1
Canada	16.7	20.2	21.4	19.6	18.5
European Union	20.9	20.4	20.1	20.0	18.5
Former U.S.S.R	5.9	8.4	.6	6.0	7.3
United States	32.8	27.9	32.2	33.7	33.0
All other countries	7.6	6.9	13.1	5.7	5.4
World total	100.0	100.0	100.0	100.0	100.0
	Quantity *(million metric tons)*				
Imports:					
Algeria	4.2	4.6	3.7	3.8	4.3
Brazil	1.5	2.8	5.3	5.8	5.9
China	12.8	9.4	15.8	6.7	6.0
Eastern Europe[3]	1.2	1.3	1.1	3.6	2.4
Egypt	7.3	5.7	5.8	6.0	5.0
European Union	1.6	1.5	1.2	1.5	1.5
Former U.S.S.R	20.4	23.2	22.2	23.7	15.6
Indonesia	1.9	2.0	2.5	2.7	2.9
Iran	5.2	4.0	2.4	3.0	2.9
Japan	5.6	5.6	5.8	5.9	6.0
Korea	2.0	4.2	4.4	3.9	4.8
Morocco	1.1	1.9	1.5	3.2	3.5
Philippines	1.3	1.5	1.7	2.0	2.1
United States	.6	.9	1.2	1.9	2.7
All other countries	35.3	33.0	34.3	36.0	33.2
World total	102.0	101.6	108.9	109.7	100.0
	Share of world imports *(percent)*				
Algeria	4.1	4.5	3.4	3.5	4.3
Brazil	1.5	2.8	4.9	5.3	5.9
China	12.5	9.3	14.5	6.1	6.0
Eastern Europe[3]	1.2	1.3	1.0	3.3	2.4
Egypt	7.2	5.6	5.3	5.5	5.0
European Union	1.6	1.5	1.1	1.4	1.5
Former U.S.S.R	20.0	22.8	20.4	21.6	15.6
Indonesia	1.9	2.0	2.3	2.5	2.9
Iran	5.1	3.9	2.2	2.7	2.9
Japan	5.5	5.5	5.3	5.4	6.0
Korea	2.0	4.1	4.0	3.6	4.8
Morocco	1.1	1.9	1.4	2.9	3.5
Philippines	1.3	1.5	1.6	1.8	2.1
United States	.6	.9	1.1	1.7	2.7
All other countries	34.6	32.5	31.5	32.8	33.4
World total	100.0	100.0	100.0	100.0	100.0

[1] Estimated data.
[2] Projected data.
[3] Excludes former East Germany.

Note.--Because of rounding, figures may not add to the totals shown. Data are on a July 1-June 30 basis, and not strictly comparable to data in table 27.

Source: USDA, FAS, Feb. 1994.

Figure 3
Wheat: Average export prices for leading classes in the United States, Canada, EU, and Argentina, 1989/90-1993/94



NOTE.—The price basis of these quotes are: Argentine wheat, f.o.b., Argentina; Canada No. 1, Western Red Spring, 13.5-percent protein in-store, St. Lawrence; Canada No. 1, Western Amber Durum, Thunder Bay, Ontario; U.S. No. 2 Dark Northern Spring, 14-percent protein, c.i.f. Rotterdam; and U.S. No. 2, Hard Winter wheat, ordinary protein, Gulf ports.

Source: Compiled from statistics of the International Wheat Council and USDA.

The U.S.-EU Blair House Agreement in November 1992 sought to resolve the trade disputes between the two countries through cuts in subsidized exports and domestic internal support for wheat, grain, and oilseeds.[94] USDA indicated in 1993 that the EU cuts were expected to reduce (after 6 years) its wheat exports by over 7 million tons from the level prevailing in 1993.[95]

EU exports of wheat peaked at 22 million tons in 1992/93, but declined to about 20 million tons in 1993/94. According to USDA, the reduced EU support program for wheat (in part a result of the Blair House Agreement) was responsible for lowering the EU wheat acreage by about 1.6 million hectares, and wheat production by 2 million metric tons; weather also played a role in the lower production in 1993/94.[96] In 1994, however, EU acreage in grain is likely to rise, owing to increased plantings and higher yields of Durum wheat. Thus, according to 1994 USDA reports, EU wheat production and exports are not likely to continue to decline in the short run.

Canada

Government Wheat Programs[97]

Canada is the third-leading wheat exporter in the world (behind the United States and the EU). Canada exported 18 million metric tons of wheat in 1993/94 or about two-thirds of its output (tables 21-22). During 1989/90 to 1993/94, Canada exported, on average, 69 percent of its wheat production.

Canadian programs for wheat are primarily administered by the Canadian Federal Government, or by the Federal Government and the Provincial Governments together. As in the United States, Canada maintains farm programs that provide price and income support for its farmers. This is done through the pricing and marketing operations of the CWB, as well as through the Gross Revenue Insurance Program (GRIP). Additionally, Government payments to railroads under the Western Grain Transportation Act (WGTA) influence the pricing of Canadian grains, including wheat.

Canadian Wheat Board

Structure, organization, and objectives.--The CWB is a trading agency that is the legal marketing board for all Canadian wheat, barley, and oats, as well as the only authorized exporter.[98] It operates essentially as a producer cooperative with responsibility for marketing grain produced by western Canadian farmers. The board has a marketing monopoly for all milling-quality grain for domestic and export sales and for feed wheat for export sales.[99] Accordingly, under Canadian law, farmers in the Prairie Provinces (Manitoba, Saskatchewan, and Alberta) and part of British Columbia are required to tender their wheat for sale through the CWB. Although the CWB has a monopoly for the sale of wheat within Canada, since 1991 the CFTA/NAFTA has allowed U.S. exporters to sell wheat in Canada under certain conditions.

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[94] USDA, ERS, "U.S.-EC Blair House Agreement," *International Agriculture and Trade Reports: Europe,* Sept. 1993, pp. 45-50.

[95] Ibid., p. 47.

[96] USDA, FAS, *Grain: World Markets and Trade,* Apr. 1994, pp. 11, 43.

[97] The information in this section is based primarily on: USDA, FAS, *Export Markets for U.S. Grain and Products,* various issues; USDA, FAS, *Grain and Feed Annual: Canada,* prepared by S. Hammond, U.S. Embassy, Ottawa, various years; information from USDA, ERS; and USITC publications 2274 and 2627.

[98] The CWB does not handle wheat flour or semolina.

[99] In crop year 1992/93, the CWB sold nearly two-thirds of all wheat produced in Canada. The remaining one-third was either sold independently by farmers within Canada as feed wheat or stored on-farm.

The CWB was established in 1935 as a crown corporation, a semiautonomous government organization used to administer and manage public services in Canada in which enterprise and public accountability are combined.[100] It evolved gradually from the various prairie province "wheat pools," which were in essence agricultural cooperatives. The 1935 Act creating the board gave it the right to enter into commercial banking arrangements, borrow money, and issue bonds. As a crown corporation, the CWB's financial obligations constitute a direct charge on the Canadian Government; thus, the Canadian Government guarantees the CWB's borrowing for credit sales. The board's operations are free of ordinary government monitoring and public accountability, other than through the obligation to issue an annual report. The only role for the Canadian Government in the CWB's affairs is to establish the level of initial payments to farmers each year and to take responsibility for any pool deficit incurred by the CWB.[101]

The Canadian Government appoints five commissioners with lifetime appointments (until they reach the age of 70) to administer the board. In addition, there is an advisory board of 11 farm-elected representatives from the Prairie Provinces (the "Producer Advisory Committee"); members of this committee have 4-year terms. Members of the CWB are not Canadian civil servants, and their salaries and expenses are paid entirely from the proceeds of CWB sales.[102]

The CWB administers a "pooling system" in which farmers deliver wheat to a specific pool and receive the same price for their wheat after handling and freight costs (generally to Thunder Bay or Vancouver, the main shipping points) have been deducted. There are separate pool accounts for wheat (except Durum), Durum, barley, and designated barley (i.e., barley for malting or pearling).

The CWB issues delivery quotas to each farmer based on the farmer's total seeded acreage of wheat and barley, taking logistical, cost, and demand considerations into account.[103] The delivery quotas control the grain flow from farms to export locations as Canadian export storage and transportation facilities can handle only 15 million tons at a time, although the volume of crops produced annually in Canada normally exceeds 52 million tons (on-farm storage is 40 million tons).[104]

Payments to farmers.--The pooled average price the farmer receives may be divided into three separate payments: an "initial payment" made at the beginning of the crop year, an "interim payment" made after the closing of the pool accounts, and, finally, after administrative costs are deducted, a "final payment" made after the end of the crop year.

The CWB provides initial payments to the producer when wheat is tendered to the CWB, generally at the very beginning of the crop year (i.e., around August 1).[105] Initial payments are based on "in-store Thunder Bay" prices, and are calculated using market projections that are based on world supply and demand factors.[106]

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[100] General Accounting Office (GAO), *Canada and Australia Rely Heavily on Wheat Boards*, June 1992, pp. 22-23.

[101] CWB questionnaire response, attachment 1.

[102] Ibid.

[103] Although the volume of grain the CWB will accept for sale may be limited, the CWB argues that it does not allocate production; farmers are free to produce whatever types and amount of wheat varieties they wish. The CWB will only accept volumes of wheat for which it has a confirmed customer order. CWB questionnaire response, attachment 1; Washington transcript, p. 313. In 1992, however, the GAO indicated that on-farm storage costs for undeliverable grain might compel farmers to plan production according to the expected board delivery quotas. GAO publication 92-129 (1992).

[104] GAO, p. 24.

[105] The Canadian crop year runs from August through the following July. Although most initial payments are made at the beginning of the crop year, such payments may be made at any time during the crop year, depending upon delivery of the wheat from the farmer to the CWB.

[106] CWB questionnaire response, appendix A.

Initial payments are floor prices, and thus tend to set the market prices within Canada. Initial payments for wheat are shown in table 23. World wheat prices have generally declined since 1989; thus, the initial prices for the two leading Canadian wheat classes, Canadian Western Red Spring and Canadian Western Amber Durum, have fallen as well.

Table 23
Wheat: CWB initial payments for wheat, crop years 1989/90-1993/94

(U.S. dollars per bushel)

Crop year	Class of wheat-- No. 1 Canadian Western Red Spring	No. 1 Canadian Amber Durum Wheat
1989/90	$3.58	$3.47
1990/91	3.18	2.94
1991/92	2.58	2.30
1992/93	2.24	2.28
1993/94	2.15	2.35

Source: CWB and USDA.

Initial payments are designed to cover the cost of transporting wheat to either Thunder Bay or Vancouver and placing it in terminal storage at those locations. These costs, which are the responsibility of the farmer, are deducted from the initial payment when the payment is made (upon delivery of the wheat).[107] Initial payments are published in the July preceding the crop year during which payments will be made.[108]

During the balance of the crop year, the initial payment may be adjusted upward, but can never be decreased. After the end of the crop year, but before the end of the calendar year, the CWB may make an interim payment to the farmer, which is an advance on the final payment, if it appears that there will be a substantial surplus in the pool account. Finally, after January 1 of the year following the crop year in question, the final payment is made to producers.[109] As seen in table 24, the CWB ran a pool deficit in 1990/91 of Can$743 million ($US 652 million).[110] When a pool deficit is run, the farmer does not receive a final payment and the Canadian Government, not the CWB, is responsible for making up the deficit.

In March 1993, the CWB began a program entitled "Estimated Pool Returns" (EPR) (otherwise known as "Pool Return Outlook" or ("PRO")) to assist Canadian farmers in estimating their potential economic returns. The EPRs are announced in the spring, summer, and fall, so thatfarmers can use these returns to gauge their planting decisions. In crop year 1993/94, for example, a Canadian farmer could expect to receive a total return from the CWB of US$3.24 per bushel for No. 1 Canada Western Red Spring wheat, compared to US$3.41 per bushel in 1992/93 (table 25).

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[107] The CWB noted in its questionnaire response that these charges are deducted at that time as neither the farmer nor the elevator company knows to whom the wheat will eventually be sold, and, thus, the final price of the wheat.

[108] The CWB recently rescheduled publication of the initial payments from May to July in order better to assess market conditions and reduce the risk of pool deficits.

[109] Accordingly, for example, in crop year 1992-93 the initial payment would have been made on or around Aug. 1, 1992, the interim payment sometime during the period Aug. 1, 1993 through Dec. 31, 1993, and the final payment on or slightly after Jan. 1, 1994.

[110] The CWB attributes this deficit to increased export subsidies by the United States and the EU in Canada's prime overseas markets. CWB questionnaire response.

Table 24
Wheat: Canadian Government payments, farm receipts, production, harvested area, and yields, crop years 1988/89-1991/92

(Million Canadian dollars)

Item	1988/89	1989/90	1990/91	1991/92
From CWB payments:				
Calculated Market Receipts[1]	2,617.4	2,269.9	1,821.4	2,447.2
WGTA Benefit[2]	549.9	319.6	470.1	552.8
CWB Deficit	0.0	0.0	743.0	0.0
Total, CWB payments	3,167.3	2,589.5	3,034.5	3,000.0
From direct gov't. payments:				
WGSP[3]	(88.2)	(88.8)	8.2	0.0
GRIP[4]	0.0	0.0	0.0	899.7
NISA	0.0	0.0	0.0	20.7
SCGP	184.9	0.1	0.0	0.0
Other assistance[5]	34.7	305.6	235.1	195.5
Total, direct payments	131.4	216.9	243.3	1,115.9
Total, all receipts[6]	3,298.7	2,806.4	3,277.8	4,115.9
Total, all govt. supports[7]	681.3	536.5	1,456.4	1,668.7
Production (*million metric tons*)[8]	15.91	24.80	32.10	31.95
Area harvested (*million hectares*)	12.94	13.72	14.10	14.16
Yield (*metric tons/hectare*)	1.23	1.81	2.28	2.26

[1] Calculated Market Receipts = all payments which producers receive for deliveries made for the years shown from the CWB (initial, interim special, and final payments) plus an allowance for the value of off-board sales, less the portions of those CWB payments derived from the government via: (a) WGTA and (b) reimbursement of the CWB deficits. It does not include an allowance for the value of production that is (a) used for feed or seed on the farm or (b) sold for such purposes to other farmers in what are commonly termed as inter-farm transactions. Deliveries may include some quantities that some farmers have carried over from earlier crops.

[2] Estimate; assumes that WGTA payments attributable to wheat all accrue to the producer in the form of higher CWB payments.

[3] Net of producer levies.

[4] Net of producer premiums.

[5] Includes crop insurance (indemnities less premiums), CCDAP in 1989/90, SIAP in 1990/91, and FSAM I & II in 1991/92.

[6] Includes payments from CWB and payments received directly from the government.

[7] Government supports include (a) net returns from WGSP prior to 1991/92, GRIP in 1991/92, and crop insurance; (b) other income support programs as listed; and (c) support which producers receive from the government indirectly via their receipts from the CWB, which includes reimbursements of CWB deficits and the pro-rated share of WGTA subsidization attributable to wheat. For those programs including direct government payments estimates have been made from published data using methodology developed by ERS, USDA.

[8] Total harvest quantity for all Canadian provinces, including amounts used on farms or retained in farm stock.

Source: USDA, FAS, *Export Markets for U.S. Grain and Products,* Oct. 1993, p. 12.

Table 25
Wheat: Canadian pool returns, crop years 1991/92-1993/94

(U.S. dollars per bushel)

Wheat class	1991/92	1992/93	1993/94 Outlook[1]
No. 1 Canada Western Red Spring	$3.04	$3.41	$3.24
Canada Western Feed	2.49	2.63	2.16
No. 1 Canada Western Amber Durum	3.06	4.81	3.45

[1] The average PRO announced Feb. 24, 1994.

Note.--Canadian dollars were converted at the rate of Can$1.20/US$1 for 1991/92; Can$1.25/US$1 for 1992/93; and Can$1.30/US$1 for 1993/94.

Source: CWB, "1993-94 Pool Return Outlook," *Wheat Board News,* Feb. 24, 1994; and USDA.

Sales to the United States.--The CWB does not export directly to the United States. Rather, it uses a group of "accredited exporters," which include subsidiaries of U.S. grain companies as well as independent Canadian firms.[111] These firms purchase wheat from the CWB and resell it to U.S. customers, often acting as their own importers.[112] Such companies are also involved in offshore sales; the CWB's major offshore markets in crop year 1992/93 were China for Canadian Western Red Spring wheat and Algeria for Durum wheat.

U.S. purchasers have various options concerning the structure of purchases from the CWB. They may take delivery of the wheat in Canada, at their U.S. facility, or at some intermediate point. In part because the CWB uses its accredited exporters as intermediaries in the transaction, it generally bears only a small proportion of the movement costs from the farm to the ultimate U.S. customer. At any rate, the eventual terms of sale on U.S. transactions are a matter of negotiation between the accredited exporter and the U.S. buyer, and are established on a sale-by-sale basis.

In addition to exporting milling-quality wheat, the CWB also handles exports of feed wheat. Canadian "feed wheat" also includes wheat that is used as milling-grade wheat in the United States. The principal grade of wheat exported as feed wheat is Canada Western Feed Wheat (CWFW). The CWB estimates that, in normal years, only 10 to 12 percent of Canadian wheat is classified as CWFW. In crop year 1992/93, however, export sales of feed wheat were greater, in part, because of the increased propensity of U.S. millers to blend feed wheat with milling grades of U.S. wheat.[113] The CWB calculated that approximately 72 percent of CWFW exports to the United States were sold to animal feed manufacturers (rather than used for blending) in crop year 1992/93, and 86 percent in crop year 1993/94.[114] The remaining CWB exports were sold mainly to U.S. millers.

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[111] In this group, the five largest exporters in 1993 were, in order of size, ***.

[112] Although the CWB takes title to wheat from the farmer before selling it to the exporter, it asserts that it does not actually "purchase" the wheat from the farmer. In its view, wheat is "delivered for sale" to the CWB. CWB questionnaire response, p. 8. Further, the CWB, notwithstanding the role of its accredited exporters, has the power to negotiate sales terms directly with U.S. buyers. Posthearing brief of Robins, Kaplan, et al., attachment 3.

[113] The CWB noted that crop damage in Canada in the 1992/93 crop year was more severe than that experienced in the United States.

[114] Overall, total exports of wheat for nonhuman consumption from Canada to the United States increased from 13,800 metric tons in crop year 1990/91 to 1.1 million metric tons in crop year 1993/94, according to CWB estimates.

Storage and transportation considerations.--Differing from the U.S. system, the Canadian wheat distribution system uses on-farm storage, rather than commercial or government elevators, to hold grain that cannot be marketed.[115] Elevator capacity in Canada has been declining in recent years. Grain that is to be marketed passes first from the farm to a skeletal system of "country elevators," whereupon the grain is shipped to "terminal elevators" at the shipping points (either Thunder Bay or Vancouver). Storage capacity of the terminal elevators is also limited, totaling less than 10 percent of Canada's average annual grain crop.[116] Because of the limitations of Canada's grain transport system, the CWB uses producer-specific delivery quotas to control the flow of grain.

For shipments of wheat to western Canadian flour mills, the CWB also provides what is termed a "mill offset," or a discount on purchases of wheat by such mills. These discounts were instituted in order to adjust for differences in U.S. and Canadian freight rates.[117] The CWB states that this practice ensures that Canadian flour mills are competitive on a "raw product" basis with their U.S. counterparts. The CWB publishes a daily price quote for domestic milling wheat based on U.S. prices. The quotes enable domestic millers to purchase Canadian wheat for milling purposes at prices just under U.S. prices including delivery charges.[118]

Gross Revenue Insurance Program[119]

The Government of Canada introduced the Gross Revenue Insurance Program (GRIP) in 1991/92. This program, along with the Net Income Stabilization Account (NISA), a program with benefits that resemble an Individual Retirement Account, provides income support to Canadian farmers. The GRIP, in particular, is one of the most significant pieces of agricultural legislation passed during the last 50 years. The purpose of the GRIP is to provide yield, price, and revenue protection by providing crop insurance and supplemental revenue deficiency payments to participating producers. The estimated payout under GRIP to farmers was CAN$2.7 billion (US$2.4 billion) in 1991/92 for all program crops, including wheat. As seen in table 24, USDA estimated that the payout for wheat was CAN$900 million (US$800 million) in that year.

Provincial crop insurance agencies administer the GRIP. To participate, a farmer must sign up for one of three options provided under the program: (1) crop insurance, (2) revenue protection, or (3) both crop insurance and revenue protection. The crop insurance option under the GRIP continues the yield protection benefits that had been available to producers before the GRIP. The revenue protection component alone provides price protection to producers who do not wish to insure against yield risk. The third option offers more comprehensive insurance coverage against both yield and price risk.

The cost of the GRIP is shared among farmers, the Federal Government, and the Provincial Governments, each paying a share of the premium costs associated with the program. The share of

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[115] CWB representatives acknowledged that the delivery system for wheat in Canada is severely constrained; Washington transcript, p. 311. Parties in support of section 22 restrictions argued that this situation creates incentives for the board to dispose of excess wheat through sales to the United States. Posthearing brief of Robins, Kaplan, et al., p. 13. Counsel for the CWB, however, asserted that the Canadian storage system was not deficient in that on-farm storage provides adequate capacity for 1 year's crop; posthearing submission of Steptoe & Johnson, tab 1.

[116] CWB questionnaire response, attachment 1, p. 5.

[117] Because Canadian prices are based on U.S. daily prices, the actual prices quoted at Canadian country elevators for sales to Canadian flour mills will be higher than those prices quoted at U.S. elevators. This is because the freight portion of the price is lower in Canada (owing to the WGTA subsidy), resulting in a smaller freight adjustment.

[118] USDA, FAS, *Grain and Feed Annual Canada*, U.S. Embassy, Ottawa, Mar. 22, 1994, p. 14.

[119] This section is adapted from USITC publication 2627, Apr. 1993. All original reference citations can be found in that report.

the premium paid by the producer and the Federal or Provincial Governments differs depending on the program option, as shown in the following tabulation (*in percent*):

Program	Producer	Federal Government	Provincial Government
Revenue and crop insurance	40.0	35.0	25.0
Revenue insurance only	33.3	41.7	25.0
Crop insurance only	50.0	25.0	25.0

Payments to producers under the revenue component (for farmers who choose revenue insurance and crop insurance combined or revenue insurance only) are made when the market revenue falls below a guaranteed per-acre target revenue that is established under the GRIP. The target revenue is established by the participating provinces for each enrolled crop based on a farmer's long-term average yield, the farmer's seeded area, the provincial support price, and the provincial coverage level. The support price in each province is based on a maximum of 70 percent of the 15-year moving average of market prices (indexed for input costs), or Indexed Moving Average Price (IMAP). Thus, 70 percent of the IMAP functions as the target price for farmers under the GRIP.[120] The historical yield is measured at the individual farm level, based on crop insurance history. The market revenue is the actual yield valued at the current average provincial market price times the actual harvested area.

The 70-percent IMAPs for two classes of wheat during 1991/92 to 1993/94 are shown in table 26. In 1993/94, the leading Canadian wheat (No. 2 Canadian Western Hard Red Spring) had a 70-percent IMAP of US$2.82 per bushel.

The payout for each crop under the revenue component is equal to the shortfall of the market revenue from the target revenue. Producers who opt for revenue protection alone receive payouts based on the difference between target revenue, as calculated from the actual yields, and actual market revenue. Producers who opt for both crop insurance and revenue protection receive payouts based on the difference between the target revenue, based on 100-percent yield coverage, and actual market revenue. Crop insurance benefits are also subtracted from any potential revenue payout. Payments are made only if the sum of market revenues for all covered crops falls short of the sum of target revenues for all covered crops.

In 1992, 127,000 Canadian farmers, with 83 percent of Canada's cultivated area, were enrolled in the GRIP. Crops currently eligible for the GRIP other than wheat are dry peas, lentils, barley, oats, corn, alfalfa, canola, soybeans, rye, flaxseed, mustard seed, canary seed, mixed grain, and perennial crops. Participating producers must sign up all eligible crops into the revenue protection component of the GRIP; those opting for crop insurance can choose which eligible crops to cover.

[120] USITC publication 2627, pp. 3-22.

Table 26
Wheat: IMAPs under the GRIP,[1] crop years 1991/92-1993/94

Year	(U.S. dollars per bushel) No. 2 Canadian Western Red Spring	No. 2 Canadian Amber Durum
1991/92	$3.58	$3.87
1992/93	3.26	3.57
1993/94	2.82	3.16

[1] The data shown are 70 percent of the IMAP for the crop year.

Note.--1993/94 data were converted at an exchange rate of CAN$1.30 per US$1.

Source: USDA.

Other programs

Pre-GRIP programs.--The GRIP and NISA replaced three programs: the Western Grain Stabilization Program (WGSP), the Agricultural Stabilization Act (ASA), and the Special Canadian Grains Program (SCGP), all of which were terminated in 1990/91.[121] Two of these programs, the WGSP and the SCGP, benefited wheat producers in Western Canada.

The WGSP was established in 1976 and attempted to stabilize net cash flow to grain and oilseed producers in Alberta, Manitoba, and Saskatchewan. Payments from the program were made to farmers when net cash flow from the seven major crops (wheat, barley, oats, rye, rapeseed, flaxseed, and mustard seed) grown in these provinces fell below 90 percent of the previous 5-year average. The program was jointly funded by producers and the Federal Government.

The SCGP was an ad hoc program created to cushion grain and oilseed producers from lower world prices after 1985. Over CAN$1.6 billion was paid out under the SCGP from 1986 through 1988. The SCGP was terminated in 1989, but similar programs were instituted in its place. These included the Crop Drought Assistance Program in 1988/89 and the combined Federal-Provincial Farm Aid Program in 1990.

Canadian Grain Commission.--The CGC licenses the grading and use of wheat within Canada. For example, a U.S.-developed wheat variety, Grandin, has been grown on an increasing scale within Canada.[122] Yet because the CGC did not approve the use of Grandin as a milling grade wheat, it was classified as a "feed grade" wheat through crop year 1993/94.[123] The CGC's main concern is to maintain the uniform quality and overall milling characteristics of Canadian wheat and wheat flour.

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[121] The ASA provided floor prices to producers outside the designated area of the CWB. Under this legislation, minimum floor prices were set at not less than 90 percent of the average market price over the previous 5 years. Annual deficiency payments were used to make up the difference if average market prices fell below the floor price.

[122] This variety was grown on approximately 300,000 acres in 1993.

[123] Steve Hammond, FAS, USDA, American Embassy, Ottawa, facsimile communication to USITC, Feb. 24, 1994. The CWB informed the Commission, however, that the CGC granted Grandin wheat "experimental status" for the 1994/95 crop year. Grandin wheat can be delivered into the Canadian system as No. 1 or No. 2 Canadian Western Experimental wheat, and can be sold as milling grade wheat. Such "upgrades" to experimental grade last for 1 crop year. Conversation with CWB staff, Apr. 18, 1994.

Western Grain Transportation Act[124]

The Western Grain Transportation Act (WGTA), enacted in 1984, provides for direct Government payments to Canadian railroads for certain rail shipments of grains and specialty crops, including wheat, within Canada.[125] Rail shipments of wheat subject to the statute are those shipped on Canadian railroads--

> From any point west of Thunder Bay, Ontario or Armstrong, Ontario to Thunder Bay or Armstrong;
>
> From any point west of Thunder Bay or Armstrong to any port in British Columbia for export (except to the United States); and,
>
> From any point west of Thunder Bay or Armstrong to Churchill, Manitoba for export.[126]

Under the WGTA, the Canadian Government pays directly to Canadian railroad companies a portion of the transportation costs attributable to the covered commodity movements.[127] The payment generally consists of two components: a fixed payment called the Crow Benefit, and the Government's portion of increased rail costs.[128] On average, the Government paid during 1989/90 to 1993/94 from 57 to 72 percent of the total rail cost for covered shipments.[129] In 1993/94, the Government paid 57 percent or Can$18.34 per metric ton of wheat (out of a total rail cost of $32.07 per ton) under the WGTA.[130] As seen in table 24, in 1991/92, total payments to the railroads under the WGTA for wheat shipments amounted to CAN$553 million.

The influence of the WGTA on the Canadian grain sector was assessed in three previous Commission investigations.[131] All three of these investigations noted that the WGTA largely benefits Canadian producers of export grains because these producers are not required to pay the full costs of transporting their crops to export locations.[132] The WGTA, in effect, increases the on-farm prices of export grains, which, in turn, induces increased production of these crops. A study by Agriculture Canada, which analyzed the effects of reducing WGTA freight benefits on Canada's crop production, noted that production of lower-valued export crops (such as wheat and barley) would decline in the event of a reduction in WGTA benefits.[133]

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[124] For a discussion of whether the WGTA could be considered an export subsidy under the CFTA or the GATT Subsidies Code, see USITC publication 2472, pp. 5-1 through 5-3. The CFTA proscribes Canadian export subsidies only on goods exported to the United States; it does not prohibit export subsidies on goods to third-country markets.

[125] Eligible crops include wheat, oats, barley, rye, flaxseed, canola, and various specialty crops.

[126] See WGTA, sec. 21(1); U.S.-Canada Free-Trade Agreement, art. 701(5) (excluding agricultural products shipped via Canadian west coast ports for U.S. consumption from the WGTA). Should agricultural products be transported by rail east beyond Thunder Bay, only that portion of the transportation from the point of origin to Thunder Bay would be subject to the WGTA.

[127] See WGTA, sec. 56(1).

[128] Ibid., secs. 55(1) & 34(1). The Crow Benefit is factored into the freight rates each year whether or not wheat is shipped to the United States. CWB questionnaire response, attachment 3.

[129] Steve Hammond, FAS, USDA, Grain and Feed Annual, American Embassy, Ottawa, Mar. 22, 1994, p. 16.

[130] Ibid. This freight cost is from the midprairie point to either Thunder Bay or Vancouver.

[131] USITC publications 2274, 2627, and 2472.

[132] The CWB argued in its questionnaire response that the WGTA operates essentially as a support program for domestic producers, not as an inducement to export. Moreover, increases and/or decreases in freight costs, according to the CWB, have no impact on the initial payments received by farmers; rather, such changes alter the eventual return to the farmer.

[133] Kurt Klein, et al., Regional Implications of Compensatory Freight Rates for Prairie Grains and Oilseeds, Agriculture Canada working paper 3/91, Jan. 1991.

A fourth Commission investigation discussed the WGTA in relation to Canada's domestic use of feed grains.[134] In that investigation, Canadian interests argued that the railroad benefit for export grains tends to bid up the price for feed grains used locally by livestock producers, particularly those located in the prairie provinces.[135] The report issued in the investigation noted that in 1985 the Province of Alberta initiated a subsidy program for Alberta cattle producers (the Alberta Crow Benefit Offset Program) to help ease the effect of the WGTA on prices for feed grains.[136] In recent years, the Alberta program has paid cattle producers CAN$10 per ton of wheat fed to livestock, down from CAN$21 per ton in earlier years.[137] The Government of Alberta announced in January 1994 that it was eliminating this program in anticipation that the WGTA would be reformed.[138]

One recent consequence of the WGTA program is the apparent routing of a large proportion of wheat destined for the U.S. market through Thunder Bay. In May 1994, a Canadian Government official noted that the WGTA has encouraged a weekly flow of 27,000 metric tons (300 rail cars) of Canadian wheat destined for the U.S. market from prairie shipping points through Thunder Bay on Lake Superior.[139] Once leaving Thunder Bay, the wheat can move by rail, truck, or ship across Lake Superior into the United States, to as far away as California. According to other press reports, some of the Canadian wheat backtracks by rail nearly 400 miles west of Thunder Bay to Fort Francis, Ontario, and then crosses into the United States by rail.[140]

Production, Shipments, Stocks, and Consumption

Wheat

As seen in table 22, during 1989/90 to 1993/94, Canada has supplied about 5 percent of the world production of wheat, placing it as the seventh-largest producer in the world. As many of the larger producers such as China, India, and Eastern European countries are either net importers or only slight net exporters of wheat, Canada has been the third-leading exporter (only slightly smaller than the EU). Table 22 indicates that Canada accounted for 19 percent of world wheat exports during these 5 years; the United States, with a 32-percent share, is the leading world exporter.

During 1989/90 to 1993/94, Canadian farmers annually harvested between 13 million and 14 million hectares of wheat; wheat production in Canada (owing to weather and crop conditions) fluctuated between 25 million and 32 million metric tons annually (table 27). On average, Canada exported 69 percent of its wheat production during this period, and imported little or no wheat. Exports peaked in 1991/92 at 24 million tons, and then declined to just under 19 million tons in 1993/94, averaging about 20 million tons during the period. During these 5 years, Canadian consumption of wheat for animal feed increased, as did Canadian stocks of wheat. Consumption of wheat in Canada for animal feed nearly doubled, reaching 5 million tons in 1993/94. Meanwhile, Canadian ending stocks rose to 13.3 million tons in 1993/94. The larger crops harvested in 1991/92 and 1992/93 remained unsold at the end of the crop year, and were added to stocks as Canadian

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[134] *Live Cattle and Beef: U.S. and Canadian Industry Profiles, Trade, and Factors of Competition,* Jan. 1993 (USITC publication 2591).

[135] Ibid., p. 4-15.

[136] Ibid., p. 4-19. At one time, both Manitoba and Saskatchewan had such programs; the programs have since been discontinued.

[137] U.S. Department of State, "Alberta Halts Cattle Subsidies," message reference No. 00058, U.S. Consulate, Calgary, Jan. 1994.

[138] Ibid.

[139] "Canada Transport Aide Acknowledges Some Grain Exports to U.S. Subsidized," *Journal of Commerce,* May 5, 1994.

[140] "Canada Grain Dispute Fed by Loophole on Transport Aid," *Journal of Commerce,* May 10, 1994. Much of this grain moved into the United States via the Duluth, Winnipeg, and Pacific Railway, a subsidiary of the Canadian National Railway.

Table 27
Wheat: Summary data regarding Canada, crop years 1989/90 to 1993/94

Item	1989/90	1990/91	1991/92	1992/93	1993/94[1]
	Area *(1,000 hectares)*				
Area harvested	13,627	14,098	14,160	13,830	12,626
	Quantity *(1,000 metric tons)*				
Beginning stocks	5,032	6,442	10,285	10,066	12,339
Production	24,578	32,098	31,946	29,871	27,825
Imports	1	0	22	30	20
Exports	16,885	21,734	24,481	19,709	18,500
Domestic consumption:					
Feed	2,682	2,916	4,170	4,435	4,998
Food use (milling)	2,185	2,132	2,132	2,132	2,132
Other	1,417	1,473	1,404	1,352	1,254
Subtotal	6,284	6,521	7,706	7,919	8,384
Ending stocks	6,442	10,285	10,066	12,339	13,300

[1] Projected as of Mar. 22, 1994.

Note: Data are on an Aug. 1-July 31 basis (the Canadian crop year), and thus are not strictly comparable to data in table 22.

Source: USDA, FAS, *Grain and Feed Annual Report: Canada*, prepared by U.S. Embassy, Ottawa, various years and Mar. 22, 1994; and facsimile transmission from U.S. Embassy, Ottawa, Apr. 14, 1994.

exports failed to rise commensurately with production increases. Many of these stocks were lower grade feed wheat that also competes internally with Canada's other feed grains, particularly corn. Despite the sharply higher use of feed wheat in Canada, the ending stock levels have become quite burdensome, with crop year 1993/94 stocks at 13.3 million tons, the highest level since crop year 1978/79.

USDA indicated that Canadian farmers are likely to reduce their plantings of wheat in 1994/95, thereby leading to a 1-million hectare decrease in the harvested acreage (about 10 percent below the 1993/94 level).[141] With normal weather and crop yields, Canada may have a crop of 25 million tons in 1994. Assuming that Canadian exports rise 1.5 million tons above the 1993/94 level to 20 million tons, there should be 11 million tons in ending stocks in 1994/95.

[141] USDA (FAS) forecast for Canada in 1994/95 a harvested wheat acreage of 11 4 million hectares, production of 25.4 million metric tons, exports of 20 million metric tons, and domestic consumption of 8.0 million tons. USDA, FAS, *Supply and Demand Update,* U.S. Embassy, Ottawa, Apr. 27, 1994, p. 3.

Wheat flour and semolina

Approximately 2 million tons of wheat (the equivalent of 33 million hundredweight of flour) were milled into wheat flour and semolina each year in Canada during 1989/90 to 1993/94.[142] In 1991, the Canadian milling industry produced flour and millfeed products valued at CAN$686 million.[143] In crop year 1992/93, the Canadian wheat and Durum milling industry included 28 plants, with a total daily flour capacity of 170,000 hundredweight.[144] On this basis, the industry had a capacity utilization ratio of 65 percent.[145] The Durum milling industry in Canada was composed of 6 plants, with a daily capacity of 18,000 hundredweight. Two-thirds of the Canadian milling capacity is in Ontario and Quebec.

The Canadian National Millers Association (CNMA) indicated in its testimony to the Commission that its member companies constituted 25 plants, with a capacity of 157,000 hundredweight per day.[146] The CNMA indicated that U.S. companies own 76 percent of Canadian milling capacity, and that capacity utilization in 1993 was about 90 percent, as compared to a 93-percent utilization ratio in the United States.[147] With the advent of the CFTA/NAFTA, a number of older Canadian plants have been closed in recent years, reducing milling capacity and thereby increasing the capacity utilization ratio. The CFTA/NAFTA also brought about a close integration of U.S. and Canadian flour mill ownership, with the large U.S. millers operating Canadian plants in an integrated fashion.

Canadian domestic flour consumption has declined since 1990, with total apparent consumption of flour and wheat products of about 2 million tons annually. As seen in table 20, Canada exported about 60,000 metric tons of flour to the United States in 1992/93, a nearly five-fold increase from 1989/90.[148]

QUALITY CONSIDERATIONS

In its questionnaires, the Commission requested firms to indicate, on a crop year basis and for the interim periods June-December 1992 and June-December 1993, whether, with regard to 10 separate product characteristics, the U.S. product was better, the Canadian product was better, there was no difference between the products, or that the characteristic was unimportant to the needs of the firm. The product characteristics for which data were collected were the following:

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[142] Derived using a flour extraction ratio of 74 percent, i.e., 1 metric ton of wheat yields 16.314 hundredweight of flour.

[143] *Industry, Science, and Technology Canada*, Industry Profile: Flour Milling, 1990-91, p. 1.

[144] *Milling and Baking News*, 1994 North American Grain & Milling Annual, p. 69.

[145] Based upon a 300-day operating year.

[146] Prehearing brief of Rogers & Wells, p. 2. Thus, three of the 28 companies identified by *Milling and Baking News* are not members of the CNMA.

[147] Ibid., p. 5.

[148] Although table 20 concerns imports from all sources, the vast majority of such imports during the period examined were from Canada.

1. color;
2. cleanliness;
3. gluten strength;
4. protein content;
5. moisture content;
6. falling numbers;
7. test weight;
8. hard amber and vitreous kernels;
9. consistency of kernel size and/or soundness; and
10. consistency of quality components (i.e., overall quality).

Data submitted in response to this request are presented in appendix M. Tables M-1 and M-2 weight each company's response by the total quantity of wheat purchased by the company in each crop year. Table M-1 represents responses to the Commission's grain merchant's questionnaire, and table M-2 responses to the miller's questionnaire. As can be seen from the tables, the majority of responses were that the characteristics were either not important to the firm's needs or that there were no significant differences between the U.S. and Canadian product.[149] This conclusion is more applicable to the grain merchant's questionnaires than to the miller's questionnaires; however, even in the latter case, the bulk of the trade indicated that differences in these characteristics were insignificant or unimportant.

PRICES

Wheat prices, in the aggregate, are determined through the marketplace based on supply and demand considerations. In general, open trading in the commodity markets establishes a daily price for various classes of wheat meeting certain standardized grade specifications and based on either current or future delivery to accepted market locations. Prices for current delivery tend to reflect immediate market conditions but, because these transactions are made on a commodity market open to any participant, fluctuations in prices for future deliveries may reflect either price hedging by actual consumers of wheat or speculative investment by those having no intention of accepting final delivery of the product. Because there is no futures market for Durum wheat and a single market for Hard Red Spring wheat that deals in relatively short delivery contracts (30 days or less), speculation and hedging are somewhat limited for those products.[150] [151] On the other hand, speculation is particularly prevalent in the futures markets for the several other wheat classes.

Among the closely watched indicators for wheat and similar crops are weather conditions in the United States and in other exporting and importing countries, and USDA announcements regarding supply variables such as stocks of wheat or competing crops and the amount of acreage expected to be planted in wheat, the announced usage of wheat, or expectations regarding EEP sales to qualified foreign markets. Because of the large quantities traded in these commodity markets, small price fluctuations can have significant financial effects. The prices established in the commodity markets are reported daily and are known to all buyers and sellers. Accordingly, these

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[149] It should be noted, however, that imports from Canada of Hard Red Winter wheat, Soft Red Winter wheat, and White wheat are relatively small compared to imports of Durum and Hard Red Spring wheat.

[150] There have been attempts to establish a futures market in Durum but, because of the relatively small quantities traded, it could not be sustained.

[151] Questionnaire responses show that purchases of U.S.-produced wheat most often require delivery in 30 days or less, while contracts for Canadian wheat more often require delivery several months into the future. Purchasers generally view long-term contracts for Canadian wheat as an alternative to hedging in the commodity markets for other classes of wheat and observe that it allows planning of their production schedule with more precision. Washington transcript, pp. 257-60.

prices are used as a basis for transactions at every level of trade in wheat. Actual transaction prices for wheat, whether paid to the farmer at a country elevator, at a later date when resold by a terminal elevator or other reseller, or prior to processing into flour or semolina by a miller, are initially based on the prices established in the commodity markets but are then adjusted for the physical characteristics of the particular lot being purchased and for the cost of transporting the wheat to the desired location. Whether the buyer or seller initiates the transaction, negotiation of prices and other terms is commonplace for transactions after the grain leaves the country elevator.

Prices to Farmers

Country elevators commonly announce or "post" the price they are willing to pay the farmer for wheat meeting specific standards when delivered. As with other transactions, the posted price is generally based on the market price adjusted for the transportation costs to the basis location, overhead, and profit. Elevators profit most by moving large volumes relatively quickly and competition between elevators tends to equalize offer prices at a local level.

Among the characteristics considered in determining transaction prices are kernel size, weight, protein content, uniformity, appearance, and foreign material (dockage). Deductions or increases to the posted price are made based on deviation of a particular lot of grain from the standard. USDA surveys farmers to gather information on prices paid to these farmers by elevators. These data are used by USDA in computation of the national average price (NAP) which is subsequently used to compute the deficiency payment.

Through the 1993/94 marketing year, the NAP was an average of the prices paid to farmers during the first 5 months of the marketing year where the price for each class of wheat was weighted by the share of that class in the overall U.S. wheat harvest.[152] Figure 4 and table 28 show monthly average prices at the farm level for several classes of wheat. It is clear from the figure that prices of most classes of wheat move similarly over time, although there can be significant differences in prices among classes depending on supply and demand conditions for each class. Because the average price is a weighted average of a sample of all prices, it is most heavily influenced by prices of those wheat classes that represent the largest share of the total U.S. harvest. In recent periods, the largest share of total production has been in Hard Red Winter wheat. Despite the rapid rise in prices of Durum during 1993/94, that class has a very small share of the total wheat market, approximately 3-5 percent, and only slight influence in the NAP.

The average price paid to farmers for wheat, as measured by the USDA, increased during the early part of the 1988/89 marketing year from $3.37 per bushel in June 1988 to $4.07 in March 1989. The average price then started a slow and uneven decline through the 1989/90 marketing year before dropping sharply at the start of 1990/91. The average price remained at a low level through the fall of 1990, declining to its lowest level, $2.39, in November 1990, but then began a rapid recovery that was sustained through the 1991/92 marketing year. In 1992/93, the average price to farmers dipped to $3.01 per bushel in August of 1992 and climbed back to a seasonal high of $3.37 in January 1993. A similar dip and recovery occurred in early 1993/94 when prices declined to $2.84 per bushel in June but recovered to $3.61 by January 1994.

Other Market Prices

The distinctions in market prices of the different classes of wheat is further emphasized in figure 5 and table 29, which show selected prices for several classes of wheat in commodity markets. The figure demonstrates that the marketplace particularly distinguishes between classes of wheat

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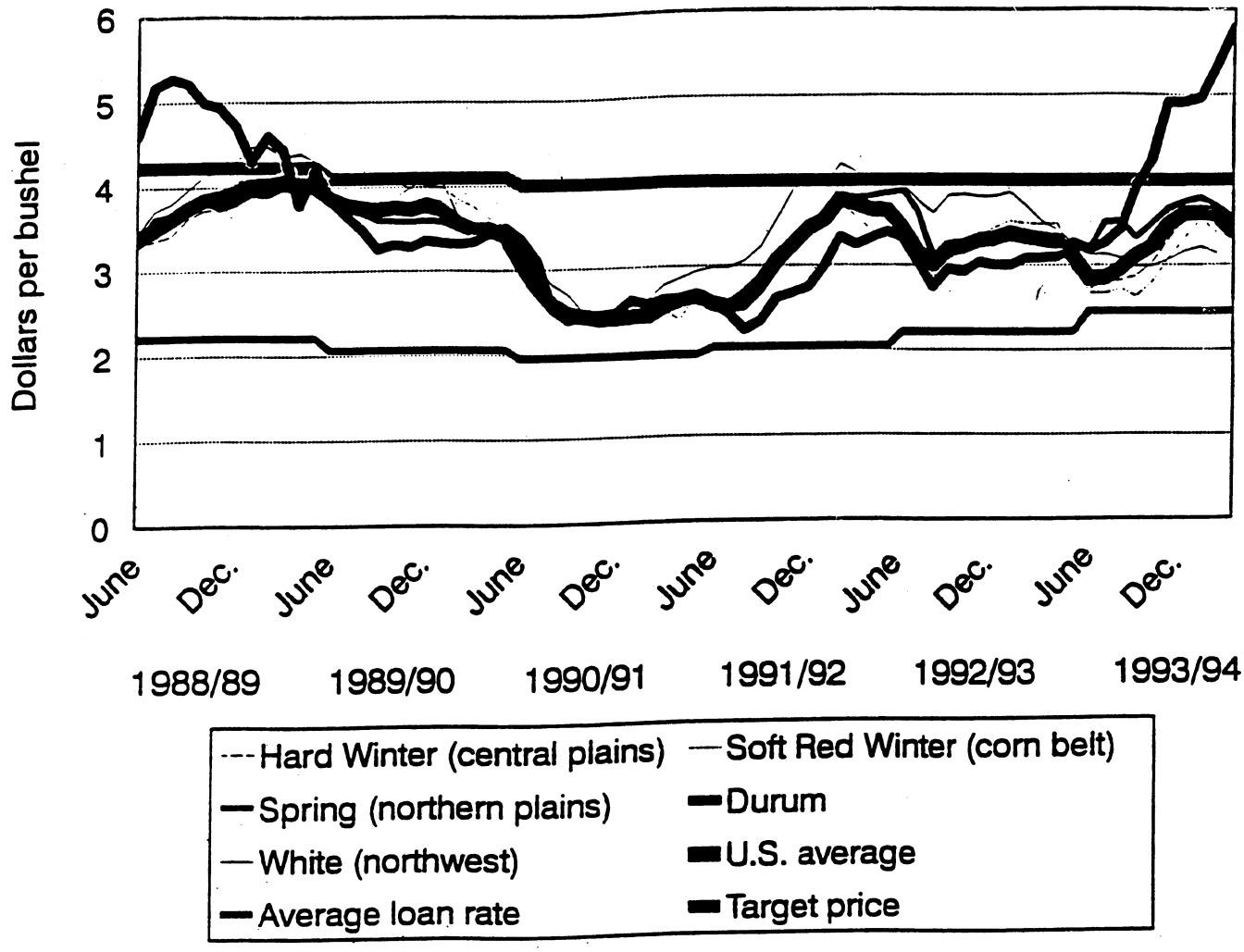
[152] With the 1994/95 marketing year, a 12-month average will be used to determine deficiency payments. See section on *Target price deficiency payments*, supra.

Figure 4
Wheat: Farm prices for leading classes in U.S. regions, target price, and CCC loan rate, 1988/89-1993/94



Source: USDA, *Wheat Situation and Outlook Report*, Feb. 1994; and *Agricultural Prices*, Apr. 1994.

Table 28
Wheat: Farm prices for leading classes of wheat in various U.S. regions, by months, crop years 1988/89-1993/94

(Per bushel)

Month	Hard Winter, central plains	Soft Red Winter, corn belt	Spring, northern plains	White, northwest	Durum, northern plains	U.S. average
1988/89:						
June	$3.30	$3.33	$3.30	$3.44	$4.61	$3.37
July	3.36	3.39	2.62	3.72	5.18	3.50
Aug.	3.42	3.53	3.66	3.80	5.28	3.61
Sept.	3.62	3.67	3.80	3.97	5.21	3.74
Oct.	3.72	3.84	3.83	4.13	4.99	3.84
Nov.	3.74	3.93	3.74	4.19	4.93	3.88
Dec.	3.90	4.06	3.81	4.31	4.72	3.94
Jan.	3.90	4.13	3.92	4.48	4.31	4.02
Feb.	3.93	4.08	3.90	4.48	4.61	4.03
Mar.	4.04	4.14	3.99	4.36	4.44	4.07
Apr.	4.03	4.00	3.96	4.40	3.78	4.03
May	3.99	3.91	3.99	4.31	4.19	4.01
1989/90:						
June	3.84	3.80	3.89	4.13	3.83	3.85
July	3.80	3.75	3.81	4.12	3.65	3.78
Aug.	3.74	3.59	3.68	4.14	3.48	3.74
Sept.	3.74	3.82	3.59	4.04	3.25	3.72
Oct.	3.77	3.87	3.59	4.06	3.31	3.75
Nov.	3.81	3.99	3.58	3.98	3.27	3.72
Dec.	3.87	4.01	3.60	4.15	3.36	3.79
Jan.	3.82	3.99	3.58	4.06	3.33	3.71
Feb.	3.63	3.85	3.50	3.66	3.31	3.56
Mar.	3.50	3.76	3.47	3.47	3.34	3.48
Apr.	3.55	3.62	3.47	3.39	3.44	3.49
May	3.31	3.52	3.49	3.37	3.50	3.40
1990/91:						
June	3.01	3.04	3.33	3.26	3.36	3.08
July	2.75	2.85	2.96	3.04	3.11	2.79
Aug.	2.53	2.66	2.57	2.82	2.53	2.58
Sept.	2.45	2.45	2.44	2.69	2.39	2.46
Oct.	2.40	2.39	2.43	2.48	2.44	2.43
Nov.	2.34	2.34	2.39	2.47	2.44	2.39
Dec.	2.37	2.42	2.43	2.51	2.47	2.40
Jan.	2.36	2.38	2.44	2.56	2.61	2.42
Feb.	2.38	2.36	2.43	2.61	2.55	2.42
Mar.	2.52	2.50	2.52	2.78	2.62	2.53
Apr.	2.57	2.36	2.60	2.86	2.61	2.60
May	2.60	2.68	2.64	2.94	2.61	2.65

Table continued on next page.

Table 28--Continued
Wheat: Farm prices for leading classes of wheat in various U.S. regions, by months, crop years 1988/89-1993/94

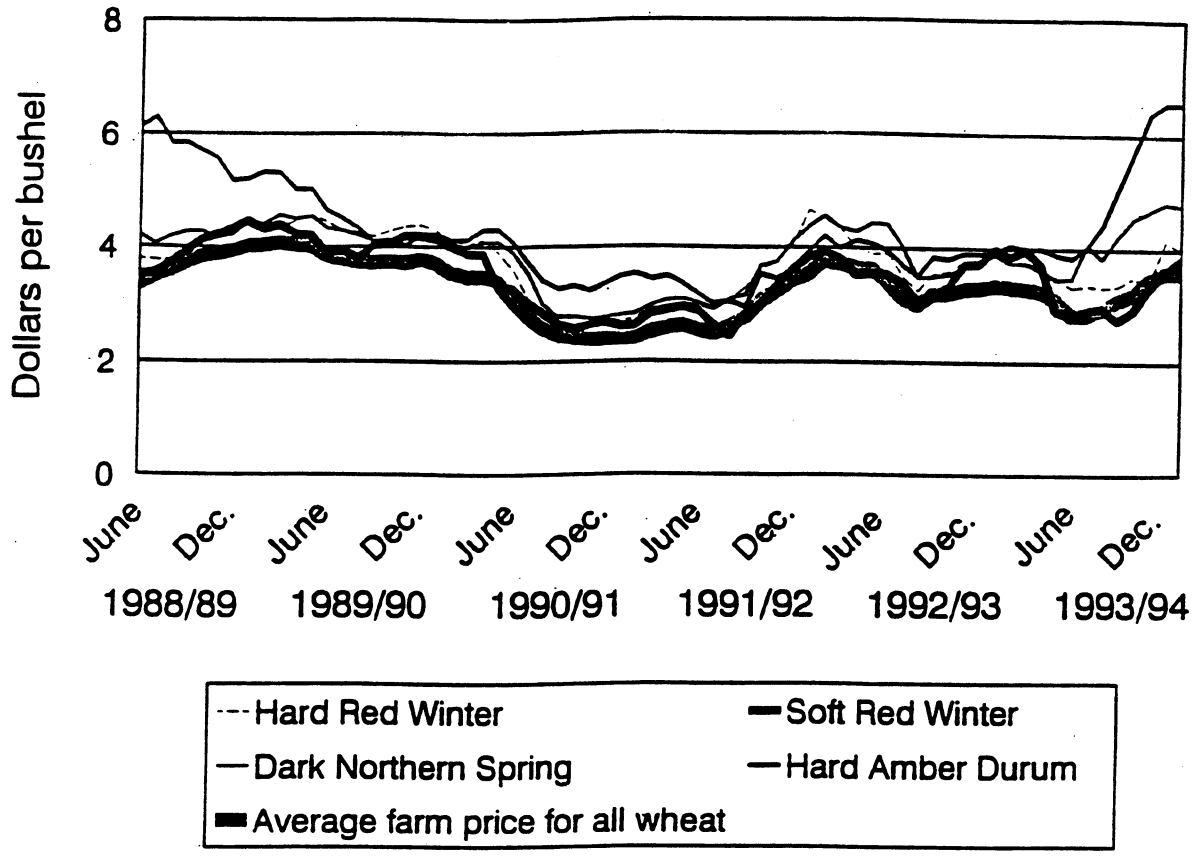
(Per bushel)

Month	Hard Winter, central plains	Soft Red Winter, corn belt	Spring, northern plains	White, northwest	Durum, northern plains	U.S. average
1991/92:						
June	$2.58	$2.52	$2.57	$2.98	$2.55	$2.55
July	2.54	2.38	2.47	2.98	2.44	2.50
Aug.	2.69	2.67	2.51	3.06	2.24	2.63
Sept.	2.89	2.86	2.69	3.23	2.36	2.80
Oct.	3.15	3.12	2.97	3.56	2.62	3.07
Nov.	3.29	3.35	3.18	3.89	2.68	3.25
Dec.	3.48	3.52	3.44	4.01	2.75	3.44
Jan.	3.63	3.52	3.56	3.95	2.98	3.54
Feb.	3.96	3.73	3.83	4.19	3.34	3.78
Mar.	3.62	3.57	3.79	4.10	3.24	3.72
Apr.	3.68	3.40	3.82	4.00	3.33	3.65
May	3.52	3.40	3.85	4.02	3.40	3.64
1992/93:						
June	3.43	3.41	3.88	3.94	3.31	3.43
July	3.13	3.15	3.62	3.76	3.03	3.15
Aug.	2.90	2.86	3.12	3.61	2.75	3.01
Sept.	3.07	3.07	3.19	3.82	2.96	3.20
Oct.	3.21	3.16	3.18	3.83	2.92	3.22
Nov.	3.31	3.34	3.29	3.80	3.04	3.29
Dec.	3.37	3.44	3.25	3.81	3.00	3.31
Jan.	3.46	3.52	3.34	3.86	3.00	3.37
Feb.	3.38	3.49	3.34	3.70	3.08	3.33
Mar.	3.34	3.48	3.33	3.52	3.09	3.30
Apr.	3.24	3.49	3.34	3.41	3.10	3.26
May	2.94	3.03	3.18	3.25	3.26	3.11
1993/94:						
June	2.72	2.67	3.20	3.12	3.18	2.84
July	2.80	2.67	3.50	3.13	3.26	2.85
Aug.	2.82	2.72	3.52	3.08	3.43	2.96
Sept.	2.87	2.63	3.32	2.98	3.92	3.10
Oct.	3.02	2.79	3.49	2.99	4.23	3.25
Nov.	3.29	3.06	3.66	3.06	4.91	3.47
Dec.	3.57	3.31	3.74	3.16	4.92	3.63
Jan.	3.55	3.54	3.79	3.21	4.97	3.61
Feb.	3.56	3.36	3.68	3.13	5.36	3.58
Mar.	(1)	(1)	3.54[2]	(1)	5.78[2]	3.37[2]

[1] Not available.
[2] Preliminary data.

Source: USDA, *Wheat Situation and Outlook Report*, Feb. 1994, and *Agricultural Prices*, Apr. 1994.

Figure 5
Wheat: Market prices of selected classes of wheat and average U.S. price to farmers for all wheat, 1988/89-1993/94



Source: USDA, *Wheat Situation and Outlook Report*, Feb. 1994.

Table 29
Wheat: Average prices for various classes of wheat at major U.S. markets, by months, crop years 1988/89-1993/94

Month	#1 Hard Red Winter, Kansas City	#2 Soft Red Winter, St. Louis	#1 Dark No. Spring, Minneapolis	#1 Hard Amber Durum, Minneapolis
	(Per bushel)			
1988/89:				
June	$3.79	$3.50	$4.21	$6.13
July	3.77	3.56	4.05	6.30
Aug.	3.78	3.73	4.19	5.85
Sept.	4.03	3.94	4.27	5.84
Oct.	4.13	4.13	4.28	5.70
Nov.	4.18	4.22	4.15	5.56
Dec.	4.25	4.33	4.22	5.17
Jan.	4.40	4.46	4.44	5.20
Feb.	4.37	4.30	4.40	5.33
Mar.	4.32	4.39	4.56	5.30
Apr.	4.46	4.22	4.49	5.02
May	4.55	4.20	4.54	5.01
1989/90:				
June	4.44	3.89	4.33	4.64
July	4.28	3.95	4.28	4.50
Aug.	4.24	3.79	4.20	4.33
Sept.	4.18	4.03	4.10	4.08
Oct.	4.28	4.05	4.14	4.12
Nov.	4.36	4.20	4.13	4.02
Dec.	4.39	4.19	4.24	4.20
Jan.	4.30	4.13	4.21	4.23
Feb.	4.13	4.00	4.06	4.12
Mar.	4.04	3.87	3.98	4.13
Apr.	4.13	3.88	4.08	4.30
May	3.91	3.33	4.09	4.31
1990/91:				
June	3.60	3.27	3.90	4.08
July	3.11	3.02	3.54	3.73
Aug.	2.89	2.85	3.01	3.41
Sept.	2.82	2.66	2.78	3.27
Oct.	2.81	2.57	2.80	3.34
Nov.	2.78	2.65	2.75	3.24
Dec.	2.78	2.71	2.79	3.37
Jan.	2.71	2.61	2.82	3.49
Feb.	2.77	2.64	2.85	3.55
Mar.	2.94	2.85	3.00	3.44
Apr.	2.98	2.91	3.09	3.51
May	3.04	2.98	3.11	3.37

Table continued on next page.

Table 29--Continued
Wheat: Average prices for various classes of wheat at major U.S. markets, by months, crop years 1988/89-1993/94

Month	#1 Hard Red Winter, Kansas City	#2 Soft Red Winter, St. Louis	#1 Dark No. Spring, Minneapolis	#1 Hard Amber Durum Minneapolis
	(Per bushel)			
1991/92:				
June	$2.99	$2.89	$3.03	$3.19
July	2.91	2.65	2.93	3.02
Aug.	3.10	2.46	3.11	3.08
Sept.	3.31	2.86	3.19	2.96
Oct.	3.64	3.00	3.68	3.55
Nov.	3.76	3.34	3.76	3.46
Dec.	4.06	3.63	4.12	3.66
Jan.	4.66	3.83	4.36	3.93
Feb.	4.51	3.94	4.56	4.21
Mar.	4.33	3.81	4.35	3.99
Apr.	4.02	3.53	4.28	4.14
May	3.90	3.57	4.44	4.08
1992/93:				
June	3.91	3.55	4.42	3.96
July	3.52	3.39	4.03	3.71
Aug.	3.27	3.09	3.49	3.52
Sept.	3.56	3.19	3.51	3.86
Oct.	3.60	3.34	3.55	3.81
Nov.	3.78	3.71	3.68	3.92
Dec.	3.81	3.74	3.72	3.91
Jan.	3.97	3.99	3.90	3.93
Feb.	3.75	3.85	3.75	4.06
Mar.	3.74	3.98	3.75	3.99
Apr.	3.59	3.73	3.67	4.01
May	3.51	2.93	3.47	3.90
1993/94:				
June	3.33	2.83	3.49	3.84
July	3.38	2.94	4.08	4.05
Aug.	3.34	2.98	3.84	4.41
Sept.	3.37	2.75	4.23	5.06
Oct.	3.52	2.93	4.54	5.73
Nov.	3.39	3.33	4.68	6.38
Dec.	4.15	3.62	4.82	6.57
Jan.	4.00	3.83	4.77	6.56

Source: USDA, *Wheat Situation and Outlook Report*, Feb. 1994.

when conditions warrant. While prices of all wheat classes increased in the 1993/94 marketing year, those for Dark Northern Spring wheat and Durum have climbed most dramatically, most likely reflecting the reduction in supplies of high-quality wheat within those classes caused by weather in mid-1993 and estimates of lower ending stocks. The extent to which the higher market prices for high-protein wheat classes are finding their way to the farmer is uncertain at this time.[153]

Millers most often purchase wheat from terminal elevators or grain traders, but may also buy directly from farmers or from country elevators.[154] As with other levels of trade, prices are usually negotiated, based on the published prices adjusted for the physical characteristics of the wheat and the cost of delivery to the customer.

Characteristics such as protein content are particularly important in the case of Durum wheat and, to a lesser extent, in the case of hard wheats such as Red Spring and Red Winter wheats.[155] In the 1992/93 and 1993/94 marketing years, apparently because of weather-related declines in the quality of crops in both the United States and Canada, protein content has declined on average and a producer fortunate enough to have a high-protein crop has been able to command a significant premium in the marketplace; millers report that they are able to identify specific narrowly defined regions that may have good quality wheat while neighboring areas suffer from lower quality. The higher protein wheat, whether Durum or another class of wheat, is subsequently blended with other (usually lower protein) wheat to meet the specifications of the millers and those who ultimately use the flour.

Figures 6-7 and table 30 show average prices for each of two protein levels of Dark Northern Spring wheat and Hard Red Winter wheat, clearly demonstrating the premiums the market offers for high-protein wheat in these classes.[156]

Through most of the marketing years since 1988/89, apparently the protein content was adequate in these two wheat classes to meet market requirements and not significantly affect market prices. Market prices for the higher protein content wheats, however, diverged from wheat having lower protein content early in the 1992/93 marketing year for Dark Northern Spring wheat and at the end of the 1991/92 marketing year and again in the 1992/93 marketing year for Hard Red Winter wheat. While USDA does not publish prices of Durum wheat having different protein levels, the rapid increase in commodity market prices for the higher grade hard wheats and for Durum in the most recent marketing year suggests that prices have reacted to similar influences for both classes.

The Canadian Price Structure and Sales Practices

As explained above, western Canadian producers are obligated by law to sell all wheat intended for human consumption and all feed-grade wheat that is to be exported to the CWB.[157] The CWB is responsible for the subsequent sale of this wheat both within Canada and to export customers.

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[153] As of this report, official USDA statistics on prices are not available past January 1994.

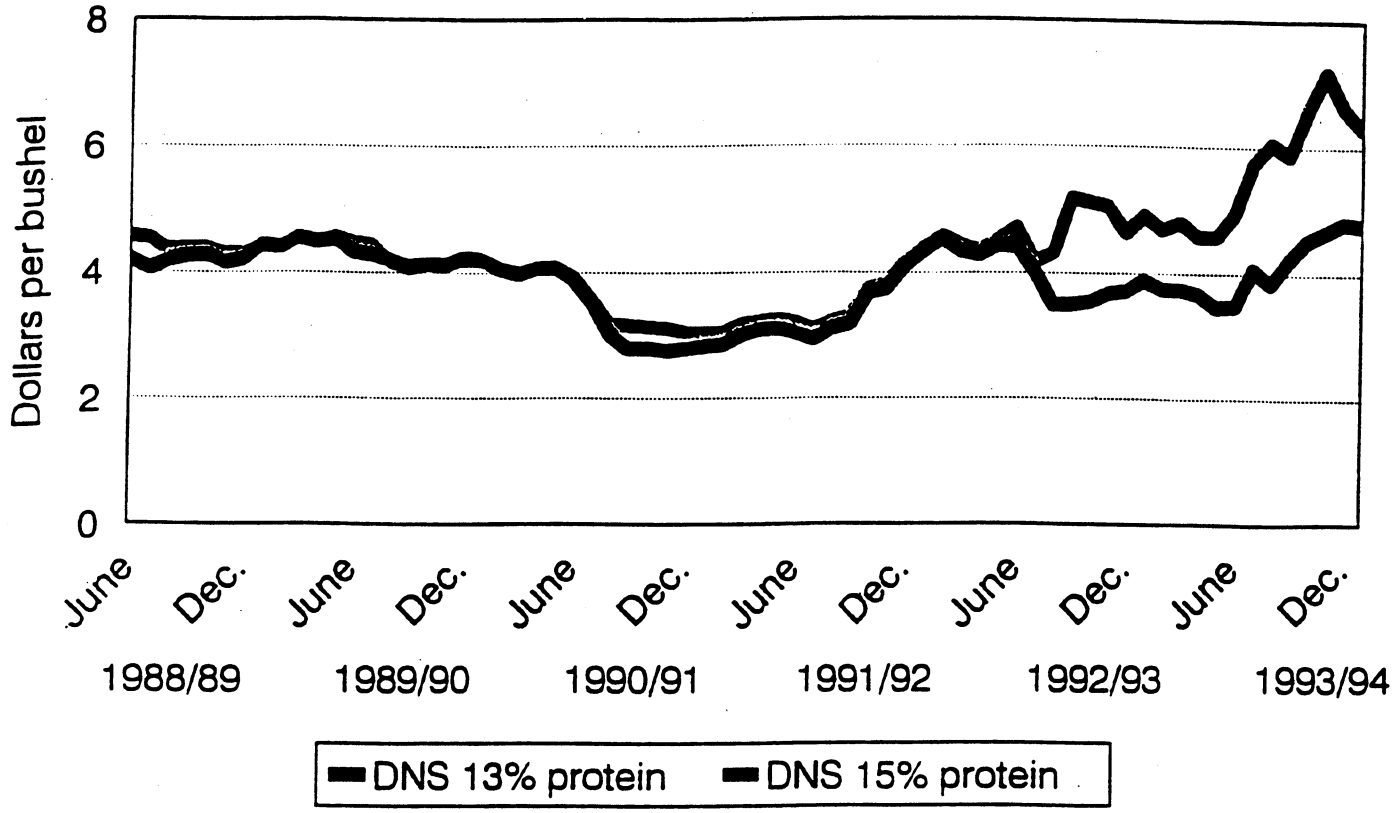
[154] Durum millers report that they will often take efforts to assure the quality of the Durum they purchase by dealing at the local level in areas they have identified as having wheat best meeting their specifications. Such direct sales avoid the subsequent blending down of high-quality Durum as the product passes through the distribution chain.

[155] Millers of Durum produce semolina for pasta producers. These buyers look for a high protein content in their purchases because it produces a better quality pasta product for their customers. Other hard wheats are generally blended with soft wheats to achieve particular performance characteristics in the resulting flour.

[156] Similar price data for Durum wheat having different protein content are not published by USDA.

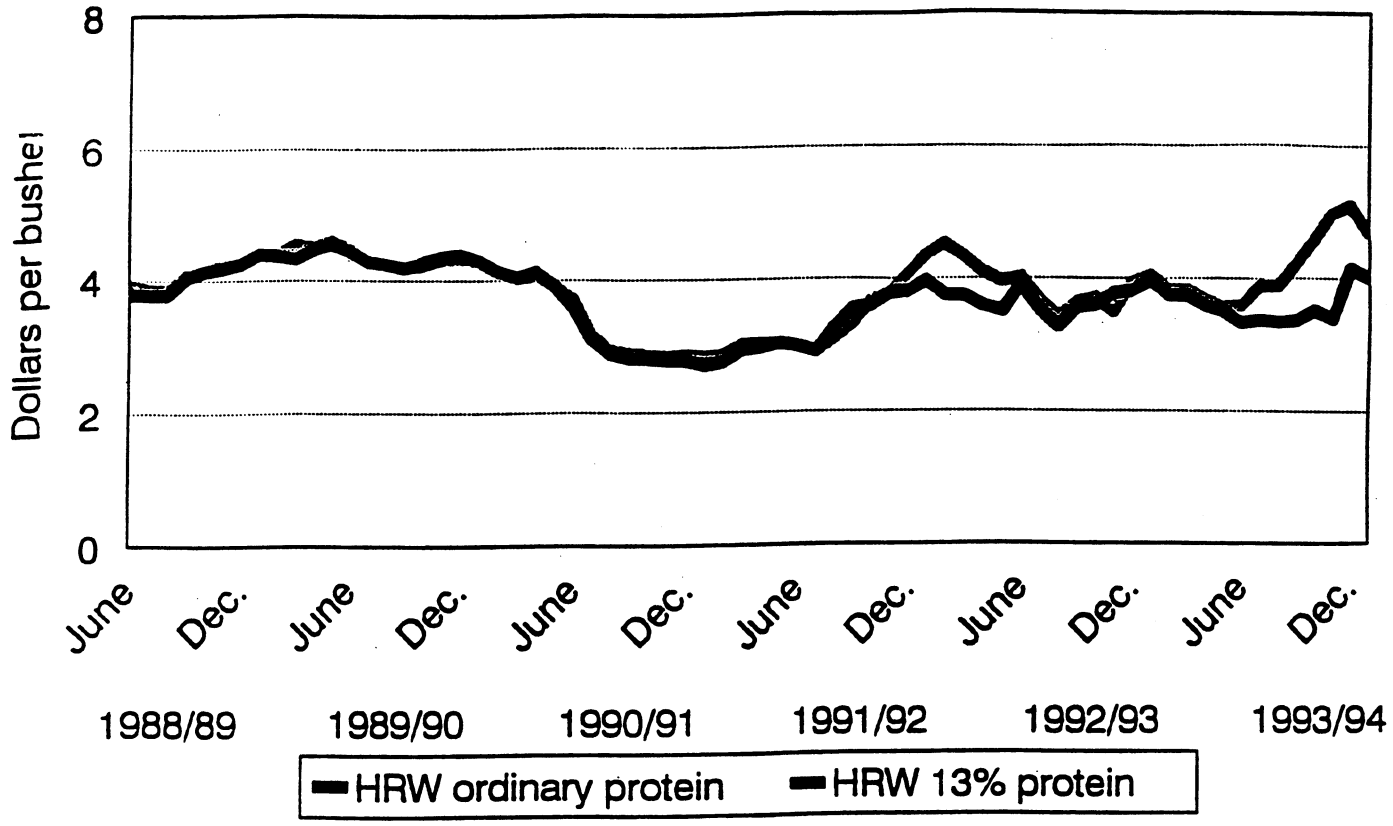
[157] See section of this report entitled, "The World Market: Canada."

Figure 6
Average prices of Dark Northern Spring wheat, 1988/89-1993/94



Source: USDA, *Wheat Situation and Outlook Report*, Feb. 1994.

Figure 7
Average prices of Hard Red Winter wheat, 1988/89-1993/94



Source: USDA, *Wheat Situation and Outlook Report*, Feb. 1994.

Table 30
Average prices for Dark Northern Spring wheat at Minneapolis commodity market and Hard Red Winter wheat at Kansas City commodity market, by protein content and months, crop years 1988/89-1993/94

(Per bushel)

Month	#1 Dark Northern Spring, 13 percent protein	#1 Dark Northern Spring, 15 percent protein	#1 Hard Red Winter, ordinary protein	#1 Hard Red Winter, 13 percent protein
1988/89:				
June	$4.21	$4.57	$3.79	$3.92
July	4.05	4.54	3.77	3.85
Aug.	4.19	4.36	3.78	3.85
Sept.	4.27	4.39	4.03	4.08
Oct.	4.28	4.39	4.13	4.16
Nov.	4.15	4.30	4.18	4.23
Dec.	4.22	4.30	4.25	4.26
Jan.	4.44	4.43	4.40	4.41
Feb.	4.40	4.40	4.37	4.40
Mar.	4.56	4.56	4.32	4.55
Apr.	4.49	4.47	4.46	4.50
May	4.54	4.57	4.55	4.60
1989/90:				
June	4.33	4.48	4.44	4.48
July	4.28	4.44	4.28	4.29
Aug.	4.20	4.17	4.24	4.24
Sept.	4.10	4.07	4.18	4.18
Oct.	4.14	4.14	4.28	4.23
Nov.	4.13	4.11	4.36	4.31
Dec.	4.24	4.22	4.39	4.34
Jan.	4.21	4.21	4.30	4.28
Feb.	4.06	4.05	4.13	4.12
Mar.	3.98	3.96	4.04	4.02
Apr.	4.08	4.07	4.13	4.07
May	4.09	4.09	3.91	3.91
1990/91:				
June	3.90	3.94	3.60	3.71
July	3.54	3.58	3.11	3.17
Aug.	3.01	3.18	2.89	2.94
Sept.	2.78	3.16	2.82	2.89
Oct.	2.80	3.14	2.81	2.86
Nov.	2.75	3.11	2.78	2.84
Dec.	2.79	3.05	2.78	2.87
Jan.	2.82	3.04	2.71	2.83
Feb.	2.85	3.05	2.77	2.88
Mar.	3.00	3.18	2.94	3.03
Apr.	3.09	3.22	2.98	3.04
May	3.11	3.26	3.04	3.05

Table continued on next page.

Table 30--Continued
Average prices for Dark Northern Spring wheat at Minneapolis commodity market and Hard Red Winter wheat at Kansas City commodity market, by protein content and months, crop years 1988/89-1993/94

Month	#1 Dark Northern Spring, 13 percent protein	#1 Dark Northern Spring, 15 percent protein	#1 Hard Red Winter, ordinary protein	#1 Hard Red Winter, 13 percent protein
	(Per bushel)			
1991/92:				
June	$3.03	$3.20	$2.99	$3.00
July	2.93	3.09	2.91	2.92
Aug.	3.11	3.23	3.27	3.11
Sept.	3.19	3.30	3.56	3.34
Oct.	3.68	3.76	3.60	3.67
Nov.	3.76	3.84	3.78	3.79
Dec.	4.12	4.18	3.81	4.07
Jan.	4.36	4.40	3.97	4.36
Feb.	4.56	4.59	3.75	4.53
Mar.	4.35	4.45	3.74	4.34
Apr.	4.28	4.36	3.59	4.10
May	4.44	4.52	3.51	3.95
1992/93:				
June	4.42	4.71	3.91	4.03
July	4.03	4.18	3.52	3.68
Aug.	3.49	4.33	3.27	3.41
Sept.	3.51	5.18	3.56	3.64
Oct.	3.55	5.12	3.60	3.72
Nov.	3.68	5.05	3.78	3.49
Dec.	3.72	4.64	3.81	3.94
Jan.	3.90	4.92	3.97	4.05
Feb.	3.75	4.69	3.75	3.82
Mar.	3.75	4.81	3.74	3.83
Apr.	3.67	4.58	3.59	3.68
May	3.47	4.59	3.51	3.58
1993/94:				
June	3.49	4.97	3.33	3.60
July	4.08	5.75	3.38	3.89
Aug.	3.84	6.06	3.34	3.88
Sept.	4.23	5.87	3.37	4.23
Oct.	4.54	6.60	3.52	4.58
Nov.	4.68	7.19	3.39	4.98
Dec.	4.82	6.61	4.15	5.11
Jan.	4.77	6.30	4.00	4.69

Source: USDA, *Wheat Situation and Outlook Report*, Feb. 1994.

Most of the factors that are important in evaluating prices in the United States are also important in Canada. While specific grading standards are different from the U.S. standards, factors such as color, damage, dockage, and disease are taken into account in determining the value of a farmer's wheat. In addition, the location of the farmer has an effect on the return he achieves.

The CWB estimates the average price it expects to achieve for each class and grade of wheat on the basis of it being in either Thunder Bay or Vancouver. As wheat contracts and sales are negotiated during the year, the CWB informs farmers that they may deliver specific quantities of wheat to the local country elevator. On delivery of the wheat, the CWB pays the producer an adjusted initial payment that is based on its estimate of the average annual price for that class and grade of wheat.[158] The CWB reports that there is no rule by which the initial payment is calculated but that, over time, this payment has averaged approximately 75-80 percent of the final return to the farmer.[159] The adjustments that are applied to any specific farmer's payment are intended to cover the costs of handling and freight to either Vancouver or Thunder Bay (whichever is less) because, although the CWB takes title to the wheat at the country elevator, the farmer is responsible for costs associated with transportation, cleaning, weighing, inspection, and elevator charges.[160] [161]

In its sales of wheat to U.S. customers, the CWB normally sells wheat to accredited exporters who serve as sales brokers by performing services such as arranging transportation, Customs clearance, and covering charges associated with elevators, inspection, and regrading, and similar services. The CWB claims that these accredited exporters also "assume the financial risk of a default or loss of grain quality."[162]

The CWB and accredited exporters generally agree that the normal sequence of a sale is initated by an inquiry from a potential customer in the United States. This inquiry includes specified quality, protein, other physical characteristics, and delivery requirements of the U.S. customer. The accredited exporter relays the inquiry to the CWB to determine if the specifications and delivery requirements can be met.[163] If the CWB can meet the requirements as stated by the accredited exporter, a price is negotiated based on current and expected market conditions. The accredited

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[158] The CWB reports that a farmer's wheat is initially graded by the elevator to which it is delivered and it is graded at several additional points as it moves through the distribution system. A farmer has the right to appeal the grade given to his wheat.

[159] Additional "interim" payments may be made to the farmer during the year if the CWB concludes that its pool returns can support such payments. A final payment may be made following the settlement of the pool account.

[160] This is roughly analogous to practices in the United States where local elevators post prices for specific wheat classes and grades and then adjust those prices according to the quality of the wheat that is actually delivered by the farmer. The posted price is based on a market price and is adjusted for the actual location of the elevator relative to the market location (e.g., Minneapolis).

[161] The Canadian system removes much of the risk to the farmer that is inherent in the U.S. system. Farmers in the United States have the benefit of nonrecourse loans and other support systems by which they can maintain cash flow until wheat can be marketed, but ultimately make the decision regarding the timing of sales based on market expectations. If the farmer believes the price will rise sufficiently over time, sales are delayed. If the farmer believes the price will decline, sales are made sooner. In contrast, the Canadian system "pools" the wheat from all farmers so that all farmers get exactly the same final return for a particular class and grade of wheat (adjusted for location) no matter when the actual delivery is made. The USDA has recently addressed the risk associated with the U.S. system through experiments with mechanisms to allow farmers to hedge their risk through the purchase of futures on the commodity exchanges.

[162] CWB response to the Commission's request for information.

[163] Several U.S. customers, including one related to an accredited exporter, noted that, during 1993 and 1994, the CWB has been unable to supply wheat meeting the customers' requirements. One customer stated that it has been completely unable to purchase high-quality Durum from Canada and was informed by the CWB that all available supplies of that product were previously committed. Another customer stated that the CWB is currently offering only lower protein wheat, in the range of 12-12.5 percent, and that the price is not competitive with U.S.-produced wheat at a number of the firm's U.S. locations.

exporter then is able to negotiate a final price with the U.S. customer.[164] The CWB claims that accredited exporters, because they are independent exporters, must factor in their own expenses, overhead, and profit margin in the price they negotiate with the final U.S. customer. The price at which the CWB sells the wheat must therefore reflect the market value for the product in the United States.

Protein Levels and Quality Issues

As with U.S.-produced wheat, the quality and other physical characteristics of Canadian wheat are taken into consideration in the price a customer is willing to pay for the product. In addition to general quality standards relating to cleanliness, condition, and similar aspects of wheat, U.S. industry representatives state that U.S.-produced wheat is generally traded based on a moisture content of 12 percent by weight although Canadian wheat is generally traded based on a moisture content of 13.5 percent. In actual use, all food wheat is eventually dried to the level desired by the miller and, therefore, buyers adjust their offering prices to account for any differences in moisture. When the wheat is dried during processing, the loss of moisture reduces the weight and increases the portion of the final weight accounted for by protein. A given physical amount of protein measured at 13.5 percent moisture represents approximately 0.20-0.25 percentage points less of the total weight of wheat than the same amount of protein at 12.0 percent moisture content. For example, 13 percent protein at 13.5 percent moisture is approximately equivalent to 13.25 percent protein at 12 percent moisture. U.S. wheat growers contend that Canada routinely sells higher moisture wheat at prices equivalent to those for the lower-moisture U.S. wheat, thereby not charging the full market value, or "giving away," protein content.[165] The additional protein, according to U.S. producers, has had a particularly high value in recent years because of weather-related quality problems in both countries that has reduced the availability of good-quality wheat with high protein content.

In its discussions with large U.S. milling companies, the Commission inquired about selling and grading practices related to quality and protein content of Canadian wheat. In general, contracts negotiated by U.S. purchasers of wheat provide for the required class of wheat (for example, Canadian Western Red Spring or Canadian Western Amber Durum), grade, desired protein level, and other requirements.[166] Because wheat varies substantially in many of these characteristics, the grain is often blended, cleaned, sorted, and otherwise distinguished as it passes through the distribution system. The wheat that is finally delivered may deviate from the requirements set out in the sales contracts although the intent of both parties is that the product will closely match the specified characteristics. A discount/premium schedule is frequently negotiated to allow for deviation from the target characteristics specified in the contracts. Such schedules typically state that for a specified fraction of a percentage point above or below the target protein level, the final settlement price will be adjusted up or down by a specified amount per bushel. Similar adjustments may be made for dockage, moisture, or other factors. The testing of the product is generally done after delivery to the customer rather than by the selling agent.

Such adjustments, however, are not identical for all purchasers. For example, one major U.S. purchaser informed the Commission that its contracts typically state that any protein premiums will

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[164] Several of the largest U.S. customers have related firms that are accredited exporters. These firms clearly have some control over their overall costs for wheat purchased from Canada through their market presence and their use of a single agent for purchases intended for many U.S. mills.

[165] The U.S. wheat growers allege that this practice is well-known among purchasers of Canadian wheat and that the market has come to expect the extra protein as part of the benefit of buying from Canada.

[166] Purchasers observed that they are sufficiently familiar with both the U.S. and Canadian grading standards that they can buy wheat produced in either country and graded by either set of standards (within specific ranges of characteristics) and generally can plan for the necessary blending of the wheat to produce the desired final product.

be applied only within a certain range of protein levels and that if the final protein is determined to exceed the maximum, no additional premium will be paid.[167] This purchaser stated that the reason for inclusion of a maximum protein level is that it finds excessive protein levels to be unusable. Although conceptually a high protein content has value, in actual application it may create additional costs for the purchaser. High-protein wheat could be blended with low-protein wheat to achieve an acceptable average level except that such blending requires the purchaser to plan for such blending in advance of delivery, to have the low-protein wheat available in storage, and to be able to market the product at a price that will cover the extra handling costs. This miller additionally noted that very high protein content can distort the baking characteristics of the flour into which it is milled and that most bakers have adjusted their processes to specific protein levels and other baking characteristics; deviations from the norm can prove very expensive to those customers.[168]

A second major purchaser of both U.S. and Canadian wheat noted that it typically sets a target grade and protein level for the wheat it purchases and it expects the target to be met by the supplier. Its contracts with both U.S. and Canadian suppliers generally call for a protein level of about 12-12.5 percent and it will not pay a premium for wheat that exceeds its specifications.[169] This firm noted that it rarely receives Canadian wheat that significantly exceeds the specified protein content, and if the wheat is significantly below the contracted specifications, it simply rejects delivery.

This firm, which generally purchases wheat in very large rail shipments, noted that the CWB promises only that the average grade of a specific shipment will meet the contracted specifications and that this often results in delivery of wheat that varies radically from car to car. For example, one car may be well above the desired protein level but another car may be radically below the contracted level. Such wheat can be blended to achieve the desired target grades, but the blending process costs additional time and money on the part of the purchaser.

The milling firm observed also that protein is not always an issue in the purchase of Canadian wheat. It has learned through experience in recent years that there is far less uniformity than it expected to find under the Canadian grading system. The firm attributes this lack of uniformity to the fact that many railcars are loaded with wheat at country elevators and, although they are passed through the terminal system (such as at Thunder Bay), they are not always reliably clean of dockage and disease. The firm claims that it now specifies that its purchases from Canada must be "terminal loadings," which means that the wheat must be cleaned and loaded at terminal elevators equipped to clean and sort the wheat to zero-level dockage, no disease, and a uniform quality.

Finally, this firm noted that it cannot use particularly large ratios of Canadian Hard Red Spring wheat to U.S. wheat because the baking characteristics of flour made from Canadian varieties of wheat differ perceptibly from those of flour produced from U.S. Hard Red Spring wheat varieties. Canadian wheat must be blended with U.S. wheat to achieve the intended result in the end product.

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[167] This purchaser provided the Commission with a selection of contracts showing typical sales terms and discount schedules based on protein, moisture, dockage, and other factors.

[168] This purchaser has been a significant buyer of wheat classified as Canadian Western Feed Wheat. The firm specifically buys higher quality wheat that technically falls into the Canadian Western Feed Wheat classification either because the Canadian grading system considers the wheat an unapproved variety (such as Grandin) or because of disease such as vomitoxin or some other physical condition that can be resolved by careful selection, cleaning, or other treatment. The firm noted that the price it pays for such Canadian Western Feed Wheat products substantially exceeds the price paid by purchasers of wheat that cannot be used for human consumption.

[169] This firm provided the Commission with a complete set of the contracts of its affiliated Canadian accredited exporter with the CWB. The firm noted that prior to 1992, many of its contracts specified protein levels above 13 percent but that after 1992, the CWB could not reliably meet that specified level and subsequent contracts required levels below 12.5 percent protein.

Sales of Canadian Western Feed Wheat in the United States

Representatives of U.S. growers provided testimony and evidence at the Washington hearing, the field hearings, and in subsequent submissions regarding their belief that milling-quality wheat is sold into the U.S. market by Canadian exporters disguised as feed-quality wheat and at feed-wheat prices.

Canadian Western Feed Wheat is a grade that is in some ways a misnomer. This grade includes wheat that fails to meet the standards of other Canadian grades for several reasons. First, the wheat may be of an unapproved variety. The CWB and other Canadian entities maintain tight control over the varieties of wheat that may be marketed for human consumption as Canada Western Red Spring wheat. Varieties that may be perfectly suitable for milling purposes, such as the U.S. variety known as Grandin, are not approved in Canada for sale as Canadian Western Red Spring and are therefore graded as Canadian Western Feed Wheat.[170] The CWB estimated the share of acreage planted in unlicensed varieties as ranging between 0.33 percent and 0.42 percent of total acreage planted in wheat. At least one U.S. miller reported purchases of Canadian Western Feed Wheat in 1992 that it subsequently identified as Grandin. Those purchases, however, totaled approximately 220 metric tons (183,000 bushels) and were a small share of their total purchases of either U.S. or Canadian wheat.

Second, it is possible under some circumstances to clean and sort wheat that is generally of poorer quality (and therefore initially graded Canadian Western Feed Wheat) so that it may be used for milling purposes. One large U.S. miller reported purchases in 1993 of such wheat. The firm explained that the wheat was originally graded very low in quality because of dockage, damage, and disease but it was relatively high in protein, a valuable characteristic during the 1993/94 marketing year. Because of that protein, the Canadian exporter went to extra efforts to clean the wheat and, when delivered to the U.S. purchaser, the wheat had been improved to millable standards. The purchasing firm also noted that the wheat was inspected in the United States by a state agency and met the standards for U.S. grades 2 or 3 Dark Northern Spring wheat. The firm noted that it paid a price for this product that was competitive with U.S. prices for similar quality wheat.[171]

Finally, representatives of U.S. wheat growers testified at the Shelby, MT, hearing that Canadian milling-quality wheat was being unloaded at local elevators at prices normally paid for feed-quality wheat. In support of this testimony were provided a selection of sales documents showing information relating to these sales.[172] In response, the CWB provided information from the firm that purchased the wheat in question, including a letter of explanation and a summary table of sales data.[173]

***, the firm for which sales documents were provided, elaborated on the material provided through the CWB submission. *** stated that the documents provided the Commission were actually ***. *** provided the Commission with copies of the contracts with its Canadian supplier.

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[170] The CWB notes that Grandin has mixing characteristics noticeably different from other approved varieties. The desire to maintain consistency in its wheat precludes classification of Grandin as Canadian Western Red Spring.

[171] A second large purchaser of both U.S. and Canadian wheat stated explicitly that it has not and will not purchase Canadian Feed Wheat because there is too much risk involved. According to this purchaser, the CWB will not guarantee that any given shipment of this grade will be of milling quality but only that the shipment will meet the basic grade standards. Those standards permit a shipment to contain a significant percentage of other classes of wheat, such as Canadian Western Red Spring mixed with Durum, or even other grains such as barley. Either situation would make the wheat unusable without expensive processing.

[172] Shelby transcript, p. 95. See also submission on behalf of the U.S. Wheat Associates by Robins, Kaplan, et al., Apr. 21, 1994.

[173] See CWB response to Commission questions, May 5, 1994, at tab C-3.

*** stated that all wheat for which feed wheat prices were paid (about $*** per bushel) were intended for the feed wheat market in Texas. *** stated that testimony alleging that the feed wheat in these shipments was not graded was incorrect. Copies of contracts with Texas purchasers of the feed grain were provided to the Commission by *** showing that the customer specified ***, with a ***. *** noted that protein content was not a specified requirement in these contracts and no protein testing was performed on the shipments in question.

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Questionnaire Price Data

The Commission requested millers and grain merchants to provide data regarding prices paid for certain categories of U.S.-produced and Canadian-produced wheat. Questionnaire recipients were requested to identify and provide data for purchases intended for the facilities accounting for the largest share of their purchases of each of five U.S. and five Canadian wheat categories in 1993. The price and quantity data requested were for the largest purchase in each category during the first 10 days of each month from January 1989 through December 1993, based on the date the contract was made and for total purchases for the month. In addition to the price paid for the specified product, the respondents were requested to provide detailed information regarding the characteristics of the wheat as originally contracted for and the characteristics as it was actually delivered. Because a significant share of wheat from Canada is purchased on long-term contracts calling for delivery as far as 6 months in the future, the Commission's questionnaire also requested information on the dates of both the contract and of delivery.

The products for which prices were requested are--

U.S.-produced wheat items:

PRODUCT 1: U.S. #1 Hard Red Spring wheat, having a protein content between 13.5 and 14.5 percent at a moisture basis of 12.0 percent.

PRODUCT 2: U.S. #2 Hard Red Spring wheat, having a protein content between 13.0 and 14.0 percent at a moisture basis of 12.0 percent.

PRODUCT 3: U.S. #1 Hard Amber Durum wheat, having a protein content between 12.5 and 13.5 percent at a moisture basis of 12.0 percent.

PRODUCT 4: U.S. #2 Hard Amber Durum wheat.

PRODUCT 5: U.S. feed wheat, regardless of class.

Imported wheat items:

PRODUCT 6: #1 Canadian Western Red Spring wheat, having a protein content between 13.5 and 14.5 percent at a moisture basis of 13.5 percent.

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[174] *** added some observations regarding the condition of the U.S. wheat that is currently under loan. It stated that ***. *** believes ***.

PRODUCT 7: #2 Canadian Western Red Spring wheat, having a protein content between 13.0 and 14.0 percent at a moisture basis of 13.5 percent.

PRODUCT 8: #1 Canadian Western Amber Durum wheat, having a protein content between 12.5 and 13.5 percent at a moisture basis of 13.5 percent.

PRODUCT 9: #2 Canadian Western Hard Amber Durum wheat.

PRODUCT 10: Canadian feed wheat, regardless of class.

These products were selected as representative of the most commonly traded U.S. and Canadian wheat products.[175] Although not identical in all aspects, products 1 through 5 from the United States are believed to be comparable in terms of overall quality and value with products 6 through 10 from Canada, respectively.[176]

Although some data were provided by respondents for all five wheat products from Canada and the United States, most respondents were unable to provide complete information as requested.[177] Typically, those firms which provided information were able to provide only the prices and quantities of the largest sale and the total values and quantities purchased in any month; only a small number were able to provide the quality-related data. The information presented below (tables 31-34) was developed from the total quantity and value data in each month. As such, it represents averages of unit values of the respondents' purchase contracts for the facilities over each 30-day period rather than single purchase information. For purchases of U.S.-produced wheat, these data generally reflect contracts requiring delivery within 30 days. For purchases of Canadian wheat, these data represent sales contracts that generally called for multiple deliveries over a period of several months.

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[175] These products and the information being requested about them were selected in consultation with representatives of U.S. wheat producers, the CWB, millers, grain merchants, and other industry representatives.

[176] Despite the seeming comparability between U.S. and Canadian classes and grades, there are differences that affect the marketability and price of each. Characteristics inherent in the particular varieties within a class may affect baking characteristics and, therefore, the ability of millers to produce a consistently acceptable product.

[177] Data received from millers were generally sufficient for analysis with the exception of the two feed wheat categories. No data were received for U.S.-produced feed wheat purchases by millers although several reported purchases of wheat technically graded as Canada Western Feed Wheat. In contrast, while grain merchants provided data for purchases of U.S. wheat in all categories, data on purchases of Canadian wheat for human consumption were limited and are not reported here; grain merchant data on Canadian wheat were most complete for the feed wheat category.

Representatives of U.S. growers, at the time the questionnaires were being developed, stated their belief that purchasers of wheat maintain extensive detailed records regarding the wheat they buy and would be able to provide all the information requested. Grain merchants and millers, on the other hand, stated that such historical records are not readily available. While shipments are examined as they are delivered, a considerable share of purchases of Canadian wheat are made on long-term contracts that specify targets for wheat grade, protein levels, and other characteristics for multiple shipments made over the life of the contract. While the targets are consistent for all shipments, there can be substantial variation among individual deliveries under a single contract. According to purchasers, the detailed records relating to all purchases cannot be recovered and provided in a meaningful form within the timeframe allowed by the deadlines of the Commission's schedule, if they could be recovered at all.

Table 31
Wheat: Prices paid by millers for U.S. #1 Hard Red Spring (product 1) and Canadian #1 Western Red Spring (product 6) in various regions, and margins of underselling (overselling), by months, 1991-93

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Table 32
Wheat: Prices paid by millers for U.S. #2 Hard Red Spring (product 2) and Canadian #2 Western Red Spring (product 7) in various regions, and margins of underselling (overselling), by months, 1991-93

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Table 33
Wheat: Prices paid by millers for U.S. #1 Hard Amber Durum (product 3) and Canadian #1 Western Amber Durum (product 8) in various regions, and margins of underselling (overselling), by months, 1991-93

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Table 34
Wheat: Prices paid by millers for U.S. #2 Hard Amber Durum (product 4) and Canadian #2 Western Amber Durum (product 9) in various regions, and margins of underselling (overselling), by months, 1991-93

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The data are grouped according to the geographic regions of the respondents' facilities, to reflect the differences in transportation costs to various locations. Because the data regarding purchases of Canadian wheat are sparse while substantially complete price series are available for four U.S. wheat products, the tables include only those products and geographic regions for which data on **both** U.S.-produced and imported wheat are available.[178] No adjustments have been made for possible quality or delivery distinctions among purchases.

Questionnaire data generally show price movements similar to those shown in public data but because of the smaller sample, movements are less smooth.[179] Prices of U.S.-produced wheat typically decline immediately before a harvest and during the first few months of a new harvest, then increase during the remainder of the year, a pattern that can be seen to some extent in the questionnaire data. Prices appear to have been lowest in mid-1991 and, in most regions, increased noticeably at the end of 1993. This is also consistent with public data and reflects the condition of the crops in those periods. Insufficient questionnaire data are available to show price trends for Canadian products.

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[178] The Commission examined the data in 7 geographical regions, of which 4 had sufficient information to show in this report.

[179] In most instances, average monthly prices for both U.S.-produced and Canadian wheat are based on data provided by only two or three firms in any geographic area; comparisons are frequently based on data provided by a single firm for U.S. wheat and a single firm for Canadian wheat (not necessarily the same firm) within a region.

Questionnaire data from millers permits direct price comparisons on a regional basis of U.S. and Canadian products suitable for human consumption in 63 instances. Of these, the average prices of the Canadian products were below that of the U.S. products in 28 instances, with margins as large as 12.8 percent. Canadian prices were above U.S. average prices in 33 instances with margins as large as 20.0 percent.[180]

The instances in which Canadian wheat was at a higher level than U.S.-produced wheat were concentrated in Hard Red Spring wheat. There were 27 possible comparisons between Hard Red Spring wheat (U.S. products 1 and 2 and Canadian products 6 and 7); import prices were above prices of U.S.-produced Hard Red Spring wheat in 19 instances and below U.S. prices in 8 instances. In comparison, there were 36 possible comparisons in the two Durum products and the average value of imports was below that of the U.S. product in 20 of these instances and equal in 2 instances.[181]

The data also indicate the same patterns relating to geographic location. In region 2, located closer to major U.S. sources of wheat, average prices of Canadian wheat exceeded those for U.S. wheat in 20 of 25 possible comparisons. On the other hand, Canadian prices in region 3, in an area more accessible for Canadian suppliers, relative to U.S. suppliers, were below those of U.S. suppliers in 14 of 26 possible comparisons and above in only 10 instances.

Data provided by merchants on purchases of feed wheat provided an additional 17 possible comparisons of prices (table 35).[182] In 10 instances, the price of Canadian feed wheat was lower than the price of the comparable U.S. product; in 6 cases the Canadian price was higher and in one case it was equal.

Table 35
Wheat: Prices paid by merchants for U.S. feed wheat (product 5) and Canadian Western Feed wheat (product 10) in various regions, and margins of underselling (overselling), by months, 1991-93

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Exchange Rates

Quarterly data reported by the International Monetary Fund indicate that the nominal value of the Canadian dollar depreciated in relation to the U.S. dollar over the period January-March 1990 through January-February 1994 (figure 8).

The nominal value of the Canadian dollar initially increased through September 1991, peaking at approximately 104 percent of its initial value. Through the remaining period, however, the nominal value declined, reaching 88 percent of the January-March 1990 value in January-February 1994. When adjusted for movements in producer price indexes in the United States and in Canada, the real value of the Canadian currency followed a very similar pattern, initially increasing very slightly but then decreasing to 88 percent of the initial value by early 1994.

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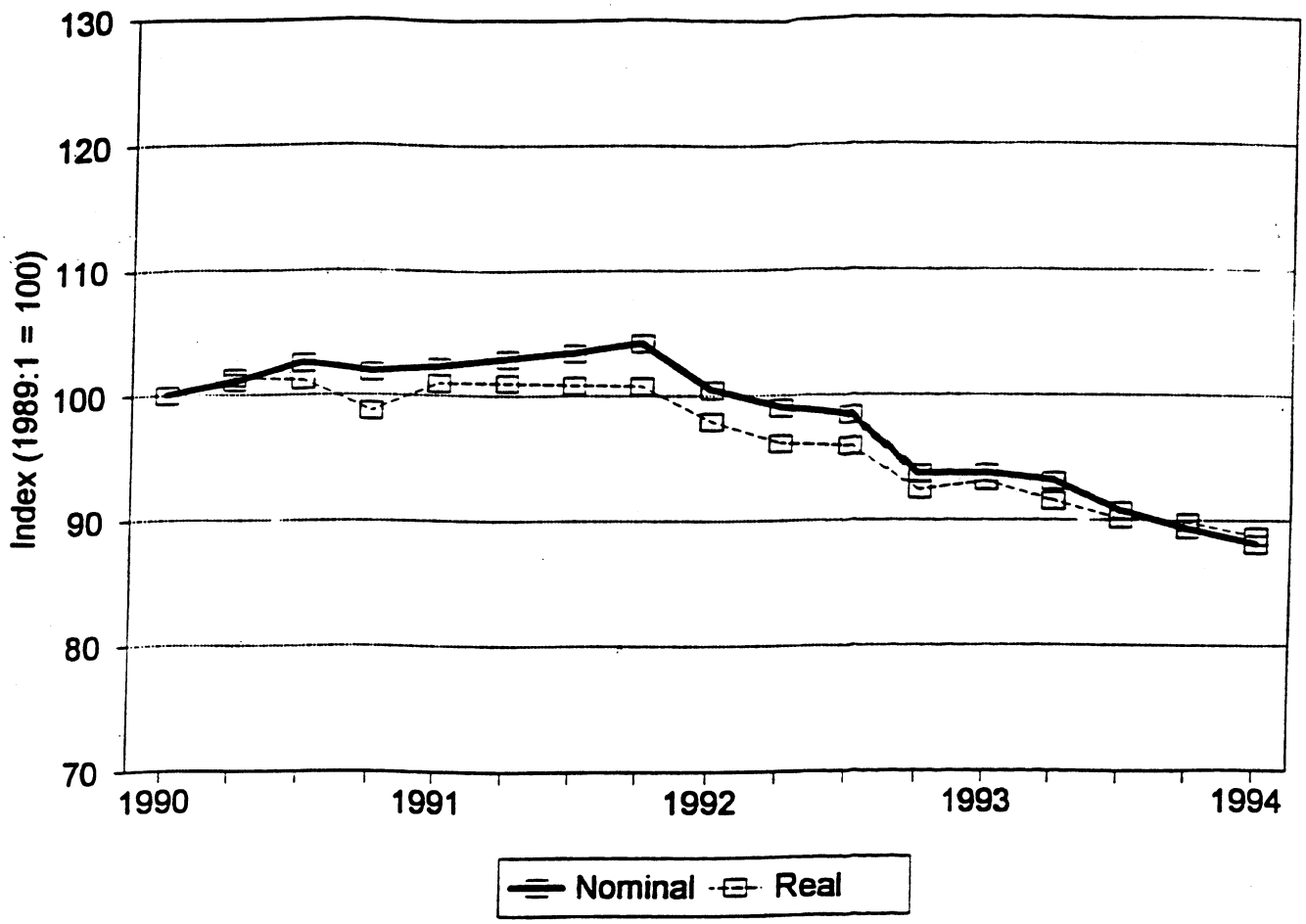
[180] In two instances, the average prices were the same. Data from grain merchants had three additional possible comparisons, one of which showed lower Canadian prices and two of which showed higher Canadian prices.

[181] Grain merchant data showed three additional comparisons for products 4 and 9 in 1993. Two of these showed higher average Canadian prices and one showed a lower Canadian price.

[182] The price data shown reflect prices of wheat intended for animal consumption only.

Figure 8
Wheat: Nominal and real exchange rates; value of Canadian dollar, by quarters, 1990-94



Source: IMF, *International Financial Statistics*, Apr. 1994.

ECONOMIC CONSIDERATIONS AND MODELING RESULTS

In this investigation, the Commission has received four economic submissions from parties to the proceeding. The most detailed is the one submitted on behalf of the CWB by Sumner, Alston, and Gray (SAG). This analysis contains an extensive discussion of the parameters underlying a model of the effects of imports on a market. On the basis of this discussion, parameters are chosen such that the effects of Canadian wheat on the U.S. market are small.

An analysis with a different approach was submitted by the Law and Economics Consulting Group (LECG). A basic argument of this submission is that, regardless of the model that might be used to analyze the effects of imports, imports from Canada are underpriced because their quality is understated. Further, citing in particular demand elasticities for wheat that are smaller than those used by SAG, these underpriced imports necessarily have adverse effects on U.S. wheat prices and, hence, on USDA support program costs.

USDA has submitted testimony in general agreement with the tenor of the LECG analysis. USDA's argument is essentially that wheat imports from Canada increase U.S. wheat supplies. U.S. wheat prices would be higher than in the absence of the imports. The higher prices would result in lower program costs from lower levels of deficiency payments and reduced loan activity than would occur with the imports. The USDA estimate of program costs is based on the difference between the costs associated with a "no quota" level of imports, which is equal to actual U.S. imports during crop years 1991/92-1992/93 and projected imports for crop years 1993/94-1994/95, and a "quota" level of imports. Imports in the quota case are equal to 50 percent of actual imports during crop years 1987/88-1991/92.

Abel, Daft, and Earley (ADE) presented an analysis on behalf of the Millers National Federation, the National Pasta Association, and the National Grain Trade Council, all users of grain. This analysis argues that because of such factors as weather and USDA farm policies, U.S. wheat production has been abnormally low in recent years and therefore Canadian imports were unusually high.

More detailed critiques of the economic analysis contained in these submissions follow. As noted by SAG, the results of the various models and analyses submitted to the Commission depend on the assumed elasticities. The more elastic (inelastic) the various response functions, the lower (higher) the impact on U.S. prices and program costs.[183]

SAG

This submission presents a partial equilibrium simulation model of the world wheat market (consisting of the United States, Canada, and the "rest of the world" (ROW)). The model simplifies this market with a number of theoretical and structural assumptions, among them being the application of an Armington demand system where wheat is differentiated by type and by origin.[184] Additional simplifying assumptions are that different types of wheat are substitutable in production but not in consumption, that Canada does not import wheat, and that imports from Canada are limited to milling and feed wheat (though Durum is imported in the form of pasta from the ROW).

In addition to the structural assumptions embodied in the selection and specification of the equations of the model, there are behavioral assumptions embodied in the parameters placed in these equations. These parameters are derived from various elasticities that are assumed to describe the markets.[185] On the demand side, the paper argues that overall demand elasticities for wheat are very low, while elasticities of substitution are higher than those generally used. In combination, this yields own-price elasticities of demand for imported wheat that are rather high. On the supply side, it is argued that supply elasticities of wheat are much higher in the United States than in Canada and the rest of the world, largely because of more unused wheat production capacity and the greater availability of alternative crops in the United States.

SAG uses its model to analyze the effect on U.S. wheat program costs of limiting U.S. wheat imports to 50 percent of projected levels in crop years 1993/94 and 1994/95.[186] The results implied

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[183] Prehearing brief of Steptoe & Johnson, Apr. 25, 1994, pp. 33-34.

[184] Paul Armington, "Geographical Pattern of Trade Effects and Price Changes," *IMF Staff Papers*, vol. 16, No. 1, 1969, pp. 179-201.

[185] The submission provides an extensive survey of the elasticity literature in support of its selection of elasticities used in its model.

[186] At the Commission's request, SAG submitted a second, more expanded analysis where (1) stocks are endogenized, (2) the analysis period is expanded to 1991/92-1994/95, (3) the effects of zero imports are analyzed, (4) the effects of USDA import restrictions are analyzed under USDA's assumptions, and (5) the effects of a 50-percent import reduction (from baseline levels) are analyzed. The results of the expanded analysis are generally similar to those generated in the initial analysis. For example, the estimated annual price

(continued...)

by the structure of the model and the parameters applied in the model are that, largely because of the high degree of substitution among wheats produced in different areas, trade changes affect the composition of wheat consumed (in the United States) without much affecting its price. Wheat imported from Canada merely displaces wheat (wheat equivalent of pasta) from Europe and wheat from the United States which is then exported. The paper presents little empirical evidence that this behavior closely reflects actual trade and pricing patterns. In fact, it also "endogenizes" U.S. export policy, in that as imports displace U.S. wheat to the world market, per-unit EEP payments in support of these exports are lowered.

Staff Comments

The Commission staff has analyzed five of the key assumptions underlying this model. These include (1) the arguments for wheat product differentiation, (2) assumed demand and supply elasticities, (3) the elasticities of substitution, (4) the U.S. elasticity of export demand, and (5) the assumption that stocks are constant across both the baseline and the import restriction runs of the model.

Product differentiation

The employed Armington demand framework differentiates the wheat market by type and origin. SAG postulates that feed wheat, milling wheat for nonpasta products, and Durum for pasta production are sold in three distinct markets among which there is no substitution. For each of these "kinds" of wheat, the Armington approach permits imperfect substitution between supplies of different origins within a market (Canadian vs U.S. Durum, Canadian vs. ROW milling wheat, etc). The SAG submission cites several studies in which the Armington approach has been used to analyze import and export demand in various agricultural markets.

In regard to SAG's assumption that wheat demand can be separated into three classes, the separation of the feed market from the other two markets is the most questionable. This separation may not be an accurate representation because there are no designated "feed classes" of wheat in the United States.[187] Most studies of the wheat market assume that any type of wheat may be fed to cattle when the wheat is not fit for human consumption and/or when the price of wheat becomes competitive with other feed grain prices.[188] With regard to the separation of the Durum and milling wheat markets, the section of this report entitled "The Products" notes that farina, which is made from hard wheats, can be substituted for durum semolina in certain pasta products.

The SAG submission does not provide any specific reasons why U.S. and Canadian wheat should be differentiated in the U.S. and export markets. According to SAG, ". . . wheat from Canada is an imperfect substitute for wheat from domestic sources in the United States. This fact is well accepted in the trade as well as in the academic literature reviewed in Part A."[189]

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[186] (...continued)
effect of 0.4-0.5 cents/bushel and deficiency payment outlay savings of $8.0-9.9 million per year emerged from the initial SAG analysis for the 1993/94-1994/95 period. The expanded SAG analysis, which endogenizes stocks and assumes the USDA's import restriction under USDA assumptions, generates similar price effects of 0.6-0.8 cents/bushel and deficiency payment outlay savings of $11-15 million annually over the same two-year period.

[187] SAG argues that this separation of feed and milling markets is justified because USDA publishes feed-use estimates. Posthearing brief of Steptoe and Johnson, May 10, 1994, p. 9.

[188] E.g., see Thomas I. Wahl and A. Desmond O'Rourke, "The Economics of Sprout Damage in Wheat," *Agribusiness*, vol. 10, (1994), pp. 27-41. This paper lays out an economic model of the relationships between the food and feed markets for wheat, and notes that there is substitution of wheat between the food and feed markets.

[189] Prehearing brief of Steptoe and Johnson, Apr. 25, 1994, p. 2.

With regard to the academic literature, most studies of the wheat market have assumed product differentiation when that assumption fits the particular problem to be analyzed. For example, Figueroa and Webb (1986) used an Armington approach to account for ". . . political, historical, and economic ties between trading partners as well as quality differences . . ."[190] De Gorter and Meilke (1987) used an Armington approach to analyze wheat trade in the European Union, which imports hard wheat, exports soft wheat, and maintains differential prices for imported and exported wheat.[191] Johnson, Grennes, and Thursby (1977) developed an Armington approach to account for "perceived or actual barriers to trade between countries".[192]

It is not clear from SAG's submission which characteristics of the U.S., Canadian, and world wheat markets SAG is intending to model through the assumption of product differentiation. In regard to the issue of quality, results from Commission questionnaires sent to U.S. millers and merchants suggest that wheat of comparable classes from the U.S. and Canada tend to be perfect or near perfect substitutes.[193] This suggests that U.S. millers and merchants do not prefer Canadian wheat to U.S. wheat.[194]

Demand and supply elasticities

SAG assumes own-price elasticities of U.S., Canadian, and ROW all-wheat demand for their Durum and milling markets in the range of -0.1 to -0.2, which fall within the range assumed in the literature. Most studies of the wheat market have found the demand for feed wheat to be more elastic than wheat for human consumption. The arbitrary assignment of a feed demand price elasticity of -20, however, is questionable. For example, Meyers, Devadoss, and Helmar use an estimate of the elasticity of U.S. feed demand for wheat of -3.01.[195] USDA provided a price elasticity for feed wheat demand of -2.39.[196]

With regard to the assumed supply elasticities for wheat in the United States and Canada, the direct price elasticity of supply for wheat of 0.5 and cross-price supply elasticity between milling and Durum wheat of -1.0 for Canada appear to be consistent with the literature.[197] Several studies of the

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[190] As cited in the SAG submission.

[191] Ibid.

[192] Ibid.

[193] The Commission sent U.S. wheat millers and merchants questionnaires soliciting their opinions regarding certain attributes of comparable supplies of U.S. and Canadian wheat over the years 1989/90-1992/93 and for the periods June/Dec. 1992 and June/Dec. 1993. Trade-weighted responses suggest that there was generally no preference expressed between U.S. and Canadian wheat in terms of color, gluten strength, test weight, hard amber and vitreous kernels, consistency of kernel size and/or soundness, and consistency of quality components. Further, most of the responses found no preference for the Canadian supplies in terms of falling numbers, moisture content, protein content, and cleanliness. Further details are found in appendix M.

[194] SAG's large substitution elasticity, however, does in fact suggest that U.S. and Canadian wheat are virtually perfect substitutes.

[195] William H. Meyers, S. Devadoss, and Michael D. Helmar, "Agricultural Trade Liberalization: Cross Commodity and Cross-Country Impact Products," *Journal of Policy Modeling*, vol. 9 (1987), pp. 455-482. This is the elasticity used in the econometric trade model maintained by the Food and Agricultural Policy Research Institute (FAPRI) at Iowa State University.

[196] Posthearing brief of USDA, p. 25. The CWB argues that the USDA estimated feed demand elasticity, which was estimated using the all-wheat price, actually implies a response to changes in feed prices of -23.9; posthearing brief of Steptoe and Johnson, pp. 10-11. It is unclear why the CWB argues for this transformed elasticity. Wahl and O'Rourke ("The Economics of Sprout Damage. . .") point out that feed wheat prices are based on discounts of prices for food wheat. Thus, the USDA estimated elasticity is applicable to feed wheat without transformation.

[197] See, e.g., K.D. Meilke and Alfons Weersink, "The Impact of Support Programs on Crop Area Response," *Canadian Journal of Agricultural Economics*, vol. 38 (1990), pp. 871-885. The authors estimate a price elasticity of supply for bread wheat in Western Canada of 0.7 and a cross-price elasticity with durum of -0.6. The estimate for durum wheat elasticity was 0.8.

wheat market, however, have assumed that Canadian wheat supply elasticities are closer to those of the United States, in contrast to SAG's assumption that U.S. elasticities for wheat are double those in Canada. For instance, Meyers, Devadoss, and Helmar use supply elasticities for wheat in the United States and Canada of 0.20 and 0.38, respectively. USDA's SWAPSIM model includes wheat supply elasticities of 0.5 and 0.6 for Canada and the United States, respectively.[198]

Substitution elasticities

Substitution elasticities are a main ingredient in the own-price and cross-price elasticities of each region's demand for wheat supplies from different origins in each market. SAG assumes rather large substitution elasticities.[199] SAG points out that substitution elasticities for wheat in Armington demand models have been reported in the literature at values of 3.0.[200] They then cite literature that suggests that such estimates may be downwardly biased by 50 percent, which would render elasticities for wheat at 6.0.[201] But SAG then assumes far higher values of 10.0 for substitution elasticities of Durum and milling wheat demands, and far higher values of 100.0 for substitution elasticities of feed wheat demand.[202]

These large substitution elasticities result in very sensitive own- and cross-price elasticities of demand for differently sourced wheat supplies within each of the model's three markets. Thus, small changes in the ratio of foreign to U.S. prices for a particular wheat market resulting from SAG's restriction in imports may result in larger reductions in foreign demands for U.S. supplies, larger increases in U.S. demand for foreign supplies, and a larger rise in U.S. imports of foreign supplies than can be supported by the literature.

Implied price elasticity of export demand

The SAG assumptions result in an implied elasticity of export demand for U.S. milling wheat of -9.22.[203] This seems high by the standards of the literature, and in relation to the literature survey described in Gardiner and Dixit.[204] Using this high elasticity, price rises from SAG's assumed decline in wheat imports are offset by a large increase in U.S. milling wheat exports. USDA also suggests that SAG's elasticity of export demand is unreasonably high.[205]

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[198] In past investigations, the Commission has noted that wheat production in Canada tends to be more elastic to price changes relative to U.S. production because of U.S. program restrictions on acreage. See USITC publication 2627.

[199] It is unclear why SAG chose an Armington framework to account for imperfect substitution among kinds and sources of wheat, and then chose substitution parameters that appear to indicate near-perfect substitutability in demand.

[200] Grennes, Johnson, and Thursby, 1978.

[201] Alston, J., C. Carter, R. Green, and D. Pick, "Whither Armington Trade Models," *American Journal of Agricultural Economics*, vol. 72, 1990, pp. 455-68.

[202] For instance, de Gorter and Mielke estimated an elasticity of substitution of 3.75 between imported and domestic wheat in the European Union. As noted earlier, this case applies to a situation when imports and exports are different kinds of wheat (hard vs. soft) and are priced differently according to established prices.

[203] USDA points out that the SAG analysis is not based on econometric estimates of export demand elasticities. Rather, the export elasticities are calculated based on SAG's assumptions regarding domestic demand elasticities, world market shares, and elasticities of substitution using the Armington trade model. Posthearing brief of USDA, p. 22.

[204] Gardiner, W. and P. Dixit, "Price Elasticity of Export Demand: Concepts and Estimates," USDA, ERS, FAER No. 228, Feb. 1987. Posthearing brief of USDA, attachment 4.

Meyers, Devadoss, and Helmar estimated a U.S. export demand elasticity for wheat of -0.9 in the short run (one year), increasing to -1.27 in the long run (including stock adjustments over 4 years).

[205] Posthearing brief of USDA, p. 22.

Treatment of stock adjustments

A key variable in wheat price formation is the ending stocks-to-total use ratio.[206] When the stocks-to-use ratio rises or falls, U.S. wheat prices should fall or rise, as appropriate. SAG assumes constant stocks across their base and import-restricted scenarios for 1993/94 and 1994/95. The USDA and Commission models incorporate this linkage, as explained below.

ADE

The ADE submission does not actually contain an economic model in a formal sense, but its argument is based on an implicit model. In essence, it argues that the recent increase in imports of wheat from Canada is due to an exogenous decrease in U.S. production due to bad weather and a USDA policy limiting wheat production and promoting exports; in effect, that the imports are demand driven. This tends to mesh with the assumption or implication of a high own-price demand elasticity of imports, as outlined in the SAG model described above.

LECG

The LECG submission also lacks a model, although it presents a case for the construction of one by the USITC along certain lines. LECG's argument proceeds roughly as follows: Canadian wheat is displacing U.S. wheat in the U.S. market because (1) it is subsidized, (2) overall demand is inelastic, and (3) imported and domestic wheat are highly substitutable. This displacement depresses domestic prices and puts pressure on USDA wheat support programs.

As a subtext, LECG argues that the mechanism by which the Canadian subsidy is transmitted to the United States is through an understatement of the quality of the Canadian product. In other words, the Canadian wheat is actually better than it is advertised to be, or rather better than its U.S. "equivalent" sold at the same nominal quality, and therefore the Canadian wheat is underpriced in terms of its actual quality.

USDA

USDA provides a simplified, but structurally complete, analysis of the U.S. wheat market to analyze the effects of imports on U.S. program costs. Program costs include increased deficiency payments as a result of the USDA estimate that wheat prices are lower in the presence of imports compared with what prices would be if the imports were restricted by a quota. The USDA analysis is based on a quota equal to 50 percent of actual imports over the 1987/88-1991/92 period.

In addition, USDA includes $27 million in costs associated with increased net outlays under price support provisions during FY 1991-94. These costs are not included in any of the other submissions. They represent USDA's assessment of the increased costs of loan activity on a fiscal year basis due to imports. According to USDA, the costs arise because the crop year does not coincide with the fiscal year; thus, loan placements and redemptions may not be equal in the fiscal year even though USDA forfeitures may be zero.[207] It should be noted, however, that as long as forfeitures are zero, whether on a crop or fiscal year basis, the loans will eventually be paid back with interest. These costs are not considered to be crop-year costs to the U.S. wheat program.

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[206] Ibid., p. 33.

[207] The costs are equal to the estimated value of loan placements less loan redemptions on a fiscal-year basis. Conversation with USDA official, May 19, 1994.

According to USDA, its analysis is based on the underlying knowledge base of the Department's wheat experts, and does not reflect the results of any particular model.[208] USDA's baseline analysis assumes that wheat imports increase overall supplies in the U.S. wheat market. These supplies are then allocated to different uses (domestic and export demand) according to assumed elasticities of demand.[209] Wheat imports that are not exported or used domestically are allocated to the residual category of stocks. Price changes are estimated from the stocks-to-use ratio. USDA also assumes a lagged production response to the decline in wheat prices. The restriction in imports to the quota level reduces the price impact of the quota, and thus the impact on wheat program costs.

Comments on the USDA analysis primarily center around USDA's assumed demand elasticities, because these parameters drive the USDA results. The CWB criticizes USDA for not separating out the markets for Durum, milling, and feed wheats.[210] The CWB argues that separating out the feed market in particular, and applying a higher elasticity of demand for this market, would reduce the price effects from imports estimated by USDA. The CWB also argues that the USDA's export demand elasticity is "far below any accepted range."[211] The National Pasta Association also argues that USDA's export demand elasticity is too low.[212]

USDA's implied elasticity of domestic demand is approximately -0.3, which is within the range of the literature. Assuming that approximately 20 percent of wheat imports are used for feed, however, (as noted in SAG's submission) a weighted domestic demand elasticity which includes both a food use elasticity of -0.2 and a feed use elasticity based on Meyers, Devadoss, and Helmar of -3.01, would be approximately -0.8. This suggests that USDA's domestic use elasticity for imports may be too low.

USDA's implied elasticity of export demand is in the range of -0.3 to -0.4. While within the range of survey estimates provided by Gardner and Dixit, the simulation results reported earlier from Meyers, Devadoss, and Helmar suggest that this elasticity could be higher, in the range of -0.9 to -1.0. On the other hand, the USDA analysis does not include the operation of the EEP. Given that approximately 60 percent of U.S. wheat exports are exported under this program, the lack of any analysis of EEP on U.S. exports could be consistent with a lower U.S. elasticity of export demand.[213] Endogenizing the EEP could raise the assumed elasticity of demand for U.S. exports. Wheat that is exported with EEP assistance, however, is a cash cost to the U.S. Government. USDA also did not explore whether the wheat import and export demand situation could be handled through an Armington type approach.

Commission Analysis

The modeling results and analyses discussed earlier point to some degree of increase in the costs of the U.S. wheat program from increased wheat imports. The difference among the submissions was the extent of such program cost increases. The question appears to be not whether import-induced costs to the wheat program exist, but rather on the magnitude of such effects. For

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[208] USDA notes that "this consensus of opinion could be interpreted as a model and evaluated as such;" USDA posthearing brief, p. 24, attachment 1; Conversation with USDA official, May 19, 1994.

[209] USDA's analysis is actually based on price flexibilities, which are the reciprocals of the various demand elasticities.

[210] Posthearing brief of Steptoe and Johnson, pp. 11-13.

[211] Ibid, p. 15.

[212] Posthearing brief of Collier, Shannon, Rill, and Scott, p. 6. This firm argues that USDA should use a long-term (2-3 year) export demand elasticity of approximately -2.0.

[213] EEP bonuses are provided to make U.S. exports competitive with those of foreign suppliers. The EEP bonus, in effect, allows foreign demand for U.S. exports to be more elastic. See the section of this report entitled "U.S. Government Programs Affecting Wheat" for further details on the operation of this program.

example, the potential savings possible from restricted U.S. wheat imports range from the $171 million average annual savings over the 1991/92-1994/95 period estimated by USDA to the CWB's conclusions of from only $8 million to $9.9 million for 1993/94-1994/95 from a similar import restriction.[214] Likewise, annual wheat price effects (price decreases when import increases are analyzed), and hence annual effects on wheat deficiency payments, vary from up to 12 cents/bushel reported by the USDA, to as low as half a cent or less reported by the SAG study.[215]

With such variance in the alleged cost and price impacts from U.S. wheat imports, the Commission chose to analyze the issue in two distinct ways. First, the Commission analyzed the issue as an empirical question concerning the degree of impact that imports have had on wheat program costs. Because wheat imports are virtually all from Canada, virtually no U.S. wheat is exported to Canada, and U.S. wheat imports account for no more than about 2.0 percent of U.S. supply (through 1992/93), an appropriate approach is to model U.S. wheat imports as a rise in U.S. supply (hereafter, the "empirical approach"). Second, the Commission produced a partial equilibrium simulation model parameterized from information collected in the investigation and from elasticity estimates in existing economic empirical literature.

The Empirical Model

The empirical approach entails applying a data-oriented modeling method called "vector autoregression (VAR) econometrics," which loosely imposes theory with as few restrictions as possible, so as to permit the regularities in the data to reveal themselves.[216] These regularities are history's long-run average relationships between movements in U.S. wheat supply, demand (or usage), exports, and ending stocks (hereafter stocks) and responses in wheat price (and in deficiency payments). These regularities provide parameters concerning the average degrees to which price has responded to supply movements; such parameters are then applied to the period examined in this report. By providing historical average response standards of use, stocks, export, price, and hence wheat program costs to movements in supply, an alternative approach based directly on U.S. wheat market data is rendered which facilitates judging the "reasonableness" of the greatly variant estimates of cost response reported by the parties to this proceeding. Details on VAR econometrics are provided in appendix N.

A VAR model is a data-driven model. Typically, the data should have the highest periodicity possible (quarterly or monthly, as opposed to annual) to provide a maximal sample.[217] The Commission has consequently considered the following quarterly USDA data series as variables for the modeling analysis.

1. U.S. domestic wheat supply (including imports) [DOMSUPPLY]
2. U.S. domestic wheat demand or "usage" (seed use deleted) [DOMUSE]
3. U.S. wheat exports [EXPORTS]
4. U.S. wheat ending stocks [ENDSTOCK]
5. U.S. average market price [PRICE]

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[214] USDA hearing submission, Apr. 28, 1994; CWB hearing submission, Apr. 28, 1994.

[215] USDA hearing submission, Apr. 28, 1994; hearing submission of the Millers' National Federation, et al., Apr. 28, 1994.

[216] Dave A. Bessler, "An Analysis of Dynamic Economic Relationships: An Application to the U.S. Hog Market," *Canadian Journal of Agricultural Economics*, vol. 32, 1984, pp. 109-124.

[217] Christopher Sims, "Macroeconomics and Reality," *Econometrica*, vol. 48, 1980. Also, see Bessler, 1984.

Quarterly data for these variables are published by USDA for all wheat aggregated across the following five wheat classes: Hard Red Winter, Hard Red Spring, Soft Red Winter, White Winter, and Durum.[218]

The market's supply side is captured by DOMSUPPLY, and includes imports for reasons cited above. Variables (2) and (3) constitute usage or quantities "demanded."[219] Hereafter, domestic use or use are used interchangeably, while total use includes domestic use and exports.

ENDSTOCK or variable (4) suggests excess demand when ENDSTOCK changes are negative, and excess supply when ENDSTOCK changes are positive. The PRICE is the season average price received by farmers for all wheat; it is an average price weighted by the quantities of the five classes of U.S. wheat marketed by the farmer, and is the price used to calculate deficiency payments.

Estimated VAR model

The empirical approach entailed estimating a quarterly model of the variables (1) through (5) over a 1979:1-1993:2 market year estimation period. The model is linear and is econometrically estimated. Variables (1) through (4) are wheat quantities aggregated across the five classes of wheat.[220] By simulating changes in DOMSUPPLY (here an increase), one examines the patterns of quarterly response in all-wheat domestic usage, exports, ending stocks, and price. These model reactions provide alternative insight on how historical average quarterly dynamics would "handle" supply increases in terms of ultimate price reductions, from demand and supply interaction for *all-wheat* generally.

Empirical model simulations

One aspect of the all-wheat empirical model of interest here is the impulse response function. An impulse response function of a model permits imposition of a change in one of the variables, e.g., an increase in DOMSUPPLY, and an examination of the quarterly reactions (hereafter, impulse responses) in the other variables (DOMUSE, EXPORT, ENDSTOCK, and PRICE). The empirical model reflects patterns that are averaged over all of the sample 15 years of quarterly interactions. Parameters from the simulation are then applied to the period examined in this report. This application provides the alternative estimates of the wheat program cost increases that would have occurred during 1989/90-1993/94 from supply increases equal to the import levels that occurred during those years.

A 10-percent increase in domestic all-wheat supply was imposed on the model, and quarterly impulse responses in DOMUSE, EXPORT, ENDSTOCK, and PRICE were examined.[221]

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[218] USDA, "Wheat Situation and Outlook Report WHS-305," Feb. 1994.

[219] The model eliminates the minor seed use component from DOMUSE.

[220] To address the question of whether Durum should be considered as part of the all-wheat market, the Commission staff also built a second VAR model, termed a "Durum-specific" model. The Durum-specific model is basically the same model as the all-wheat empirical model, and is econometrically estimated over the 1979:1 -1993:2 period. The only difference is that DOMSUPPLY is divided into two supply series: Durum supply and non-Durum supply (i.e., supply aggregated over the non-Durum quantities of Hard Red Spring, Hard Red Winter, White Wheat, and Soft Red Winter). The purpose is to simulate a shock (increase) in *Durum* supply, and see whether Durum supply volumes have been substantial enough to register changes in the non-Durum supply, in the *all-wheat* aggregates of domestic use, exports, and ending stocks, and ultimately in the all-wheat average price used to calculate deficiency payments.

[221] Shock size and shock sign (increases or decreases) are arbitrary choices, because VAR models are linear. Doubling the shock sizes to 20 percent basically entails doubling the 10 percent simulation results, and simulating a negative shock instead of a positive one entails a simple negation (re-signing) of the positive shock's simulation results.

The empirical model simulation results are summarized into four response parameters that are independent of shock size and shock sign. Likened to elasticities, these response parameters indicate the model's percentage change in the response variable divided by the percent change in the shock variable (DOMSUPPLY). The parameters therefore reflect history's average percent change in the response variables per percentage point change in the shock variable. Table 36 provides the relevant response parameters for the empirical model.[222] Calculation procedures for these response parameters are detailed in appendix N. The response parameters provide the average percent changes in DOMUSE, EXPORT, ENDSTOCK, and PRICE that have occurred historically per percentage point change in DOMSUPPLY. Sign is important, as a positive parameter suggests that a rise (fall) in the shock variable elicits a rise (fall) in the response variable. Likewise, a negative response parameter suggests that the shock variable has generally elicited oppositely signed response-variable effects historically. For example, the all-wheat empirical model's -0.424 price response parameter suggests that each 1-percent rise in DOMSUPPLY has resulted in a less than proportional 0.424 percent drop in price.

Table 36
Wheat: Response parameters for the all-wheat empirical model simulation

Item	Response, domestic use	Response, exports	Response, ending stocks	Response, price
All-wheat empirical model (shock in DOMSUPPLY).....	+1.0	0.0	+1.34	-0.424

Source: Commission's empirical model.

All-wheat empirical model simulation

Effects of an increase in domestic supply were characterized by the four response parameters: 1.00 for DOMUSE, 0 for EXPORT, 1.34 for ENDSTOCKS, and -0.424 for PRICE. These parameters suggest that each percentage point rise in domestic all-wheat supply has elicited a 1-percent usage increase which tends to support price, and a 1.3 percent ending stock increase which tends to depress price. There was no statistically nonzero response in exports.

With regard to the "stocks-to-use" ratio, USDA correctly notes that the ratio of total ending stocks to total use is a principal variable in determining price.[223] These results suggest that over the last 15 years, each 1-percent rise in domestic supply reduces price through a rise in the stocks-to-use ratio. That the DOMSUPPLY increases tend to increase the stocks-to-use ratio is evident because the percent rise in ending stocks is greater than the percent rise in total use (1.0 percent for DOMUSE and 0 percent for EXPORT).

[222] A 10-percent rise in Durum supply was imposed on the Durum-specific model. The response parameters for the Durum-specific model simulation are all zero. Results suggest that rises in the "thin" Durum market supply have not been substantial enough in volume, relative to the non-Durum market, to register changes in non-Durum use, in all-wheat exports, in all-wheat ending stocks, or in the all-wheat average price used to calculate deficiency payments. Historical evidence fails to reject the hypothesis that shocks in Durum supply (such as Durum imports) have not been enough to register effects in the all-wheat price (and deficiency payments) either through PRICE's weighted Durum price component or through adjustments in non-Durum use, all-wheat exports, or all-wheat stocks.

[223] USDA hearing statement, Apr. 28, 1994.

Application of empirical model results to 1989/90-1993/94 period

Table 37 provides the implied 1989/90-1993/94 changes in the empirical model respondent variables which would have occurred using history's average parameters from supply shocks equal to those years' import levels.

Annual per-bushel price declines increase from 1.34 cents in 1989/90 to 4.41 cents in 1993/94. The Commission used the USDA's implied "cost factors" showing the annual increase in wheat deficiency payments attributed to a one-cent drop in price (and a one-cent rise in per-bushel deficiency payments). The increases in wheat program outlays on deficiency payments from supply increases equal to the level of realized imports increase from $21.4 million in 1989/90 to $83.79 million in 1993/94, for an average of $44.4 million annually. Total costs rise $222 million over the 5-year period. Generally, and for reasons detailed below, the empirical model's estimated cost effects fall near the lower end of those effect estimates generated by the simulation model used to develop a remedy recommendation.

Table 37 provides estimates of the amounts of response in the supply, use, and stocks categories. Imports ranged from 23.4 to 95.0 million bushels, and averaged 53.2 million bushels annually over the 5-year period. This shock has increased use from 7.5 to 35.0 million bushels or an average 19.10 million bushels annually. Meanwhile, ending stocks also rose annually from 6.1 to 24.7 million bushels or an average of 13.9 million bushels annually over the period. The price-depressing rise in stocks was somewhat offset by price-supporting pressures from a rise in use, although the stocks/use ratio did increase, so as to ultimately decrease PRICE.

Shortcomings of the empirical model

There are four shortcomings of the empirical model. First, the empirical model did not analyze the international wheat supply and demand conditions. Consequently, the empirical model failed to capture export increases that may have been generated from falling U.S. prices. The annual price effects (decreases) of 1.34 cents to 4.41 cents per bushel, and hence the increased outlays of wheat deficiency payments, may therefore be overstated from levels that would have occurred were exports allowed to adjust. It is likely, however, that the effect on exports of annual price declines ranging from 1.3 to 4.4 cents per bushel would not have been substantial, particularly because the bulk of U.S. wheat exports are made under the EEP.[224]

Second, the parameters of the empirical model may not fully account for the supply, use, and stock responses for the more recent years, especially after 1991/92. By 1993/94, imports accounted for almost 5 percent of supply. The parameters of the model reflect long-run average responses over the period examined, a period which was for the most part (through 1991/92) characterized by lower levels of import-induced supply change than occurred after 1991/92. Hence, the long-run parameters may understate the more recent (post-1991/92) responses when import-induced supply variations have been growing in level and in volatility above average sample trends.

Third, the empirical model aggregated production, an annual variable, into supply because of the quarterly periodicity of the model. Although historical production levels are captured by DOMSUPPLY, the model does not provide adjustments attributed to production. Response parameters, however, reflect historical production changes over time when supply changes have occurred, although a separate parameter for annual production is not obtainable from the quarterly

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[224] Further, as with USDA's analysis, the Commission's empirical model does not account for the EEP program. Were endogenizing of the arbitrary EEP decisions possible, the empirical model EXPORT variable may have been more sensitive and may have responded to the DOMSUPPLY shock, although such EXPORT responses (increases) would have caused increases in Government costs. The lack of an EXPORT response may partly arise from a lack of EEP program endogenization, such that small changes in price do not affect exports.

Table 37
Wheat: Implied effects from applying the Commission's empirical model parameters, crop years 1989/90-1993/94

Item	1989/90	1990/91	1991/92	1992/93	1993/94	Average
Shock:						
Supply (*million bushels*)	2,761.7	3,309.3	2,888.3	3,000.8	3,026.2	
Imports (*million bushels*)	23.4	36.4	41.3	70	95	53.2
Import percent of supply	+0.85	+1.10	+1.45	+2.33	+3.14	
Price and deficiency payment response:						
Price (*per bushel*)	$3.72	$2.61	$3.00	$3.20	$3.21	
Price change (*per bushel*)	$-0.0134	$-0.0122	$-0.0184	$-0.0328	$-0.0441	
Cost factor (*million dollars per one-cent price change*)	16.0	16.95	17.9	19.2	19.0	17.8
Change, deficiency payments (*million dollars per year*)	21.44	20.68	32.94	62.98	83.79	44.4
Domestic use response:						
Domestic use (*million bushels*)	888.7	1,282.0	1,039.0	1,019.9	1,115.0	
Domestic use increase, (*million bushels*)	7.6	14.1	15.1	23.76	35.01	19.1
Ending stocks response:						
Ending stocks (*million bushels*)	536.5	865.9	471.9	529.2	588.2	
Ending stock increase (*million bushels*)	6.1	12.76	9.2	16.5	24.7	13.9

Source: USDA, *"Wheat Situation and Outlook Report, WHS-305,"* Feb. 1994.

empirical model. In other words, production-induced supply effects are contained in the results, although such effects cannot be determined.

Finally, USDA data available for wheat are really not a precise "fit" for the question of modeling whether imports have increased costs through all-wheat price reductions. Quarterly imports constituted very small, perhaps minuscule, portions of quarterly supply during most of the sample (pre-1991) period, but they sharply accelerate in magnitude from 1991 onward. Such series are not amenable to econometric and statistical modeling. Because of the special conditions (the virtually sole Canadian origin and the "one-way" nature) of U.S. imports discussed above, however, the staff concluded that imports were equivalent to increases in U.S. domestic supply levels, and were combined with other supply aggregates to provide DOMSUPPLY as defined above for the empirical model. The empirical model is therefore not able to attribute changes in TLUSE, EXPORT, ENDSTOCK, and PRICE to shocks specifically in imports, but rather to shocks in the DOMSUPPLY variable which may include (and have often included) changes in imports. The impulse responses could have been generated by changes in non-import supply components as well. Because imports seem equivalent to increases in U.S. domestic supply, however, aggregating them into nonimport supply components seems reasonable, and shocking the empirical model with DOMSUPPLY should provide similar responses as a shock in pure imports would have done had imports been historically larger.

Despite these shortcomings, however, the results of the empirical model fall well within the bounds created by the SAG model results and USDA's analysis.

The Simulation Model

The Commission applied its simulation model to estimate the economic effects of all wheat imports on the U.S. market. The staff parameterized the model with ranges of elasticity estimates in a sensitivity analysis and simulated the elimination of all wheat imports.[225] The resulting estimates of the effects of imports on USDA deficiency payments were consistent with point estimates from the empirical model. The empirical model's point estimates tend towards the lower ends of the ranges generated by the simulation model. The results (*change in deficiency payments*) are summarized and compared with the results of the empirical model in the following tabulation:

	Crop year--				
Model	1990/91	1991/92	1992/93	1993/94	Average
Empirical	$20.7	$32.9	$63.0	$83.8	$50.1
Simulation	$20.9-48.5	$31.4-72.9	$78.1-182.3	$85.7-200.5	$54.0-126.0

Comparison of Results of the Empirical, SAG, and USDA Analyses

The modeling analyses submitted by parties differed in three major respects, which make comparisons difficult. First, the nature of the analyzed shock in imports differs. The Commission's empirical model results and ADE analyses analyzed positive import changes, while the USDA and SAG studies focused on reduced imports. Second, the analysis periods differed. The Commission's empirical approach focused on 1989/90-1993/94, USDA used 1991/92-1994/95, and the SAG and ADE studies focused on 2-year periods (1992/93-1993/94 for ADE and 1993/94-1994/95 for SAG). Finally, the model structures employed greatly differed. The empirical and SAG analyses employed

[225] Due to the well known estimation problems with fully eliminating imports in simulation models of trade, the staff simulated the elimination of all but 100 metric tons of wheat imports within the model and then linearly adjusted the deficiency payment change to estimate the elimination of the remaining imports.

models, although the models differed: the empirical approach employed a data-driven econometric framework while SAG used a static equilibrium model with an Armington-based demand structure. The ADE and USDA efforts did not use a model. Hence, the empirical model's 1989/90-1993/94 program cost estimates imputed above using the model parameters are not directly comparable with cost estimates generated either by the SAG model or the USDA analysis.

The Commission was able to impute a common ground of comparison for the results of SAG, USDA, and for its empirical model.[226] The "common ground" centered on the four response parameters for the SAG and USDA models imputed from the results presented in those studies. The response parameters are not elasticities of demand or supply, but rather of overall variable response generated by each model's supply-demand framework from a change in supply. The response parameters impute from the results of each study how the underlying models or analyses would have price, use, stocks, and exports respond to a percent change in supply or imports. Table 38 presents these response parameters. These parameters are the average of the annual parameters implied in the results of each study.

Before examining different responses, a few comments on the average parameters of the three models are in order. First, the empirical model suggests that each 1-percent rise in domestic supply generates a less than proportional 0.424-percent decline in price. The empirical model's price response estimate falls between analogous estimates of the other two models. The USDA price response is a much larger -1.47 percent, while SAG response is far less, -0.15 percent. Second, USDA's results suggest that each percent change in domestic supply provides a 3.03-percent rise in ending stocks, which far exceeds SAG's zero response. Again, the empirical model's ending stock response of 1.34 percent falls between the USDA and SAG estimates. Third, each 1-percent rise in supply elicits a 0.65-percent rise in use in the USDA analysis, which is less than the Commission's empirical estimate of 1.0 percent and the SAG estimate of 0.90. Finally, export response to a 1-percent change in supply results in a larger export rise (1.64 percent) in SAG's model than in the USDA study (0.45 percent). As stated, the empirical model's export response was zero.

Therefore, some of the differences in the price effects registered by the empirical model from those of the SAG model and the USDA analysis are caused by different levels of use and stocks response. Compared with the empirical model's responses, USDA's analysis has larger stock adjustments and lesser domestic use adjustments.

Of the two extremes, the USDA study has larger price responses than the SAG model. This is because, compared with the SAG responses, the USDA stock response is greater, the use response is less, and the export response is less.

The response parameters of the empirical, USDA, and SAG studies must be applied to a common set of baseline conditions and shocks for comparability. The Commission chose the USDA 1991/92-1994/95 period of baseline variables and shock changes (import restriction) as the setting to which the SAG and empirical model response parameters in table 38 were applied (table 39). As seen, comparisons across all three models are possible only for 1993/94-1994/95.

Under the USDA import restriction, its analysis generated a 12-cent rise in price each year for the 1993/94-1994/95 period, which translates into savings of deficiency payment outlays of about $230 million for each year. The SAG model, under USDA conditions, would have generated from 1.2 to 1.35-cent increases in price for each year, translating into far lesser savings in deficiency payment outlays of $26 million in 1993/94 and $23.0 million in 1994/95. In-between these two extremes are the empirical model's implied results under the USDA scenarios. The empirical model

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[226] Hereafter, comparisons of Commission modeling results focus on modeling results generated by the USDA and SAG studies because the latter two efforts generated the high and low (extreme) estimates, respectively, of U.S. wheat program cost increases from wheat imports.

Table 38
Wheat: Implied response parameters from a 1-percent change in supply

Model	Response, domestic use	Response, exports	Response, ending stocks	Response, price
USDA analysis	+0.65	+0.45	+3.03	-1.47
Commission empirical model	+1.00	0.00	+1.34	-0.424
SAG model[1]	+0.90	+1.64	0	-0.15

[1] The expanded SAG analysis generated the following annual response parameters for the 1993/94-1994/95 period: +1.4 for domestic use, +1.5 for exports, +0.33 for ending stocks, and -0.15 for price.

Note.--The USDA analysis and SAG model parameters are averages of the annual parameters implied by the annual solutions of the models. The Commission's empirical model parameters are those estimated over the 1979:1-93:2 sample.

Source: Empirical and SAG models, and USDA analysis.

would have had prices rise by 3.8 cents in 1993/94 and by 3.5 cents in 1994/95, which translate into annual deficiency payment savings of $73.2 million and $65.9 million, respectively.

The average model response parameters in table 38 and the comparative model results in table 39 explain the wide differences between the USDA analysis and the SAG model results. Use declines less in the USDA analysis than it does in the SAG model. Further, exports decline by only one-quarter the volume in the USDA analysis as compared to the SAG model. The lesser domestic use and export decreases of the USDA study relative to the SAG model may explain why prices rise more in the USDA study. The USDA larger production rise keeps the USDA/SAG price change differential from being larger, however. The difference between the two models is also explained by the change in ending stocks, and the implied changes in the ending stocks-to-use ratio.

The USDA study generates withdrawals from ending stocks of 45 million bushels in each of the two years. The SAG model does not generate ending stock withdrawals. With USDA average response parameters of 0.65 for use, 0.45 for exports, and 3.03 for ending stocks, the import restriction assures reductions in both total use and ending stocks, but at relative rates which decrease the stocks/use ratio, so as to increase price. The SAG results simply generate a decline in use with no change in ending stocks.

The empirical model's declines in domestic use and ending stocks also fall within the bounds set by the USDA study findings and SAG model results. The empirical model would generate declines during 1993/94-1994/95 in domestic use of from 33 to 34 million bushels and declines in ending stocks of from 21 to 22 million bushels (table 39). The empirical model's declines in domestic use are greater than the USDA domestic use declines, while the empirical model's ending stock withdrawals are far less than stock withdrawals of the USDA analysis. Consequently, the empirical model stock-to-use ratio declines, but by less than that of the USDA model. This accounts for the milder price increases and cost savings of the empirical model relative to the levels generated by the USDA study.

Therefore, the results of the empirical model suggest that the data's historical evidence would generate a smaller price change (increase) from the import restriction than the USDA analysis

Table 39
Wheat: Results of comparisons of the parameters of each model, based on scenarios outlined by USDA, crop years 1991/92-1994/95

Item	1991/92	1992/93	1993/94	1994/95
Change in imports (*million bushels*)	-22	-48	-69	-58
Change in supply (*million bushels*)	-22	-61	-85	-80
Percent change in supply	-0.76	-2.03	-2.81	-2.6
Change in price (*cents/bushel*):				
USDA	+4.0	+9.0	+12.0	+12.0
Empirical model	+0.97	+2.80	+3.81	+3.47
SAG	([1])	([1])	+1.35	+1.23
Change in annual deficiency payments (*millions of dollars*):				
USDA	64	161.1	230.4	228
Empirical model	16.4	50.1	73.2	65.9
SAG	([1])	([1])	25.9	23.4
Change in domestic use (*million bushels*):				
USDA	-4.0	-15.0	-25.0	-25.0
Empirical model	-8.6	-22.7	-34.1	-33.2
SAG	([1])	([1])	-30.7	-29.9
Change in exports (*million bushels*):				
USDA	-5	-15	-15	-10
SAG	([1])	([1])	-56.5	-51.2
Change in ending stocks (*million bushels*):				
USDA	-13	-31	-45	-45
Empirical model	-4.8	-14.4	-22.1	-20.7
SAG	([1])	([1])	0	0
Change in production (*million bushels*):				
USDA	0.0	0.0	15.0	23.0
SAG	([1])	([1])	7.42	6.9

[1] Not available.

Source: USDA hearing submission, Apr. 28, 1994; USITC empirical model.

because the empirical model suggests a total use reduction and a stock withdrawal of magnitudes that render less of a stocks/use ratio decline than in the USDA analysis. The empirical model results suggest more of a rise in price than the SAG model because the empirical model's declines in domestic use were similar to SAG's adjustments, the empirical model's implied declines in total use are less than the SAG declines, and the empirical model's stock withdrawal exceeded the SAG response.

The empirical model's implied drop in the stocks/use ratio is larger than that implied by the SAG study. Export response, domestic use response, and hence total use response are more sensitive in the SAG study than in the USDA analysis. The SAG average export response parameter is more than three times the magnitude of that of the USDA analysis (table 38), leading to the SAG export decreases of from 51 to 57 million bushels as opposed to the USDA export decreases of from 10 to 15 million bushels. The SAG model 0.90 domestic use response parameter also exceeds the USDA 0.65 value.

Conclusions

Generally, the USDA study and the SAG modeling analysis suggest that U.S. wheat imports increase the cost of the U.S. wheat program through deficiency payments. On average, the annual estimates range from a low of the SAG study's $8 million or $9.9 million a year from a half-cent change in price for 1993/94-1994/95 to the USDA average $171 million from price changes of 4 to 12 cents per bushel for the 1991/92-1994/95 period. Data-driven modeling methods employed by the Commission's alternative empirical approach indicate that the historical evidence suggests an answer in-between: an average of $44 million annually from price changes ranging from 1.2 to 4.4 cents, and a total cost increase of $222 million over the 1989/90-1993/94 period. When placed within a common USDA scenario, the three approaches would have generated similar relative differences across models. SAG chose a model and the supporting economic literature to generate small effects; the USDA analysis consulted market expertise and the literature and generated large effects; while historical evidence analyzed by the Commission's empirical model suggested that the cost implications may lie somewhere between the implications of these two studies. Further, historical evidence suggests that Durum supplies have constituted such a small proportion of the all-wheat market that supply changes in Durum wheat have not greatly influenced the all-wheat market or price, and hence have not affected U.S. wheat program costs to a statistically significant degree.

APPENDIX A

PRESIDENT'S LETTER TO THE COMMISSION

THE WHITE HOUSE

WASHINGTON

November 16, 1993

Dear Mr. Chairman:

Pursuant to section 22 of the Agricultural Adjustment Act, I have been advised by the Secretary of Agriculture, and I agree with him, that there is reason to believe that wheat, wheat flour, and semolina are being or are practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment program for wheat conducted by the Department of Agriculture.

Unless otherwise notified within 60 days of the date of this letter, the United States International Trade Commission is, therefore, directed to undertake an investigation pursuant to section 22 of the Agricultural Adjustment Act, to have precedence over other investigations the Commission may be conducting, to determine whether wheat classified under Harmonized Tariff Schedule of the United States (HTS) heading 1001, wheat flour classified under HTS heading 1101.00.00, and semolina classified under HTS subheading 1103.11.00 are being or are practically certain to be imported into the United States under such conditions or in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment program conducted by the Department of Agriculture for wheat, and to report its findings and recommendations at the earliest practicable date.

Sincerely,

Bill Clinton

The Honorable Don E. Newquist
Chairman
United States International
Trade Commission
Washington, D.C. 20436

APPENDIX B

FEDERAL REGISTER NOTICES

[Investigation No. 22-54]

Wheat, Wheat Flour, and Semolina

AGENCY: United States International Trade Commission.

ACTION: Institution of investigation and scheduling of a public hearing.

SUMMARY: Following receipt of a request from the President for an investigation under section 22 of the Agricultural Adjustment Act (7 U.S.C. 624), the Commission hereby gives notice of the institution of investigation No. 22-54 under section 22(d) of the act for the purpose of determining whether wheat classified under Harmonized Tariff Schedule of the United States (HTS) heading 1001, wheat flour classified under HTS subheading 1101.00.00, and semolina classified under HTS subheading 1103.11.00 are being or are practically certain to be imported into the United States under such conditions or in such quantities as to render or tend to render ineffective, or materially interfere with, the price support, payment and production adjustment program conducted by the Department of Agriculture for wheat, and to report its findings and recommendations at the earliest practicable date. The Commission anticipates submitting its report to the President by July 18, 1994.

EFFECTIVE DATE: January 18, 1994.

FOR FURTHER INFORMATION CONTACT: Brian Walters (202-205-3198), Office of Investigations, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436. Hearing-impaired persons can obtain

information on this matter by contacting the Commission's TDD terminal on 202–205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

SUPPLEMENTARY INFORMATION: For further information concerning the conduct of this investigation and rules of general application, consult the Commission's Rules of Practice and Procedure, part 201, subparts A through E (19 CFR part 201), and part 204 (19 CFR part 204).

Participation in the investigation.—Persons wishing to participate in the investigation as parties must file an entry of appearance with the Secretary to the Commission, as provided § 201.11 of the Commission's rules, not later than twenty-one (21) days after publication of this notice in the **Federal Register**. Any entry of appearance filed after this date will be referred to the Chairman, who will determine whether to accept the late entry for good cause shown by the person desiring to file the entry.

Service List.—Pursuant to § 201.11(d) of the Commission's rules (19 CFR part 201.11(d)), the Secretary will prepare a service list containing the names and addresses of all persons, or their representatives, who are parties to the investigation upon expiration of the period for filing entries of appearance. In accordance with § 201.16(c) of the Commission's rules (19 CFR part 201.16(c)), each document filed by a party to the investigation must be served on all other parties to the investigation (as identified by the service list), and a certificate of service must accompany the document. The Secretary will not accept a document for filing without a certificate of service.

Hearing.—The Commission will hold a hearing in connection with this investigation beginning at 9:30 a.m. on May 12, 1994, at the U.S. International Trade Commission Building. Requests to appear at the hearing should be filed in writing with the Secretary to the Commission on or before May 5, 1994. A nonparty who has testimony that may aid the Commission's deliberations may request permission to present a short statement at the hearing. All parties and nonparties desiring to appear at the hearing and make oral presentations should attend a prehearing conference to be held at 9:30 a.m. on May 9, 1994, at the U.S. International Trade Commission Building. Oral testimony and written materials to be submitted at the public hearing are governed by § 201.6(b)(2), and 201.13(f) of the Commission's rules. Parties are strongly encouraged to submit as early in the investigation as possible any requests to present a portion of their hearing testimony *in camera.*

Testimony at the public hearing should be limited to a nonconfidential summary and analysis of material contained in the prehearing briefs and to information not available at the time the prehearing brief was submitted. All legal arguments, economic analyses, and factual materials relevant to the public hearing should be included in prehearing briefs. The deadline for filing prehearing briefs is the close of business on May 5, 1994. Posthearing briefs must be submitted not later than the close of business on May 19, 1994. In addition, the presiding official may permit persons to file answers to requests made by the Commission at the hearing within a specified time. The Secretary will not accept for filing posthearing briefs or answers which do not comply with the provisions contained in this notice.

Written submissions.—Each party is encouraged to submit prehearing and posthearing briefs to the Commission by the dates shown above. In addition, any person who has not entered an appearance as a party to the investigation may submit a written statement of information pertinent to the subject of the investigation on or before May 19, 1994. A signed original and fourteen (14) copies of each submission must be filed with the Secretary in accordance with the provisions of § 201.8 of the Commission's rules. All written submissions must conform with the provisions of section 201.8 of the Commission's rules; any submissions that contain confidential business information must also conform with the requirements of section 201.6 of the Commission's rules.

All written submissions except for confidential business information will be available for public inspection during regular business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary.

Any information for which confidential business treatment is desired must be submitted separately. The envelope and all pages of such submission must be clearly labeled "Confidential Business Information." Confidential submission and requests for confidential treatment must conform with the requirements of § 201.6 of the Commission's rules (19 CFR 201.6).

This notice is published pursuant to § 204.4 of the Commissions rules (19 CFR 204.4).

By order of the Commission.

Issued: January 19, 1994.

Donna R. Koehnke,

Secretary.

[FR Doc. 94–1594 Filed 1–25–94; 8:45 am]

BILLING CODE 7020–20–P

[Investigation No. 22-54]

Wheat, Wheat Flour, and Semolina

AGENCY: International Trade Commission.

ACTION: Scheduling of additional public hearings.

SUMMARY: The Commission will hold additional hearings in connection with this investigation beginning at 9:30 a.m. on April 7, 1994, in Bismarck, ND and at 10 a.m. on April 8, 1994, in Shelby, MT. Requests to appear at the hearings should be filed in writing with the Secretary to the Commission on or before March 25, 1994. Requestors will be notified by the Commission of the location of the public hearings, as well as any time limitations to be imposed on testimony. Oral testimony and written materials to be submitted at the public hearings are governed by §§ 201.6(b)(2) and 201.13(f) of the Commission's rules.

EFFECTIVE DATE: March 9, 1994.

FOR FURTHER INFORMATION CONTACT: Jonathan Seiger (202-205-3183), Office of Investigations, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436. Hearing-impaired persons can obtain information on this matter by contacting the Commission's TDD terminal on 202-205-1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202-205-2000.

SUPPLEMENTARY INFORMATION: For further information concerning the scope of investigations and the conduct of this investigation and rules of general application, see the Commission's notice of institution (59 FR 3736,

January 26, 1994) and consult the Commission's Rules of Practice and Procedure, part 201, subparts A through E (19 CFR part 201), and part 204 (19 CFR part 204).

Written submissions.—Each person or group of persons filing a request to appear at these hearings is encouraged to submit a written copy of testimony/information pertinent to the subject of the investigation on or before March 30, 1994. A signed original and fourteen (14) copies of each submission must be filed with the Secretary in accordance with the provisions of section 201.8 of the Commission's rules. All written submissions must conform with the provisions of section 201.8 of the Commission's rules; any submissions that contain confidential business information must also conform with the requirements of section 201.6 of the Commission's rules.

All written submissions except for confidential business information will be available for public inspection during regular business hours, 8:45 a.m. to 5:15 p.m. in the Office of the Secretary.

Any information for which confidential business treatment is desired must be submitted separately. The envelope and all pages of such submission must be clearly labeled "Confidential Business Information." Confidential submissions and requests for confidential treatment must conform with the requirements of section 201.6 of the Commission's rules (19 CFR 201.6).

As stated in the Commission's **Federal Register** notice of January 26, 1994, the Commission has also scheduled a hearing in this matter for Washington, DC, on May 12, 1994. The overall deadline for written submissions in this investigation, including post-hearing briefs, is May 19, 1994.

This notice is published pursuant to section 204.4 of the Commissions rules (19 CFR 204.4).

By order of the Commission.

Issued: March 9, 1994.

Donna R. Koehnke,

Secretary.

[FR Doc. 94–6131 Filed 3–15–94; 8:45 am]

BILLING CODE 7020–02–P

[Investigation No. 22-54]

Wheat, Wheat Flour, and Semolina

AGENCY: International Trade Commission.

ACTION: Rescheduling of public hearing.

SUMMARY: The Commission has rescheduled to April 28, 1994, from May 12, 1994, its Washington, DC public hearing in this investigation.

The schedule for filing notices of appearances and briefs and the holding of a prehearing conference in conjunction with the Washington hearing has been revised as follows: Requests to appear at the hearing must be filed with the Secretary to the Commission not later than April 21, 1994; the deadline for filing prehearing briefs is the close of business on April 25, 1994; the prehearing conference will be held at the U.S. International Trade Commission Building at 9:30 a.m. on April 25, 1994; the hearing will be held at the U.S. International Trade Commission at 9:30 a.m. on April 28, 1994; and the deadline for filing posthearing briefs is May 5, 1994.

EFFECTIVE DATE: March 17, 1994.

FOR FURTHER INFORMATION CONTACT: Jonathan Seiger (202–205–3183), Office of Investigations, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436. Hearing-impaired persons can obtain information on this matter by contacting the Commission's TDD terminal on 202–205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

SUPPLEMENTARY INFORMATION: The subject investigation was instituted by the Commission on January 18, 1994. Notice of the investigation and the schedule for its conduct, including the May 12 hearing, was published in the **Federal Register** of January 26, 1994 (59 F.R. 3736). Notice of the scheduling of two additional hearings in Bismarck, ND, and Shelby, MT, was published in the **Federal Register** of March 16, 1994 (59 F.R. 12346).

For further information concerning the conduct of this investigation and rules of general application see the Commission's notice of investigation cited above and the Commission's Rules of Practice and Procedure, part 201, subparts A through E (19 CFR part 201), and part 204 (19 CFR part 204).

This notice is published pursuant to section 204 of the Commission's rules (19 CFR 204.4).

By order of the Commission.

Issued: March 18, 1994.

Donna R. Koehnke,

Secretary.

[FR Doc. 94–6818 Filed 3–22–94; 8:45 am]

BILLING CODE 7020–02–P

APPENDIX C

CALENDARS OF THE PUBLIC HEARINGS

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject	:	WHEAT, WHEAT FLOUR, AND SEMOLINA
Inv. No.	:	22-54
Date and Time	:	April 7, 1994 - 9:30 a.m.

Sessions were held in connection with the investigation at the Bismarck Civic Center, 601 E. Sweet Avenue, Bismarck, North Dakota.

Congressional Appearances:

The Honorable Kent Conrad, United States Senator, State of North Dakota

The Honorable Byron Dorgan, United States Senator, State of North Dakota

The Honorable Earl Pomeroy, United States Congressman at Large, State of North Dakota

Government Appearances:

Sara Vogel, Commissioner of Agriculture, Department of Agriculture, State of North Dakota

WITNESS AND ORGANIZATION:

Panel 1

U.S. Durum Growers Association
Webster, North Dakota

Lawson Jones, President

North Dakota Wheat Commission
Bismarck, ND

Neal Fisher, Deputy Administrator

Cecil Watson, North Dakota Wheat Producer
Cavalier, North Dakota

Panel 2

Farm Credit Services of Northwest North Dakota, ACA
Minot, North Dakota

Dave Witteman, Board Member
Bill Ongstad, Board Member
Robert Grundstad, Board of Directors
Legislative Contact

Robert Carlson,
Glenburn, North Dakota
(Producer of Durum and Hard Red Spring Wheat)
Member of Board of Directors, Minot Farmers Union Elevator; Past Member, Organizing Board of the Dakota Growers Pasta Company

North Dakota Mill and Elevator
Grand Forks, North Dakota

Roger Dunning, General Manager

Panel 3

North Dakota Grain Growers
Bismarck, ND

Harlan Klein, President

North Dakota Farmers Union & National Farmers Union
Jamestown, ND

Alan Bergman, President

North Dakota Farm Bureau
Fargo, North Dakota

Thomas Irgens, Co-Chair, North Dakota Farm Bureau Commodity Committee

Minnesota Association of Wheat
Red Lake Falls, MN

Warren Affeldt, President

Panel 3--Continued

Colorado Wheat Administrative Committee (CWAC)
and the Colorado Association of Wheat
Growers (CWAG)
Englewood, CO

William W. Warren, President, CWAC
Marvin Jefferson, President, CWAG
Darrell Hanavan, Executive Director

Kansas Wheat Commission
Manhattan, Kansas

Jack Staatz, Chairman

David E. Frey, Assistant Administrator,
State of Kansas

Kansas Association of Wheat Growers
Hutchinson, Kansas

Vance Emke, President

Panel 4

James Teigen, Durum Producer
Rugby, North Dakota

John O. Spitzer, United States and Canadian Farmer
Wilton, North Dakota

Steve Perdue, Durum Producer
Ray, North Dakota

James Diepolder, United States Farmer
Willow City, North Dakota

Douglas Lemieux, United States Farmer
Rolette, North Dakota

Panel 5

National Barley Growers Association
National Office
Washington, D.C.

Charles Gruman, Chairman
North Dakota Barley Council and
Director, National Barley Growers Association

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject	:	**WHEAT, WHEAT FLOUR, AND SEMOLINA**
Inv. No.	:	**22-54**
Date and Time	:	**April 8, 1994 - 10:00 a.m.**

Sessions were held in connection with the investigation at the Shelby High School Gymnasium, 1001 6th Street North, Shelby, Montana.

Congressional Appearances:

The Honorable Max Baucus, United States Senator, State of Montana

The Honorable Conrad Burns, United States Senator, State of Montana

The Honorable Pat Williams, United States Congressman at Large, State of Montana

Office of the Governor of Montana:

The Honorable Marc Racicot, Governor, State of Montana

Government Appearances:

The Honorable John C. Brenden, State Senator, State of Montana

The Honorable Gary Aklestad, State Senator, State of Montana

WITNESS AND ORGANIZATION:

Panel 1

National Association of Wheat Growers and Montana Grain Growers

Chuck Merja, Secretary-Treasurer, National Association of Wheat Growers, and Past-President of the Montana Grain Growers

Panel 1--Continued

Montana Wheat & Barley Committee
Great Falls, MT

Richard Sampsen,
Director, Montana Wheat and Barley Committee
Secretary-Treasurer, U.S. Wheat Associates
Producer from Dagmar, Montana
Judy Vermulm,
Director, Montana Wheat and Barley Committee
Producer from Cut Bank, Montana

Washington Association of Wheat Growers
Ritzville, WA

Philip Isaak, State President

Panel 2

Eric T. Torgerson, Farm Equipment Dealership,
Toole County, and
Wheat and Barley Farmer
Cut Bank, Montana

Montana Women Involved in Farm Economics (WIFE)
Malta, MT

Sharon Kindle, Montana WIFE Grain Chairperson

U.S. Custom Harvesters, Inc.
Tulia, Texas

Kurt Payne, President
Steve Berry, Harvester
Rick Farris, Harvester

First State Bank of Shelby
Shelby, Montana

Robert Longcake, Vice President

Panel 3

Montana Farmers Union
Great Falls, MT

George Paul, President

Knud Kaae, Durum Grower, and
Area Director of the U.S. Durum Growers Association
Dagmar, Montana

Panel 4

Ron Jensen, Wheat Farmer
Ferdig, Montana

Art Adamson, American Wheat Farmer
Shelby, Montana

Wayne Venetz, Grain and Cattle Farmer
Conrad, Montana

Ronald B. Munson, Wheat Farmer, Toole County
Shelby, MT

Larry E. Munson, Grain Farmer
Shelby, Montana

Charlotte Marshall, Member of WIFE, and Farmer,
Shelby, Montana

Henry E. Zell, Wheat Farmer
Shelby, Montana

Ed Skeslien, Wheat Farmer,
Shelby, Montana

David F. Stufft, Attorney at Law, and
Wheat and Barley Farmer
Cut Bank, Montana

Cut Bank Area Chamber of Commerce and
Glacier County Agricultural Committee

Dick Swenson, Glacier County Farmers
Cut Bank, Montana

Panel 5

Werner Epstein & Johnson
Cut Bank, Montana

Thane P. Johnson, Deputy Glacier County Attorney

Dan Geer, Glacier County Commissioner
Cut Bank, Montana

Food for Peace Campaign
Kevin, Montana

John J. Monroe, Grain Farmer

Northern Plains Resource Council (NPRC)
Billings, Montana

Helen Waller, Past NPRC Chair

National Barley Growers Association
National Office
Washington, D.C.

Herbert Karst, Director, Montana Grain Growers Association and Director, National Association of Barley Growers

Pacific Northwest Grain and Feed Association
Portland, Oregon

Jonathan Schlueter, Executive Vice President

Witnesses Added at End of Hearing:

The Honorable Cecil Weeding, State Senator, State of Montana

Ray E. Gulick, Grain Producer from Joplin

Carl Wenaas, Canadian Farmer

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject	:	WHEAT, WHEAT FLOUR, AND SEMOLINA
Inv. No.	:	22-54
Date and Time	:	April 28, 1994 - 9:30 a.m.

Sessions were held in connection with the investigation in the Main Hearing Room 101 of the United States International Trade Commission, 500 E Street, S.W., Washington, D.C.

Congressional Appearances:

The Honorable Kent Conrad, United States Senator, State of North Dakota

The Honorable Byron L. Dorgan, United States Senator, State of North Dakota

The Honorable Earl Pomeroy, United States Congressman at Large, State of North Dakota

The Honorable Bill Sarpalius, United States Congressman, 13th District, State of Texas

Government Appearances:

Keith Collins, Acting Assistant Secretary for Economics, U.S.Department of Agriculture

Larry Salathe, Staff Economist, Economic Analysis Staff

Jeffrey Kahn, Office of General Counsel

Henry Schmick, Trade Policy, Foreign Agriculture Service

Craig Jagger, Wheat Program Analyst, USDA/ASCS

Don Novotny, Director, Grain & Feeds Division, Foreign Agriculture Service

Ed Allen, Leader, Food Grains Section, Crops Branch, ERS

In Support of Section 22 Restrictions:

PANEL 1

Robins, Kaplan, Miller & Ciresi
Washington, D.C.
On behalf of

Judy Olson, President, National Association of Wheat Growers

Winston Wilson, President, U.S. Wheat Associates

Neal Fisher, Deputy Administrator, North Dakota Wheat Commission

Andrew Wechsler and John Davitt, Jr., Law & Economics Consulting Group

Charles A. Hunnicutt)--OF COUNSEL

PANEL 2

Phil McLain, North Carolina Small Grain Growers Association

Dave McClure, President
Montana Farm Bureau Federation
and
Dave Miller, American Farm Bureau Federation

National Farmers Union
Washington, D.C.

Allen Richard, Legislative Representative

In Opposition to Section 22 Restrictions:

PANEL 3

The National Grain Trade Council
Washington, D.C.

Robert R. Petersen, President

In Opposition to Section 22 Restrictions:--Continued

PANEL 3--Continued

Millers' National Federation
National Association of the
Flour Milling Industry
Washington, D.C.

John C. Miller, President,
Miller Milling Company,
Minneapolis, MN

Roy Henwood, President
Millers National Federation

Collier, Shannon, Rill & Scott
Washington, D.C.
On behalf of

The National Pasta Association (NPA)

C. Mickey Skinner, President, Hershey Pasta Group
Hershey, PA

Jula Kinnaird, President, NPA

Martin Abel, Abel Daft & Early,
Economic Consultants

Paul C. Rosenthal)
Maribeth Trela)--OF COUNSEL

PANEL 4

Steptoe & Johnson
Washington, D.C.
On behalf of

The Canadian Wheat Board

Dr. Daniel A. Sumner, Professor of Agricultural
Economics, University of California

Dr. Harvey G. Brooks, Head, Corporate Policy Group,
Canadian Wheat Board

Darrell A. Bushuk, Senior Marketing Manager,
USA, Canadian Wheat Board

Bruce P. Malashevich, Economic Consulting Service

W. George Grandison)
Richard O. Cunningham)--OF COUNSEL
Gracia M. Berg)
Mark Moran)

In Opposition to Section 22 Restrictions:--Continued

PANEL 5

The National Grain and Feed Association (NGFA)
Washington, D.C.

Kendell W. Keith, President (NGFA)

Todd E. Kemp, Director of Legislative Affairs (NGFA)

David C. Barrett, Jr., NGFA Counsel for Public Affairs/
National Secretary

PANEL 6

Rogers & Wells
Washington, D.C.
On behalf of

The Canada Grains Council
Winnipeg, Manitoba, Canada

Canadian National Millers Association (CNMA)
Ottawa, Ontario

Robert Trent, Chairman (CNMA)

Gordon Harrison, President, (CNMA)

William Silverman)--OF COUNSEL

Other Witnesses:

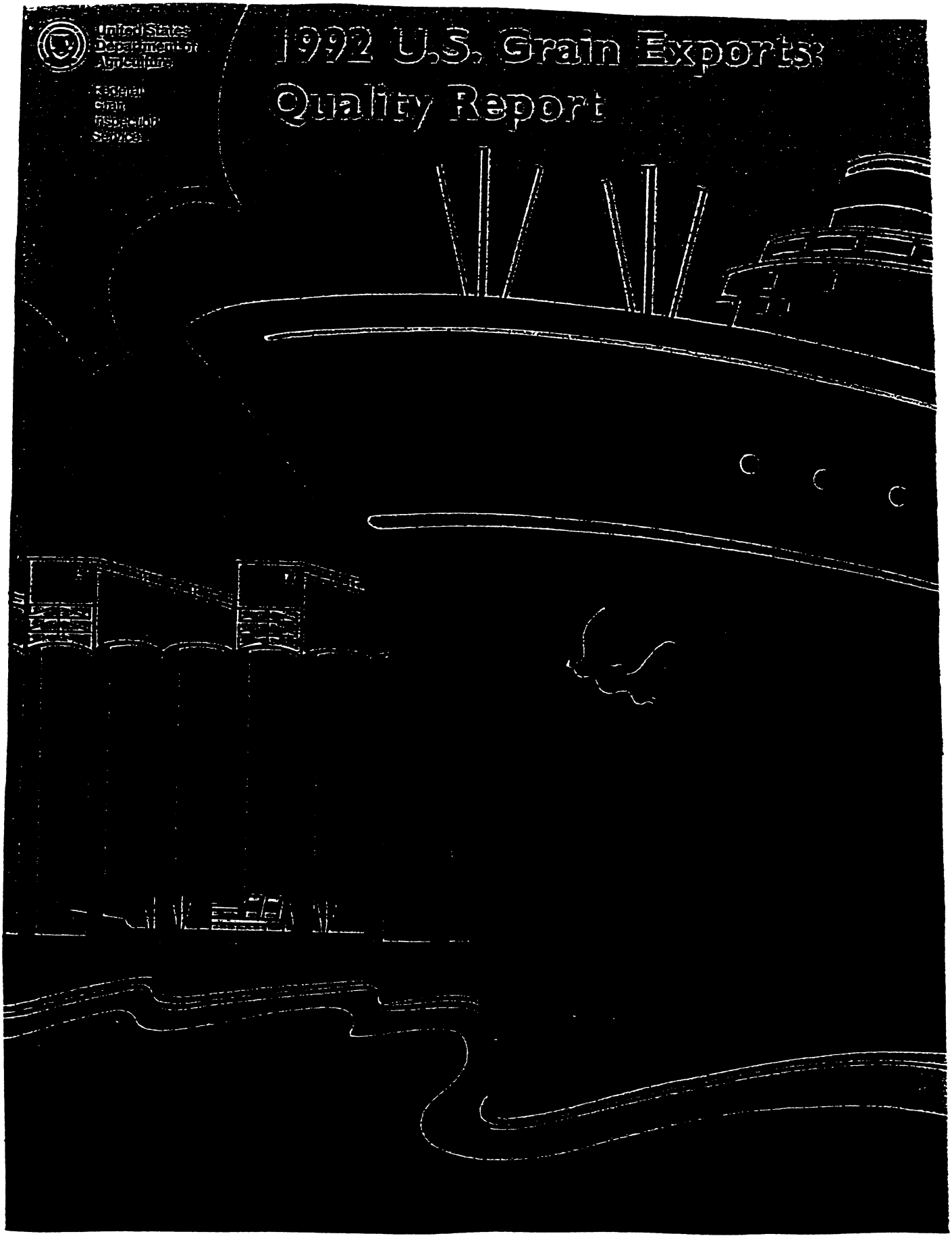
Western Canadian Wheat Growers Association
Regina, Saskatchewan

Hubert Esquirol, WCWGA President

Blair Rutter, Manitoba Program and Policy Manager

APPENDIX D

U.S. WHEAT GRADES AND GRADE REQUIREMENTS


United States Department of Agriculture
Federal Grain Inspection Service
1992 U.S. Grain Exports:
Quality Report

The *1992 U.S. Grain Exports: Quality Report* is the result of efforts by the U.S. Department of Agriculture's Federal Grain Inspection Service (FGIS) to determine, document, and disseminate critical information regarding U.S. export grain quality.

The 1992 report is the ninth edition of this annual summary of export wheat, corn, and soybean quality. It is the fifth report to summarize quality of export sorghum, barley, sunflower seeds, rye, oats, and mixed grain. Flaxseed is not included in this year's report; no lots have been reported in the past 4 years.

Organization of the Report

The report contains chapters addressing export wheat, export corn, export soybeans, and other grains. Each chapter contains:

* standards and definitions for each grain, and
* tables that clearly illustrate all factor result averages at each applicable U.S. grade level.

Methodology

FGIS collects and documents information about export grain shipments in the automated Export Grain Information System (EGIS). This system contains one record for each export lot inspected. In the case of some railcar exports, each record may contain information from several lots which were aggregated to simplify internal reporting.

Generally, each EGIS record contains the quantity of the lot and the average factor results certificated for the lot. The tables in this report contain descriptive statistics which summarize these lot quantities and averages. Factor results from some export grain shipments, e.g., many railcar lots to Mexico, are not available to FGIS. Where appropriate, tables are provided which show the number of lots and the quantity of grain which was used to generate the descriptive statistics.

Many of the tables summarize factor averages by grade. A U.S. grade is determined by analyzing the physical and biological factors present in the sample. Limits for the grading factors are established for each numerical grade. Grades range from U.S. No. 1 (highest) to U.S. Sample grade (lowest). When a particular grade is cited in this report, it includes lots certificated at that grade plus lots certificated with the "or better" designation. For example, U.S. No. 2 grade includes lots which were certificated as "U.S. No. 2" and lots certificated as "U.S. No. 2 or better." Factors that exceed the established limits, except for test weight, lower the grade. The established limits for test weight represent minimum requirements for each grade.

This report does not contain data on the volume of export grain in bushels. Listed below are the equations for converting the approximate quantity of grain from metric tons to bushels.

Conversion Equation

$$\textbf{Bushels} = \frac{\text{Metric Tons} \times 2204.623 \text{ Pounds}}{\text{Legal Test Weight/Bushel of Grain}}$$

Legal Test Weight Per Bushel for Specific Grains

Wheat =	60 pounds/bushel
Corn =	56 pounds/bushel
Soybeans =	60 pounds/bushel
Sorghum =	56 pounds/bushel
Barley =	48 pounds/bushel
Sunflower Seed =	28 pounds/bushel
Rye =	56 pounds/bushel
Oats =	32 pounds/bushel

May 1993

Wheat Grades and Grade Requirements

Wheat is divided into eight classes: Hard Red Spring wheat, Hard Red Winter wheat, Soft Red Winter wheat, Durum wheat, Hard White wheat, Soft White wheat, Unclassed wheat, and Mixed wheat. The classes Hard Red Spring wheat, Soft White wheat, and Durum wheat are further divided into subclasses. There are no subclasses in the classes Hard Red Winter wheat, Soft Red Winter wheat, Hard White wheat, Unclassed wheat, and Mixed wheat. Each class and subclass is divided into five U.S. numerical grades and U.S. Sample grade. Special grades are provided to emphasize special qualities or conditions affecting the value of wheat. Special grades are added to and made a part of the grade designation. They do not affect the numerical or Sample grade designation.

U.S. Standards for Wheat

Grade	Minimum limits of --		Maximum limits of --						
	Test weight per bushel		Damaged kernels		Foreign Material	Shrunken and broken kernels	Defects[3] (total)	Wheat of other classes[4]	
	Hard Red Spring wheat or White Club wheat[1] (pounds)	All other classes and subclasses (pounds)	Heat-damaged kernels (percent)	Total [2] (percent)	(percent)	(percent)	(percent)	Contrasting classes (percent)	Total[5] (percent)
U.S. No. 1	58.0	60.0	0.2	2.0	0.5	3.0	3.0	1.0	3.0
U.S. No. 2	57.0	58.0	0.2	4.0	1.0	5.0	5.0	2.0	5.0
U.S. No. 3	55.0	56.0	0.5	7.0	2.0	8.0	8.0	3.0	10.0
U.S. No. 4	53.0	54.0	1.0	10.0	3.0	12.0	12.0	10.0	10.0
U.S. No. 5	50.0	51.0	3.0	15.0	5.0	20.0	20.0	10.0	10.0
U.S. Sample grade									

U.S. Sample grade is wheat that:

(a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5; or

(b) Contains 32 or more insect-damaged kernels per 100 grams of wheat, or

(c) Contains 8 or more stones or any number of stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria* spp.), 2 or more castor beans (*Rincinus communis* L.), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 2 or more rodent pellets, bird dropping, or an equivalent quantity of other animal filth per 1,000 grams of wheat; or

(d) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or

(e) Is heating or otherwise of distinctly low quality.

1/ These requirements also apply when Hard Red Spring or White Club wheat predominates in a sample of Mixed wheat

2/ Includes heat-damaged kernels

3/ Defects include damaged kernels (total), foreign material, and shrunken and broken kernels. The sum of these three factors may not exceed the limit for defects for each numerical grade.

4/ Unclassed wheat of any grade may contain not more than 10.0 percent of wheat of other classes

5/ Includes contrasting classes.

Definitions

Test weight (lb/bu) is pounds of grain per Winchester bushel.

Test weight (kg/hl) is the metric system equivalent to pounds per bushel. Kilograms per hectoliter are calculated by multiplying pounds per bushel by 1.287.

Heat-damaged kernels are kernels, pieces of wheat kernels, and other grains which have been materially discolored and damaged by heat.

Damaged kernels (total) are kernels, pieces of wheat kernels, and other grains that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, heat-damaged, insect bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

Foreign material is all matter other than wheat which remains in a sample after removal of dockage and shrunken and broken kernels.

Shrunken and broken kernels are kernels, kernel pieces, and other matter that pass through a 0.064-by 3/8-inch oblong-hole sieve.

Total defects are the sum of three factors: damaged kernels (total), shrunken and broken kernels, and foreign material. In the factor summary tables, the average values listed for total defects may not equal the sum of the component factor averages due to rounding.

Dockage includes chaff, dust, and items removed from a sample by an initial screening with a dockage tester. The percentage of dockage in a sample does not affect the numerical grade.

Moisture is the water content of grain as determined by an approved electronic moisture meter. The percentage of moisture in a sample does not affect the numerical grade.

Contrasting classes include:

* Durum, Hard White, Soft White, and Unclassed wheats in the classes Hard Red Spring and Hard Red Winter wheats.
* Hard Red Spring, Hard Red Winter, Hard White, Soft Red Winter, Soft White, and Unclassed wheats in the class Durum wheat.
* Durum and Unclassed wheats in the class Soft Red Winter wheat.
* Durum, Hard Red Spring, Hard Red Winter, Soft Red Winter and Unclassed wheats in the classes Hard White wheat and Soft White wheat.

Wheat of other classes is any class that is mixed with the predominant class.

Protein is the protein content of grain as determined by an approved near infrared reflectance (NIR) instrument calibrated against a Kjeldahl method (percent nitrogen multiplied by 5.7). The percentage of protein in a sample does not affect the numerical grade.

Mixed wheat is a combination of classes of wheat which does not meet the minimum requirements of a specific class.

Table 1. U.S. Wheat Exports: Number of lots and quantity exported by class and grade, 1990-92

Class	Grade	1990		1991		1992	
		Number of Lots	Metric Tons	Number of Lots	Metric Tons	Number of Lots	Metric Tons
Hard Red Winter Wheat	U.S. No. 1	32	344,381	84	738,940	87	668,866
	U.S. No. 2	535	9,075,020	530	12,259,351	541	12,103,399
	U.S. No. 3	--	--	2	2,284	--	--
	All lots	567	9,419,401	616	13,000,575	628	12,772,265
Hard Red Spring Wheat	U.S. No. 1	52	460,882	101	782,875	88	710,190
	U.S. No. 2	542	6,500,030	503	7,050,121	576	9,629,904
	U.S. No. 3	--	--	3	7,229	2	6,989
	U.S. Sample grade	--	--	--	--	--	--
	All lots	594	6,960,912	607	7,840,225	666	10,347,083
Soft Red Winter Wheat	U.S. No. 1	--	--	--	--	2	730
	U.S. No. 2	243	5,171,524	229	4,094,842	219	4,693,945
	U.S. No. 3	9	197,022	5	37,748	2	4,402
	U.S. No. 4	--	--	--	--	1	1,000
	U.S. No. 5	--	--	1	11,535	--	--
	U.S. Sample grade	1	2,495	--	--	1	112
	All lots	253	5,371,041	235	4,144,125	225	4,700,189
Durum Wheat	U.S. No. 1	6	44,712	4	42,866	14	145,301
	U.S. No. 2	77	517,383	45	228,351	54	298,629
	U.S. No. 3	70	971,594	65	916,004	48	712,238
	All lots	153	1,533,689	114	1,187,221	116	1,156,168
Soft White Wheat	U.S. No. 1	27	162,518	122	839,266	113	700,413
	U.S. No. 2	336	4,998,942	321	5,000,706	292	4,809,422
	U.S. No. 3	1	2,036	--	--	--	--
	All lots	364	5,163,496	443	5,839,972	405	5,509,835
Hard White Wheat	U.S. No. 2	--	--	1	900	1	250
	All lots	--	--	1	900	1	250
Mixed Wheat	U.S. No. 2	--	--	3	6,808	1	408
	All lots	--	--	3	6,808	1	408
All Classes	U.S. No. 1	117	1,012,493	311	2,403,947	304	2,225,500
	U.S. No. 2	1,733	26,262,899	1,632	28,641,079	1,684	31,535,957
	U.S. No. 3	80	1,170,652	75	963,265	52	723,629
	U.S. No. 4	--	--	--	--	1	1,000
	U.S. No. 5	--	--	1	11,535	--	--
	U.S. Sample grade	1	2,495	--	--	1	112
	All lots	1,931	28,448,539	2,019	32,019,826	2,042	34,486,198

-- = No lots reported in this category.

APPENDIX E

SECTIONS OF THE CANADIAN GRADING HANDBOOK OF THE CANADIAN GRAIN COMMISSION AND SECTIONS OF THE CANADIAN WHEAT BOARD ANNUAL REPORT

MOISTURE TESTING

TABLES FOR USE WITH THE 919/3.5 MOISTURE METER

CLASS OF GRAIN	WEIGHT IN GRAMS	CONVERSION TABLE NO.	TOUGH	DAMP
WHEAT				
RED SPRING	250	8 - 66 kg/hL and over	14.6% to 17.0%	Over 17.0%
RED SPRING	225	9 - less than 66 kg/hL		
EXTRA STRONG RED SPRING	250	1	14.6% to 17.0%	Over 17.0%
SOFT WHITE SPRING	250	2	14.6% to 17.0%	Over 17.0%
WESTERN WINTER	250	4	14.6% to 17.0%	Over 17.0%
PRAIRIE SPRING, RED & WHITE	250	1	14.6% to 17.0%	Over 17.0%
AMBER DURUM	250	4	14.6% to 17.0%	Over 17.0%
OATS	200	5	14.1% to 17.0%	Over 17.0%
BARLEY	225	12 - 52 kg/hL and over	14.9% to 17.0%	Over 17.0%
	200	10 - less than 52 kg/hL		
HULLESS BARLEY	225	1 - temporary table - Aug. 1/93		
RYE	250	5	14.1% to 17.0%	Over 17.0%
FLAXSEED	225	5	10.1% to 13.5%	Over 13.5%
CANOLA & RAPESEED	250	5	10.1% to 12.5%	Over 12.5%
MUSTARD SEED	250	6 - Yellow mustard 7 - Oriental mustard 8 - Brown mustard	9.6% to 12.5%	Over 12.5%

MOISTURE TESTING

TABLES FOR USE WITH THE 919/3.5 MOISTURE METER

CLASS OF GRAIN	WEIGHT IN GRAMS	CONVERSION TABLE NO.	TOUGH	DAMP
PEAS	250	2-Century Peas	16.1% to 18.0%	Over 18.0%
PEA BEANS	250	2	No Tough	Over 18.0%
LENTILS	250	1	14.1% to 16.0%	Over 16.0%
BLACK BEANS	250	1	No Tough	Over 18.0%
FABABEANS	250	2	16.1% to 18.0%	Over 18.0%
DARK RED KIDNEY BEANS	250	1	No Tough	Over 18.0%
LIGHT RED KIDNEY BEANS	250	Use pea bean chart #2 & subtract 0.6%	No Tough	Over 18.0%
CRANBERRY BEANS	225	1	No Tough	Over 18.0%
BUCKWHEAT	225	3	16.1% to 18.0%	Over 18.0%
TRITICALE	250	1	14.1% to 17.0%	Over 17.0%
MIXED GRAIN, WHEAT & MIXED GRAIN C.W.	Use conversion table of the predominant grain		14.6% to 17.0%	Over 17.0%
MIXED GRAIN OATS, RYE & TRITICALE	Use conversion table of the predominant grain		14.1% to 17.0%	Over 17.0%
MIXED GRAIN BARLEY	Use conversion table of the predominant grain		14.9% to 17.0%	Over 17.0%

GRADES OF RED SPRING WHEAT (Canada Western) - PRIMARY GRADE DETERMINANTS

	Standard of Quality				Maximum Limits of Foreign Material			
					Foreign Material		Wheats of Other Classes or Varieties	
Grade Name	Minimum Test Weight (Kilograms Per Hecto-litre)	Variety	Minimum % Hard Vitreous Kernels	Degree of Soundness	Matter Other Than Cereal Grains	Total (Including Cereal Grains)	Contrasting Classes	Total (Including Contrasting Classes)
No. 1 Canada Western Red Spring	75.0	Any variety of red spring wheat equal to or better than Neepawa	65.0%	Reasonably well matured, reasonably free from damaged kernels	About 0.2%	0.75%	1.0%	3.0%
No. 2 Canada Western Red Spring	72.0	Any variety of red spring wheat equal to or better than Neepawa	35.0%	Fairly well matured, may be moderately bleached or frost-damaged, but reasonably free from severely damaged kernels	About 0.3%	1.5%	3.0%	6.0%
No. 3 Canada Western Red Spring	69.0	Any variety of red spring wheat equal to or better than Neepawa	No Minimum	May be frost damaged, immature or weathered, but moderately free from severely damaged kernels	About 0.5%	3.5%	5.0%	10.0%
Canada Western Feed	65.0	Any type or variety of wheat except amber durum	No Minimum	Excluded from other grades of wheat on account of lightweight or damaged kernels, but shall be reasonably sweet	1.0%	10.0%	No Limit (but not more than 10.0% amber durum)	
	Less than 65.0 kg/hL: grade Wheat, Sample C.W., Account Lightweight				Over 1.0%: grade Wheat, Sample C.W., Account Admixture	Over 10.0%: grade Mixed Grain, C.W., Wheat	Over 10.0% amber durum: grade Wheat, Sample C.W., Account Admixture	

RED SPRING WHEAT - PRIMARY GRADE DETERMINANTS - MAXIMUM TOLERANCES

	Sprouted										
								*** Insect Damage			
Grade Name	Severely Sprouted	Total (Including Severely Sprouted)	Smudge	Total Smudge and Blackpoint	* Degermed	** Grass Green	Pink	Sawfly, Midge	Grasshopper, Army Worm	Dark Immature	Natural Stain
No. 1 C.W. Red Spring	0.1%	0.5%	30K	10.0%	4.0%	0.75%	1.5%	2.0%	1.0%	1.0%	0.5%
No. 2 C.W. Red Spring	1.5%	1.5%	1.0%	20.0%	7.0%	2.0%	5.0%	8.0%	3.0%	2.5%	2.0%
No. 3 C.W. Red Spring	5.0%	5.0%	5.0%	35.0%	13.0%	10.0%	10.0%	25.0%	8.0%	10.0%	5.0%
Canada Western Feed	No Limit		No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit

*Degermed: Tolerances apply to kernels not classed as sprouted.

**Grass-green: Tolerances are given as a general guide and may be increased or reduced in the judgement of the inspector after consideration of the overall quality of the sample.

***Insect damage: Tolerances are **not** absolute maximums. Inspectors must consider the degree of damage in conjunction with the overall quality of the sample.

NOTE: The letter "K" in these tables refers to kernels or kernel-size pieces in 500 grams.

RED SPRING WHEAT - PRIMARY GRADE DETERMINANTS - MAXIMUM TOLERANCES

Grade Name	Artificial Stain, No Residue	Binburnt, Severely Mildewed, Rotted, Mouldy	* Total Heated (Including Binburnt)	Fireburnt	Stones	Ergot	Sclerotia	Shrunken and Broken		
								Shrunken	Broken	Total
No. 1 C.W. Red Spring	Nil	2K	0.1%	Nil	3K	3K	3K	6.0%	6.0%	7.0%
No. 2 C.W. Red Spring	5K	5K	0.75%	Nil	3K	6K	6K	10.0%	10.0%	11.0%
No. 3 C.W. Red Spring	10K	10K	2.0%	Nil	5K	24K	24K	No Limit	15.0%	No Limit Providing Broken Kernel Tolerances Not Exceeded
Canada Western Feed	2.0%	10.0%		2.0%	10K	0.25%	0.25%	No Limit	50.0%	
	Over 2.0%: grade Wheat, Sample C.W., Account Stained Kernels	Over 10.0%: grade Wheat, Sample C.W., Account Heated or Predominant Reason		Over 2.0%: grade Wheat, Sample C.W., Account Fireburnt	Over grade tolerance up to 2.5%: grade Rejected (grade), Account Stones	Over 0.25%: grade Wheat, Sample C.W., Account Ergot	Over 0.25%: grade Wheat, Sample C.W., Account Admixture		Over 50% broken kernels: grade Sample Broken Grain	

**"Total heated" includes binburnt, severely mildewed, rotted and mouldy kernels.

NOTE: The letter "K" in these tables refers to kernels or kernel-size pieces in 500 grams.

GRADES OF AMBER DURUM WHEAT (Canada Western) - PRIMARY GRADE DETERMINANTS

Grade Name	Standard of Quality				Maximum Limits			
					Foreign Material		Wheats of Other Classes or Varieties	
	Minimum Test Weight (Kilograms Per Hecto-litre)	Variety	Minimum % Hard Vitreous Kernels	Degree of Soundness	Matter Other Than Cereal Grains	Total (Including Cereal Grains)	Other Classes	Total
No. 1 Canada Western Amber Durum	79.0	Any variety of amber durum wheat equal to or better than Hercules	80.0%	Reasonably well matured, reasonably free from damaged kernels	About 0.2%	About 0.5%	2.0%	5.0%
No. 2 Canada Western Amber Durum	77.0	Any variety of amber durum wheat equal to or better than Hercules	60.0%	Reasonably well matured, reasonably free from severely damaged kernels	About 0.3%	1.5%	3.5%	10.0%
No. 3 Canada Western Amber Durum	74.0	Any variety of amber durum wheat equal to or better than Hercules	40.0%	Fairly well matured, may be moderately weather or frost-damaged, but reasonably free from from severely damaged kernels	About 0.5%	2.0%	5.0%	15.0%
No. 4 Canada Western Amber Durum	71.0	Any variety of amber durum wheat equal to or better than Hercules	No Minimum	May be frost-damaged, immature or weathered, but moderately free from severely damaged kernels	About 0.5%	3.0%	10.0%	49.0%
No. 5 Canada Western Amber Durum	No Minimum	Any variety of amber durum wheat	No Minimum	Excluded from higher grades on account of lightweight or damaged kernels, but shall be reasonably sweet	1.0%	10.0%	49.0%	No Maximum
					Over 1.0%: grade Wheat, Sample C.W., Account Admixture	Over 10.0%: grade Mixed Grain, C.W., Wheat	Over 49.0%: grade Wheat, Sample C.W. Account Admixture	If W.O.O.C. exceed 49.0%: grade Wheat, Sample C.W., Account Admixture

AMBER DURUM WHEAT - PRIMARY GRADE DETERMINANTS - MAXIMUM TOLERANCES

Grade Name	Sprouted	Smudge			Total Smudge and Blackpoint	* Degermed	** Grass Green	Pink	*** Insect Damage	
		Penetrated	Red	Total Smudge					Sawfly, Midge	Grasshopper, Army Worm
No. 1 C.W. Amber Durum	0.5%	3K	30K	30K	10.0%	4.0%	0.75%	3.0%	2.0%	1.0%
No. 2 C.W. Amber Durum	2.0%	0.5%	1.0%	1.0%	15.0%	7.0%	2.0%	6.0%	8.0%	3.0%
No. 3 C.W. Amber Durum	8.0%	1.0%	1.5%	3.0%	35.0%	10.0%	4.0%	10.0%	15.0%	5.0%
No. 4 C.W. Amber Durum	12.0%	No specified limit; overall appearance is considered				13.0%	10.0%	No Limit	40.0%	8.0%
No. 5 C.W. Amber Durum	No Limit	No Limit				No Limit	No Limit	No Limit	No Limit	No Limit

*Degermed: Tolerances apply to kernels not classed as sprouted.

**Grass green: Tolerances are given as a general guide and may be increased or reduced in the judgment of the inspector after consideration of the overall quality of the sample.

***Insect damage: Tolerances are not absolute maximums. Inspectors must consider the degree of damage in conjunction with the overall quality of the sample.

NOTE: The letter "K" in these tables refers to kernels or kernel-size pieces in 500 grams.

AMBER DURUM WHEAT - PRIMARY GRADE DETERMINANTS - MAXIMUM TOLERANCES

Grade Name	Natural Stain	Artificial Stain, No Residue	Binburnt, Severely Mildewed, Rotted, Mouldy	* Total Heated (Including Binburnt)	Fireburnt	Stones	Ergot	Sclerotia	Shrunken and Broken		
									Shrunken	Broken	Total
No. 1 C.W. Amber Durum	0.5%	Nil	2K	0.10%	Nil	3K	3K	3K	6.0%	6.0%	7.0%
No. 2 C.W. Amber Durum	2.0%	3K	4K	0.25%	Nil	3K	6K	6K	10.0%	10.0%	10.0%
No. 3 C.W. Amber Durum	5.0%	7K	6K	0.75%	Nil	3K	12K	12K	12.0%	10.0%	15.0%
No. 4 C.W. Amber Durum	7.5%	12K	2.0%	3.0%	Nil	5K	24K	24K	No Limit	15.0%	No Limit Providing Broken Kernel Tolerances Not Exceeded
No. 5 C.W. Amber Durum	No Limit	2.0%	10.0%		2.0%	10K	0.25%	0.25%	No Limit	50.0%	
		Over 2.0%: grade Wheat, Sample C.W., Account Stained Kernels	Over 10.0%: grade Wheat, Sample C.W., Account Heated or Predominant Reason		Over 2.0%: grade Wheat, Sample C.W., Account Fireburnt	Over grade tolerance up to 2.5%: grade Rejected (grade) Account Stones	Over 0.25%: grade Wheat, Sample C.W., Account Ergot	Over 0.25%: grade Wheat, Sample C.W., Account Admixture		Over 50% broken kernels: grade Sample Broken Grain	

**Total heated" includes binburnt, severely mildewed, rotted and mouldy kernels.

NOTE: The letter "K" in these tables refers to kernels or kernel-size pieces in 500 grams.

GRADES OF RED WINTER WHEAT (Canada Western) - PRIMARY GRADE DETERMINANTS

	Standard of Quality				Maximum Limits			
					Foreign Material		Wheats of Other Classes or Varieties	
Grade Name	Minimum Test Weight (Kilograms Per Hectolitre)	Variety	Minimum % Hard Vitreous Kernels	Degree of Soundness	Matter Other Than Cereal Grains	Total (Including Cereal Grains)	Contrasting Classes	Total (Including Contrasting Classes)
No. 1 Canada Western Red Winter	78.0	Any variety of red winter wheat equal to acceptable reference varieties	50.0%	Reasonably well matured, reasonably free from damaged kernels	About 0.2%	1.0%	1.0%	3.0%
No. 2 Canada Western Red Winter	74.0	Any variety of red winter wheat equal to acceptable reference varieties	35.0%	Fairly well matured, reasonably free from severely damaged kernels	About 0.3%	2.0%	2.0%	6.0%
No. 3 Canada Western Red Winter	69.0	Any variety of red winter wheat equal to acceptable reference varieties	No Minimum	May be frost damaged, immature or weathered, but moderately free from severely damaged kernels	About 0.5%	3.0%	3.0%	10.0%
Canada Western Feed	65.0	Any type or variety of wheat except amber durum	No Minimum	Excluded from other grades of wheat on account of lightweight or damaged kernels, but shall be reasonably sweet	1.0%	10.0%	No Limit (but not more than 10.0% amber durum	
	Less than 65.0 kg/hL: grade Wheat, Sample C.W., Account Lightweight				Over 1.0%: grade Wheat, Sample C.W., Account Admixture	Over 10.0%: grade Mixed Grain, C.W., Wheat	Over 10.0% amber durum: grade Wheat, Sample C.W., Account Admixture	

RED WINTER WHEAT - PRIMARY GRADE DETERMINANTS - MAXIMUM TOLERANCES

		Smudge						*** Insect Damage		
Grade Name	Sprouted	Penetrated	Total Smudge	Total Smudge and Blackpoint	* Degermed	** Grass Green	Pink	Sawfly, Midge	Grasshopper, Army Worm	Dark Immature
No. 1 C.W. Red Winter	0.5%	3K	30K	10.0%	4.0%	0.75%	3.0%	2.0%	1.0%	1.0%
No. 2 C.W. Red Winter	2.5%	0.5%	1.0%	15.0%	7.0%	2.0%	6.0%	8.0%	3.0%	2.5%
No. 3 C.W. Red Winter	8.0%	1.0%	3.0%	35.0%	10.0%	4.0%	10.0%	15.0%	5.0%	10.0%
Canada Western Feed	No Limit	No Limit			No Limit	No Limit	No Limit	No Limit	No Limit	No Limit

*Degermed: Tolerances apply to kernels not classed as sprouted.

**Grass-green: Tolerances are given as a general guide and may be increased or reduced in the judgment of the inspector after consideration of the overall quality of the sample.

***Insect damage: Tolerances are not absolute maximums. Inspectors must consider the degree of damage in conjunction with the overall quality of the sample.

NOTE: The letter "K" in these tables refers to kernels or kernel-size pieces in 500 grams.

RED WINTER WHEAT - PRIMARY GRADE DETERMINANTS - MAXIMUM TOLERANCES

Grade Name	Natural Stain	Artificial Stain, No Residue	Binburnt, Severely Mildewed, Rotted, Mouldy	* Total Heated (Including Binburnt)	Fireburnt	Stones	Ergot	Sclerotia	Shrunken and Broken		
									Shrunken	Broken	Total
No. 1 C.W. Red Winter	0.5%	Nil	2K	0.10%	Nil	3K	3K	3K	6.0%	6.0%	7.0%
No. 2 C.W. Red Winter	2.0%	3K	4K	0.25%	Nil	3K	6K	6K	10.0%	10.0%	11.0%
No. 3 C.W. Red Winter	5.0%	7K	6K	0.75%	Nil	3K	12K	12K	12.0%	10.0%	13.0%
Canada Western Feed	No Limit	2.0%	10.0%		2.0%	10K	0.25%	0.25%	No Limit	50.0%	50.0% Broken
		Over 2.0%: grade Wheat, Sample C.W., Account Stained Kernels	Over 10.0%: grade Wheat, Sample C.W., Account Heated or Predominant Reason		Over 2.0%: grade Wheat, Sample C.W., Account Fireburnt	Over grade tolerance up to 2.5%: grade Rejected (grade) Account Stones	Over 0.25%: grade Wheat, Sample C.W., Account Ergot	Over 0.25%: grade Wheat, Sample C.W., Account Admixture			Over 50% broken kernels: grade Sample Broken Grain

**Total heated" includes binburnt, severely mildewed, rotted and mouldy kernels.

NOTE: The letter "K" in these tables refers to kernels or kernel-size pieces in 500 grams.

GRADES OF SOFT WHITE SPRING (Canada Western) - PRIMARY GRADE DETERMINANTS

Grade Name	Standard of Quality			Maximum Limits		
	Minimum Test Weight (Kilograms Per Hecto-litre)	Variety	Degree of Soundness	Foreign Material		Wheats of Other Classes
				Matter Other Than Cereal Grains	Total (Including Cereal Grains)	
No. 1 Canada Western Soft White Spring	78.0	Any variety of soft white spring wheat equal to acceptable reference varieties	Reasonably well matured, reasonably free from damaged kernels	About 0.2%	1.0%	3.0%
No. 2 Canada Western Soft White Spring	74.0	Any variety of soft white spring wheat equal to acceptable reference varieties	Fairly well matured, moderately weathered, but reasonably free from severely damaged kernels	About 0.3%	2.0%	6.0%
No. 3 Canada Western Soft White Spring	69.0	Any variety of soft white spring wheat equal to acceptable reference varieties	May be frost damaged, immature or weathered, but moderately free from severely damaged kernels	About 0.5%	3.0%	10.0%
Canada Western Feed	65.0	Any type or variety of wheat except amber durum	Excluded from other grades of wheat on account of lightweight or damaged kernels, but shall be reasonably sweet	1.0%	10.0%	No limit (but not more than 10.0% amber durum)
	Less than 65.0 kg/hL: grade Wheat, Sample C.W., Account Lightweight			Over 1.0%: grade Wheat, Sample C.W., Account Admixture Account	Over 10.0%: grade Mixed Grain, C.W., Wheat	Over 10.0% amber durum: grade Wheat, Sample C.W., Account Admixture

SOFT WHITE SPRING WHEAT - PRIMARY GRADE DETERMINANTS - MAXIMUM TOLERANCES

Grade Name	Sprouted	Smudge		Total Smudge and Blackpoint	* Degermed	** Grass-Green	Pink	*** Insect Damage		Natural Stain
		Penetrated	Total Smudge					Sawfly, Midge	Grasshopper, Army Worm	
No. 1 C.W. Soft White Spring	1.0%	3K	30K	10.0%	4.0%	0.75%	3.0%	2.0%	1.0%	0.5%
No. 2 C.W. Soft White Spring	5.0%	0.5%	1.0%	15.0%	7.0%	2.0%	6.0%	8.0%	3.0%	2.0%
No. 3 C.W. Soft White Spring	8.0%	1.0%	3.0%	35.0%	10.0%	4.0%	10.0%	15.0%	5.0%	5.0%
Canada Western Feed	No Limit	No Limit			No Limit	No Limit	No Limit	No Limit	No Limit	No Limit

*Degermed: Tolerances apply to kernels not classed as sprouted.

**Grass-green: Tolerances are given as a general guide and may be increased or reduced in the judgment of the inspector after consideration of the overall quality of the sample.

***Insect damage: Tolerances are **not** absolute maximums. Inspectors must consider the degree of damage in conjunction with the overall quality of the sample.

NOTE: The letter "K" in these tables refers to kernels or kernel-size pieces in 500 grams.

SOFT WHITE SPRING WHEAT - PRIMARY GRADE DETERMINANTS - MAXIMUM TOLERANCES

Grade Name	Artificial Stain, No Residue	Binburnt, Severely Mildewed, Rotted, Mouldy	* Total Heated (Including Binburnt)	Fireburnt	Stones	Ergot	Sclerotia	Shrunken and Broken		
								Shrunken	Broken	Total
No. 1 C.W. Soft White Spring	Nil	2K	0.1%	Nil	3K	3K	3K	6.0%	6.0%	7.0%
No. 2 C.W. Soft White Spring	3K	4K	0.25%	Nil	3K	6K	6K	10.0%	10.0%	11.0%
No. 3 C.W. Soft White Spring	7K	6K	0.75%	Nil	3K	12K	12K	No Limit	13.0%	13.0% Broken
Canada Western Feed	2.0%	10.0%		2.0%	10K	0.25%	0.25%	No Limit	50.0%	50.0% Broken
	Over 2.0%: grade Wheat, Sample C.W., Account Stained Kernels	Over 10.0%: grade Wheat, Sample C.W., Account Heated or Predominant Reason		Over 2.0%: grade Wheat, Sample C.W., Account Fireburnt	Over grade tolerance up to 2.5%: grade Rejected (grade) Account Stones	Over 0.25%: grade Wheat, Sample C.W., Account Ergot	Over 0.25%: grade Wheat, Sample C.W., Account Admixture		Over 50% broken kernels: grade Sample Broken Grain	

**Total heated" includes binburnt, severely mildewed, rotted and mouldy kernels.

NOTE: The letter "K" in these tables refers to kernels or kernel-size pieces in 500 grams.

WHEAT
ALL CLASSES

CLASSES AND VARIETIES

There are seven classes of wheat: red spring, amber durum, white winter (C.E. only), red winter, soft white spring, red and white prairie spring and extra strong red spring.

Grade	Eligible varieties
Red Spring, No. 1 C.W., No. 2 C.W., No. 3 C.W.	Registered varieties equal to or better than Neepawa
Amber Durum No. 1 C.W., No. 2 C.W., No. 3 C.W., No. 4 C.W.	Registered varieties equal to or better than Hercules
Amber Durum, No. 5 C.W.	Any variety of amber durum
Soft White Spring, No. 1 C.W., No. 2 C.W., No. 3	Registered varieties equal to reference varieties of acceptable end-use quality
Red Winter, No. 1 C.W., No. 2 C.W., No. 3 C.W.	Registered varieties equal to reference varieties of acceptable end-use quality
Extra Strong Red Spring, No. 1 C.W., No. 2 C.W.	Bluesky, Glenlea, Wildcat
Canada Prairie Spring Red, No. 1, No. 2 Canada	AC Taber, Biggar, Cutler, Oslo
Canada Prairie Spring White, No. 1, No. 2 Canada	Genesis
Feed, C.W.	Any variety of non-durum wheat

Contrasting classes - This term refers to colour and applies only to the grading of red spring, extra strong red spring, red winter, red and white prairie spring and eastern winter wheats, e.g., soft white spring in red spring wheat, amber durum in red winter wheat.

Wheats of other classes or non-registered varieties - When the percentage by weight of other classes or non-registered varieties exceeds the tolerance specified for the lowest scheduled grade, samples are graded **Wheat, C.W. Feed**.

To determine the percentage by weight of wheats of other varieties or classes within classes that blend, a representative portion of approximately 25 grams but not less than 10 grams is analyzed. The allowable limit may be exceeded by up to 0.9% and the percentage thus determined is rounded down to a whole number, e.g., 6.9% of extra strong in a sample of red spring wheat is rounded to 6.0%.

NOTE: This provision does not apply to non-registered varieties.

DETERMINATION OF DOCKAGE ON SAMPLES NOT CONSIDERED COMMERCIALLY CLEAN

Cleaning equipment: Carter dockage tester
Sieves: No. 6 buckwheat
Two - No. 5 buckwheat

Procedure:

1. The uncleaned sample is divided to obtain approximately a 500 or 1000-gram representative portion.

2. The representative sample is run through the Carter dockage tester as follows:

feed control: #6	top sieve:	No. 6 buckwheat
air control: minimum #4 (increase according to nature of material)	centre sieve:	No. 5 buckwheat
	bottom sieve:	No. 5 buckwheat
riddle: No. 25		

3. After the sample has passed through the machine, the sieve cleaner control is briefly turned on to dislodge kernels. The machine is turned off and the retainer rod of the aspiration pan is snapped lightly to loosen material gathered on the air screen.

4. Large kernels of wheat (except kernels with long rootlets) are hand-picked from the portion passing over the riddle and returned to the cleaned sample.

Composition of dockage:

- foreign material removed over the riddle, less any portion which is eligible for machine separation;
- material removed by aspiration;
- material removed by No. 5 buckwheat sieve in the lower position;

- a maximum of 10.0% by weight of soft earth pellets handpicked from the cleaned sample; plus
- any material removed by cleaning for grade improvement.

NOTE

In samples eligible for off-grades, dockage consists of the material described above. However, dockage is not applied against samples eligible for the following grades:

- **Wheat, Sample C.W., Canada, Account Fireburnt**
- **Wheat, Sample Salvage**

In **Wheat, Sample C.W., Canada, Account Admixture**, removable material similar in nature to the admixture is not considered dockage.

Machine separation (terminal elevator receipts only)

Samples containing 6.0% or more by weight of oats or flaxseed separable by approved cleaning methods are designated machine-separable, provided the material separated will qualify for a Class III or higher class grade after separation.

Improvement of grade by special cleaning

If the grade of a delivery is improved by special cleaning, this fact is recorded on inspection reports and records and all interested parties are advised.

Equipment: Hand sieves: No. 6 buckwheat
No. 10 X 10 wire
No. 1 riddle

Removable material:

Foreign material - Excessive wild oats may be removed using the No. 1 riddle. Only the wild oats removed are assessed as dockage. Any other grains removed by the No. 1 riddle are returned to the sample and considered as a grading factor. The No. 6 buckwheat sieve or the No. 10 X 10 wire sieve may be used to remove foreign material such as cockle, wild oats or pin oats if the grade can be improved by so doing.

Stones - Stones which are removable by normal cleaning procedures are included in the dockage. The No. 6 buckwheat sieve may be used to remove extra dockage when the grade can be improved, providing not more than 5.0% of the sample weight is removed.

Bunt - Maximum aspiration (air setting at #7) can be used to remove loose bunt balls providing the sample has no distinct odour.

Broken kernels assessed as dockage - All grades may have up to a maximum of 5.0% broken kernels assessed as dockage for grade improvement, provided that the broken kernels can be removed by a No. 10 X 10 wire or No. 6 buckwheat sieve.

SAMPLE GRADES

Sample-grade wheat is graded with reference to "Canada Western" or "Canada," e.g., **Wheat, Sample C.W., Account Admixture**.

GRADING FACTORS

Foreign Material

Cereal grains - Rye, barley, triticale, oats and groats, including wild oat groats, that remain in the cleaned sample are considered foreign material. Cereal grains other than wheat which are readily removable are assessed as dockage unless eligible for machine separation.

Matter other than cereal grains - This refers to inseparable seeds such as cockle, ragweed, Tartarian buckwheat, vetch and wild oats, and non-cereal domestic grains such as corn, peas, domestic buckwheat and lentils that remain in the cleaned sample and are treated as a grading factor. Samples containing more than 1.0% by weight of foreign matter other than cereal grains are graded **Wheat, Sample C.W./Canada, Account Admixture**.

Stones - Samples of wheat containing more than 2.5% stones by weight are graded **Wheat, Sample Salvage**.

Test weight - Samples of wheat (except amber durum) with a test weight of less than 65.0 kg/hL are graded **Wheat, Sample C.W. Account Lightweight**.

Sprouted kernels - Kernels are considered sprouted when there is clear evidence of growth in the germ area; or when the bran is noticeably split over the germ from apparent growth; or when the germ is removed and there is apparent discolouration normally attributable to sprouting; or when the germ, though intact, appears distinctly swollen as a result of growth. Kernels with slightly swollen germs or in which the bran is split but there is no apparent sprouting are not considered sprouted.

To determine the percentage by weight of sprouted kernels in a sample, a representative portion of approximately 25 grams but not less than 10 grams of the cleaned sample is analyzed. All kernels showing evidence of sprouting are separated. These kernels are then examined by using the 10 X 10 lens to determine the total content of sprouted kernels in the sample.

Severely sprouted kernels - Kernels with sprouts extending beyond the normal contours of the germ, kernels which are severely degenerated as an apparent result of advanced sprouting and kernels with rootlets are considered severely sprouted in No. 1 C.W. Red Spring Wheat.

Degermed kernels - Degermed kernels have had their germ removed through the mechanical handling process. The definition is applied only to kernels that are not considered sprouted. Samples containing degermed kernels in excess of the tolerance for the lowest numerical grade are graded **C.W. Feed** or in the case of amber durum, **No. 5 C.W. Amber Durum**.

Hard vitreous kernels (H.V.K) - These are whole, reasonably sound kernels that even though moderately bleached, show clear evidence of vitreousness, i.e., the natural translucent colouring which is an externally visible sign of hardness. Vitreous kernels of wheats of other classes that blend are included in the percentage of H.V.K. for grade determination.

Non-vitreous kernels - Kernels having a starch spot of any size, broken or otherwise damaged kernels, severely bleached kernels and kernels of contrasting wheat classes are all considered non-vitreous.

Smudge - This is a discolouration or stain similar to blackpoint. The stain may be brown, black or the reddish discolouration associated with some plant diseases. Smudge is a grading factor when more than one-half of the kernel is discoloured or when the discolouration extends into the crease of the kernel. As well, if less than one-half of the surface is discoloured but the infection extends into the crease, the kernel is considered smudge-damaged.

Penetrated smudge - This discolouration penetrates and extends throughout the endosperm and is usually caused by a serious infection of fungal plant disease such as *Alternaria*.

Red smudge - This dark reddish discolouration is most commonly associated with amber durum wheat and usually affects the entire bran portion of the kernel. Discolouration is not superficial and cannot be removed through abrasion. Red smudge is caused by infections of the fungus *Drechslera tritici-repentis*, which is also responsible for other similar diseases such as tan-spot.

Blackpoint - Blackpoint refers to a distinct dark brown or black discolouration of the germ and surrounding area. Established tolerances may be exceeded at the inspector's discretion, depending on the severity of the stain and the overall quality of the sample. Slight discolouration restricted to the germ is disregarded in assessing blackpoint. When the discolouration affects more than one-half of the kernel it is interpreted as smudge.

Fireburnt kernels - Kernels charred or scorched by fire are considered fireburnt. C.W. Feed Wheat and No. 5 C.W. Amber Durum may contain up to 2.0% fireburnt kernels but must not have a fireburnt odour. Samples of wheat of any class containing over 2.0% fireburnt kernels or having a distinct fireburnt odour are graded **Wheat, Sample C.W./Canada, Account Fireburnt**.

Heated kernels - Heated kernels have the colour, taste or odour typical of grain that has heated in storage. Tolerances for heated kernels include distinctly heated, binburnt, rotted, severely mildewed and mouldy kernels. The basic quality of the sample as well as the amount and degree of deterioration must be taken into consideration.

Distinctly heated kernels - This description includes kernels with discolouration ranging from pale brown to very dark brown, but excludes blackened kernels. Samples containing more than 10.0% heated kernels by weight or having a distinctly heated odour are graded **Wheat, Sample C.W./Canada, Account Heated**.

Binburnt, rotted, severely mildewed and mouldy kernels - These kernels are blackened, swollen and puffed because of severe heating or exposure to high-moisture conditions. The discolouration may extend throughout the kernel and kernels may feel spongy under pressure. Samples containing more than 10.0% heated, distinctly heated, binburnt, rotted, severely mildewed or mouldy kernels by weight are graded **Wheat, Sample C.W./Canada, Account (predominant reason)**.

Insect damage - Kernels damaged by sawfly, midge, grasshopper or armyworm are considered insect-damaged.

Sawfly damage - This refers to kernels which are shriveled or distorted.

Midge damage - This refers to kernels which are distinctly shrunken and distorted. These kernels are characterized by a depression or caved-in side which is marked by a scarred pericarp. The pericarp is frequently ruptured, exposing the endosperm or embryo. Exposed embryos are considered to have "apparent" sprout damage except where there is clear evidence of germination. The tolerance for "apparent" sprout damage is doubled if the damage to the kernels has been caused by midge.

Grasshopper or armyworm damage - This refers to kernels which have been chewed, usually on the sides.

Odour - Samples which have any type of unnatural or objectionable odour other than that of heated or fireburnt kernels are graded according to the basic quality of the sample, the type and degree of odour, and the presence of visible residue causing the odour. Samples having a distinct objectionable odour not associated with the quality of the grain are graded **Wheat,**

Sample C.W./Canada, Account Odour. Samples having a heated odour are graded **Wheat, Sample C.W./Canada, Account Heated**. Samples having a fireburnt odour are graded **Wheat, Sample C.W./Canada, Account Fireburnt**.

Common bunt (stinking smut) - This refers to a plant disease caused by smut fungi, characterized by masses of black spores. Kernels affected by smut may or may not have an associated odour. Samples having no distinct odour but containing smut balls may be specially cleaned by aspiration to remove the smut balls. Samples having no odour but which are tagged with smut spores are considered naturally stained. (To determine the percentage by weight of naturally stained kernels, a representative portion of approximately 100 grams but not less than 50 grams of the cleaned sample is analyzed.) Samples having a smutty odour and/or which are heavily infected with smut are graded **Wheat, Sample C.W./Canada, Account Odour**.

Shrunken and broken kernels

Whole kernels that pass through the No. 4.5 slotted sieve are considered shrunken.

Determining the percentage by weight of shrunken kernels:

Machine method

Equipment: Carter dockage tester

feed control: #5	top sieve: No. 4.5 slotted
air control: off	centre sieve: blank tray
riddle: none	

Procedure: A representative portion of approximately 250 grams of the cleaned sample is passed through the machine once. Broken kernels are set aside; only whole shrunken kernels are considered shrunken.

Manual method

Equipment: No. 4.5 slotted hand sieve

Procedure: A representative portion of approximately 250 grams of the cleaned sample is sifted along the length of the slots in 25 complete motions of about 15 cm total distance from side to side. Broken kernels are set aside; only whole shrunken kernels are considered shrunken.

Pieces of kernels that are less than three-quarters of a whole kernel are considered **broken**.

The total percentage by weight of broken kernels is determined by establishing the percentage by weight of broken kernels in the material that passed through the No. 4.5 slotted sieve and adding the percentage by weight of broken kernels remaining in the sieved portion.

Shrunken and broken kernels consist of material passing through the No. 4.5 slotted sieve (machine sieve or hand sieve) plus any broken kernels remaining in the sample after sieving as described above (machine or manual method).

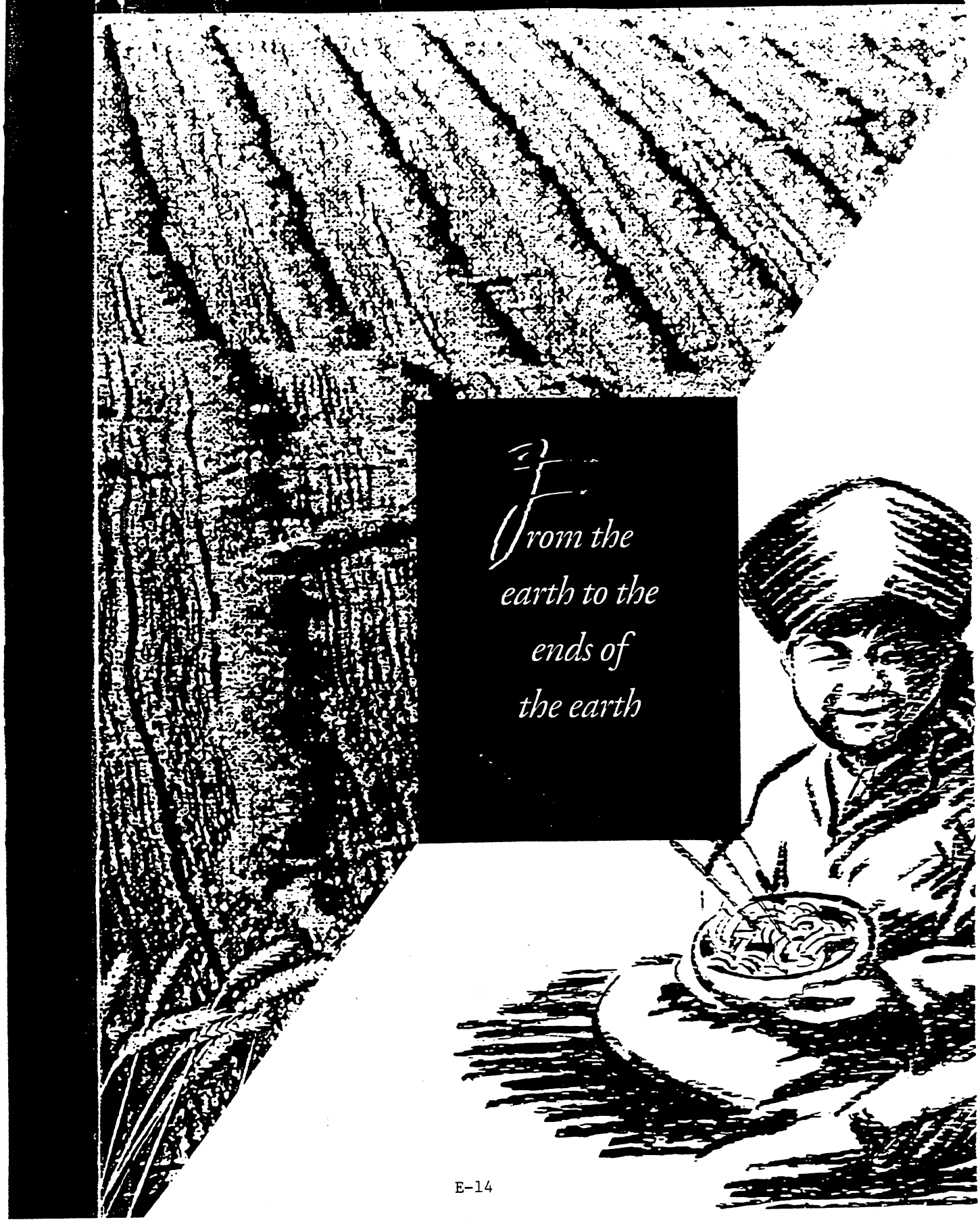
The reported percentage by weight of shrunken and broken kernels in a sample is rounded down to a whole number, e.g., 6.9% is rounded to 6.0%.

Dark, immature kernels - This term is used to describe darkened kernels, also referred to swath-heated kernels. These kernels are somewhat similar in appearance to heated kernels but are sound throughout and do not have a heated taste or odour.

Streak mould - Samples containing kernels with unusual dark gray streaks on their sides toward the brush may be affected by streak mould. This very slow-growing mould is harmless in wheat, except that it affects kernel appearance. It occurs most commonly in red winter wheat. It is not related to the more serious storage moulds. Streak mould is included with blackpoint for grading purposes.

Grass-green kernels - Grass green kernels are distinctly green in colour because of immaturity. Samples containing over the grade tolerance for the lowest numerical grade are graded **C.W. Feed** or in the case of amber durum, **No. 5 C.W. Amber Durum**.

Pink kernels - Pink kernels are usually shrunken in appearance because of immaturity and display a pink discolouration which seems to be on the interior of the kernel. Samples containing over 10.0% by weight of pink kernels are graded **C.W. Feed** or in the case of amber durum, **No. 4 C.W. Amber Durum**.


From the
earth to the
ends of
the earth

PAYMENTS RECEIVED BY PRODUCERS FOR PRINCIPAL GRADES OF WHEAT
BASIS IN STORE THUNDER BAY OR VANCOUVER
(dollars per tonne)

Grade	Initial Payment	Interim Payment	Final Payment	Total
No. 1 Canada Western Red Spring 14.5	$113.21	$9.00	$21.540	$143.750
No. 1 Canada Western Red Spring 13.5	111.21	9.00	17.750	137.960
No. 1 Canada Western Red Spring	109.00	9.00	16.135	134.135
No. 2 Canada Western Red Spring 13.5	105.21	9.00	17.073	131.283
No. 2 Canada Western Red Spring	103.21	9.00	15.014	127.224
No. 3 Canada Western Red Spring	94.00	9.00	19.671	122.671
No. 1 Canada Prairie Spring (Red)	94.00	9.00	18.550	121.550
No. 1 Canada Prairie Spring (White)	99.00	9.00	18.147	126.147
No. 2 Canada Prairie Spring (Red)	92.00	9.00	18.550	119.550
No. 2 Canada Prairie Spring (White)	97.00	9.00	17.147	123.147
No. 1 Canada Western Utility	103.00	9.00	18.374	130.374
No. 2 Canada Western Utility	85.00	9.00	27.374	121.374
Canada Western Feed	85.00	9.00	16.113	110.113
No. 1 Canada Western Red Winter	99.00	9.00	22.275	130.275
No. 2 Canada Western Red Winter	97.00	9.00	22.140	128.140
No. 1 Canada Western Soft White Spring	106.00	9.00	14.666	129.666
No. 2 Canada Western Soft White Spring	103.00	9.00	14.666	126.666

OPERATING COSTS

Operating costs incurred applicable to the Pool Account were $74,198,533 or $3.840 per tonne. Details of the principal costs and comment thereon follows:

Carrying Charges – $61,725,293
Total carrying charges incurred by the Board, including storage and interest charges on wheat in country elevators and storage on wheat in terminal elevators, amounted to $61,725,293 or $3.194 per tonne.

Interest – $(38,747,835)
This amount consists mainly of interest expense/earnings and interest paid to, or received from, other Board accounts. Interest earned exceeded interest paid by $38,747,835 or $2.005 per tonne.

Additional Freight:

- *to Terminals – $19,623,426*
- *Freight Rate Change – $239,723*

During the crop year the Board paid $19,623,426 of additional freight arising out of the movement of grain in adverse direction.

With the passage of the Western Grain Transportation Act on December 31, 1983, freight rates are now reviewed and adjusted annually. On August 1, 1992, freight rates increased by approximately 8.3 per cent and the Board was required to pay the additional freight on the country stocks held by its agents on August 1, 1992, amounting to $239,723 in the Wheat Account.

Drying Charges – $15,709
Drying charges for 1991-92 totaled $15,709, a significant decrease from the previous year, reflecting lower quantities of tough and damp grain delivered to the pool under review.

APPENDIX F

SUPPLY AND DEMAND DATA FOR WHEAT

Table F-1
Wheat: Summary data concerning the U.S. market, crop years, 1989/90-1993/94

Item	1989/90	1990/91	1991/92	1992/93	1993/94[1]
	Quantity *(Bushels per acre)*				
Yield/harvested acre	32.7	39.5	34.3	39.4	38.3
	Quantity *(Million bushels)*				
Supply:					
Beginning stocks	702	536	866	472	529
Production	2,037	2,736	1,981	2,458	2,402
Imports[2]	23	36	41	70	95
Total supply	2,762	3,309	2,888	3,001	3,026
Disappearance:					
Food	749	785	789	829	845
Seed	105	93	98	98	97
Feed and residual	140	496	250	191	300
Subtotal domestic disappearance	993	1,375	1,137	1,118	1,242
Exports[2]	1,232	1,068	1,280	1,354	1,225
Total disappearance	2,225	2,443	2,416	2,472	2,467
Ending stocks:					
Farmer-owned reserve	144	14	50	28	5
CCC inventory	117	163	152	150	150
Outstanding loans	30	217	20	47	60
Other	245	472	250	304	344
Total ending stocks	536	866	472	529	559
	Value *(per bushel)*				
Prices:					
Received by farmers	$3.72	$2.61	$3.00	$3.24	$3.20
Loan rate	2.06	1.95	2.04	2.21	2.45
Target	4.10	4.00	4.00	4.00	4.00
	Value *(Million dollars)*				
Farm value of production[3]	7,542	7,184	5,957	7,984	7,687

[1] Forecast data as of May 10, 1994.
[2] USDA data on imports and exports include the wheat-equivalents of flour, semolina, pasta, and wheat by-products. Some of these products are not within the scope of this investigation.
[3] Production times the average price received by farmers.

Source: USDA, ERS.

APPENDIX G

SECTIONS OF THE U.S. HTS RELATING TO WHEAT, WHEAT FLOUR, AND SEMOLINA

CHAPTER 10

CEREALS

10

Notes

1. (a) The products specified in the headings of this chapter are to be classified in those headings only if grains are present, whether or not in the ear or on the stalk.

   (b) This chapter does not cover grains which have been hulled or otherwise worked. However, rice, husked, milled, polished, glazed, parboiled or broken remains classified in heading 1006.

2. Heading 1005 does not cover sweet corn (chapter 7).

Subheading Note

1. The term "durum wheat" means wheat of the Triticum durum species and the hybrids derived from the interspecific crossing of Triticum durum which have the same number (28) of chromosomes as that species.

Additional U.S. Note

1. In subheading 1005.10, the expression "seed" covers only seed corn or maize which is certified by a responsible officer or agency of a foreign government in accordance with the rules and regulations of that government to have been grown and approved especially for use as seed, in containers marked with the foreign government's official certified seed corn tags.

Heading/ Subheading	Stat. Suf- fix	Article Description	Units of Quantity	Rates of Duty 1 General	Rates of Duty 1 Special	Rates of Duty 2
1001		Wheat and meslin:				
1001.10.00		Durum wheat	.....	0.77¢/kg	Free (E,IL,J) 0.3¢/kg (CA) 0.6¢/kg (MX)	1.5¢/kg
	10	Seed	kg			
	90	Other	kg			
1001.90		Other:				
1001.90.10	00	Seed	kg.....	6.3%	Free (E,IL,J,MX) 2.5% (CA)	10%
1001.90.20		Other	.....	0.77¢/kg	Free (E,IL,J) 0.3¢/kg (CA) 0.6¢/kg (MX)	1.5¢/kg
		Red spring wheat:				
	10	Grade 1	kg			
	20	Grade 2	kg			
	30	Other	kg			
	40	White winter wheat	kg			
	50	"Canadian" western red winter wheat	kg			
	60	Soft white spring wheat	kg			
	95	Other	kg			
1002.00.00	00	Rye	kg.....	Free		0.59¢/kg
1003.00		Barley:				
1003.00.20	00	For malting purposes	kg.....	0.23¢/kg	Free (CA,E,IL,J,MX)	0.92¢/kg
1003.00.40		Other	.....	0.34¢/kg	Free (E,IL,J,MX) 0.1¢/kg (CA)	0.92¢/kg
	10	Seed	kg			
	90	Other	kg			
1004.00.00		Oats	.....	Free		1.1¢/kg
	10	Seed	kg			
	20	Mixed feed oats	kg			
	90	Other	kg			
1005		Corn (maize):				
1005.10.00	00	Seed	kg.....	Free		0.98¢/kg
1005.90		Other:				
1005.90.20	00	Yellow dent corn	kg.....	0.2¢/kg	Free (A*,CA,E,IL,J,MX)	0.98¢/kg
1005.90.40		Other	.....	0.98¢/kg	Free (A*,E,IL,J,MX) 0.3¢/kg (CA)	0.98¢/kg
	40	Popcorn	kg			
	60	Other	kg			
1006		Rice:				
1006.10.00	00	Rice in the husk (paddy or rough)	kg.....	2.8¢/kg	Free (E,IL,J) 1.1¢/kg (CA) 2.5¢/kg (MX)	2.8¢/kg
1006.20		Husked (brown) rice:				
1006.20.20	00	Basmati	kg.....	1.3¢/kg	Free (CA,E,IL,J) 1.1¢/kg (MX)	3.3¢/kg
1006.20.40		Other	.....	3.3¢/kg	Free (CA,E,IL,J) 2.9¢/kg (MX)	3.3¢/kg
	20	Long grain	kg			
	40	Medium grain	kg			
	60	Short grain	kg			
	80	Mixtures of any of the above	kg			
1006.30		Semi-milled or wholly milled rice, whether or not polished or glazed:				
1006.30.10		Parboiled	.....	17.5%	Free (A,E,IL,J,MX) 7% (CA)	35%
	20	Long grain	kg			
	40	Other, including mixtures	kg			
1006.30.90		Other	.....	2.2¢/kg	Free (E,IL,J) 0.8¢/kg (CA) 1.9¢/kg (MX)	5.5¢/kg
	10	Long grain	kg			
	20	Medium grain	kg			
	30	Short grain	kg			
	40	Mixtures of any of the above	kg			
1006.40.00	00	Broken rice	kg.....	0.69¢/kg	Free (CA,E,IL,J) 0.6¢/kg (MX)	1.4¢/kg

CHAPTER 11

PRODUCTS OF THE MILLING INDUSTRY; MALT;
STARCHES; INULIN; WHEAT GLUTEN

Notes

1. This chapter does not cover:

   (a) Roasted malt put up as coffee substitutes (heading 0901 or 2101);

   (b) Prepared flours, meals or starches of heading 1901;

   (c) Corn flakes or other products of heading 1904;

   (d) Vegetables, prepared or preserved, of heading 2001, 2004 or 2005;

   (e) Pharmaceutical products (chapter 30); or

   (f) Starches having the character of perfumery, cosmetic or toilet preparations (chapter 33).

2. (A) Products from the milling of the cereals listed in the table below fall within this chapter if they have, by weight on the dry product:

   (a) A starch content (determined by the modified Ewers polarimetric method) exceeding that indicated in column (2); and

   (b) An ash content (after deduction of any added minerals) not exceeding that indicated in column (3).

   Otherwise, they fall in heading 2302.

   (B) Products falling within this chapter under the above provisions shall be classified in heading 1101 or 1102 if the percentage passing through a woven metal wire cloth sieve with the aperture indicated in column (4) or (5) is not less, by weight, than that shown against the cereal concerned.

   Otherwise, they fall in heading 1103 or 1104.

Cereal	Starch content	Ash content	Rate of passage through a sieve with an aperture of--	
			315 micrometers (microns)	500 micrometers (microns)
(1)	(2)	(3)	(4)	(5)
	Percent	Percent	Percent	Percent
Wheat and rye.....	45	2.5	80	-
Barley.....	45	3	80	-
Oats.....	45	5	80	-
Corn (maize) and grain sorghum.....	45	2	-	90
Rice.....	45	1.6	80	-
Buckwheat.....	45	4	80	-

3. For the purposes of heading 1103 the terms "groats" and "meal" mean products obtained by the fragmentation of cereal grains, of which --

   (a) In the case of corn (maize) products, at least 95 percent by weight passes through a woven metal wire cloth sieve with an aperture of 2 mm;

   (b) In the case of other cereal products, at least 95 percent by weight passes through a woven metal wire cloth sieve with an aperture of 1.25 mm.

Additional U.S. Note

1. Notwithstanding the rates of duty set forth in this chapter, mixtures of the products classifiable in heading 1101, 1102, 1103 or 1104 (except mixtures classified in subheading 1102.90.30) are dutiable at the rate of 20% (Except in the case of products eligible for special tariff treatment under general notes 4 through 12, inclusive, the following rates of duty shall apply: Free (E,IL,J,MX); 8% (CA)).

Heading/ Subheading	Stat. Suf - fix	Article Description	Units of Quantity	Rates of Duty 1 General	Rates of Duty 1 Special	Rates of Duty 2
1101.00.00		Wheat or meslin flour	.....	1.1¢/kg	Free (E,IL,J,MX) 0.4¢/kg (CA)	2.3¢/kg
	10	Hard spring wheat	kg			
	20	Durum wheat	kg			
	30	White winter wheat	kg			
	90	Other	kg			
1102		Cereal flours other than of wheat or meslin:				
1102.10.00	00	Rye flour	kg.....	0.5¢/kg	Free (E,IL,J,MX) 0.2¢/kg (CA)	1¢/kg
1102.20.00	00	Corn (maize) flour	kg.....	0.66¢/kg	Free (A,E,IL,J,MX) 0.2¢/kg (CA)	1.1¢/kg
1102.30.00	00	Rice flour	kg.....	0.2¢/kg	Free (A*,CA,E,IL, J,MX)	1.4¢/kg
1102.90		Other:				
1102.90.20	00	Buckwheat flour	kg.....	Free		1.1¢/kg
1102.90.30	00	Other: Mixtures	kg.....	20%	Free (A,CA,E,IL,J, MX)	20%
1102.90.60	00	Other	kg.....	20%	Free (A,CA,E,IL,J, MX)	20%
1103		Cereal groats, meal and pellets:				
1103.11.00		Groats and meal: Of wheat	.....	1.1¢/kg	Free (E,IL,J,MX) 0.4¢/kg (CA)	2.3¢/kg
	20	Semolina	kg			
	40	Other	kg			
1103.12.00	00	Of oats	kg.....	1.8¢/kg	Free (A,CA,E,IL,J, MX)	1.8¢/kg
1103.13.00		Of corn (maize)	.....	0.66¢/kg	Free (A,E,IL,J,MX) 0.2¢/kg (CA)	1.1¢/kg
	20	Cornmeal	kg			
	60	Other	kg			
1103.14.00	00	Of rice	kg.....	0.2¢/kg	Free (A*,CA,E,IL, J,MX)	1.4¢/kg
1103.19.00	00	Of other cereals	kg.....	20%	Free (E,IL,J,MX) 8% (CA) 1/	20%
		Pellets:				
1103.21.00	00	Of wheat	kg.....	Free		10%
1103.29.00	00	Of other cereals	kg.....	Free		10%
1104		Cereal grains otherwise worked (for example, hulled, rolled, flaked, pearled, sliced or kibbled), except rice of heading 1006; germ of cereals, whole, rolled, flaked or ground:				
		Rolled or flaked grains:				
1104.11.00	00	Of barley	kg.....	4.4¢/kg	Free (E,IL,J,MX) 1.7¢/kg (CA)	4.4¢/kg
1104.12.00	00	Of oats	kg.....	1.8¢/kg	Free (A,CA,E,IL,J, MX)	1.8¢/kg
1104.19.00	00	Of other cereals	kg.....	1¢/kg	Free (CA,E,IL,J, MX)	1¢/kg
		Other worked grains (for example, hulled, pearled, sliced or kibbled):				
1104.21.00	00	Of barley	kg.....	2.7%	Free (E,IL,J,MX) 1% (CA)	17%
1104.22.00	00	Of oats	kg.....	2%	Free (A,CA,E,IL,J, MX)	11%
1104.23.00	00	Of corn (maize)	kg.....	1¢/kg	Free (A,E,IL,J,MX) 0.4¢/kg (CA)	1¢/kg
1104.29.00	00	Of other cereals	kg.....	5.9%	Free (A,CA,E,IL,J, MX)	20%
1104.30.00	00	Germ of cereals, whole, rolled, flaked or ground	kg.....	10%	Free (A,CA,E,IL,J, MX)	20%
1105		Flour, meal, flakes, granules and pellets of potatoes:				
1105.10.00	00	Flour and meal	kg.....	2.6¢/kg	Free (A,E,IL,J,MX) 1¢/kg (CA)	5.5¢/kg
1105.20.00	00	Flakes, granules and pellets	kg.....	2.9¢/kg	Free (E,IL,J,MX) 1.1¢/kg (CA)	6.1¢/kg

1/ See subheading 9905.11.10.

Heading/ Subheading	Stat. Suf-fix	Article Description	Units of Quantity	Quota Quantity	
				Wheat (in kilograms)	Milled Wheat Products (in kilograms)
9904.20.10	1/	Whenever, in any 12-month period beginning May 29 in any year, the respective quantity specified below of wheat fit for human consumption (provided for in heading 1001) or of milled wheat products fit for human consumption (provided for in heading 1101, 1103 or 1104) the product of a specified foreign country or area has been entered, no such wheat or milled wheat products, respectively, the product of such country or area may be entered during the remainder of such period:			
		Canada	1/	21,636,352	1,730,454
		China	1/	None	10,886
		Hungary	1/	None	5,896
		Hong Kong	1/	None	5,896
		Japan	1/	None	3,628
		United Kingdom	1/	2,721	34,019
		Australia	1/	None	453
		Germany	1/	2,721	2,267
		Syria	1/	2,721	2,267
		New Zealand	1/	None	453
		Chile	1/	None	453
		Netherlands	1/	2,721	453
		Argentina	1/	54,431	6,350
		Italy	1/	2,721	907
		Cuba	1/	None	5,443
		France	1/	27,215	453
		Greece	1/	None	453
		Mexico	1/	2,721	453
		Panama	1/	None	453
		Uruguay	1/	None	453
		Poland and Danzig	1/	None	453
		Sweden	1/	None	453
		Yugoslavia	1/	None	453
		Norway	1/	None	453
		Canary Islands	1/	None	453
		Rumania	1/	27,215	None
		Guatemala	1/	2,721	None
		Brazil	1/	2,721	None
		Union of Soviet Socialist Republics	1/	2,721	None
		Belgium	1/	2,721	None
		Other foreign countries or areas	1/	None	None

1/ See chapter 99 statistical note 2.

Note: The shaded area indicates that the provision has been suspended.

APPENDIX H

U.S. IMPORTS OF WHEAT FOR HUMAN AND NON-HUMAN CONSUMPTION

Table H-1
Wheat: U.S. imports, by end uses and by sources, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(metric tons)*					
Wheat for human consumption:						
Canada	28,218	131,362	155,852	519,637	239,467	280,568
Other sources	0	0	0	0	0	0
Total	28,218	131,362	155,852	519,637	239,467	280,568
Wheat for non-human consumption:						
Canada	0	0	***	89,784	43,651	68,868
Other sources	0	0	0	0	0	0
Total	0	0	***	89,784	43,651	68,868
	Value *(1,000 dollars)*					
Wheat for human consumption:						
Canada	***	15,515	20,250	70,368	31,485	40,092
Other sources	0	0	0	0	0	0
Total	***	15,515	20,250	70,368	31,485	40,092
Wheat for non-human consumption:						
Canada	0	0	***	8,360	3,637	7,406
Other sources	0	0	0	0	0	0
Total	0	0	***	8,360	3,637	7,406
	Unit value *(per metric ton)*					
Wheat for human consumption:						
Canada	$***	$118	$130	$135	$131	$143
Other sources	(1)	(1)	(1)	(1)	(1)	(1)
Average	***	118	130	135	131	143
Wheat for non-human consumption:						
Canada	(1)	(1)	94	95	83	108
Other sources	(1)	(1)	(1)	(1)	(1)	(1)
Average	(1)	(1)	94	95	83	108

[1] Not applicable.

Note.--Because of rounding, shares may not add to the totals shown. Unit values are calculated using data of firms supplying both numerator and denominator information.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission (**grain merchant's questionnaires only**).

APPENDIX I

APPARENT CONSUMPTION OF WHEAT FLOUR AND SEMOLINA BASED ON RESPONSES TO COMMISSION QUESTIONNAIRES

Table I-1
Wheat flour and semolina: U.S. shipments of domestic product, U.S. imports, by sources, and apparent U.S. consumption, by products, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	June-Dec.-- 1993
	Quantity *(1,000 metric tons)*					
Wheat flour:						
Producers' U.S. shipments	9,462	10,338	11,684	12,928	5,530	5,845
U.S. imports	***	***	***	***	***	***
Apparent consumption	***	***	***	***	***	***
Semolina:						
Producers' U.S. shipments	1,050	1,111	1,237	1,328	537	590
U.S. imports	***	***	***	***	***	***
Apparent consumption	***	***	***	***	***	***
	Value *(million dollars)*					
Wheat flour:						
Producers' U.S. shipments	2,523	2,210	2,893	3,218	1,307	1,387
U.S. imports	***	***	***	***	***	***
Apparent consumption	***	***	***	***	***	***
Semolina:						
Producers' U.S. shipments	249	234	252	280	109	130
U.S. imports	***	***	***	***	***	***
Apparent consumption	***	***	***	***	***	***
	Share of the quantity of U.S. consumption *(percent)*					
Wheat flour:						
Producers' U.S. shipments	***	***	***	***	***	***
U.S. imports	***	***	***	***	***	***
Semolina:						
Producers' U.S. shipments	***	***	***	***	***	***
U.S. imports	***	***	***	***	***	***
	Share of the value of U.S. consumption *(percent)*					
Wheat flour:						
Producers' U.S. shipments	***	***	***	***	***	***
U.S. imports	***	***	***	***	***	***
Semolina:						
Producers' U.S. shipments	***	***	***	***	***	***
U.S. imports	***	***	***	***	***	***

[1] Positive figure, but less than significant digits displayed.

Note.--Because of rounding, figures may not add to the totals shown; shares are computed from the unrounded figures.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX J

PRODUCTION OF WHEAT FLOUR AND SEMOLINA BASED ON RESPONSES TO COMMISSION QUESTIONNAIRES

Table J-1
Wheat flour and semolina: U.S. production, by products and origin of supply, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

(1,000 metric tons)

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	June-Dec.-- 1993
Wheat flour from--						
Canadian wheat	***	***	289	470	***	189
U.S.-grown wheat	9,923	10,642	11,734	13,022	5,561	5,853
Wheat from other sources	***	***	0	0	***	0
Total	9,966	10,771	12,023	13,492	5,748	6,042
Semolina from--						
Canadian wheat	145	274	241	302	110	***
U.S.-grown wheat	906	839	999	1,027	428	505
Wheat from other sources	0	0	0	0	0	***
Total	1,051	1,114	1,240	1,329	538	595

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX K

IMPORTS OF WHEAT BASED ON RESPONSES TO COMMISSION QUESTIONNAIRES

Table K-1
Wheat: U.S. imports, by products and by sources, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Durum wheat:						
Canada	112	255	252	457	276	268
Other sources	0	0	0	0	0	0
Total	112	255	252	457	276	268
Hard red spring wheat:						
Canada	***	***	334	732	268	252
Other sources	0	0	0	0	0	0
Total	***	***	334	732	268	252
Hard red winter wheat:						
Canada	0	0	***	***	***	0
Other sources	0	0	0	0	0	0
Total	0	0	***	***	***	0
Soft red winter wheat:						
Canada	0	***	0	***	0	***
Other sources	0	0	0	0	0	0
Total	0	***	0	***	0	***
White wheat:						
Canada	54	262	79	142	86	***
Other sources	0	0	0	0	0	0
Total	54	262	79	142	86	***
Other wheat:						
Canada	0	***	91	220	88	153
Other sources	0	0	0	0	0	0
Total	0	***	91	220	88	153
All wheat:						
Canada	224	586	756	1,553	720	794
Other sources	0	0	0	0	0	0
Total	224	586	756	1,553	720	794
	Value *(1,000 dollars)*					
Durum wheat:						
Canada	17,177	37,450	33,861	65,474	38,091	40,204
Other sources	0	0	0	0	0	0
Total	17,177	37,450	33,861	65,474	38,091	40,204
Hard red spring wheat:						
Canada	***	***	45,469	96,369	35,695	33,498
Other sources	0	0	0	0	0	0
Total	***	***	45,469	96,369	35,695	33,498
Hard red winter wheat:						
Canada	0	0	***	***	***	0
Other sources	0	0	0	0	0	0
Total	0	0	***	***	***	0
Soft red winter wheat:						
Canada	0	***	0	***	0	***
Other sources	0	0	0	0	0	0
Total	0	***	0	***	0	***
White wheat:						
Canada	7,566	29,608	9,202	18,952	11,592	***
Other sources	0	0	0	0	0	0
Total	7,566	29,608	9,202	18,952	11,592	***
Other wheat:						
Canada	0	***	***	26,952	10,144	19,569
Other sources	0	0	0	0	0	0
Total	0	***	***	26,952	10,144	19,569
All wheat:						
Canada	34,102	75,820	99,318	207,966	95,717	109,469
Other sources	0	0	0	0	0	0
Total	34,102	75,820	99,318	207,966	95,717	109,469

Table continued on next page.

Table K-1--Continued
Wheat: U.S. imports, by products and by sources, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	June-Dec.-- 1993
	Unit value *(per metric ton)*					
Durum wheat:						
Canada	$153	$147	$134	$143	$138	$150
Other sources	(2)	(2)	(2)	(2)	(2)	(2)
Average	153	147	134	143	138	150
Hard red spring wheat:						
Canada	163	130	136	132	133	133
Other sources	(2)	(2)	(2)	(2)	(2)	(2)
Average	163	130	136	132	133	133
Hard red winter wheat:						
Canada	***	***	***	***	***	***
Other sources	(2)	(2)	(2)	(2)	(2)	(2)
Average	***	***	***	***	***	***
Soft red winter wheat:						
Canada	***	***	***	***	***	***
Other sources	(2)	(2)	(2)	(2)	(2)	(2)
Average	***	***	***	***	***	***
White wheat:						
Canada	140	113	117	134	135	135
Other sources	(2)	(2)	(2)	(2)	(2)	(2)
Average	140	113	117	134	135	135
Other wheat:						
Canada	(2)	115	***	123	116	128
Other sources	(2)	(2)	(2)	(2)	(2)	(2)
Average	(2)	115	***	123	116	128
All wheat:						
Canada	152	129	131	134	133	138
Other sources	(2)	(2)	(2)	(2)	(2)	(2)
Average	152	129	131	134	133	138

[1] Positive figure, but less than significant digits displayed.
[2] Not applicable.

Note.--Because of rounding, figures may not add to the totals shown. Unit values are calculated from the unrounded figures, using data of firms supplying both quantity and value information.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX L

IMPORTS OF WHEAT FLOUR AND SEMOLINA BASED ON RESPONSES TO COMMISSION QUESTIONNAIRES

Table L-1
Wheat flour and semolina: U.S. imports, by products and by sources, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

* * * * * * *

APPENDIX M

ANALYSIS OF QUALITY CONSIDERATIONS

Table M-1
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Durum wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	***	0	0	***
Not important	744	952	***	1,120	389	***
Total	744	952	1,111	1,120	389	457
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	0
No difference	0	0	0	0	0	***
Not important	744	952	***	1,120	389	***
Total	744	952	1,111	1,120	389	457
Gluten strength:						
U.S. product better	0	0	***	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	744	952	***	1,120	389	457
Total	744	952	1,111	1,120	389	457
Protein content:						
U.S. product better	0	0	***	0	0	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	744	952	***	1,120	389	***
Total	744	952	1,111	1,120	389	457
Moisture content:						
U.S. product better	0	0	0	***	***	374
Canadian product better	0	0	0	0	0	0
No difference	0	0	***	0	0	0
Not important	744	952	***	***	***	83
Total	744	952	1,111	1,120	389	457
Falling numbers:						
U.S. product better	0	0	***	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	***
Not important	744	952	***	1,120	389	211
Total	744	952	1,111	1,120	389	457
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	***
No difference	0	0	0	0	0	0
Not important	744	952	***	1,120	389	***
Total	744	952	1,111	1,120	389	457
Hard amber and vitreous kernels:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	***	0	0	***
Not important	744	952	***	1,120	389	211
Total	744	952	1,111	1,120	389	457
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	***
No difference	0	0	0	0	0	0
Not important	744	952	***	1,120	389	***
Total	744	952	1,111	1,120	389	457
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	***
No difference	0	0	0	0	0	0
Not important	744	952	***	1,120	389	***
Total	744	952	1,111	1,120	389	457

Table continued on next page.

Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Hard red spring wheat:						
Color:						
U.S. product better	0	0	0	***	***	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	11,132	***	2,266
Total	8,306	8,393	10,424	12,332	2,142	2,268
Cleanliness:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	***	***	***
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	11,090	1,656	1,310
Total	8,306	8,393	10,424	12,332	2,142	2,268
Gluten strength:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	12,332	2,142	2,263
Total	8,306	8,393	10,424	12,332	2,142	2,268
Protein content:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	***	***	***
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	11,090	1,656	1,311
Total	8,306	8,393	10,424	12,332	2,142	2,268
Moisture content:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	11,122	***	1,314
Total	8,306	8,393	10,424	12,332	2,142	2,268
Falling numbers:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	***	***	0
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	11,090	1,656	1,316
Total	8,306	8,393	10,424	12,332	2,142	2,268
Test weight:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	***	***	***
Not important	8,306	8,393	10,424	11,090	1,656	1,310
Total	8,306	8,393	10,424	12,332	2,142	2,268
Dark, hard and vitreous:						
U.S. product better	0	0	0	***	***	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	11,132	***	***
Total	8,306	8,393	10,424	12,332	2,142	2,268
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	***	2,142	***
Total	8,306	8,393	10,424	12,332	2,142	2,268
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	0	***
Not important	8,306	8,393	10,424	***	2,142	***
Total	8,306	8,393	10,424	12,332	2,142	2,268

Table continued on next page.

Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Hard red winter wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685
Moisture content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,468	7,372	10,241	8,293	3,239	3,685
Total	5,468	7,372	10,241	8,293	3,239	3,685

Table continued on next page.

Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Soft red winter wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	2,982
Total	5,818	4,123	2,498	3,714	***	2,982
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	***
Total	5,818	4,123	2,498	3,714	***	2,982
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	2,982
Total	5,818	4,123	2,498	3,714	***	2,982
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	2,982
Total	5,818	4,123	2,498	3,714	***	2,982
Moisture content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	2,982
Total	5,818	4,123	2,498	3,714	***	2,982
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	2,982
Total	5,818	4,123	2,498	3,714	***	2,982
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	***
Total	5,818	4,123	2,498	3,714	***	2,982
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	***
Total	5,818	4,123	2,498	3,714	***	2,982
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	0
Not important	5,818	4,123	2,498	3,714	***	***
Total	5,818	4,123	2,498	3,714	***	2,982

Table continued on next page.

Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
White wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	1,165	746	0
Not important	***	***	***	3,249	729	1,431
Total	4,306	5,053	4,987	4,414	1,474	1,431
Cleanliness:						
U.S. product better	0	0	***	0	0	***
Canadian product better	***	***	***	***	***	***
No difference	***	***	***	***	***	0
Not important	4,185	4,812	3,276	3,125	715	633
Total	4,306	5,053	4,987	4,414	1,474	1,431
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	***	***	***	***	0
Not important	4,306	***	***	***	***	1,431
Total	4,306	5,053	4,987	4,414	1,474	1,431
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	4,306	5,053	4,987	4,414	1,474	1,431
Moisture content:						
U.S. product better	***	212	***	149	***	***
Canadian product better	0	0	0	0	0	0
No difference	0	***	***	***	***	0
Not important	***	***	3,276	***	1,420	***
Total	4,306	5,053	4,987	4,414	1,474	1,431
Falling numbers:						
U.S. product better	0	0	***	0	0	***
Canadian product better	0	0	0	***	***	0
No difference	***	***	***	***	***	***
Not important	***	***	3,364	3,274	731	633
Total	4,306	5,053	4,987	4,414	1,474	1,431
Test weight:						
U.S. product better	0	0	***	0	0	***
Canadian product better	***	***	***	***	0	0
No difference	***	***	***	***	***	***
Not important	4,191	4,812	3,276	4,226	***	633
Total	4,306	5,053	4,987	4,414	1,474	1,431
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	***	***	0
No difference	***	***	***	***	***	0
Not important	4,191	4,896	4,878	3,153	729	1,431
Total	4,306	5,053	4,987	4,414	1,474	1,431
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	***	***	0
No difference	***	***	***	***	***	0
Not important	4,191	4,896	4,878	3,153	729	1,431
Total	4,306	5,053	4,987	4,414	1,474	1,431

Table continued on next page.

Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
Durum wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	***	0	0	***
Not important	100.0	100.0	***	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	0
No difference	0	0	0	0	0	***
Not important	100.0	100.0	***	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	0	0	***	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	***	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	***	0	0	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	***	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	0	0	0	***	***	81.9
Canadian product better	0	0	0	0	0	0
No difference	0	0	***	0	0	0
Not important	100.0	100.0	***	***	***	18.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	***	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	***
Not important	100.0	100.0	***	100.0	100.0	46.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	***
No difference	0	0	0	0	0	0
Not important	100.0	100.0	***	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Hard amber and vitreous kernels:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	***	0	0	***
Not important	100.0	100.0	***	100.0	100.0	46.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	***
No difference	0	0	0	0	0	0
Not important	100.0	100.0	***	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	***
No difference	0	0	0	0	0	0
Not important	100.0	100.0	***	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table continued on next page.

Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
Hard red spring wheat:						
Color:						
U.S. product better	0	0	0	***	***	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	90.3	***	99.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	***	***	***
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	89.9	77.3	57.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	100.0	100.0	99.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	***	***	***
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	89.9	77.3	57.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	90.2	***	57.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	***	***	0
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	89.9	77.3	58.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	***	***	***
Not important	100.0	100.0	100.0	89.9	77.3	57.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Dark, hard and vitreous:						
U.S. product better	0	0	0	***	***	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	90.3	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	***	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	0	***
Not important	100.0	100.0	100.0	***	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0

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Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
Hard red winter wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table continued on next page.

Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
Soft red winter wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	***
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	***
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table continued on next page.

Table M-1--Continued
Wheat: U.S. merchants' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
White wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	26.4	50.6	0
Not important	***	***	***	73.6	49.4	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	***	0	0	***
Canadian product better	***	***	***	***	***	***
No difference	***	***	***	***	***	0
Not important	97.2	95.2	65.7	70.8	48.5	44.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	***	***	***	***	0
Not important	100.0	***	***	***	***	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	***	4.2	***	3.4	***	***
Canadian product better	0	0	0	0	0	0
No difference	0	***	***	***	***	0
Not important	***	***	65.7	***	96.3	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	***	0	0	***
Canadian product better	0	0	0	***	***	0
No difference	***	***	***	***	***	***
Not important	***	***	67.5	74.2	49.6	44.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	***	0	0	***
Canadian product better	***	***	***	***	0	0
No difference	***	***	***	***	***	***
Not important	97.3	95.2	65.7	95.7	***	44.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	***	***	0
No difference	***	***	***	***	***	0
Not important	97.3	96.9	97.8	71.4	49.4	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	***	***	0
No difference	***	***	***	***	***	0
Not important	97.3	96.9	97.8	71.4	49.4	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

[1] Positive figure, but less than significant digits displayed.

Note.--Because of rounding, figures may not add to the totals shown. Ratios are calculated from the unrounded figures.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table M-2
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Durum wheat:						
Color:						
U.S. product better	***	***	***	735	399	497
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	***	0	0
Not important	403	436	415	209	120	231
Total	1,052	1,166	1,298	1,393	519	728
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	433	***	***
No difference	***	***	***	***	***	***
Not important	403	436	415	***	120	231
Total	1,052	1,166	1,298	1,393	519	728
Gluten strength:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	***	***	0	0
No difference	649	731	859	1,159	399	***
Not important	403	436	***	***	120	231
Total	1,052	1,166	1,298	1,393	519	728
Protein content:						
U.S. product better	***	***	***	1,159	399	497
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	0	0	0
Not important	403	436	415	***	120	231
Total	1,052	1,166	1,298	1,393	519	728
Moisture content:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	***	***	0	0
No difference	649	731	859	1,159	399	***
Not important	403	436	***	***	120	231
Total	1,052	1,166	1,298	1,393	519	728
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	649	731	884	1,185	399	497
Not important	403	436	415	209	120	231
Total	1,052	1,166	1,298	1,393	519	728
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	1,159	399	497
Not important	***	***	830	***	120	231
Total	1,052	1,166	1,298	1,393	519	728
Hard amber and vitreous kernels:						
U.S. product better	***	***	***	1,151	***	***
Canadian product better	0	0	***	0	0	0
No difference	***	***	***	***	***	***
Not important	403	436	415	***	120	231
Total	1,052	1,166	1,298	1,393	519	728
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	***	0	0
Not important	***	***	830	608	***	***
Total	1,052	1,166	1,298	1,393	519	728
Consistency of quality components:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	***	***	***
Not important	***	***	830	608	333	482
Total	1,052	1,166	1,298	1,393	519	728

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Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Hard red spring wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	***	0	0
No difference	***	***	1,405	***	***	1,179
Not important	***	***	3,221	3,108	***	1,671
Total	3,823	3,930	4,627	5,191	2,652	2,850
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	2,425	2,787	1,209	1,883
No difference	***	***	***	***	***	***
Not important	3,066	2,175	***	***	***	***
Total	3,823	3,930	4,627	5,191	2,652	2,850
Gluten strength:						
U.S. product better	***	***	0	***	***	***
Canadian product better	0	0	***	***	0	***
No difference	***	2,538	2,884	1,850	***	1,265
Not important	1,447	***	***	***	***	***
Total	3,823	3,930	4,627	5,191	2,652	2,850
Protein content:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	2,425	***	0	***
No difference	2,375	3,322	***	4,349	2,349	***
Not important	1,447	608	***	***	303	27
Total	3,823	3,930	4,627	5,191	2,652	2,850
Moisture content:						
U.S. product better	0	***	***	***	***	***
Canadian product better	0	0	0	0	0	0
No difference	2,375	2,360	2,800	2,763	1,585	1,973
Not important	1,447	***	***	***	***	***
Total	3,823	3,930	4,627	5,191	2,652	2,850
Falling numbers:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	***	***	***	0
No difference	2,375	3,322	2,800	2,039	***	2,115
Not important	1,447	608	***	609	303	***
Total	3,823	3,930	4,627	5,191	2,652	2,850
Test weight:						
U.S. product better	0	0	***	***	***	***
Canadian product better	0	***	***	***	0	***
No difference	2,375	2,360	2,665	3,626	1,915	1,649
Not important	1,447	***	575	609	***	27
Total	3,823	3,930	4,627	5,191	2,652	2,850
Dark, hard and vitreous:						
U.S. product better	0	0	0	***	***	0
Canadian product better	0	0	***	***	0	***
No difference	***	1,755	2,302	***	***	1,562
Not important	***	2,175	***	4,205	2,207	***
Total	3,823	3,930	4,627	5,191	2,652	2,850
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	***	***	0
Canadian product better	0	***	***	***	***	***
No difference	***	***	***	***	0	***
Not important	***	2,175	2,196	2,396	1,454	967
Total	3,823	3,930	4,627	5,191	2,652	2,850
Consistency of quality components:						
U.S. product better	0	0	0	***	***	0
Canadian product better	***	***	2,419	***	***	1,883
No difference	***	***	***	***	***	***
Not important	3,066	2,175	***	2,385	1,443	***
Total	3,823	3,930	4,627	5,191	2,652	2,850

Table continued on next page.

Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Hard red winter wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	4,862	5,020	5,870	5,966	3,554	4,416
Total	4,862	5,020	5,870	5,966	3,554	4,416
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	***	***
Not important	4,862	5,020	5,870	***	***	***
Total	4,862	5,020	5,870	5,966	3,554	4,416
Gluten strength:						
U.S. product better	***	***	***	***	***	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	***	***	***	***	***	***
Total	4,862	5,020	5,870	5,966	3,554	4,416
Protein content:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	0
Not important	***	***	***	***	***	***
Total	4,862	5,020	5,870	5,966	3,554	4,416
Moisture content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	4,862	5,020	5,870	5,966	3,554	4,416
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	4,862	5,020	5,870	5,966	3,554	4,416
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	4,862	5,020	5,870	5,966	3,554	4,416
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	4,862	5,020	5,870	5,966	3,554	4,416
Total	4,862	5,020	5,870	5,966	3,554	4,416
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	4,862	5,020	5,870	5,966	3,554	4,416
Total	4,862	5,020	5,870	5,966	3,554	4,416

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Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
Soft red winter wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	1,869	1,991	1,923	1,938	1,366	1,344
Total	1,869	1,991	1,923	1,938	1,366	1,344
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	***	***
Not important	1,869	1,991	1,923	***	***	***
Total	1,869	1,991	1,923	1,938	1,366	1,344
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	***	***
Not important	1,869	1,991	1,923	***	***	***
Total	1,869	1,991	1,923	1,938	1,366	1,344
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	***	***
Not important	1,869	1,991	1,923	***	***	***
Total	1,869	1,991	1,923	1,938	1,366	1,344
Moisture content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	1,869	1,991	1,923	1,938	1,366	1,344
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	1,869	1,991	1,923	1,938	1,366	1,344
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	1,869	1,991	1,923	1,938	1,366	1,344
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	1,869	1,991	1,923	1,938	1,366	1,344
Total	1,869	1,991	1,923	1,938	1,366	1,344
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	1,869	1,991	1,923	1,938	1,366	1,344
Total	1,869	1,991	1,923	1,938	1,366	1,344

Table continued on next page.

Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Quantity *(1,000 metric tons)*					
White wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	507	344	***
No difference	***	***	180	***	***	***
Not important	90	244	***	***	***	120
Total	432	648	445	747	501	523
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	507	344	***
No difference	***	316	148	***	***	***
Not important	7	***	***	***	***	79
Total	432	648	445	747	501	523
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	***	***	***	***	***
Not important	432	***	***	***	***	***
Total	432	648	445	747	501	523
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	425	637	330	576	394	444
Not important	7	11	115	172	107	79
Total	432	648	445	747	501	523
Moisture content:						
U.S. product better	***	***	***	***	***	***
Canadian product better	0	0	0	0	0	0
No difference	***	316	255	318	183	***
Not important	7	***	***	***	***	79
Total	432	648	445	747	501	523
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	0
No difference	425	637	330	690	459	444
Not important	7	11	***	58	42	79
Total	432	648	445	747	501	523
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	***	***	0
No difference	425	637	330	690	459	444
Not important	7	11	***	***	***	79
Total	432	648	445	747	501	523
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	***	***	0
No difference	342	404	255	573	397	403
Not important	90	244	***	***	***	120
Total	432	648	445	747	501	523
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	***	***	***
No difference	***	***	***	202	120	***
Not important	90	244	83	***	***	120
Total	432	648	445	747	501	523

Table continued on next page.

Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
Durum wheat:						
Color:						
U.S. product better	***	***	***	52.7	76.9	68.3
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	***	0	0
Not important	38.3	37.4	31.9	15.0	23.1	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	31.1	***	***
No difference	***	***	***	***	***	***
Not important	38.3	37.4	31.9	***	23.1	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	***	***	0	0
No difference	61.7	62.6	66.1	83.2	76.9	***
Not important	38.3	37.4	***	***	23.1	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	***	***	***	83.2	76.9	68.3
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	0	0	0
Not important	38.3	37.4	31.9	***	23.1	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	***	1.8	0	0
No difference	61.7	62.6	66.1	83.2	76.9	***
Not important	38.3	37.4	***	15.0	23.1	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	61.7	62.6	68.1	85.0	76.9	68.3
Not important	38.3	37.4	31.9	15.0	23.1	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	83.2	76.9	68.3
Not important	***	***	64.0	***	23.1	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Hard amber and vitreous kernels:						
U.S. product better	***	***	***	82.6	***	***
Canadian product better	0	0	***	0	0	0
No difference	***	***	***	***	***	***
Not important	38.3	37.4	31.9	***	23.1	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	***	0	0
Not important	***	***	64.0	43.7	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	***	***	0	0
No difference	***	***	***	***	***	***
Not important	***	***	64.0	43.7	64.1	66.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table continued on next page.

Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
Hard red spring wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	***	0	0
No difference	***	***	30.4	***	***	41.4
Not important	***	***	69.6	59.9	***	58.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	52.4	53.7	45.6	66.1
No difference	***	***	***	***	***	***
Not important	80.2	55.3	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	***	***	0	***	***	***
Canadian product better	0	0	***	***	0	***
No difference	***	64.6	62.3	35.6	***	44.4
Not important	37.9	***	***	11.7	11.4	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	52.4	***	0	***
No difference	62.1	84.5	***	83.8	88.6	***
Not important	37.9	15.5	***	***	11.4	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	0	***	***	***	***	***
Canadian product better	0	0	0	0	0	0
No difference	62.1	60.0	60.5	53.2	59.7	69.2
Not important	37.9	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	0	***	***	***
Canadian product better	0	0	***	***	***	0
No difference	62.1	84.5	60.5	39.3	***	74.2
Not important	37.9	15.5	***	11.7	11.4	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	***	***	***	***
Canadian product better	0	***	***	***	0	***
No difference	62.1	60.0	57.6	69.8	72.2	57.8
Not important	37.9	***	12.4	11.7	***	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Dark, hard and vitreous:						
U.S. product better	0	0	0	***	***	0
Canadian product better	0	0	***	***	0	***
No difference	***	44.7	49.7	***	***	54.8
Not important	***	55.3	***	81.0	83.2	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	***	***	0
Canadian product better	0	***	***	***	***	***
No difference	***	***	***	***	0	***
Not important	***	55.3	47.5	46.2	54.8	33.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	***	***	0
Canadian product better	***	***	52.3	***	***	66.1
No difference	***	***	***	***	***	***
Not important	80.2	55.3	***	45.9	54.4	***
Total	100.0	100.0	100.0	100.0	100.0	100.0

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Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
Hard red winter wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	***	***
Not important	100.0	100.0	100.0	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	***	***	***	***	***	***
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	0	0	0	***
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	0
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table continued on next page.

Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
Soft red winter wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	***	***
Not important	100.0	100.0	100.0	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	***	***
Not important	100.0	100.0	100.0	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	***	***	***
Not important	100.0	100.0	100.0	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	***	***	***	***	***	***
Not important	***	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	0	0	0	0	0
Not important	100.0	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table continued on next page.

Table M-2--Continued
Wheat: U.S. millers' purchases (including direct imports) from all sources, by products, by characteristics, and by characteristic qualifiers, crop years 1989/90-1992/93, June-Dec. 1992, and June-Dec. 1993

Item	1989/90	1990/91	1991/92	1992/93	June-Dec.-- 1992	1993
	Share of total quantity *(percent)*					
White wheat:						
Color:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	67.8	68.6	***
No difference	***	***	40.6	***	***	***
Not important	20.8	37.7	***	***	***	22.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cleanliness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	67.8	68.6	***
No difference	***	48.7	33.3	***	***	***
Not important	1.7	***	***	***	***	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gluten strength:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	0	***	***	***	***	***
Not important	100.0	***	***	***	***	***
Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein content:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	0	0	0	0
No difference	98.3	98.3	74.1	77.0	78.6	85.0
Not important	1.7	1.7	25.9	23.0	21.4	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Moisture content:						
U.S. product better	***	***	***	***	***	***
Canadian product better	0	0	0	0	0	0
No difference	***	48.7	57.4	42.6	36.5	***
Not important	1.7	***	***	***	***	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Falling numbers:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	0	0	0
No difference	98.3	98.3	74.1	92.3	91.6	85.0
Not important	1.7	1.7	***	7.7	8.4	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Test weight:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	***	***	0
No difference	98.3	98.3	74.1	92.3	91.6	85.0
Not important	1.7	1.7	***	***	***	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of kernel size and/or soundness:						
U.S. product better	0	0	0	0	0	0
Canadian product better	0	0	***	***	***	0
No difference	79.2	62.3	57.3	76.7	79.1	77.1
Not important	20.8	37.7	***	***	***	22.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Consistency of quality components:						
U.S. product better	0	0	0	0	0	0
Canadian product better	***	***	***	***	***	***
No difference	***	***	***	27.0	23.9	***
Not important	20.8	37.7	18.6	***	***	22.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

[1] Positive figure, but less than significant digits displayed.

Note.--Because of rounding, figures may not add to the totals shown. Ratios are calculated from the unrounded figures.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX N
TECHNICAL MODELING APPENDIX

At the outset, it is typical to perform stationarity tests on each of the individual series before the series are analyzed in a vector time series model.[1] The five quarterly series analyzed are published by the U.S. Department of Agriculture[2] as follows: U.S. domestic wheat supply (DOMSUPPLY), U.S. domestic use excluding seed use (DOMUSE), U.S. wheat exports (EXPORT), U.S. ending wheat stocks (ENDSTOCK), and the seasonal average all-wheat price used to calculate deficiency payments (PRICE). Following standard procedures, the Commission conducted augmented Dickey-Fuller or ADF tests (specifically, the τ_μ and τ_τ tests) on the logged levels of the five variables.[3] The statistic values for the two tests were both negative and of absolute values which exceeded those of the critical values of -2.89 for the ADF τ_μ test and -3.45 for the ADF τ_τ test. Evidence at the five-percent significance level from both ADF tests is therefore sufficient to reject the null hypothesis that the series is nonstationary for each of the five variables.[4] Hence, the variables appear stationary in logged levels. Since all variables in logged levels are stationary, and since cointegration is not an issue, then the Commission chose a vector autoregression (VAR) model in logged levels as appropriate, and did not model the system as a vector error-correction model.[5] Consequently, the Commission estimated the following all-wheat VAR model over the quarterly 1979:1-1993:2 sample (i.e., the empirical model).

$$\begin{aligned} x_t = {} & a_{0,x} + a_{x,T}*\text{TREND} + a_{fb81}*\text{fb81} + a_{fb82}*\text{fb85} + a_{fb90}*\text{fb90} \\ & + a_{x,1}*\text{DOMSPY}_{t-1} + \ldots + a_{x,4}*\text{DOMSPY}_{t-4} \\ & + a_{x,5}*\text{TLUSE}_{t-1} + \ldots + a_{x,8}*\text{TLUSE}_{t-4} \\ & + a_{x,9}*\text{EXPORT}_{t-1} + \ldots + a_{x,12}*\text{EXPORT}_{t-4} \\ & + a_{x,13}*\text{ENDSTOCK}_{t-1} + \ldots + a_{x,16}*\text{ENDSTOCK}_{t-4} \\ & + a_{x,17}*\text{PRICE}_{t-1} + \ldots\ldots + a_{x,20}*\text{PRICE}_{t-4} + R_{x,t} \qquad (1) \end{aligned}$$

The subscript t denotes the current value, while subscript (t-i) refers to the ith lag from the period-t value. The upper-cased subscript T represents the coefficient on time trend (TREND) that was included to account for time-dependent influences. On the left hand side, x = DOMSUPPLY, TLUSE, EXPORT, ENDSTOCK, and PRICE. Data were modeled in natural logarithms such that when a shock (increase) in DOMSUPPLY was imposed on the model's impulse response function (explained below), then changes or movements in the logged data approximate proportional changes

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[1] C.W.J. Granger. "Developments in the Study of Cointegrated Variables," *Oxford Bulletin of Economics and Statistics*, Vol. 48, 1986, pp. 213-28.

[2] U.S. Department of Agriculture, Economic Research Service. "Wheat Situation and Outlook Report," selected quarterly issues, Feb. 1993-Feb. 1994.

[3] For the stationarity (unit root) testing procedures, see D. Dickey and W. Fuller, "Distribution of the Estimates for Autoregressive Time Series with a Unit Root," *Journal of the American Statistical Association* Vol. 74, 1979, pp. 427-31. For the augmented form of this test, see R. Engle and C.W.J. Granger. "Cointegration and Errror Correction: Representation, Estimation, and Testing." *Econometrica* Vol. 55, 1987, pp. 251-76.

[4] The ADF pseudo-t values for the five variables ranged from -2.91 to -6.5 for the ADF τ_μ test and from -3.2 to -7.0 for the τ_τ test.

[5] For cointegration to be an issue, each of the modeled quarterly time series must be individually nonstationary (integrated of order d, d>0), and exhibit stationary behavior as a system. That is, for Johansen and Juselius' maximum likelihood-estimated vector error-correction model to be appropriate, the five variables of DOMSUPPLY, TLUSE, EXPORT, ENDSTOCK, and PRICE must be individually nonstationary, but form at least one stationary long run (cointegrating) relationship such that the individually nonstationary variables move tandemly as a system through time. Yet results from Dickey-Fuller tests performed on the logged series suggest that evidence at the five percent significance level is sufficient to reject the null hypotheses that each logged levels-variable is nonstationary, thereby rendering the vector autoregression model in logged levels appropriate. See S. Johansen and K. Juselius. "Maximum Likelihood and Inferences on Cointegration: With Applications to the Demand for Money." *Oxford Bulletin of Economics and Statistics*, Vol. 52, 1990, pp. 169-210.

(and percent changes when multiplied by 100) in the non-logged series. The coefficient with a nought subscript represents the intercept. The variables fb81, fb85, and fb90 represent indicator ("dummy") variables corresponding to the sample's subperiods during which the 1981, 1985, and 1990 Farm Bills, respectively, were in effect. The a-coefficients with the same farm-bill labels as subscripts represent the coefficients on the farm bill indicator variables. In addition, three quarterly seasonal indicator variables were included to account for seasonal variation. $R_{x,t}$ represents white noise residuals.

One must choose a lag structure that is finite and small enough to be operational yet large enough for the equations' residuals to approximate white noise.[6] Following VanTassell and Bessler[7] and Bessler[8], the VAR model's lag structure was chosen using Tiao and Box's likelihood ratio test procedure.[9] Results (not reported here) suggest a 4-order lag.

The Commission considered quarterly data for all five prices for the 1978:1-1993:2 period. The Commission "saved" the 4 observations of the 1978:1-78:4 subperiod for the Tiao-Box lag search, rendering the period 1979:1 -1993:2 as the VAR model's estimation period.

The five VAR equations may have contemporaneously correlated innovations. Failure to correct for contemporaneously correlated current errors will produce impulse responses not representative of historical patterns.[10] A Choleski decomposition was imposed on the VAR for each experiment to orthogonalize the current innovation matrix, such that the variance/covariance matrix was identity in each experiment. The Choleski decompositions resolve the problem of contemporaneous feedback.

Each decomposition requires an arbitrary imposition of a Wold causal ordering among the current values of the dependent variables.[11] The Commission chose the following ordering for three reasons: DOMSUPPLY, DOMUSE, EXPORT, ENDSTOCK, PRICE. First, for reasons enumerated in the staff economic memorandum for this investigation, U.S. wheat imports are modeled as an increase in domestic wheat supply. Hence, as is conventional with VAR models, the shock variable of DOMSUPPLY was placed as the ordering's first variable.[12] Second, the primary focus of the empirical modeling efforts is to discern the historically average PRICE reaction of a shock in DOMSUPPLY through the aggregates of all-wheat domestic use, exports, and ending stocks. Consequently, the usage components of DOMUSE and EXPORT were placed beneath the supply-oriented shock variable. Finally, the ENDSTOCK variable follows the supply and demand variables to register any excess supply or excess demand movements in the system, which then translate in to the ordering's final variable, PRICE. PRICE was placed at the ordering's base in order to catch or capture the effects of movements in quantities supplied, quantities demanded, and implied movements in the stocks/use ratio.

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[6] C. Sims. "Macroeconomics and Reality," *Econometrica, Vol. 48, 1980,* pp. 1-48.

[7] L. VanTassell and D. Bessler. "Dynamic Price Adjustments between Commercial and Purebred Cattle Markets," *Southern Journal of Agricultural Economics*, Vol 20, pp. 137-144, Dec. 1988.

[8] D. Bessler. "An Analysis of Dynamic Economic Relationships: An Application to the U.S. Hog Market," *Canadian Journal of Agricultural Economics*, Vol. 32, 1984, pp. 109-24.

[9] G. Tiao and G. Box. "Modeling Multiple Time Series: With Applications." *Journal of the American Statistical Association*, Vol 76, 1981, pp. 802-16.

[10] C. Sims, 1980.

[11] See D. Bessler, 1984.

[12] Sims, 1980 and Bessler, 1984 explain that when causal relationships exist, the shock variable is placed on top of the ordering.

Evidence suggests that the estimated VAR model has been adequately specified. Two sets of diagnostic test results are reported: the Ljung-Box portmanteau test and ADF unit root or stationarity tests conducted on each equation's residuals.[13]

A Ljung-Box portmanteau value, calculated for an equation's residuals, tests the null hypothesis that the equation has been adequately specified. The five Ljung-Box values, which range from 23.7 to 37.0, are less than the 38.9 critical chi-square value at the one-percent significance level. Thus, evidence is insufficient to reject the null hypothesis of adequate model specification.

Stationarity of the estimated equations is required. We therefore tested for the stationarity of the innovations or residuals of each VAR equation using the same augmented Dickey-Fuller (ADF) tests employed above on the variables' logged levels. Evidence at the five percent significance level was sufficient in each equation's case to reject the null hypothesis of nonstationarity in both the τ_μ and τ_τ ADF tests. This is because the t-like values on the nondifferenced regressors were negative and had absolute values that exceeded those of the critical test values of -2.89 for the ADF τ_μ test and -3.45 for the ADF τ_τ test. The five ADF t-like values ranged from -5.9 to -8.8 for the τ_μ tests, and from -4.9 to -6.2 for the τ_τ tests. The combined Ljung-Box and ADF results suggest that each equation of the VAR model has been adequately specified by diagnostic standards deemed reasonable in the econometric and time series literature.

The impulse response function simulates, over time, the effect of a one-time shock in one of a VAR's series on itself and on other series in the system.[14]. An 10-percent increase in DOMSUPPLY was chosen as the shock. The quarterly reactions (impulse responses) in TLUSE, EXPORT, ENDSTOCK, and hence PRICE were then examined. Since the model is linear, choice of the shock's sign and size are arbitrary decisions. For a shock of 30-percent, one need only multiply the model results from the 10-percent DOMSUPPLY shock by 3.0, while one need only re-sign (negate) the model results of a 10-percent DOMSUPPLY increase to obtain model results for a 10-percent decrease in the same shock variable.

Impulse responses are approximate changes in the non-logged prices, and are not price levels. Kloek and Van Dijk's[15] Monte Carlo methods generated t-values for each impulse response. These values test the null hypothesis that each impulse is zero-valued. We focused on those ranges of impulses that were statistically nonzero at the 10-percent significance level.

Multipliers or response parameters of a response variable to shocks in DOMSUPPLY are calculated.[16] By a VAR model's very definition, each endogenous variable is posited as a function of a specified number, here 4, lags of all of the system's endogenously modeled variables. Hence a one-time shock to the system places all five variables into cycles of quarterly pulsation, including the shock variable. Insofar as the data levels are modeled in natural logarithms, then shocks to and impulse responses in, the logged variables constitute proportional changes in the nonlogged variables, and percent changes in the nonlogged variables when multiplied by 100. As an example, consider the price's response parameter for shocks in DOMSUPPLY. One sums the statistically quarterly impulse responses into a cumulative change in PRICE; sums the coincidental movements in the shock variable into a change in the shock variable; and then divides the response variable change by the

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[13] For detailed explanations of these two tests performed on the VAR equation residuals, one should consult: A. Harvey. *An Econometric Analysis of Time Series*. Cambridge, MA: MIT Press 1990. and C.W.J. Granger and P. Newbold. *Forecasting Economic Time Series*. New York: Academic Press, 1986.

[14] D. Bessler, 1984.

[15] T. Kloek and H. Van Dijk. "Bayesian Estimates of Equation System Parameters: An Application of Monte Carlo." *Econometrica*, Vol. 46, 1978, pp. 1-20.

[16] The Commission followed a method described by R. Babula and D. Bessler. "The Corn-Egg Price Transmission Mechanism." *Southern Journal of Agricultural Economics*, Vol 22, 1990, pp. 79-86.

shock variable change. Basically, the response parameter is likened to an elasticity, and provide's history's average percent response per percentage change in the shock variable. For example, PRICE's -0.424 response parameter suggests that history has had each percentage point rise in DOMSUPPLY elicit an average 0.424 percent decline in PRICE. A positive multiplier suggests that rises/falls in the shock variable have generally elicited the same in the respondent variable for which the multiplier is calculated.