CASEIN, MIXTURES IN CHIEF VALUE OF CASEIN, AND LACTALBUMIN

Report to the President on Investigation
No. 22-44 Under Section 22
of the Agricultural Adjustment Act

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UNITED STATES INTERNATIONAL TRADE COMMISSION

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Note.--Information which would disclose confidential operations of individual concerns may not be published and therefore has been deleted from this report. Deletions are indicated by asterisks.

REPORT TO THE PRESIDENT ON
INVESTIGATION NO. 22-44

CASEIN, MIXTURES OF CASEIN, AND LACTALBUMIN

UNITED STATES INTERNATIONAL TRADE COMMISSION
January 29, 1982

Findings and recommendations

On the basis of the information developed in the course of the investigation, the Commission 1/ finds and recommends that casein, mixtures in chief value of casein, and lactalbumin, provided for in items 493.12, 493.17, and 190.15, respectively, of the Tariff Schedules of the United States (TSUS), are not being, and are not 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 program for milk undertaken by the Department of Agriculture, or to reduce substantially the amount of any product processed in the United States from domestic milk.

Background

The Commission instituted its investigation on August 24, 1981, following the receipt on August 10, 1981, of a request from the President. The investigation was instituted pursuant to section 22(a) of the Agricultural Adjustment Act (7 U.S.C. 624(a)) to determine whether casein, mixtures in chief value of casein, and lactalbumin, provided for in items 493.12, 493.17, and 190.15, respectively, of the TSUS, are being, or are practically certain to be, imported into the United States under such conditions and in such

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1/ Commissioner Frank dissents in part. Commissioner Frank finds that casein and mixtures in chief value of casein, provided for in items 493.12 and 493.17, respectively, of the TSUS, are being imported into the United States under such conditions and in such quantities as to materially interfere with the price-support program for milk conducted by the United States Department of Agriculture.

quantities as to render or tend to render ineffective, or materially interfere with, the price-support program for milk conducted by the Department of Agriculture, or to reduce substantially the amount of products processed in the United States from domestic milk.

Notice of the Commission's investigation was published in the Federal Register of September 2, 1981 (46 F.R. 44103). A public hearing was held in Washington, D.C. on November 9 and 10, 1981. All interested parties were afforded an opportunity to appear and to present information for consideration by the Commission.

This report is being furnished to the President in accordance with section 22(a) of the Agricultural Adjustment Act. The information in the report was obtained from responses to Commission questionnaires, from information presented at the public hearing, from interviews by members of the Commission's staff, from information provided by other Federal and State agencies, and from the Commission's files, submissions from the interested parties, and other sources.

STATEMENT OF CHAIRMAN BILL ALBERGER, VICE CHAIRMAN MICHAEL J. CALHOUN, COMMISSIONERS PAULA STERN AND ALFRED E. ECKES

Introduction

Section 22 of the Agricultural Adjustment Act provides that the Commission shall advise the President whether articles "are being or are practically certain to be imported . . . in such quantities as to render or tend to render ineffective, or materially interfere with . . . " certain agricultural programs. 1/ The President considers the Commission's advice in determining whether relief from import competition should be granted.

Our investigation shows that imported casein probably displaces some domestic dairy products supported by the Department of Agriculture's milk program. However, we find that interference with the program has not risen to the "material" level, nor is there any indication it will do so in the immediate future. As the Commission majority stated in Certain Tobacco, investigation No. 22-43 (August 1981), material interference is more than slight, but need not be major interference. In this case, imports cause no more than slight interference.

In addition, we do not find that imports render or tend to render the milk program ineffective. The principal objectives of the program are being met, although admittedly at considerable cost to the Government. This cost is

1/ The statute also includes a clause referring to products processed from agricultural commodities, and the President included the processing clause within the scope of the requested investigation. USDA did not assert and there were no persuasive arguments before the Commission that imports of casein reduced substantially the amount of any product processed from milk, and therefore we will not address this issue further in this statement.

largely a function of price support levels, however, and not of casein imports. No real and imminent harm to the program has been shown to result from the imports and thus the arguments as to future harm are conjectural.

The milk program of the USDA

The milk program of the U.S. Department of Agriculture supports the price of milk through purchases of butter, Cheddar cheese, and nonfat dry milk (NFDM) by the Commodity Credit Corporation (CCC) at support prices set by the Congress. The statutory purpose of the milk support program is to support the price of milk at a level "to assure an adequate supply of pure and wholesome milk to meet current needs, reflect changes in the cost of production, and assure a level of farm income adequate to maintain productive capacity sufficient to meet anticipated future needs." 2/ In addition, an implicit goal of the milk program, as with all commodity programs, is that it be administered without excessive losses. Congress has demonstrated its concern with costs of the commodity program by the enactment of the section 22 protective mechanism and by occasional downward adjustment of the support price level.

Between April 1976 and October 1980, price support levels ranged from 78 percent to 82.3 percent of parity and the support price for milk increased 60 percent. Congress lowered the level in 1981 to 72.9 percent of parity; but years of high support stimulated an increase in milk production from 120 billion pounds in 1976 to an estimated 132 billion pounds in 1981. In the face of this plentiful supply, market prices generally were below support

2/ 7 U.S.C. 1446(c).

prices for dairy products after 1979, triggering ever higher CCC purchases. In 1981, the Government purchased 851 million pounds of NFDM (over three times 1979 purchases), 546 million pounds of cheese (over nine times the 1979 purchases), and 352 million pounds of butter (more than four times the 1979 purchases). Dairy purchases cost the CCC $2 billion in 1981, roughly half of all the money spent on agricultural price support programs.

Effectiveness of the program

Notwithstanding these high costs, the statutory purpose of the milk program is being met. There can be no doubt, given the great amount of milk products purchased by the Government and the level of U.S. production, that there is an adequate supply of milk to meet current needs and capacity to meet anticipated future needs. Price support levels have kept pace with changes in the cost of milk production.

In addition, although only limited data are available, net farm income for dairy farmers has increased in recent years due to rising prices for milk and increasing production of milk per cow. Also, the price of milk has risen faster than the cost of feed. Net farm income for dairy farms in Wisconsin and New York, two principal milk-producing states, showed healthy growth between 1977 and 1980. 3/

The imported products

Two imported products are the subject of this investigation, casein and mixtures in chief value of casein, 4/ and lactalbumin. Casein, the principal

3/ Report, pp. A-3 and A-4.
4/ In the remainder of this opinion, both casein and mixtures of casein are referred to as "casein."

protein in milk, is one of the most complete proteins known, containing all of the amino acids necessary in the human diet. It is manufactured commercially from fluid skim milk and is used for a number of purposes, including human foods, animal feed, glues, paper coatings, and paints.

Prior to the 1960's, casein was used almost exclusively for industrial applications. However, casein markets have gradually shifted until, in 1980, human food and animal feed were estimated to account for 85 percent, and industrial uses, for 15 percent of domestic casein consumption. The largest and fastest growing market for casein is imitation cheese, which accounted for an estimated 31 percent of casein used in 1980 and 35 percent during January-August 1981. 5/ The properties of casein that make it a desirable product include its binding, emulsifying, and buffering characteristics.

There was once significant production of casein in this country. However, skim milk was diverted into production of NFDM rather than casein because sales to the Government of NFDM were more lucrative than returns from sales of casein. As a result, domestic casein production fell from 18 million pounds in 1949 to 3 million pounds in 1955; since 1968 no production has been reported. 6/

Lactalbumin is another protein derived from milk. When fluid milk is processed into casein, the liquid portion that remains is known as acid whey. Lactalbumin is currently processed from acid whey. Lactalbumin is used as a protein complement in breakfast foods, pet foods, miscellaneous high protein foods, medical/nutritional products, and diet foods.

5/ Report, pp. A-14 and A-15.
6/ Report, p. A-18.

Imports of casein have increased irregularly from 112 million pounds in 1976 to 152 million pounds in 1980. 7/ However, recent data show that imports during January-August 1981 totaled 84 million pounds, 22 percent less than the 109 million pounds imported during the same period of 1980. Imports of lactalbumin during 1978-80 fluctuated between 1.0 million pounds and 2.0 million pounds. 8/

Assessment of present harm to the program

Direct displacement.--Casein is not currently produced in the United States and is not like any product covered by the price support program. Thus, any interference with the price support program by casein must be indirect, i.e., by displacement of a dairy product that is purchased by the CCC.

The argument was made that section 22 should not be applied because casein and NFDM and cheese are not "like products." In support of this argument one party cited the U.S. statement in support of its petition for a waiver of obligations under Articles II and XI of the General Agreement on Tariffs and Trade (GATT). The party alleged that statement said section 22 was designed to apply only to "like products," i.e., imported products that are substantially similar in characteristics and uses to products covered by the agricultural program concerned. However, section 22 has no like product requirement. There is ample support for our position. Section 22 is not restricted to like products for three reasons: (1) the U.S. request for a waiver does not state that section 22 is applicable only to like products; (2)

7/ Report, p. A-66.
8/ Report, p. A-28.

the statement of the GATT Contracting Parties does not state that section 22 applies only to like products; 9/ and (3) there is no indication in the words of the statute or in the legislative history of section 22 that leads to that conclusion. 10/ Where Congress has limited consideration to a like product, it has done so explicitly, as in section 201 of the Trade Act of 1974 or in the Trade Agreements Act of 1979. 11/ Section 22, however, applies to imports of "any article or articles."

Indirect displacement.--Although there is no requirement that the imported product have a "like" domestic counterpart for relief to be granted under section 22, the absence of products that are like or directly competitive with each other inevitably makes an analysis of interference much more difficult.

9/ The full statement of the Contracting Parties regarding like product is as follows:

> (a) Having also received the statement of the United States: that there exist in the United States governmental agricultural programmes (including programmes or operations which provide price assistance for certain domestic agricultural products and which operate to limit the production or market supply, or to regulate or control the quality or prices of domestic agricultural products) which from time to time result in domestic prices being maintained at a level in excess of the prices at which imports of the like products can be made available for consumption in the United States in abnormally large quantities or in such manner as to have adverse effects on such programmes or operations unless the inflow of such imports is regulated in some manner. (Emphasis added.)

The thrust of this statement is merely that price support programs may lead to domestic articles being more expensive than imported articles "like" the imports.

10/ In fact, section 22(f) makes it clear that no trade agreement or other international agreement shall be applied in a manner inconsistent with the requirements of section 22.

11/ Section 771(10) of the Tariff Act of 1930, which was added by the Trade Agreements Act of 1979.

Quantification of the impact on a program can become so tenuous as to be speculative.

The tenuous linkage between casein imports and the high costs of the program was reflected in USDA's own testimony at the hearing held as part of this investigation. USDA was unwilling to take the position that material interference with the program is occurring now or will occur in the near future. Rather, USDA stated that there is "reason to believe" that there is present material interference. 12/ This is a precondition for a recommendation by USDA that the President request the Commission to conduct a section 22 investigation. However, a "reason to believe" is not a sufficient basis for the Commission to make an affirmative finding.

There is no positive statistical correlation between imports of casein and purchases by the CCC under the dairy program. 13/ In examining the costs of the dairy program, that lack of correlation is significant because it shows that casein imports are clearly not a major cause of material interference. Our examination of the estimates of displacement leads us to the conclusion that the effect of imports on the program is in fact only slight.

During this investigation, the Commission received a wide range of estimates from many sources as to the level of displacement of domestic products caused by casein. There is no justification for accepting the assumptions upon which these higher loss estimates must be based. However, we are not adopting any specific estimate of displacement because all such estimates in this case involve a large measure of conjecture.

12/ Transcript of the hearing, pp. 56-57.
13/ Report, pp. A-24 through A-26.

The USDA estimated that $300 million worth of NFDM was displaced by casein in 1980, or about 20 percent of the total cost of the program in that year. We believe that the USDA estimate substantially overstates the displacement because of questionable assumptions underlying the methodology used. For example, in the case of imitation cheese, the USDA used a ratio of 5.68 to 1 to convert casein displacement of domestic skim milk solids to a NFDM basis, rather than the generally accepted ratio of 3.16 to 1. No testimony at the hearing supported the higher conversion factor and posthearing submissions by the USDA conceded that "something less than 5.68 seems reasonable." 14/. A ratio of 3.16 to 1 applied to casein used in imitation cheese would reduce the USDA estimate of displacement to $225 million.

The USDA grouped casein users into categories based on product lines. In some categories it was assumed that users would switch simultaneously and completely from casein to domestic dairy products as the price of casein increased. However, data from Commission questionnaires indicate that users of casein in these categories would not act with one mind under such circumstances, but that some would continue to use casein long after others had ceased.

The Commission prepared a number of displacement estimates employing a methodology and assumptions similar to those of the USDA but from a data base almost twice as large. The Commission estimated that such displacement would range as high as $103 million to $178 million, but could easily be as low as a few million dollars. In any event, the hypothetical nature of the assumptions

14/ USDA posthearing submission, pp. 16-17.

needed to reach these estimates and the vast differences between the results clearly demonstrate that all estimates are speculative.

To reach all the high-end estimates of displacement, it must be assumed that natural and filled cheeses made from domestic skim milk would replace casein-based imitation cheese if casein were priced high enough. At the wholesale level, the prices of the domestic products are 50 to 100 percent higher than that of the casein-based product. There are undoubtedly consumers who buy imitation cheese for reasons of economy, health, and diet, who would not buy natural cheese as an alternative. In fact, to some degree, imitation cheese manufacturers have created a new market for their product.

Both the USDA estimate and $95 million of the Commission's $103-178 million estimate assume that domestic casein production would occur at a price near $3.00 per pound. However, there was no testimony at the hearing that there would be such production. Furthermore, both estimates require that all demand at that price be supplied by domestic production. This is unrealistic. A higher U.S. price for casein would encourage greater foreign production rather than less if a market existed at that price. Thus, elimination of imports is not likely to occur naturally and could not be gained by restrictions under section 22.

Most important, both USDA and Commission estimates require that there would be no further dissemination of existing protein technology and no development of new technology. Such assumptions seem unrealistic. Even at the 1981 price of about $1.50 per pound, there has been sufficient incentive to encourage research and laboratory production of imitation cheese and other

products using proteins derived from wheat, whey, soy and other sources. A switch from casein to any of these proteins would be hastened by an increase in the price of casein and would not benefit the USDA price support program at all.

Assessment of future harm to the program

The language of section 22 provides two alternative standards under which the prospective impact of imports may be sufficient for relief to be granted. The first standard is that articles are practically certain to be imported under such conditions and in such quantities as to materially interfere with the milk program. The second standard is that articles are practically certain to be imported under such conditions and in such quantities as to tend to render the milk program ineffective.

A conclusion that casein is practically certain to be imported under conditions or in quantities which would materially interfere with the support program would be conjectural. The data do not support this view. The data show that the quantity of imports of casein leveled off in the 1979-1980 period. 15/ In addition, as shown above, recent import figures show falling imports in January-August 1981 compared to the same period of 1980. As users increasingly find substitutes for casein, particularly in imitation cheese products, casein imports may continue to decline or at least not increase substantially. USDA provided information that world production of casein had declined in 1981; thus, no upsurge in casein imports is expected. We see no

15/ Report, p. A-66.

likelihood that imports will enter the United States in such quantities and under such conditions as to cause future harm to the program in the near future.

Lactalbumin

The USDA took the position that lactalbumin is not causing material interference with the milk program. 16/ Consumption of lactalbumin increased from 1.1 million pounds in 1977 to 1.8 million pounds in 1979, and then declined to 1.4 million pounds in 1980. In comparison, imports of casein have averaged over 140 million pounds annually in the same period. Clearly, if imports of casein are too small to cause material interference, the much smaller amount of imports of lactalbumin have not caused material interference. In addition, there is no indication that lactalbumin imports will increase substantially in the near term. Thus, the milk program is not likely to suffer harm from these imports in the future.

Remedy considerations

We recommend that the President find that imports of casein and lactalbumin are not rendering or tending to render ineffective, or materially interfering with, the milk program .

Although our recommendation is in the negative, a discussion of our findings with respect to proposed remedies is in order. This would apprise the President of the ramifications of such remedies if he were to disagree with our findings regarding material interference.

16/ Transcript of the hearing, p. 58.

Under section 22, the President has the authority to impose fees of up to 50 percent ad valorem on imports found to interfere with a program or to impose a quota which would allow entry of at least 50 percent of the total quantity of articles imported during a period he determines to be representative. He may describe these articles by physical qualities, value, use, or upon such other bases as he determines. 17/

Imposing a 50 percent ad valorem tariff on imported casein would be an ineffective way to prevent losses to the dairy price support program. Such a tariff would not likely result in a significant increase in the use of domestic skim milk solids because the resulting increased price of casein would drive users to alternative protein sources or out of production. 18/ Two recent studies emphasize other shortcomings of this approach. The USDA estimates that there would be no benefit whatsoever to the CCC, yet there would be a cost to consumers of $47.5 million to $55 million. The Commission study comes to a similar conclusion. It shows that annual CCC purchases would be reduced between $8 million and $47 million, while the cost to consumers could be as much as $71 million to $83 million. 19/

At first glance a more effective remedy appears to be a quota set at 50 percent of the average 139.3 million pounds of casein imported during the representative period 1976-80. According to the Commission study, this would

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17/ Section 22(b) (7 U.S.C. 624(b)).

18/ Report, pp. A-34 and A-35.

19/ The low end of the range in the Commission's estimates is based only on the assumption that increases in the cost of casein would result in increased use of NFDM. The high end of the range assumes additionally that producers are limited to existing, widely available technology of alternative proteins for casein.

save the CCC from $8 to $53 million, but it would cost consumers at least $95 million in higher prices paid for casein and dairy products. Using a slightly different approach, the USDA has calculated the effects of a quota based on the 1979-80 period. Under this formulation, annual casein imports would be six million pounds more per year than in the Commission study. But the USDA also concludes that the costs would far outweigh the savings. The Government would save $9 million in CCC purchases, but consumers would pay an additional $115 million. In essence, a 50 percent quota would remove only 3 percent of the alleged interference of $300 million estimated in the USDA study.

A quota could be set at any level above 50 percent. For example, a quota limiting casein to 100 percent of the quantity imported during a representative period could be appropriate if it were determined that interference is imminent. Such a quota would prevent increases in the level of imports while not adversely affecting the existing level of use determined not to be materially interfering with the program. Once again, however, the Commission has not found real or imminent material interference and does not recommend the imposition of this remedy.

One other proposal warrants discussion here. Some parties proposed a preferential licensing system for casein used for medical/nutritive needs. With licensing, it is asserted that end users of products uniquely dependent on casein could obtain the necessary quantities. 20/ The Commission solicited opinions from both the U.S. Customs Service and the USDA on the feasibility of

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20/ Assuming that casein imports are restricted, the prices of these necessary products would likely increase.

administering a use-based licensing system. Neither agency believed that it had the necessary resources to administer such a licensing system. And the costs of such a program would not equal the perceived benefits of such a remedy.

Finally, in any consideration of alternative remedies, it is important to note that the USDA, the agency which administers the price support program and which called for the present investigation, refused to propose a remedy. We cannot recall a single instance in which the USDA has similarly refused to recommend a remedy. This is a further indication that no realistic remedy exists to deal effectively with the slight amount of interference found.

Conclusion

The principal objectives of the milk support program are being met, although at great cost to the Government. However, this cost results from the level at which milk is being supported, not from the importation of casein. Although casein does displace some domestic milk products, that displacement is small. Therefore, we believe that a finding of material interference with the price support program is inappropriate.

STATEMENT OF COMMISSIONER EUGENE J. FRANK

On the basis of the information before me in this investigation I have found that--

> (1) casein and mixtures of casein, provided for in items 493.12 and 493.17 of the Tariff Schedules of the United States (TSUS), are being imported into the United States under such conditions and in such quantities as to materially interfere with the price support program for milk of the Department of Agriculture, but that
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> (2) lactalbumin, provided for in item 190.15 of the TSUS, is not being and is not 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 program for milk of the Department of Agriculture, or to reduce substantially the amount of any product being processed in the United States from such milk.

The program of the USDA

The Agricultural Act of 1949 requires the Secretary of Agriculture to support the price of milk at a level between 75 and 90 percent of parity so as to assure an adequate supply of pure and wholesome milk to meet current needs, reflect changes in the cost of production, and assure a level of farm income adequate to maintain productive capacity sufficient to meet anticipated future needs. The Food and Agricultural Act of 1977 increased the minimum support level for milk to 80 percent of parity for the period beginning October 1, 1977, and ending September 30, 1981, and directed the Secretary to adjust the support price at the beginning of each semiannual period to reflect any estimated change in the parity index during that semiannual period. This semiannual adjustment was suspended on March 31, 1981. Support levels were

further adjusted after enactment of the Agriculture and Food Act of 1981, declining to 72.9 percent of parity. 1/

The program for the support of milk prices operates through purchases by the Commodity Credit Corporation (CCC) of three types of products made from milk. Under the program, the CCC purchases unlimited quantities of butter, Cheddar cheese, and nonfat dry milk (NFDM) at announced prices. The prices paid by the CCC are intended to provide the producers of these three types of products sufficient return so as to allow them to pay farmers a price for milk approximately equal to the legislated support price. The measure of the program is therefore the level of the purchases under the program.

The Status of the Dairy Support Program and the Issue of Material Interference

The support program for milk is clearly suffering interference. An examination of the program shows that purchases of the products purchased by the CCC have increased substantially in recent years and show no sign of any decrease in the foreseeable future. Purchases of butter by the CCC have increased irregularly from 60 million pounds in 1976 to 352 million pounds in 1981. Purchases of Cheddar cheese increased from 62 million pounds in 1976 to 546 million pounds in 1981. Purchases of NFDM increased from 258 million pounds in 1976 to 851 million pounds in 1981. In the case of all three of these types of milk products, the major increase has occurred in 1980 and 1981. 2/ In addition, while these levels of purchases have climbed dramatically, Government owned stocks of all three have also increased to a level far in excess of what can be considered prudent. The total milk

1/ Report, p. A-7.
2/ Report, p. A-57.

equivalent of butter and cheese in CCC stocks at the end of November 1981 was 13.6 million pounds, more than twice the level at the end of November 1980 and thirty-two times the level on December 31, 1976. 3/ CCC stocks of NFDM increased 50 percent in 1981 to 751 million pounds at the end of November 1981, and now stand at twice the level of December 31, 1976. Finally, expenditures by the Government, the measure by which the Commission has traditionally determined the existence of interference with a support program, have increased from $714 million in fiscal year 1977 to $1.3 billion in 1980 and to nearly $2 billion in 1981. 4/ These expenditures accounted for about one-half of Government expenditures on all agricultural support programs in 1981 and clearly demonstrate that the program is experiencing difficulty.

The Reagan Administration is clearly cognizant of these problems in the dairy price support program. In his statement of December 22, 1981, President Reagan authorized the release on that date of 30 million pounds of cheese from the CCC inventory for delivery to the States that request it for distribution to the needy. The President in his statement on that date also underscored the possible need for future such distributions:

> The 1981 farm bill I signed today will slow the rise in price support levels, but even under this bill, surpluses will continue to pile up. A total of more than 560 million pounds of cheese has already been consigned to warehouses, so more distributions may be necessary as we continue our drive to root out waste in government and make the best possible use of our Nation's resources. 5/

3/ Report, p. A-56.
4/ Report, p. A-58.
5/ Statement by the President, December 22, 1981, Weekly Compilation of Presidential Documents, Monday, December 28, 1981, vol. 17, No. 52, pp. 1398-1399.

The effect of imports of casein on the program

Casein is the principal protein in milk and is found only in milk. Casein accounts for about 80 percent of the protein content of milk, and is one of the most complete proteins known, containing all the amino acids essential to the human diet. Casein is manufactured commercially from fluid skim milk. The primarly alternative use for such skim milk, other than for use in its fluid state for drinking, is the production of NFDM. If a processor chose to make casein from skim milk, he will not be able to make NFDM from the same skim milk, and vice versa. Casein, which in its pure form is insoluble in water, can be made into soluble salts called caseinates. Caseinates are the principal articles which are entered into the United States as mixtures in chief value of casein. Therefore, both casein and caseinates compete for their raw material, skim milk, and it is proper to consider the two together as potentially interfering with the price support program for milk.

The price support program, as mentioned above, purchases NFDM through the CCC as part of its operations. The prices at which such purchases are made are set at the level appropriate to return to farmers the legislated support price for milk and its parts: butterfat, sugar, and protein. The price for NFDM must by law increase according to the parity index. The United States had a casein producing industry for many years after the support program was instituted. Gradually, as the support price for NFDM increased, skim milk not used for drinking was directed to NFDM production rather than to casein production. However, had imports of casein not been available, the demand for casein would have necessarily been satisfied by domestic production, albeit at

a higher price. Primarily because of the availability of imported casein at a price below the cost of production in the United States, the domestic casein industry died. By about 1970, casein was no longer produced in the United States. Currently imported casein is available at prices less than one-half of those necessary to elicit domestic production from domestic skim milk. 6/

The USDA and the staff of the Commission provided estimates of the amount of casein which would be produced in the United States if imports were not available. The USDA stated in testimony that 24 million pounds would be produced and utilized by processors if the price of casein was at least $2.65 per pound. The Commission staff estimated that at a price of $3.00 per pound about 36 million pounds of casein would be produced and used in the United States. 7/ Had U.S.-produced casein been available in these quantities, CCC losses under the program would have been substantially lower, and could range up to $103 million less.

In addition to the lower quantity of NFDM which would have been purchased by the CCC as a result of domestic production of casein, there would be lower purchases of NFDM or even Cheddar cheese resulting from increased sales of domestic cheese. The largest single use for casein is in the production of imitation cheese and the amount of casein used in such cheese increased from 16 million pounds in 1978 to an estimated 49 million pounds in 1981 (based upon data for January-August 1981). The amount of imitation cheese produced from casein has increased from only 60 million pounds in 1978 to an estimated 210 million pounds in 1981, again based upon 8 months data. 8/ Further, in

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6/ Report, pp. A-22 and A-23.
7/ Report, p. A-31.
8/ Report, p. A-64.

terms of casein usage on a percentage basis, imitation cheese accounted for an estimated 31 percent of casein and mixtures in chief value of casein used in 1980 compared with 12 percent in 1978 and 35 percent in January-August 1981. 9/ There is little evidence that this phenomenal growth will slow in the future. Had imported casein not been available for the production of imitation cheese, consumers would have purchased natural and filled cheeses made from domestic milk instead. Although noncasein based imitation cheeses (e.g., "filled cheeses") have been said to compete with natural and process cheeses, production of these noncasein imitation cheeses appears to be small in relation to casein-based imitation cheese production. 10/ Such commercial and retail sales would have reduced CCC purchases of domestic dairy products in 1980 by an additional $75 million in the view of the Commission staff. 11/ The total displacement of domestic dairy products by imported casein or products made from imported casein is therefore estimated to range from $178 million to $300 million. In 1980, the CCC purchased products valued at $1.3 billion. Therefore, purchases resulting from the importation of casein represented 14 to 23 percent of total CCC purchases in that year.

There has been much discussion about the apparent lack of discernible correlation between the level of casein imports and CCC purchases for specified time periods. In particular, I refer to an extensive correlation analysis done on behalf of the Grocery Manufacturers of America (GMA), especially with regard to CCC purchases of cheese. In that study, it is noted that much of the period data on such purchases approach but do not meet the

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9/ Report, pp. A-61 and A-62.
10/ Report, p. A-15.
11/ Report, p. A-32.

test of statistical significance. Furthermore, the brief concedes also that much of the data on food and feed uses of casein, derived from the National Milk Producers Federation Prehearing brief of November 2, 1981, is of questionable value. More importantly, I believe it appropriate to point out that correlation analysis, while oftentimes a helpful tool in ascertaining relationships between variables over a period of time, can be misleading: where applicable, significant structural changes involving exogenous factors which may impinge on the variables scrutinized in a time series are not necessarily taken into account. In this case, I believe the radical shift in end-user utilization of casein over a compressed time frame, particularly with regard to imitation cheese, is such a significant structural change. Also, there appear to have been fairly significant swings in casein inventory carry-overs year-to-year in recent periods which would be an additional exogenous factor ignored in such analysis.

Such analysis intuitively mandates that imports of casein have to be increasing over like periods along with CCC purchase increases to demonstrate substantial impact and resultant displacement. Aside from the fact that the statute and legislative history do not expressly require a determination that such imports are increasing in a finding of material interference, the data presented to me indicate material interference, notwithstanding most recent decline in import levels. The USDA seemed to recognize this important issue during its testimony concerning the growth of casein used in imitation cheese, further underscoring this point by stating that, if such casein usage were to

increase under certain conditions, serious displacement of nonfat milk solids will occur, even if imports of casein do not increase. 12/

The reader of the report will note a fairly wide range in figures estimated in terms of displacement resulting from casein imports as well as with regard to the potential impact had the entire commercial demand been supplied by the domestic industry. I believe it important to emphasize the range of displacement estimated both by USDA and the staff and especially repercussions with respect to CCC program costs are governed by certain assumptions as to estimated substitution by other nondairy as well as whey and other protein components. Additionally, certain elasticity assumptions also enter the picture, in terms of displacement, with impact felt even more in discussion on probable effects scenarios predicated on certain tariff and quota remedies suggested by dairy interests.

Even at the lower ranges of displacement cited in the report, I believe it is clear that material interference has occurred in the program. However, I think it appropriate to observe that much of the discussion on various substitution alternatives is an exercise in supposition, particularly concerning the prospective commercial feasibility and timing of alternative technologies. I do not feel, in ascertaining whether material interference has occurred, in the absence of convincing and credible testimony and evidence, that indulging in suppositions in this respect and in fact, incorporating them in quantitative analyses of displacement is appropriate.

12/ Transcript of Hearing, p. 35.

Additionally, elasticity considerations employed by the USDA and adopted in part by the staff, particularly with regard to demand for natural and imitation cheeses do not appear definitive in application. To cite the report, such application of the same elasticity figure ". . . assumes that all such articles are essentially the same in the mind of the consumer. There is no empirical evidence to support this contention, but neither is there empirical evidence to disprove it." 13/ Commission staff also attempted by survey to estimate casein usage in 1980 and production and use of alternative ingredients at various casein price break points (representing increases). The report also qualifies this by stating, I think responsibly, that such responses are ". . . necessarily speculative on the part of the respondents and may not reflect their decisions had the higher prices actually occurred." 14/

Consequently, it appears in my view that there is definitiveness lacking in the critical methodologies employed which has effects not only in estimating potential displacement, but is even accentuated to a greater extent in estimating the impact of various remedies, both in costs saved by the CCC program and those incurred by the consumer as disclosed in the report.

Nonetheless and although there are undoubtedly other influences which have affected the price support program and have caused increased purchases of domestic milk products by the CCC, I believe casein is a material cause of these increased purchases. The wide fluctuations seen in CCC purchases of virtually all products could be the result of an increase in the level of support provided by the Congress until recently, which many believe provided

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13/ Report, p. A-78.
14/ Report, p. A-80.

strong economic incentives to produce increasing volumes of milk more rapidly than consumption in recent periods, but there still remains a large and increasing level of purchases, estimated to be at least $178 million, which can be attributed to the importation of casein.

In summary, I have found that, on the basis of increased and projected increases in purchases of NFDM and other products, large and growing increases in stocks owned by the Government of NFDM and other milk products, and large losses to the program which are not likely to decrease substantially in the foreseeable future, the price support program is suffering material interference. In addition, the level of casein imports valued well below the price which would make domestic production feasible and the large and growing production of imitation cheese which displaces domestic cheese clearly demonstrate that imports of casein result in material interference with the price support program for milk administered by the Department of Agriculture.

Having reached a finding of material interference for imports of casein and mixtures in chief value of casein, I did not reach the issue of whether such imports are rendering or tending to render the program ineffective. I note the USDA in its testimony and submissions did not reach such a determination. Also, the information before me shows no conclusive evidence that the dairy industry is experiencing economic distress, and obviously supplies of milk are more than adequate. In this case, I would mirror the observation of Commissioner Bedell in her statement in Certain Tobacco, investigation No. 22-43 (August 1981), that the basic objectives of a program may be satisfied but such program nevertheless may be materially interfered

with. I believe such is the case here, although I would reiterate that I did not reach the issue of whether such imports are rendering or tending to render the program ineffective.

Remedy

My aforementioned concern with respect to the lack of definitiveness in utilization of related methodologies is particularly applicable to the issue of remedy. Of great concern, too, is the fact that the USDA, in its testimony and submissions to the Commission as the preeminent authority on the program, declined to recommend any level of import restriction appropriate to forestall or remedy any material interference or other adverse affect on the program, if such was found by the Commission. I have been advised this is the first time, at least in recent years, that the USDA has declined to tender any such recommendation to the Commission in connection with a section 22 investigation.

Although the issue of material interference is clear in this investigation, the issue of fashioning an appropriate remedy based responsibly and equitably on economic considerations is clouded in view of the above. Critical aspects in constructing a remedy such as prospective domestic market dynamics, e.g., supply and pricing impacts, even putting the issue of substitution and new technologies aside, I believe may be precluded from credible quantitative analysis based on the information at hand. The quantitative impact of public interest considerations, i.e., costs to the consumer resulting from the imposition of various remedies, is likewise obscured, for I believe public interest factors are relevant and necessary for consideration in ascertaining the appropriate remedy. I would observe,

however, that the statute contains no explicit public interest factors that the Commission is to take into account in determining whether material interference is occurring, and I believe such factors should not be considered in any determination of material interference.

Notwithstanding the above, I would concur with a recent General Counsel's memorandum dealing with this issue to wit:

> The fact that the Commission cannot choose the optimum remedy in a case should not deter it from choosing the best remedy available. 15/

Therefore, I recommend the following:

The USDA should be requested to closely monitor the impact of imports of casein and mixtures in chief value of casein over the next 12 months, scrutinizing closely domestic consumption and pricing patterns of domestic milk solid substitutable products, trends in usage of domestic imitation cheese vis-a-vis natural cheese products, levels of CCC purchases, concomitant with reduction in price support levels in the program. On this basis, and within the context of an equitable end-use license remedy (for which there is precedent in prior Commission remedy recommendations and which I believe is potentially administratively feasible), coupled with a quota imposed on average imports occurring over a USDA determined representative period, USDA could more precisely derive applicable elasticity and substitution factors. In this regard, it would then be possible for USDA to more definitively and defensibly derive quantitative impact of an array of possible remedies and specifically recommend one which at this time it has found itself constrained

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15/ GC-E-341, Dec. 22, 1981, p. 10.

from doing, should it wish to recommend the initiation of another section 22 investigation at the end of this 12 month period.

In view of the available information as presented in the staff report and in the record, I am unable to recommend a more specific remedy at this time.

The issue of material interference and lactalbumin

USDA witnesses confirmed the position of the USDA that imports of lactalbumin are not causing material interference with the milk price-support program indicating that imports of lactalbumin in 1980 were at such low levels that material interference was unlikely. Although January-August 1981 consumption figures of 1.8 million pounds (and year-end 1980 consumption of 1.4 million pounds) are de minimis compared with average annual consumption levels in recent years of casein and mixtures of casein (about 140 million pounds), I based my negative determination on lactalbumin primarily on the lack of sufficient information on importation and usage of this product.

INFORMATION OBTAINED IN THE INVESTIGATION

Introduction

On August 10, 1981, the United States International Trade Commission received a letter from the President requesting that the Commission undertake an investigation under section 22 of the Agricultural Adjustment Act (7 U.S.C. 624) to determine whether casein, mixtures in chief value of casein, and lactalbumin (provided for in items 493.12, 493.17, and 190.15, respectively, of the Tariff Schedules of the United States (TSUS)) 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 program for milk conducted by the U.S. Department of Agriculture (USDA), or to reduce substantially the amount of products processed in the United States from domestic milk. 1/

On August 24, 1981, the Commission instituted the current investigation (No. 22-44). Notice of the institution of the investigation and of a public hearing to be held in connection therewith was duly given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, D.C., and by publishing notice in the Federal Register of September 2, 1981 (46 F.R. 44103). 2/ The public hearing was held on November 9 and 10, 1981, and the briefing and vote was held on January 19, 1982. 3/

In order to protect the USDA price-support program for milk from import interference, section 22 quotas have been imposed on imports of most products derived from milk, such as butter, cheeses, and dried milk. The products included in this investigation, casein, mixtures of casein, and lactalbumin, the principal proteins in milk, are not subject to quotas. Currently, these proteins are not commercially extracted from milk in the United States. Following the establishment of the price-support program for milk in 1949, producers of dairy products realized greater returns from producing nonfat dry milk (NFDM) for sale to the Government under the program, than from producing casein for the commercial market. Imports, principally from New Zealand, Ireland, and Australia, gradually increased their share of the U.S. market for those products and have supplied 100 percent of U.S. requirements since 1968.

Casein was used chiefly for industrial purposes in the United States until the early 1970's, when the price of NFDM began to increase. By the mid-1970's, casein usage had shifted mostly to food and feed (76 percent in 1975); by 1980, according to responses to the Commission's questionnaire, the shift

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1/ In app. A, a copy of the President's letter directing the Commission to make this investigation is presented, as well as a copy of a letter received by the Commission on Aug. 24, 1981, from the Office of the General Counsel, USDA, advising that the President's directive of Aug. 5, 1981, with respect to TSUS item 190.15, applied only to lactalbumin provided therein.

2/ A copy of the Commission's notice of investigation and hearing is presented in app. B.

3/ A list of the witnesses appearing at the Commission's hearing is presented in app. C.

had intensified, and food and feed uses (e.g., imitation cheese, coffee whiteners, calf milk replacers, and bakery products) accounted for 85 percent of consumption, and industrial applications (e.g., adhesives and paper products) accounted for 15 percent. The small quantity of imports of lactalbumin (less than 2 million pounds in 1980, compared with 152 million pounds of casein), is used mostly in bakery products, cereal and breakfast foods, pet foods, miscellaneous high-protein foods, medical/nutritional-type products, and diet foods.

Although imports of casein and mixtures of casein, and of lactalbumin, increased only gradually in recent years (imports of casein and mixtures of casein actually declined in January-August 1981), domestic dairy interests claim that the shift in usage of the imports has resulted in the displacement of some domestic dairy products from their traditional markets. They allege imitation cheese, the largest and fastest-growing use category (accounting for about 31 percent of reported casein usage in 1980), has displaced some natural cheese, coffee whiteners made from casein have displaced some cream, and casein in animal feed has displaced some NFDM in this application. They also allege that if the products made from the imports were not available, more of the domestic production of dairy products would have been absorbed in the commercial market and, therefore, Government purchases of surplus products in the form of NFDM, as well as butter and Cheddar cheese, would have been less than otherwise occurred.

The shift in usage of casein to food and feed commenced several years before the Food and Agriculture Act of 1977 significantly raised price supports for milk. In response to the higher price supports required under the act, production of milk escalated, and by 1980, it reached record levels. By late 1979 or early 1980, the production of dairy products had exceeded the levels that would clear the commercial market at prevailing prices, and the surplus amounts that were sold to the Government began to increase. Purchases by the Government reached record levels in 1980, and they continued at such levels in 1981. Expenditures on the price-support program have become very large ($2.0 billion in FY 1981 out of a total agricultural price-support budget of $4.0 billion). Although the level of price supports is being lowered, the production of milk and dairy products shows no signs of abatement.

Import interests point out that casein and lactalbumin are not produced in the United States and that there is no hard evidence, but merely inference, of the amount of displacement of domestic dairy products by the imports. World supplies of casein and lactalbumin tend to be limited because of the recent trend toward reduced production of butter in favor of the production of cheese and limited increases in the world production of milk. The price necessary to bring forth domestic production of casein (probably in excess of $3.00 per pound, compared with current prices of about $1.40 for the imports) would increase consumer prices of the end products made from casein. The higher prices, in turn, would eliminate, or drastically reduce, demand for many of these products. There is no certainty, however, that consumers would turn to dairy products to satisfy their requirements. Alternative proteins which might be used to produce some of the products would not be made from milk, but rather from less costly soy or wheat protein. For uses in which casein is essential because of functionality (buffering, emulsifying,

stabilizing, and so forth) or protein content, higher priced domestic casein would be used if imports were unavailable.

Data collected during the Commission's investigation, including responses to the questionnaires, suggest that displacement of domestic milk solids in 1980 by imported casein could have resulted in purchases by the Commodity Credit Corporation (CCC) which increased by as much as $103 million to $178 million if minimal substitution for casein by wheat protein, lactoglobulin, etc., had occurred, but increased purchases could have been as low as a few million dollars if substantial substitution of such products for casein had occurred.

The imposition of the maximum tariff of 50 percent ad valorem on imports of casein and mixtures in chief value of casein could have reduced the cost of CCC operations in 1980 by $8 million to $47 million, depending on the degree of substitution of other proteins for casein. Similarly, the imposition of a quota of 69.7 million pounds (the maximum quota restriction if 1976-80 is selected as the base period) on imports of casein and mixtures in chief value of casein could have reduced the cost of CCC operations in 1980 by $8 million to $53 million. The additional costs to consumers resultant from such a tariff or quota could have exceeded $71 million or $95 million, respectively.

The Domestic Dairy Situation

Price supports and the production of milk

During the period April 1, 1976, through September 30, 1981, the support price for milk was increased from $8.13 to $13.10 per hundredweight (table 1 app. D), or by about 60 percent. On October 1, 1981, the support price was raised to $13.49 per hundredweight, but on October 21, 1981, it reverted to $13.10; it is scheduled to remain at $13.10 until September 30, 1982. As the support price increased, the U.S. production of milk increased from 120 billion pounds in 1976 to an alltime high of 128 billion pounds in 1980 (table 2). The USDA currently estimates that production of milk in 1981 will total 132 billion pounds, about 3 percent over the 1980 level. On July 1, 1981, the number of replacement heifers available for the nation's dairy herd reached a record level of 4.6 million head (43 heifers per hundred milk cows), an indication that the production of milk will be maintained at a high level for the next several years regardless of changes that might occur in the price-support levels for milk.

Income received by U.S. dairy farmers

Although the number of U.S. farms selling milk declined from about 421,000 in 1976 to about 335,000 in 1980 (table 2), the farmers remaining in business expanded the size of their operations and became more specialized in dairying. According to the USDA, cash receipts from farm milk marketings increased from $11 billion in 1976 to $16 billion in 1980; in 1981, they probably will total $18 billion. Although only limited data are available,

net farm income has increased in recent years, as indicated in the following table for selected types of dairy farms in Wisconsin and New York, two of the principal milk-producing States:

Net farm income for selected herd sizes in Wisconsin and New York, 1976-80

Year	Wisconsin (41-cow herds)	New York (46-cow herds)
1976	$22,898	$18,234
1977	20,673	15,061
1978	23,140	17,698
1979	32,870	22,568
1980	32,025	23,293

Source: Compiled from data on Wisconsin Farm Business Summaries and Dairy Farm Management Summaries, University of Wisconsin and Cornell University, respectively.

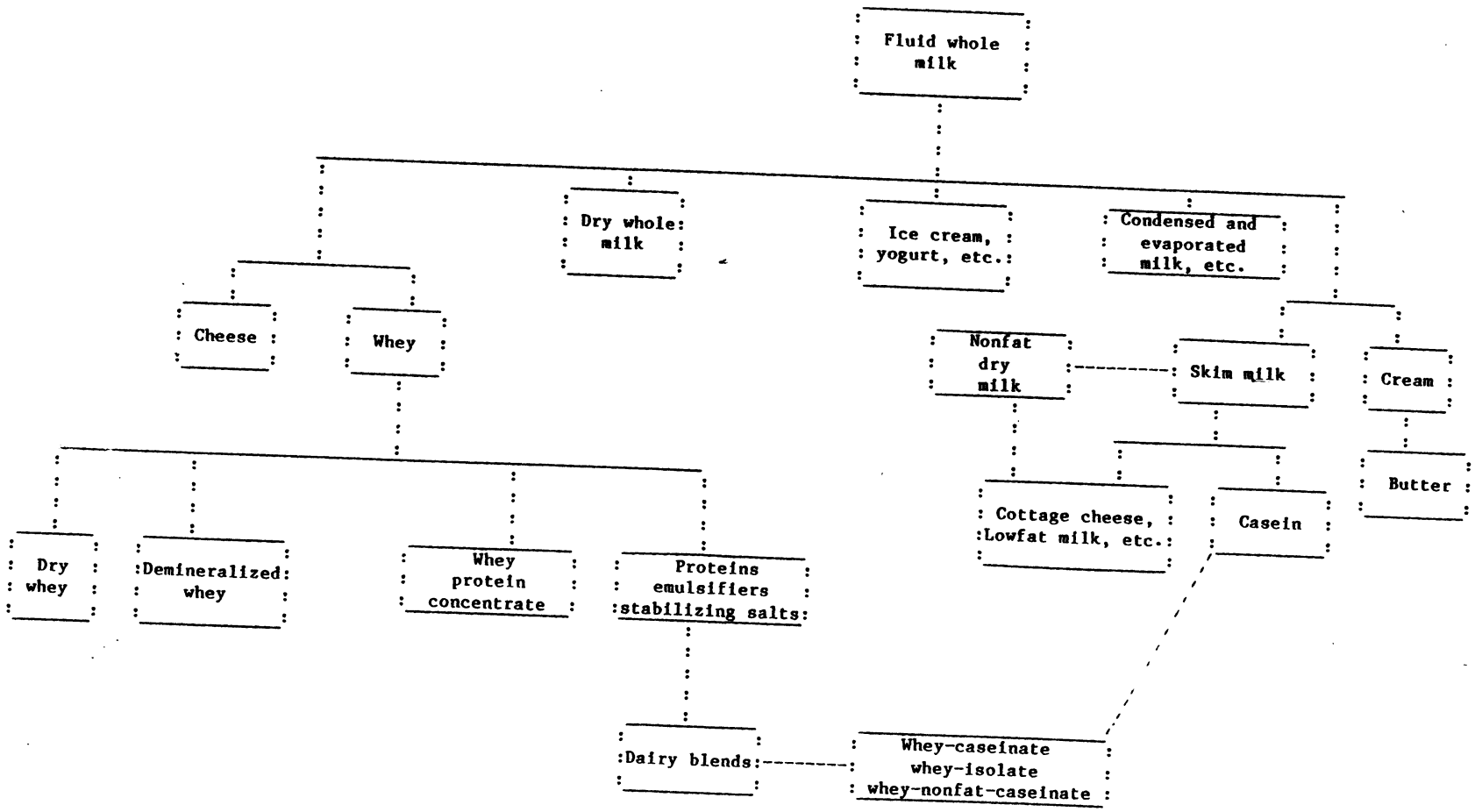
The factors that have contributed to the increased net farm income received by dairymen in recent years include rising prices for milk, the long-term increase in the production of milk per cow (resulting largely from improved feeding, breeding, and technology), and an expanding difference between the cost of feed and the price of milk (caused mostly by the rising price of milk).

Utilization of the domestic output of milk

The most profitable use for milk in the United States is the fluid market, including sales of whole, low-fat, and skim milk. During 1976-81, the share of the U.S. supply of milk used for the fluid market declined from 44 to 39 percent (table 3), continuing a gradual, long-term decline in the total and per capita consumption of fluid milk. The surplus of the milk produced that is eligible for the fluid market, but not consumed in that market, is channeled into manufactured dairy products. Figure 1 shows the route by which fluid whole milk generally is channeled into various manufactured dairy products.

Concurrent with the decline in the share of the total U.S. supply of milk used for the fluid market has been an increase, from 56 percent in 1976 to 61 percent in 1981, in the share of the supply used in manufactured dairy products. Of the supply of milk used for manufactured dairy products, about three-fourths is used for the production of cheese and the coproducts butter and NFDM. However, these items are made after all other uses such as ice cream and condensed or evaporated milk have been satisfied. In response to growing demand and rising prices for cheese, in recent years, producers of cheese have been outbidding producers of butter and NFDM by 8 cents to 23 cents per hundred pounds of milk, although the difference narrowed somewhat in 1981. Accordingly, more milk has been used for cheese than for butter and

Figure 1.--The route by which fluid whole milk is channeled into various manufactured dairy products.



Source: Compiled from The Manufacturing Confectioner, October 1981, p. 54, and other information available to the U.S. International Trade Commission.

A-5

NFDM and, as shown in table 4, the production of cheese has increased each year during 1976-80; cheese production in January-August 1981 likewise increased over that in the corresponding 8 months of 1980. The production of butter and NFDM, however, has fluctuated largely in response to changes in the production of milk.

The liquid portion that remains after cheese is made from milk is called whey. It consists of about 93 percent water and 7 percent milk solids. About half of the 40 billion pounds of fluid whey that results from the U.S. production of cheese is converted into 2 to 3 billion pounds of whey solids and utilized mostly in foods and feed. Although some of the remaining half of the whey is used for pig feeding and fertilizer, most is dumped into municipal sewer systems at an annual cost of about 1 cent per pound, or a total of $200 million, according to research conducted at the University of Nebraska. The disposal of fluid whey has been a concern of ecologists in recent years because the lactose (milk sugar) in the whey sometimes imposes a heavy biochemical oxygen demand on waste water treatment facilities. In addition, when whey is dumped into streams, it tends to kill fish. Substantial progress continues to be made in the area of processing liquid whey into various whey protein products and/or whey protein concentrates, articles that are gaining wide acceptance in food and feed uses. Research is being conducted involving the use of whey in the production of wine and beer. Because liquid whey contains an easily fermentable sugar, increased interest recently has been expressed in industrial applications such as converting whey into methane gas and industrial alcohol for use in gasohol. Data are not available to indicate when the results of any of these efforts will become commercially viable.

Fluid skim milk, the liquid portion that remains after butter is made from milk, is mostly made into NFDM. However, there has been a trend toward utilizing larger amounts of the fluid product for drinking purposes, for which use it sells at premium market prices, or for making cottage cheese.

In many countries, fluid skim milk is processed into casein, as well as NFDM. In the United States, however, plants that produce butter and NFDM realize greater returns from processing the fluid skim milk into NFDM than into casein. NFDM is one of the three dairy products purchased by the CCC in order to support the price of milk; the other two products are butter and Cheddar cheese.

Yearend stocks of dairy products

Total yearend stocks of dairy products containing butterfat (mostly butter and cheese), which generally have increased in recent years, rose sharply between 1979 and 1980, from 8.6 billion pounds (milk equivalent) to 13.0 billion pounds, or by about 50 percent (table 5). This rapid escalation in stocks was continuing as of November 1, 1981, when stocks of the products reached 19.0 billion pounds, or about 48 percent larger than the number of a year earlier. Stocks of NFDM have been erratic in recent years, as exhibited by an increase from the level of 486 million pounds in 1976 to 678 million pounds in 1977, and the subsequent return to 486 million pounds in 1979. From 1979 to 1980, yearend stocks of NFDM increased about 21 percent, and on

November 1, 1981, they were 45 percent larger than those of a year earlier. The increase of NFDM stocks has not been as rapid as the rise in stocks of the products containing butterfat. This less rapid increase in stocks of NFDM reflects, to a large degree, the trend of utilizing larger amounts of the fluid skim milk for drinking purposes and for making cottage cheese rather than for producing NFDM.

The increased stocks of dairy products, particularly of butter and NFDM, have been largely Government owned, indicating that total supplies of dairy products have been larger than the quantities absorbed by the commercial market at prevailing prices. However, the rate of increase in stocks of NFDM, one of the dairy products with which imported casein and lactalbumin strongly compete, has been about a fourth less than the increase in stocks of dairy products containing butterfat (cheese and butter).

The Milk Price-Support Program of the U.S. Department of Agriculture

The Agricultural Act of 1949 requires the Secretary of Agriculture to support the price of milk at a level between 75 percent and 90 percent of parity so as to assure an adequate supply of pure and wholesome milk to meet current needs, reflect changes in the cost of production, and assure a level of farm income adequate to maintain productive capacity sufficient to meet anticipated future needs. The Food and Agriculture Act of 1977 increased the minimum support level for milk to 80 percent of parity for the period begining October 1, 1977, and ending September 30, 1981, and directed the Secretary to adjust the support price at the beginning of each semiannual period after the beginning of the marketing year (Oct. 1) to reflect any estimated change in the parity index during such semiannual period. However, on March 31, 1981, the semiannual adjustment scheduled for the period beginning April 1, 1981, was suspended (P.L. 97-6, Mar. 31, 1981).

On October 1, 1981 the minimum support level for milk reverted to 75 percent of parity, the minimum level required under the 1949 act, because new dairy legislation had not been enacted. On October 20, however, P.L. 97-67 was enacted, and the minimum support level dropped to 72.9 percent of parity, the first time the minimum had dropped below 75 percent since the Agricultural Act of 1949 became effective. The Agriculture and Food Act of 1981 (P.L. 97-98, effective Dec. 22, 1981), continued the level of 72.9 percent of parity support for the year ending September 30, 1982. After that date, the support levels are to be adjusted annually inversely to the costs of the dairy program and the quantities of dairy products anticipated by the Secretary of Agriculture to be purchased under the support program.

Description of the program

In order to support the price of milk as required by law, the Secretary of Agriculture maintains a price-support program for milk used for manufacturing. 1/ Under the program, the CCC purchases unlimited quantities of butter, Cheddar cheese, and NFDM that meet certain specifications at preannounced support prices. 2/ Purchases of the products normally are the highest during the spring and early summer, the time of year when cows are on pasture, milk production is most abundant, and it is necessary to convert more of the fluid products into the storable products (butter, Cheddar cheese, and nonfat dry milk). These three products utilize about 35 percent of the total U.S. market supply of milk and 65 percent of the milk used in manufactured dairy products. Thus, through purchase of these three products, the Secretary assures the announced price support for all milk to the farmers.

Prices and Government purchases of butter, Cheddar cheese, and nonfat dry milk

The market prices and the support prices for the three products purchased under the price-support program are shown in table 1 for the period April 1, 1976, through October 21, 1981. 3/ Also shown are the price-support objectives for milk for manufacturing. Although the support prices for the products were raised rapidly during the period (until the semiannual adjustment was foregone for the period beginning April 1, 1981), the market prices for butter and NFDM generally exceeded the support prices until the period beginning October 1, 1979, and the market price for Cheddar cheese exceeded the support price until the period beginning April 1, 1980. Thus, as indicated by these price relationships, the supplies of dairy products were fairly well in balance with commercial demand until the period from late 1979 to early 1980. 4/

1/ There are other Federal programs for milk such as the Federal Milk Marketing Order Program, which regulates the marketing of milk used for fluid consumption, and the school lunch and special milk programs. For the most part, however, the price set by the USDA for milk under the price-support program affects the prices established under these other programs.

2/ The USDA reports that it tries to buy the minimum number of basic, but most efficiently produced, storable, and distributable dairy products in order to support the price of milk. Cheddar cheese accounts for about 60 percent of the cheese produced in the United States, excluding cottage cheese, which is perishable. When the price-support program for milk and butterfat became effective in 1949, Cheddar cheese accounted for about 80 percent of U.S. cheese production. Therefore, Cheddar was the type of cheese that the USDA decided to purchase in order to support the price of milk.

3/ The current support prices shown in table 1 are scheduled to continue at the existing levels until Sept. 30, 1982.

4/ Even after Apr. 1, 1980, the market and support prices for cheese have remained close, and at times, the market price has been higher than the support price; moreover, CCC purchases of cheese have been smaller than purchases of butter and NFDM, reflecting the strong commercial demand for cheese.

However, in order to reflect the support price for milk to the dairy farmers as required under the Food and Agriculture Act of 1977, consistently higher support prices continued to be established for butter, Cheddar cheese, and NFDM (mostly as part of the semiannual adjustment). In turn, the production of milk, which is not limited by the price-support program, escalated. However, market prices for the three products did not keep pace with the increased support prices. Accordingly, purchases of surplus dairy products by the CCC, also not limited under the price-support program, increased and reached record levels by the end of 1981 (table 6). As a result, removals of the products from the commercial market (both on a solids-not-fat and a fat-solids basis) increased substantially as a share of production of milk from 1979 to 1980 and they have continued at an even greater level during January-September 1981, as shown in the following table.

Milk: U.S. production, milk equivalent of CCC purchases, and milk equivalent of CCC purchases as a share of U.S. milk production, 1976-80, January-September 1980, and January-September 1981

Period	U.S. milk production	Milk equivalent of CCC purchases		Milk equivalent of CCC purchases as a share of U.S. milk production	
		Solids-not-fat basis	Fat-solids basis	Solids-not-fat basis	Fat-solids basis
	Millions of pounds			Percent	
1976	120,180	3,106	1,236	2.6	1.0
1977	122,654	5,934	6,080	4.8	5.0
1978	121,461	3,344	2,743	2.8	2.3
1979	123,411	3,058	2,119	2.5	1.7
1980	128,425	8,353	8,800	6.5	6.9
Jan.-Sept.--					
1980	97,403	6,941	7,351	7.1	7.5
1981	100,529	9,250	11,212	9.2	11.2

Source: Compiled from official data of the U.S. Department of Agriculture.

During the period January-September 1981, purchases on a fat-solids basis were about 53 percent larger than those in the corresponding period of 1980, but purchases on a solids-not-fat basis (the portion of milk with which imported casein is claimed to most strongly compete) were only 33 percent larger.

Disposition of Government stocks

When disposing of its inventories, the CCC sells its oldest stocks first. Cheddar cheese purchased by the CCC normally has a storage life of 2 years, butter, about 3 years, and NFDM, about 4 years. From time to time, the products are sold and more recently donated domestically to the needy, welfare recipients, and so forth, because spoilage is imminent.

In most recent years, the bulk of the NFDM purchased by the CCC has been donated to foreign recipients, and most of the butter and Cheddar cheese has been disposed of through school lunch and welfare programs in the United States. Through late 1981, however, the CCC had sold about 200 million pounds of NFDM (about 30 percent of its stocks at the time of sale) to Mexico and Poland; the majority of these sales were for half to three-fourths of the CCC purchase price. In addition, about 220 million pounds of butter (half of the stocks at the time of sale, including the oldest stocks) have been sold to New Zealand for about 60 percent of the purchase price. The butter sold to New Zealand is not to be distributed so as to disrupt commercial world markets, nor is it to be sold to the U.S.S.R. In addition, the CCC basically agreed not to sell Government-owned butter for export until July 1982, unless the sales have been approved by the New Zealand Dairy Board. During 1981, small quantities of butter, Cheddar cheese, and NFDM have been sold to Catholic Relief Services for about 5 percent of the purchase price for distribution in Poland.

In addition to the donations and foreign sales discussed above, the CCC has sold butter, Cheddar cheese, and NFDM to the commercial market at the resale price, which currently is administratively set by the USDA at about 110 percent of the CCC purchase price existing at the time of sale. Such sales of the three products by the USDA during the period 1976-80 and January-November 1981 are shown in the following tabulation, which indicates that resales of dairy products to the commercial market have been extremely small compared with Government stocks (in millions of pounds):

Period	Butter	Cheddar cheese	Nonfat dry milk
1976----------	0	1/	101.1
1977----------	0.2	0.2	28.4
1978----------	22.4	4.7	0
1979----------	3.4	.3	0
1980----------	2.7	2.5	0
1981 (Jan.-Nov.)---	0	7.4	0

1/ Less than 50,000 pounds.

The CCC is permitted to sell stocks considered to be in danger of spoiling at prices below that set for stocks in good condition. Such sales of NFDM were made at an average of about $0.54 per pound in 1980.

Costs of the program

Annual net Government expenditures on the dairy price-support and related programs escalated to an unprecedented level of $1.3 billion for the year ending September 30, 1980 (table 7). For the year ending September 30, 1981, expenditures for dairy support operations reached a new alltime high of about $2.0 billion. These record-level expenditures, equivalent to about 10 percent of farmers' cash receipts from milk, resulted almost exclusively from the unusually large purchases of butter, Cheddar cheese, and NFDM. Inasmuch as

the production of milk has shown no signs of abatement, the volume of purchases of the three products by the USDA will probably remain near record levels at least through 1982.

Section 22 Import Quotas on Dairy Products

Since mid-1953, quotas have been imposed under the provisions of section 22 of the Agricultural Adjustment Act on virtually all imports of articles derived from cow's milk that normally enter international trade. The quotas have been imposed in order to protect the USDA price-support programs for milk, as well as the products produced therefrom, from import interference or threat of such interference.

Origin

U.S. imports of certain products derived from milk (butter, butter oil, dried milk products, casein, certain articles containing over 45 percent of butterfat, and certain cheeses) were controlled by quotas in the early 1950's under section 104 of the Defense Production Act of 1950. However, before section 104 expired on June 30, 1953, the Tariff Commission (now the U.S. International Trade Commission), following an investigation under section 22, determined that, in the absence of the import restrictions under section 104, certain dairy products were 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 USDA price-support program for milk and butterfat. Casein was not among the articles for which the USDA recommended that quotas be established at that time and, accordingly, casein was not included in the investigation.

In accordance with the recommendations of a majority of the Commission, the President proclaimed annual import quotas under section 22 on butter, dried milk products, and certain cheeses, to be effective on July 1, 1953. 1/ The quota quantities designated for butter were determined on the basis of the average annual imports during 1930-34; those for the other products were determined on the basis of the average annual imports during 1948-50.

Changes since 1953

Since 1953, the U.S. International Trade Commission has conducted 23 supplementary investigations on dairy products under the provisions of section 22. 2/ Three types of actions have been taken by the President as a result of

1/ Presidential Proclamation No. 3019 of June 8, 1953.

2/ In addition, dairy products have been the subject of three investigations conducted under sec. 332 of the Tariff Act of 1930, as amended. One of these, completed in December 1979, concerned casein and its impact on the domestic dairy industry. Casein and its Impact on the Domestic Dairy Industry: Report to the Committee on Ways and Means... on Investigation No. 332-105..., USITC Publication 1025, December 1979.

these investigations: (1) the original quotas imposed on four classes of cheese have been liberalized, or enlarged, so as to permit foreign products to share in the increased U.S. consumption of cheese; (2) quotas have been established for previously uncontrolled imports which appeared for the first time in U.S. markets in significant quantities and which, in large part, appeared to be products designed for the purpose of avoiding the then-existing quota provisions; and (3) in the early 1970's, the existing quotas on NFDM, Cheddar cheese, butter, and butter oil temporarily were enlarged for brief periods of time because of a deficit supply situation in the domestic market.

Current quotas

The quotas currently in effect for dairy products are provided for in part 3 of the appendix to the TSUS. In recent years, the import quotas have been substantially filled. In terms of milk equivalent, the maximum quantity of dairy products that currently can be imported under the quotas is 2.2 billion pounds, an amount equal to about 1.7 percent of the U.S. production of milk. During 1976-81, imports of all dairy products equaled 1.6 to 1.9 percent of the production of milk (table 8).

While the quantities of some individual dairy products permitted under the quotas are very small compared with U.S. production of the respective products, the quantities permitted for certain others are large. The quantities specified in the existing quotas for butter and dried milk products, for example, are infinitesimal compared with the domestic production of these products; in contrast, the quota on blue-mold cheese is equivalent to about 17 percent of production, and the quota on Edam and Gouda cheeses is larger than domestic production.

Administration of the quotas

Most of the section 22 quotas on dairy products are administered by the USDA through a system of import licenses. Imports of most dairy products under quota are subject to the licensing procedure. The quotas for the products not subject to licensing procedures are administered by the Customs Service on a first-come, first-served basis. Imports of dairy products subject to quotas and licensed by the USDA may be entered only by, or for the account of, a licensed person or firm, and only in accordance with the terms of the license. Licenses usually authorize a particular firm to enter designated quantities of a dairy product from a designated country through a specified port of entry. 1/

When issuing licenses, the USDA must, to the fullest extent practicable, distribute the respective quotas equitably among importers or users and facilitate utilization of the quotas among supplying countries, taking due account of any special factors that may have affected or may be affecting the trade in the articles concerned. Although some modifications in the licensing

1/ The administrative regulations established by the USDA are published in 7 CFR 6.

system for importing cheese, including changes in the eligibility requirements for new firms to enter the trade, resulted from the implementation of the so-called International Cheese Agreement, 1/ the USDA usually deems that an importer who entered a dairy product during a base period, usually a period of 1 or more years duration immediately preceding the imposition of the quota, is eligible for a license. The importer usually is granted a share of the annual quota proportionate to his share of total imports of the product in question during the base period. If the Secretary of Agriculture determines that a country is not likely to export its quota-quantity to the United States within a calendar year, he may adjust the quota for that year among other countries eligible for the quota.

Products Covered in the Investigation

Casein and mixtures in chief value of casein

Description and uses.--Casein is the principal protein in milk and is found only in milk. Casein constitutes, by volume, about 3 percent of cow's milk, or around one-third of the nonfat solids in milk. Casein accounts for about 80 percent of the protein content of milk; the remaining 20 percent consists mostly of lactalbumin. 2/ Nutritionally, casein is one of the most complete proteins known, containing all the amino acids essential to the human diet.

Casein is manufactured commercially from fluid skim milk, usually by precipitation or coagulation with an acid. After precipitation of the casein, the remaining fluid, acid whey, is removed and the casein is washed, dried, and ground to specific size grains. 3/

Although casein is insoluble in water, it can be converted into salts such as sodium, calcium, or potassium caseinates which are water soluble. Caseinates are considered to be mixtures rather than chemically pure because a

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1/ Secs. 701 and 702 of the Trade Agreements Act of 1979.

2/ The milk proteins consist of casein and whey proteins. Casein makes up 76-86 percent of the protein content of milk. The remaining 14-24 percent consists of essentially five whey proteins--2-5 percent of α-lactalbumin, 0.7-1.3 percent of bovine (or blood) serum albumin, 7-12 percent of β-lactoglobulin, 0.6-1.4 percent of pseudoglobulin, and 0.8-1.7 percent of euglobulin. The product commercially known as lactalbumin consists of the α-lactalbumin, bovine serum albumin, and β-lactoglobulin protein fractions. The protein product referred to later in this report as "lactoglobulin" consists of the β-lactoglobulin, pseudoglobulin, and euglobulin fractions. The domestic product known commercially as whey protein concentrate consists of all of the whey protein fractions.

3/ Should casein be produced in the United States, the cost of acid whey disposal would be only fractionally higher than the cost of cheese whey disposal (1 cent per pound). Thirty-two pounds of acid whey are generated for each pound of casein produced, thus the cost of disposal of the acid whey that would result from producing the 152 million pounds of casein imported in 1980 would be about $50 million, assuming the protein in the whey was not recovered.

nonuniform mixture of the salts results from the treatment of casein with an alkaline material, e.g., sodium hydroxide. Other mixtures in chief value of casein include casein co-precipitate, which results from the co-precipitation of the whey proteins with the casein, and casein hydrolysates. 1/

Prior to the 1960's, casein was used almost exclusively for industrial applications such as the manufacture of glues, paper coatings, paints, and plastics. However, casein markets have gradually shifted, until in 1980, industrial uses are estimated to have accounted for only about 15 percent of domestic casein consumption; human food and animal feed accounted for the remaining 85 percent.

In order to determine the uses of casein, its competitiveness with both dairy and nondairy proteins, and at what casein price users would alter either their production or their formulations, questionnaires were sent to all known users of casein in manufactured products. The questionnaire responses received by the Commission on end-use and inventory data accounted for between 83 and 89 percent of the available casein 2/ during 1978-80, January-August 1980, and January-August 1981 (table 9). The end-use and inventory data received by the Commission have been expanded to account for 100 percent of the available casein during all periods (table 10). 3/

Imitation cheese, the largest and fastest growing market for casein, accounted for an estimated 31 percent of casein and mixtures in chief value of casein used in 1980 compared with 12 percent in 1978, and 35 percent during January-August 1981. The two principal types of casein-based imitation cheese are mozzarella and American-type. Although most imitation mozzarella is totally imitation cheese with casein providing the protein content and vegetable oil providing the milk fat replacement, some producers of imitation mozzarella incorporate natural cheese in their formulations. Imitation American-type cheeses frequently have natural or process cheeses added as ingredients along with casein and vegetable oil. These natural and process

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1/ Casein hydrolysate, casein which has been subjected to hydrolysis and thereby chemically decomposed, or "predigested," into its component amino acids, is used when an intolerance to normal food protein exists. In cases of children with the disease phenylketonuria (commonly known as PKU), a formulation is used which has been made from hydrolyzed casein from which most of the phenylalanine amino acid has been removed.

2/ Because there is no domestic production of casein, imports minus exports equals the amount available for use and/or inventory buildup.

3/ In order to expand end-use and inventory data to 100 percent of all available casein, the Commission took several factors into account. Inventory data are believed to be more complete than end-use data because they include the information of nonmanufacturing importers and brokers. Likewise, imitation cheese data are believed to be much more complete than those data on any other end use. Responses were solicited from all known producers of imitation cheese, whereas the Commission, from responses to the previous sec. 332 investigation, is aware of missing or incomplete responses in virtually all other end-use classifications. Accordingly, although inventories and total end uses were expanded proportionately, use of casein in imitation cheese was expanded by only one-fifth the factor used for expanding the figures for total end uses.

cheeses may provide up to 50 percent of the protein content of the American-type cheese in certain formulations. In 1980, an estimated 6 million pounds of natural or process cheese were used as ingredients in the production of an estimated 168 million pounds of casein-based imitation cheese. Tables 11 and 12 present casein use as reported in questionnaires and estimated total use of casein, respectively, on production and natural cheese component of casein-based imitation cheese.

The production of casein-based imitation cheese increased consistently and rapidly during 1978-80, from an estimated 60 million pounds in 1978 to an estimated 168 million pounds in 1980. Data for January-August 1981 indicate a continued growth of almost 40 million pounds over production in the corresponding period of 1980. Production of natural cheeses by those firms reporting production of casein-based imitation cheese continued to increase during January 1978-August 1981 (table 13). Although these firms' production of process cheese declined by 22 million pounds during 1978-80, data for January-August 1981 indicate an increase of 23 million pounds over such production in the corresponding period of 1980. Noncasein-based imitation cheeses, for example the so-called filled cheeses, also may be said to compete with natural and process cheeses in the marketplace. Production of these noncasein imitation cheeses appears to be small compared with the production of casein-based imitation cheeses.

The second largest use for casein and casein mixtures is in the production of pet foods and animal feeds, including laboratory animal feed, 1/ which are estimated to have accounted for 16 percent of casein use in 1980. In these products, casein is usually used as a casein-whey blend or a casein-soy-whey blend. 2/ Coffee whiteners, the third largest use for casein and mixtures of casein, accounted for about 10 percent of casein consumption in 1980. Such products as casein glues and latex adhesives are estimated to have accounted for about 7 percent of 1980 casein usage, paper products, an additional 7 percent, medical/nutritional/pharmaceutical products, about 5 percent, bakery products, an additional 5 percent, frozen desserts and whipped toppings, about 4 percent, breakfast foods, an additional * * *, and diet products, about * * *. Other food uses of casein and mixtures of casein include the manufacture of margarine, various packaged dried foods, soups, luncheon meat loaves, and culture media. 3/ Other industrial uses of casein include leather and textile finishes, paint, cosmetics, and pesticides.

U.S. tariff treatment.--The rates of duty applicable to imports of casein and the mixtures in chief value of casein included in this investigation are shown in the following tabulation:

1/ In most laboratory animal feeds, casein is used as a standard in testing the protein efficiency of other proteins. A protein's efficiency is determined by comparing the weight gained by laboratory animals fed that protein with the weight gained by laboratory animals fed a control protein. The control, or standard, protein frequently used in such tests is casein.

2/ In such blends, the whey and soy proteins are of domestic origin.

3/ Casein is used as culture media both as a basis for cultured dairy products and as a nutrient to be used in petri dishes for bacterial growth in laboratory tests. The casein used as culture media in laboratory tests is included in the food and feed group because it is used as a nutrient in these tests.

TSUS Item	Commodity	Rate of duty Column 1	Column 2
493.12	Casein----------	Free	Free
493.17	Other mixtures in chief value of casein.	0.2¢ per lb.	5.5¢ per lb.

Casein has been duty free since July 1, 1963, when it was given duty-free status as a result of Public Law 87-606. Effective January 1, 1980, mixtures in chief value of casein, formerly TSUS item 493.16, were divided into two tariff classifications; only one, TSUS item 493.17, is under consideration in this investigation. 1/ The duty on imports included in TSUS item 493.17 was reduced from 1.3 cents per pound to 0.2 cent per pound in the Tokyo round of Multilateral Trade Negotiations. Mixtures in chief value of casein have been designated as eligible for duty-free treatment under the Generalized System of Preferences (GSP). 2/

An import restriction was placed on casein, effective August 9, 1951, under section 104 of the Defense Production Act of 1950. On December 30, 1952, it was removed. In June 1953, when most products that had been subject to controls under section 104 were made subject to quotas under section 22 of the Agricultural Adjustment Act, quotas were not reimposed on casein.

Imports of casein and mixtures in chief value of casein from countries or areas which have not been declared free of rinderpest and foot-and-mouth diseases by the U.S. Secretary of Agriculture are subject to regulations of the Animal and Plant Health Inspection Service (APHIS) of the USDA (9 CFR 94.16). 3/ Essentially, imports from countries or areas not declared free of

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1/ Certain mixtures in chief value of casein (containing not over 5.5 percent butterfat and containing over 16 percent milk solids but not retail marketable in imported form) are included in TSUS item 493.14 and are not under consideration in this investigation. These mixtures have been subject to a sec. 22 quota banning all importation since 1976 (see TSUS item 950.19).

2/ The GSP, under title V of the Trade Act of 1974, provides duty-free treatment of specified eligible articles imported directly from designated beneficiary developing countries. The GSP, implemented by Executive Order No. 11888 of Nov. 24, 1975, applies to merchandise imported on or after Jan. 1, 1976, and will remain in effect at least until Jan. 4, 1985.

3/ Countries or areas designated by the Secretary of Agriculture to be free of rinderpest and foot-and-mouth diseases are Northern Ireland, the Republic of Ireland, Norway, Denmark, Sweden, Finland, Iceland, Greenland, Canada, the French Territory of Saint Pierre and Miquelon, Mexico, Panama and all Central American countries, most Caribbean Islands (except Cuba, Curacao, Martinique, and Guadeloupe), Australia, New Zealand, Japan, and the Trust Territories of the Pacific Islands. Great Britain, which was considered to be free of these diseases during most of the period covered by this report, lost its free status in March 1981 because of an outbreak of foot-and-mouth disease on the Isle of Wight.

the diseases, as well as products made from such imports, are not to be used in animal feed in the United States, except under limited circumstances as set forth in the regulations issued by APHIS. However, imports of casein and mixtures in chief value of casein from such countries may be used in human foods in the United States because the virus is not injurious to human health. Such imports may also be used for industrial purposes.

U.S. imports.--U.S. imports of casein and mixtures in chief value of casein increased irregularly from 112 million pounds in 1976 to 152 million pounds in 1980 (table 14). Imports during January-August 1981 totaled 84 million pounds, 22 percent less than the 109 million pounds imported during January-August 1980. 1/

U.S. imports of casein have been several times greater than imports of mixtures in chief value of casein in recent years. Imports of casein fluctuated during 1976-80 between 99 million and 129 million pounds, averaging 119 million pounds annually (table 15). Preliminary data indicate that casein imports in 1981 will not reach the 1980 level of 129 million pounds. Imports of casein during January-August 1981 were 73 million pounds, representing a decrease of 19 percent compared with the 91 million pounds imported during January-August 1980. 2/ New Zealand is the chief U.S. supplier of casein, accounting for 51 percent of the quantity of such imports in 1980. Ireland and Australia supplied 18 and 11 percent, respectively, of such imports in 1980.

U.S. imports of mixtures in chief value of casein rose steadily from 14 million pounds in 1976 to 28 million pounds in 1979, and then dropped to 23 million pounds in 1980 (table 16). Preliminary data for 1981 indicate that imports in chief value of casein will continue to decline. Such imports during January-August 1981 were 11 million pounds, representing a decrease of 38 percent when compared with the 18 million pounds imported during January-August 1980. 3/ New Zealand is the chief U.S. supplier of mixtures in chief value of casein, supplying over 46 percent in 1980. Denmark and Australia are also suppliers of note.

U.S. consumption.--In the absence of any domestic production, 4/ apparent U.S. consumption of casein and mixtures in chief value of casein is determined

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1/ Imports of casein and mixtures of casein during September-November 1981 were greater than those for the corresponding period of 1980. As a result, such imports during January-November 1981 amounted to 117 million pounds, 15 percent less than the 138 million pounds imported during January-November 1980.

2/ Imports of casein during January-November 1981 amounted to 102 million pounds, representing a 12-percent decrease compared with the 116 million pounds imported during January-November 1980.

3/ Imports of mixtures in chief value of casein during January-November 1981 amounted to 15 million pounds, representing a 32-percent decrease compared with the 22 million pounds imported during January-November 1980.

4/ Although there is domestic production of mixtures in chief value of casein, it is all made from imported casein. In order to avoid double counting, domestic production of these mixtures is not included when computing apparent U.S. consumption.

to be imports minus exports and inventory buildup (table 17). Apparent U.S. consumption of casein and mixtures in chief value of casein is estimated to have increased from 129 million pounds in 1978 to 148 million pounds in 1979, and then decreased to 139 million pounds in 1980. Apparent U.S. consumption of these items is estimated for January-August 1981 at 93 million pounds, representing an increase of 1.8 percent over the 92 million pounds consumed in the corresponding 1980 period. 1/

U.S. production.--There has been no domestic commercial production of casein since the late 1960's, although at one time there was a sizable industry in the United States. The implementation of the dairy price-support program supported the price of milk by providing for Government purchase of butter, Cheddar cheese, and NFDM by the CCC. Gradually, production of casein, which was not purchased by the CCC, declined as skim milk, its raw material, was diverted into the production of NFDM. Domestic casein production, which amounted to 18 million pounds in 1949, declined to 3 million pounds by 1955; no production has been reported since 1968. Thereafter, imports have been the sole source of U.S. supply.

There are about 10 domestic firms using imported casein to produce various mixtures in chief value of casein, e.g., casein hydrolysates and the various caseinates. Additionally, these firms frequently regrind imported casein to customer specifications, add materials such as preservatives, and blend the casein or caseinates with domestic products such as soy protein or whey. Many of these casein-whey or casein-whey-soy blends no longer contain casein as the ingredient of chief value.

U.S. stocks.--Considerable inventories of casein and mixtures in chief value of casein are maintained by the users and the importers. Staff estimates based on questionnaire data indicate that yearend stocks of these items rose from 51 million pounds in 1978 to 53 million pounds in 1979, and further increased to 65 million pounds in 1980 and then declined to 56 million pounds on August 31, 1981. Rising prices and the threat of import restriction may have influenced the inventory buildup in 1980, and high interest rates may have influenced the inventory decline apparent in January-August 1981. However, although reported use of casein and mixtures in chief value of casein for 1979 and 1980 are at nearly the same level, as are official import statistics, changes in (and levels of) inventory vary significantly. This and other evidence suggest that although purchasing and actual importation of some of the increased amount of casein took place in late 1979 rather than 1980, it was possibly not reflected in 1979 inventories, perhaps because the material was in transit. Nevertheless, since the reported data are borne out by

1/ There is some evidence to suggest a possible overstatement of apparent consumption in 1979 and resultant understatement in 1980 as the result of a possible error in inventory reporting. This is more fully discussed in the section on U.S. stocks of casein and mixtures in chief value of casein.

information presented by the USDA, 1/ no alterations have been made to the reported questionnaire data.

U.S. exports.--During the period January 1, 1978, through August 31, 1981, annual U.S. exports of casein and mixtures in chief value of casein, all derived from imported casein, were erratic, but averaged less than 1 percent of the quantity of either imports or apparent consumption. Mexico and the United Kingdom were the largest markets for U.S. exports of casein and mixtures in chief value of casein, together accounting for 49 percent of such exports in 1980 (table 18).

World production and trade.--World production of casein irregularly increased from 326 million pounds in 1976 to 454 million pounds in 1980 (table 19). The USDA currently estimates that world production of casein in 1981 totaled about 419 million pounds, representing a decline of 8 percent from the 1980 level, and that in 1982 it will continue at about the 1981 level. The USDA attributes the decline in the production of casein to a drop in milk production in New Zealand and the decline of the European Community (EC) manufacturing subsidy, discussed later, on the product after the spring of 1980.

The United States is the principal casein market, with imports accounting for about one-third of world production in recent years. New Zealand, Australia, Ireland, the Netherlands, France, and West Germany together produced 83 percent of the world's casein in 1980 and supplied 86 percent of U.S. imports of casein and mixtures in chief value of casein during that year.

A number of factors besides casein demand influence the production of casein. Government policy can encourage production of casein by a variety of subsidies and other incentives, or it can effectively discourage production as has been the case with the U.S. price-support program for milk. Increased demand for other skim milk products, such as NFDM, reduces the skim milk available for casein production. Alternatively, an increased demand for cheese, relative to that for butter, as has occurred in recent years, has reduced the amount of skim milk produced (and therefore available for casein production). 2/ Health and sanitary regulations, tariffs, and quotas impact

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1/ In its June 1981 report, entitled U.S. Casein and Lactalbumin Imports: An Economic and Policy Perspective, the USDA identified, from questionnaire responses, an inventory buildup of 15.1 million pounds of casein and mixtures in chief value of casein during 1980. From its questionnaire responses, the USDA was able to account for 77 million pounds of casein and mixtures in chief value of casein used in manufacturing or inventory buildup in 1980. This 77 million pounds equates to 51 percent of the imports of these items in 1980. The USDA further estimated that, were all imports of casein and mixtures in chief value of casein accounted for, the entire domestic buildup of inventory stocks of these items in 1980 would be 23.1 million pounds.

2/ During 1977-81, for example, world production of butter increased from 13.1 billion to 13.3 billion pounds, or about 1 percent; production of cheese, however, increased from 15.8 billion to 18.5 billion pounds, or about 17 percent.

both directly and indirectly on production, e.g., casein produced in a foot-and-mouth infested country is hindered by U.S. regulations restricting the use of imports; on the other hand, quotas on NFDM in many countries discourage production of NFDM (and thereby encourage casein production) for exportation. Ultimately, of course, the limiting factor in casein production is the availability of an adequate supply of milk. During 1977-81, the world production of milk increased from 821 billion to 861 billion pounds, or by about 5 percent. The USDA currently estimates that world production of milk in 1982 will total about 870 billion pounds, representing an increase of about 1 percent over the 1981 level. Thus, world supplies of milk appear to be adequate, but not necessarily abundant, for the continued production of casein.

Generally, throughout the milk-producing countries of the world, casein production plays a residual rather than a dominant role in the apportionment of milk to its various uses. Cream and whole milk are the most profitable milk products, and demand for them is filled first. Relative demand for cheese and butter are the next determining factors. Since skim milk is the coproduct of butter, relatively greater supplies of skim milk are available when demand for butterfat is higher. Fluid skim milk is more profitable than either NFDM or casein, so its demand is filled first. In general, although NFDM and casein are fairly low on the list of milk uses, NFDM is more profitable and more in demand than casein. Therefore, the production of casein usually has the last priority in the apportionment of milk to its various uses. However, factors such as oversupply of NFDM (and therefore reduced price), or the inability to market exports sometimes can increase supplies of skim milk available for casein production.

New Zealand, the world's largest producer of casein, provided 146 million pounds in 1980, or 32 percent of world production--down from 36 percent and 34 percent, respectively, in 1976 and 1977. The USDA currently estimates that casein production in New Zealand will decline to 134 million pounds in 1981 and drop slightly again in 1982. The New Zealand dairy industry is largely an export industry, originally developed primarily to supply the United Kingdom. The inclusion of the United Kingdom in the EC in 1973 necessitated that New Zealand develop other export markets, largely the United States and Japan. During July 1979-June 1980, 87 percent of New Zealand's dairy products were exported. These dairy product exports represent 14 percent of the value of all products exported from New Zealand in 1980.

New Zealand's dairy industry is growing, and milk production was at a record-high level of 15.1 billion pounds in 1980. Production is estimated to have been slightly less in 1981. Although there are no known subsidies specifically encouraging production or exportation of casein, there are funds provided by the Government of New Zealand for dairy support; according to the USDA report, these funds are equivalent to an input subsidy of $0.19 per hundredweight of milk produced. New Zealand, which has the largest average herd size in the world and among the lowest feed costs, also has the lowest estimated average cost of milk production, $4.27 per hundredweight in 1978 compared with $8.77 for the United States (table 20).

Australia produced 33 million pounds of casein, or 7 percent of world production, in 1980. The USDA currently estimates that casein production in

Australia will change little, if at all, in 1981 and 1982. Like New Zealand, Australia developed its dairy industry largely to supply the United Kingdom and has had to seek alternative markets. However, unlike that of New Zealand, the Australian dairy industry is in a decline. Production of milk decreased from 17.0 billion pounds in 1970 to 12.4 billion pounds in 1980; casein production and exports are about half the volume of 10 years ago. Government participation in the industry is designed primarily to discourage excessive and inefficient production. The USDA reports that, although there are no subsidies specifically encouraging production or exportation of casein in Australia, programs such as the Government matching funds for research into more efficient dairy production constituted input subsidies amounting to $0.20 per hundredweight in 1978. Australia, which has been consolidating production in those parts of the country most suitable to dairying, has been decreasing the total number of farms and cows as it seeks optimum herd size. Australia has relatively low production costs, $5.68 per hundredweight in 1980, largely because of inexpensive feed. Nevertheless, Australian costs are $1.41 per hundredweight greater than those of its neighbor, New Zealand.

Ireland, West Germany, France, and the Netherlands together produced 198 million pounds of casein, or 44 percent of world production, in 1980. The EC provides a manufacturing subsidy to encourage casein production; no other dairy product has a manufacturing subsidy. The manufacturing subsidy, paid only after the product has been sold, is fixed at levels such that the income derived from manufacturing casein from skim milk is equal to the income that would be derived from producing NFDM from skim milk. According to the USDA report, this subsidy is necessary if dairy products in the EC countries are to remain competitive both at home and abroad. The USDA further stated that this subsidy helps explain the recent increases in exports of casein from the EC and notes that the share of U.S. imports accounted for by the four EC countries of Ireland, West Germany, France, and the Netherlands increased from 8 percent in 1978 to 24 percent in 1980. The subsidy was $1.28 per pound when it was first initiated in late 1979. By the spring of 1980, it was raised to $1.37 per pound. In response to rising casein prices in world markets and EC budgetary problems, the subsidy was subsequently lowered, and in October 1981, it was 95 cents per pound.

France produced 88 million pounds of casein, or 19 percent of world production, in 1980, compared with only 49 million pounds in 1978. The increased production reportedly resulted from the EC manufacturing subsidies. In November 1981, the USDA reported that the drop in the EC subsidy on casein appeared to curtail 1981 production of casein in France to 70 million pounds. Moreover, France is not expected to expand production of casein in 1982. Exports of casein and mixtures in chief value of casein from France to the United States have increased sharply in recent years, from 55,000 pounds in 1978 to 8.9 million pounds in 1980.

West Germany produced 42 million pounds of casein in 1980, or about 9 percent of world production, compared with 33 million pounds in 1978. In November 1981, the USDA reported that the drop in the EC subsidy on casein probably would limit 1981 production of the product in West Germany to 33 million pounds and that the 1982 production is not expected to increase. U.S. imports of casein and mixtures in chief value of casein from West Germany are small; they amounted to less than 1 million pounds in 1980.

Ireland produced 37 million pounds of casein in 1980, or 8 percent of world production, compared with only 24 million pounds in 1978. The USDA currently estimates that Ireland's production in 1981 totaled about 40 million pounds; 1982 estimates are not available. In 1980, Ireland supplanted Australia as the second largest U.S. supplier of casein, although preliminary data indicate that Ireland may have reverted to third place in 1981. U.S. imports of casein and mixtures in chief value of casein from Ireland increased from 9 million pounds in 1978 to 24 million pounds in 1980. According to the USDA report, Ireland's dairy industry has the fastest growth rate of these four EC casein-supplying countries, with milk production increasing 4 percent annually. Although all of Ireland's dairy items have shown steady growth in recent years, casein has exhibited the fastest growth for processed products. Much of Ireland's dairy exports are to other EC countries; however, most of Ireland's casein exports have been to the United States. Ireland has the lowest cost of milk production of any of these four EC casein-supplying countries, $6.73 per hundredweight in 1978, largely because of low feed costs. With continued growth in milk production and with a subsidy applicable to the manufacturing of casein, Ireland can be expected to continue to export large quantities of casein.

The cost of milk production in the Netherlands, $9.78 per hundredweight in 1978, is the highest of any of these four EC casein-supplying countries. This high cost of milk production largely results from substantial feed costs. Despite this high cost of milk production, the Netherlands has recently maintained an average annual growth rate in its milk production of 3 percent, second only to Ireland in the EC, according to the USDA report. The Netherlands produced an estimated 31 million to 33 pounds per year of casein during 1978-80. In 1981, production of casein in the Netherlands is estimated by the USDA to have declined to 29 million pounds and is expected to drop slightly again in 1982.

Competitiveness of the imports with domestic dairy products.--Because of price advantage, functionality, and high protein content, imports of casein and mixtures of casein compete with domestic dairy products via substitution and direct product replacement. The different kinds of competition may be described as (1) direct competition of casein with a domestic dairy product--e.g., casein instead of NFDM being used as an ingredient in coffee whitener production; (2) indirect competition of a casein intermediate with a domestic dairy product--e.g., casein-whey blends instead of NFDM being used in animal feeds and bakery blends; and (3) indirect competition of a casein end product with domestic dairy products--e.g., casein-based imitation cheese versus natural cheese, casein-based coffee whiteners versus cream or canned milk, and casein-based whipped toppings versus cream. Imported casein also competes with the theoretically possible domestic production of casein, although it is unlikely that a domestic casein industry would emerge with the imposition of the maximum 50-percent quota allowable under section 22.

In 1980, imported casein and mixtures in chief value of casein were priced at about $1.20 per pound, compared with about 90 cents per pound for NFDM. Casein and NFDM are both derived from the same raw material, skim milk. Until the profit returned from casein production approximates the profit afforded by making NFDM, there will be no domestic casein production.

About 9 pounds of NFDM or about 3 pounds of casein can be made from 100 pounds of fluid skim milk. Thus, about three times more NFDM is produced, in comparison with casein, from a given quantity of skim milk. Therefore, it would be necessary for the price of casein to approximate three times the price of NFDM, or about $3.00 per pound based on prices in 1980, before domestic casein production could be considered profitable.

The high protein content of commercial casein and low fat and/or lactose content relative to domestic milk products is a competitive advantage in certain applications. For example, 1 pound of casein provides protein equivalent to almost 3 pounds of NFDM, but virtually none of the lactose. For such uses as some high-protein cereals, diet foods, high-protein pet foods, and medical/nutritional applications, where protein is desired but fat and/or sugar is not, neither NFDM nor any other current commercially available domestic dairy product can rival casein.

Soy and other proteins are alternatives to casein in these products, and because of readily available supply and generally lower prices, soy protein tends to be used whenever possible. However, soy protein has a flavor which, up to the present time, has proven difficult to mask. Soy protein is deficient in certain essential amino acids, e.g., dl-methionine, which must be added in order for soy to be used instead of casein in certain high-protein or diet foods; also, for certain medical/nutritional applications, casein is reportedly the more desirable protein.

Casein also exhibits certain functional characteristics, such as excellent emulsifying and buffering characteristics, which enable it to be used successfully in powdered coffee whiteners where soy products tend to "feather" or coagulate. Casein exhibits very good binding capability and moisture retention and is used in such products as sausages, breakfast bars, and bakery goods. In imitation cheese, which as nearly as possible duplicates the protein, fat, and carbohydrate levels of natural cheese, casein provides the protein component which binds the other ingredients together. Casein-based imitation cheese has good texture, melting, and flavor-retention characteristics. The binding, or adhesive, capability of casein explains its use in glues, where it exhibits quick-setting ability, water-resistance, a high degree of durability, and the ability to adhere to different types of surfaces. Casein finishes on paper are used to bind color and ink to the paper, to impart a glossy finish, and to increase water resistance.

Soy protein and plastic resins are substitutes for many industrial uses of casein, although the quality of the end product is reportedly lower in many cases where substitution has occurred. Domestic dairy products are not believed to be substitutable for casein in most industrial applications because only the protein, not the fat or carbohydrate fractions, of milk is desirable.

As previously mentioned, the use of casein has shifted over the years from primarily industrial to primarily food and feed uses. The changing markets for casein are the result of increased technology in the food industry, greater demand for convenience foods, more diet- and nutrition-conscious consumers, and cheaper replacements for casein in industrial uses

(e.g., plastic resins). Also, higher costs for domestic milk solids relative to the costs of imported casein and higher costs of domestic dairy products relative to the costs of the products in which imported casein is used as an ingredient have contributed to the changing markets for casein. As indicated by figure 2, however, there was no discernible relationship between the changes in imports of casein and mixtures in chief value of casein used for food and feed during 1976-80 and changes in the purchases of butter, Cheddar cheese, and nonfat dry milk by the CCC. Imitation cheese was the largest end use for casein in 1980 and the fastest growing market for casein in recent years. As indicated by figure 3, however, there was no discernible relationship between the changes in production of casein-based imitation cheese during 1976-80 and CCC purchases of Cheddar cheese.

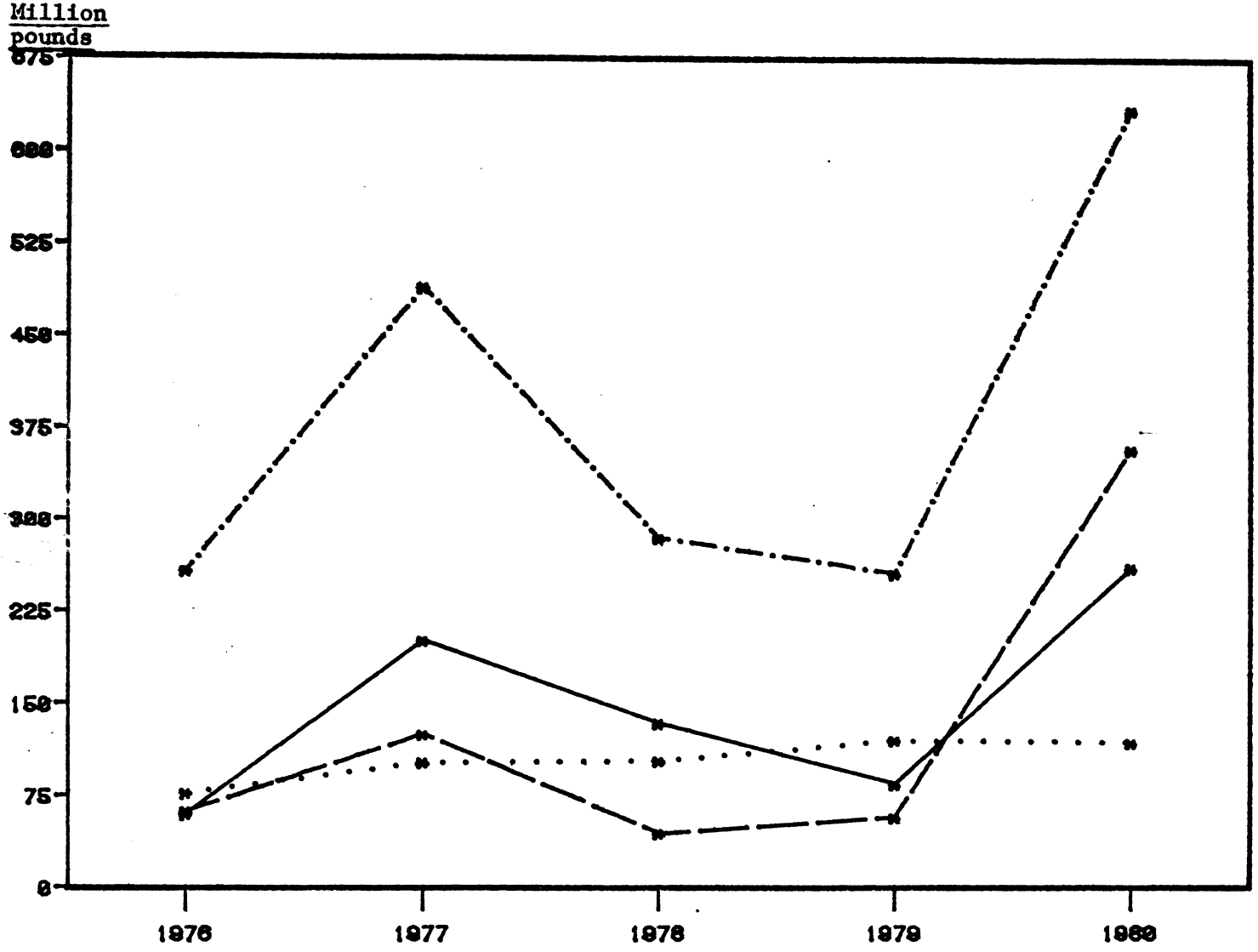
During the investigation, a number of differing views were presented concerning the possible production of domestic products to substitute for casein in a wide array of food and feed products, including imitation cheese. For example, New Zealand Milk Products, Inc., testified that they have made a very acceptable imitation cheese from wheat protein in their laboratory. 1/ They subsequently reported that they recently have applied for a U.S. patent for producing this wheat protein and that commercial production of the product could easily commence in less than a year under favorable economic incentives. They reported that in the fall of 1981 they began distributing the product for sampling purposes in the United States.

Others contacted in the industry, including * * *, and other large dairy cooperatives, reported that experiments with wheat and soy protein as substitutes for casein in imitation cheese production have been unsuccessful, largely because of difficulties with masking the flavor and color of wheat and soy proteins and attaining the melting qualities exhibited in casein. They agreed that wheat and soy proteins have successfully been used as a 5- to 10-percent casein extender in imitation cheese, although some report that soy protein can be used for as much as a 50-percent extender. Research and development efforts to find alternatives for casein in imitation cheese, although widely engaged in within the industry in response to rising casein prices and concern about reduced supplies, have been largely unsuccessful, they reported. Moreover, they reported that they do not foresee any breakthroughs in the area of casein replacement in imitation cheese in the near future.

Frank Thomas of Thomas Technical Services, Greenwood, Wis., who was reported at the hearing to be knowledgeable in the area of extracting protein from whey (a cheese byproduct) and producing a product similar to casein, was contacted by the Commission staff. According to Mr. Thomas, whey protein concentrates (WPC) can replace casein in most uses where casein is blended with whey, e.g., most bakery uses, animal feeds, and so forth. Also, he said WPC can be used to replace a portion of casein used to produce various imitation products including some imitation cheeses. In those uses where lactose is undesirable, WPC cannot be used. However, Mr. Thomas reported that substantial progress has recently been made in manufacturing a product that

1/ Transcript of the hearing, p. 373.

Figure 2.--CCC purchases of butter, Cheddar cheese, and nonfat dry milk and U.S. imports of casein and mixtures in chief value of casein used for food and feed, 1976-80.



CCC purchase of butter

CCC purchase of Cheddar cheese

CCC purchase of nonfat dry milk

Imports of casein and mixtures of casein used for foods and feed

Source: CCC purchases compiled from official statistics of the U.S. Department of Agriculture; casein used for food and feed estimated from data submitted in response to questionnaires of the U.S. International Trade Commission.

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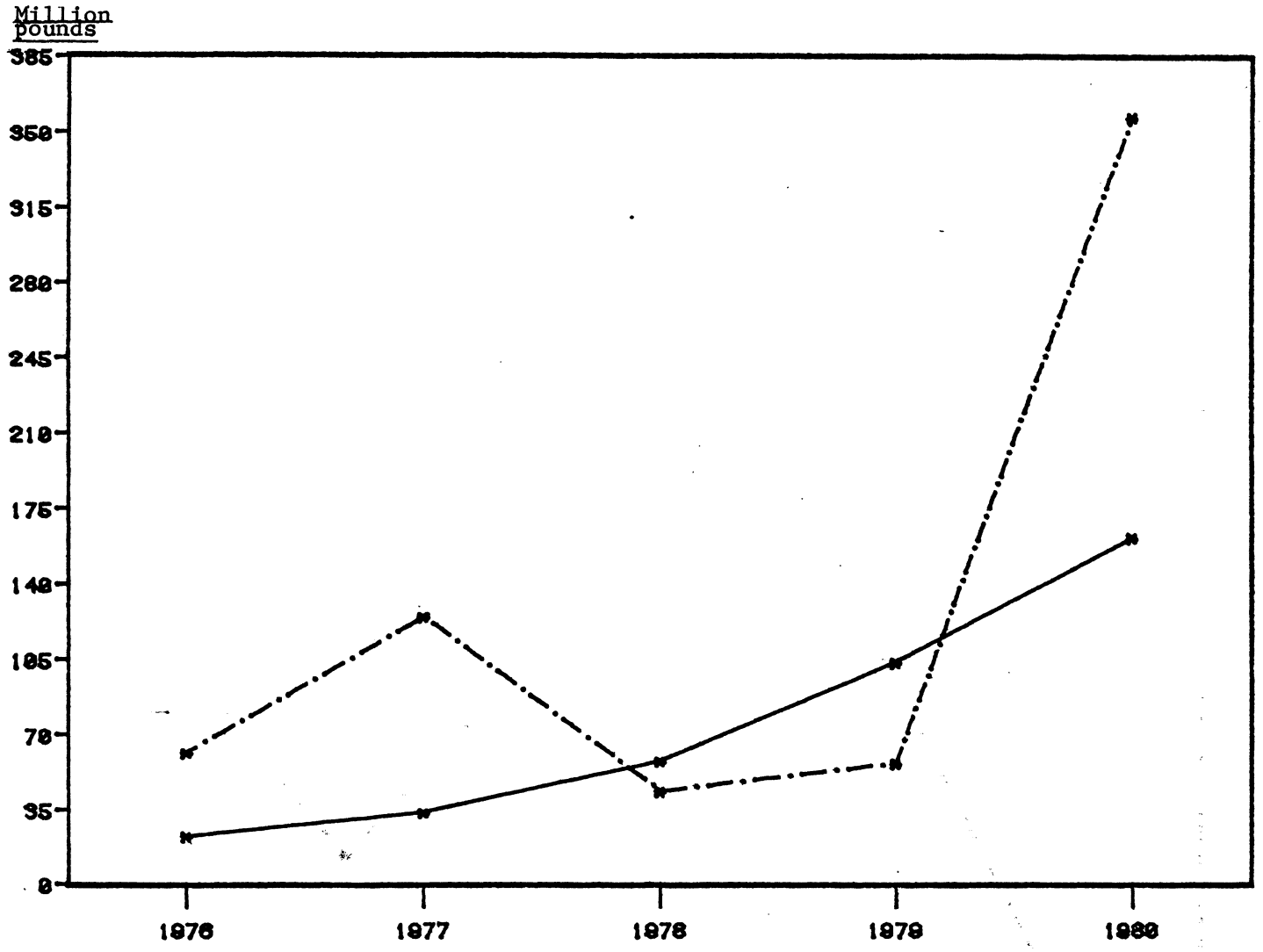
Figure 3.--Production of casein-based imitation cheese and CCC purchases of Cheddar cheese, 1976-80.



1/ * * *

Source: CCC purchases of Cheddar cheese compiled from official statistics of the U.S. Department of Agriculture; production of casein-based imitation cheese estimated from data submitted in response to questionnaires of the U.S. International Trade Commission.

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can potentially replace casein in such uses by fractionating the lactoglobulin proteins from whey. He reports that these proteins currently furnish only about half of the stretch qualities that casein supplies to imitation cheese and that it will take at least 6 months before the product will be developed to the point where it could replace casein in such uses as coffee whiteners, whipped toppings, and imitation cheese. Mr. Thomas estimates that within 5 years this lactoglobulin product could be produced in sufficient quantities to replace all casein at current import levels. He believes that the product will be competitively priced with the caseinates that are made from imported casein.

The staff is not equipped to render judgment on the likelihood of specific products being used as substitutes for casein. However, as imitation food products utilizing casein, including imitation cheese, have been widely accepted in the domestic marketplace, it can be expected that if casein supplies were restricted, emerging economic incentives would bring forth an article, or articles, that would replace casein in most of its uses, including imitation cheese. The replacement product(s) could be dairy or nondairy based, or some combination thereof.

Lactalbumin

Description and uses.--Lactalbumin is another protein derived from milk. It accounts for about 18 percent of the protein content of milk, while casein constitutes about 80 percent of the protein content of milk.

When fluid skim milk is processed into casein, the liquid portion that remains is known as acid whey. Lactalbumin is processed from acid whey; it is conceivable that it also might be processed from cheese whey, the liquid portion that remains after cheese is made from whole milk. Currently, WPC is made from cheese whey. There is no reported production of lactalbumin in the United States. However, according to data received in response to the Commission's questionnaires, domestic production of WPC increased from about 10 million pounds in 1978 to 20 million pounds in 1980; in January-August 1981, production amounted to 28 million pounds, compared with 12 million pounds in the corresponding period of 1980. This production was accounted for by about 20 firms.

Lactalbumin generally has a protein content of at least 75 percent; that of WPC is about 34 percent. 1/ Although WPC is generally recognized in the trade as having a lower protein content than lactalbumin, the terms by which the two products are identified often have been used interchangeably. Some of the small quantities of imports classified by Customs as albumen, not specially provided for (n.s.p.f.), could have consisted of WPC instead of lactalbumin.

1/ * * *.

The Food and Drug Administration (FDA), U.S. Department of Health and Human Services, on September 4, 1981, issued final regulations, including labeling provisions, affirming that whey and certain modified whey products, including WPC, were "generally regarded as safe" (GRAS) for direct human food ingredients. 1/ The GRAS regulation for WPC sets only a minimum protein content for the product (not less than 25 percent); no maximum is designated.

The GRAS regulations, however, were limited to WPC. Lactalbumin was not included; therefore, no Federal regulations or definitions existed for lactalbumin. On October 1, 1981, however, the Customs Service issued to U.S. ports of entry an informal ruling specifying that, for customs classification purposes, lactalbumin classified in TSUS item 190.15 should contain at least 75 percent protein. The product containing less than 75 percent protein should be called WPC and classified under TSUS item 183.05. As a maximum protein content is not designated by the FDA for WPC, its protein content probably could be raised to a level that encroaches on the minimum established by the Customs Service for lactalbumin.

About half of the imports of lactalbumin in 1980 was used as protein complements in cereal and breakfast foods, a fourth in pet foods, and the remainder mostly in the manufacture of miscellaneous high-protein foods, bakery products, medical/nutritional products, and diet foods. It appears that lactalbumin and WPC might be essentially interchangeable in many of these uses, and such substitutions would appear to be practical in many cases. Price probably is the determining factor in decisions regarding the use of these products. Indeed, a number of firms reported, in response to the questionnaires, that lactalbumin, WPC, casein, and NFDM were all competitive products as a source of animal protein in some uses. Several users of lactalbumin reported that if lactalbumin were not available, they would use WPC as an alternative to lactalbumin in their product mix.

U.S. tariff treatment.--The tariff provision under which lactalbumin is classified (albumen, n.s.p.f., TSUS item 190.15) was bound duty free in negotiations under the General Agreement on Tariffs and Trade (GATT) in 1951. Imports of lactalbumin are also subject to APHIS regulations regarding rinderpest and foot-and-mouth diseases. These regulations are discussed in the preceding section of this report dealing with casein.

Imports of lactalbumin and WPC currently are not subject to section 22 quotas. Of the two products, however, only lactalbumin is included in this investigation. Should a quota be established for lactalbumin, it appears that a trade shift to WPC could be anticipated.

U.S. imports.--According to data received in response to the Commission's questionnaires, imports of lactalbumin during 1978-80 fluctuated from 1.0 million pounds to 2.0 million pounds; in January-August 1981 they totaled 2.1 million pounds, compared with 1.3 million pounds in the corresponding period of 1980. About 94 percent of the imports of albumen, n.s.p.f., which includes the lactalbumin herein considered, was from New Zealand in 1980, with the Netherlands, the second-largest supplier in that year, accounting for an additional 4 percent of such imports (table 21).

1/ 46 F.R. 44434.

U.S. consumption.--Imports of lactalbumin supply all of consumption. According to data received in response to the questionnaires, yearend stocks of the product increased irregularly, from 405,000 pounds in 1977 to 540,000 pounds in 1980; at the end of August 1981, stocks amounted to 1.3 million pounds, compared with 0.7 million pounds at the end of August 1980. Exports of lactabumin are believed to be nil. It appears, therefore, that consumption of lactalbumin increased from about 1.1 million pounds in 1977 to 1.8 million pounds in 1979, and then declined to 1.4 million pounds in 1980. In January-August 1981, consumption amounted to 1.8 million pounds, compared with 0.7 million pounds in January-August 1980. In contrast to lactalbumin, consumption of casein and mixtures of casein, the other products included in this investigation, has averaged about 140 million pounds annually in recent years.

The Effect of Imports of Casein and Lactalbumin on the Operation of the Dairy Price-Support Program

The testimony of the USDA

The USDA testified before the Commission that the Secretary of Agriculture had reason to believe that interference with the milk price-support program is occurring as a result of imports of casein and casein mixtures. This position is primarily based on information presented in the June 1981 USDA report. USDA confined its presentation at the hearing to the level of interference measured in 1980. The USDA witnesses did not state that such imports were rendering or tending to render ineffective the price-support program. 1/ In response to questions from the Commission, USDA stated that they were not taking any position on the possibility that imports are causing a substantial reduction in the amount of a product processed in the United States from milk.

USDA witnesses agreed that it is the position of the USDA that imports of lactalbumin are not causing material interference with the milk price-support program. 2/ They testified that imports of lactalbumin in 1980 were at such low levels that material interference with the milk price-support program from them is unlikely. Accordingly, the USDA did not provide further testimony regarding lactalbumin.

The USDA witnesses testified that casein had long been imported into the United States primarily for industrial purposes, and was not viewed in the past as a substitute for any domestic milk protein likely to be produced. However, increased use of casein in food uses due to technological advances suggests that casein may now displace substantial quantities of domestically produced nonfat milk solids. The USDA report was initiated in order to determine the extent of this displacement.

1/ Transcript of the hearing, p. 57.
2/ Transcript of the hearing, p. 58.

The study found that in 1980, if no casein imports were available and if all present users of casein would have switched to using domestic nonfat milk solids, with no decline in production, the increased use of domestic milk solids would have been 510 million pounds on a NFDM-equivalent basis. However, in the absence of casein imports, the USDA report states that domestic production of casein would be feasible. Such domestic production would require a price of at least $2.65 per pound (compared with $1.20 per pound for imported casein in 1980), reflecting the cost of domestically produced nonfat milk solids. This price increase, according to the USDA, would have caused the utilization of casein to decline from an estimated 128 million pounds in 1980 to about 24.3 million pounds (having a NFDM-equivalent of about 77 million pounds).

The USDA report further states that skim milk solids with a NFDM equivalent of 256 million pounds would have been used in the absence of imported casein. Some of these skim milk solids would probably have been used in the form of fresh skim milk to manufacture filled cheese, and the remainder would have been used in various forms in the manufacture of powdered and liquid coffee whiteners, calf and veal feeds, and various other human food and animal feed items. The NFDM equivalent of the increased use of domestic milk solids in the absence of imports of casein is, therefore, estimated by the USDA to be 333 million pounds. The 1980 CCC purchase value of this quantity of NFDM was about $300 million. Certain casein users, accounting for 49 million pounds of casein used in 1980, would discontinue production or switch to such alternative ingredients as soy protein.

Imported casein competes with and, because of its price advantage, displaces domestic nonfat milk solids, according to the USDA. There is little reason to assume that this displacement will decrease in the future. The USDA stated that to the extent casein-based products enjoy strong markets and to the extent other nondairy substitutes are not found, displacement at similar levels will continue. In addition, there is no reason for the USDA to believe that world supplies of casein will not remain high, 1/ owing to adequate dairy production throughout the world and continuing government participation in the markets for dairy products.

The USDA stated that the growth of casein used in imitation cheese is of concern since sales of imitation cheese products accounted for about 4 percent of the domestic cheese market in 1980, a market which has increased its share of milk use dramatically during the past decade. If casein use increases in this food application and/or no alternative nondairy source of protein is found for use in such products, serious displacement of domestic nonfat milk solids will occur even if imports of casein do not increase. 2/ Unrestricted imports would assure that there will be further growth in the production of imitation cheese according to the USDA. The use of imported casein rather than domestic nonfat milk solids is assured because of the substantial price advantage of the imports. The USDA contended that this could be expected to lead to increased purchases of NFDM by the CCC.

1/ Subsequent to the hearing, the USDA estimated that casein production in most supplying countries declined in 1981.

2/ Transcript of the hearing, p. 35.

Analysis of the Commission's questionnaire data 1/

If competition from imports forces domestic milk solids away from a form in which they are not directly purchased by the CCC (e.g., casein) into another form which is purchased (e.g., NFDM) there could be a resultant increase in the level of CCC purchases. It is fairly apparent that this situation could exist with respect to casein, although the degree of such diversion is in question.

Although there is no domestic production of casein at the present, it is probable that, as stated by the USDA, there exists some price at which domestic production would become feasible under the price structure created by the support program. Shifts in usage of fluid skim milk from products which are purchased by the CCC, e.g., NFDM, to products which are not, e.g., casein, at the hypothetical price is one measure of the degree to which the CCC support operations are affected by imports. The components of such shifts are as follows:

1. The amount of casein which would be demanded at the hypothetical price, all of which could be provided domestically;

2. The increase in use of domestic milk ingredients in products now made from imported casein; and

3. The increase in consumption of domestic milk end products because of less availability of casein-based end products.

Because of the low or negative commercial value for acid whey (the principal byproduct of casein production) and because the production costs for casein are believed to be higher than those for NFDM, it is likely that in 1980 the price necessary to have elicited domestic production of casein would have been in excess of $3.00 per pound; in 1980, actual imported casein was valued at an average of about $1.20 per pound.

The Commission's questionnaire attempted to gather information concerning the use of casein if the price of casein increased significantly. Thus, users were asked to provide their best estimates of actions they would take in several hypothetical situations, that is, how much casein they would have used in 1980 if the price of casein had been increased by increments of 25, 50, 100, 150, and 200 percent more than the price in 1980. These estimates assume that prices of all other ingredients or potential ingredients remain at their 1980 level. Respondents to the Commission's questionnaires indicated that if the price of casein had been $3.00 per pound in 1980 (an increase of 150 percent), their estimated use of casein in 1980 would have declined from 138.9 million pounds to 35.9 million pounds. Use of casein in imitation cheese would have accounted for 29 percent of consumption, and all other uses would have accounted for 71 percent. If a domestic industry were established and the entire 35.9 million pounds had been provided from domestic production at

1/ The methodology employed in analyzing the Commission's questionnaire data is discussed in detail in app. E.

$3.00 per pound, commercial utilization of domestic skim milk would have been higher than actually occurred in 1980, and purchases by the CCC of NFDM undoubtedly would have been lower. Under these conditions, this decrease in purchases of NFDM in 1980 would have been valued at an estimated $102 million. Natural cheese is also an ingredient in imitation cheese. With the decline in the production of imitation cheese, and assuming no formulation change, there might have been a subsequent decline in natural cheese used in such production and a resultant increase of an estimated 7 million dollars' worth of CCC purchases of cheese. In addition, the data show that in 1980 there would have been increased commercial use of edible NFDM and increased sales to feed producers of spoiling CCC stocks of NFDM, together valued at an estimated $8 million, as a result of the higher price of casein. Therefore, net benefits to the CCC from the theoretical domestic production of casein and increased commercial use of NFDM are estimated at $103 million.

In addition to this $103 million, decreased casein usage in the production of imitation cheese could result in increased production of natural or filled cheeses, which would result in decreased CCC purchases. Questionnaire data indicate that, if casein had been valued at $3.00 per pound in 1980, production of imitation cheese from casein would have decreased to 45 million pounds, about equally divided between American-type and mozzarella cheeses. If there were no substitution of wheat protein, lactoglobulin, and so forth, for casein in imitation cheeses, the decline in production of imitation cheeses might have been replaced by increased production of filled cheese and natural mozzarella cheese, both produced from domestic part-skim milk. The price of these cheeses, however, would be considerably above that of casein-based imitation cheese, and would probably cause consumers to reduce their purchases. The value of the nonfat solids and butterfat components in the part-skim milk that would have been used in the production of these cheeses is estimated to be $75 million.

Therefore, it is estimated that the total benefits to the CCC in 1980, if casein had been valued at $3.00 per pound and the entire commercial demand had been supplied by a domestic industry, could have ranged as high as $103 million to $178 million, providing no or minimal substitution of wheat protein, lactoglobulin, and so forth for casein, and as low as a few million dollars should such substitution occur. 1/

1/ It is generally known that extension of casein with soy protein is feasible now. Technological advances also suggest imminent development of acceptable imitation cheese made both from wheat protein and from lactoglobulin. Whey protein concentrates may also be further developed for use in many products. These technologies are all proprietary and could be used only under license. It is likely that in the event of casein being priced at $3.00 per pound, such licensing would lead relatively quickly to substantial production of imitation cheeses from noncasein proteins.

Probable Effects of Import Restrictions 1/

Section 22(b) of the Agricultural Adjustment Act permits the President to--

> Impose such fees not in excess of 50 per centum ad valorem, or such quantitative limitations on any article or articles which may be entered, or withdrawn from warehouse, for consumption as he finds and declares shown by such investigation to be necessary . . . Provided, That no proclamation under this section shall impose any limitation on the total quantity of any article or articles . . . which reduces such permissible total quantity to proportionately less than 50 per centum of the total quantity of such article or articles . . . during a representative period as determined by the President: And provided further, That in designating any article or articles, the President may describe them by physical qualities, value, use, or upon such other bases as he shall determine.

Casein is now entered duty free. Mixtures in chief value of casein are dutiable at the rate of 0.2 cent per pound.

The USDA witnesses testified at the Commission's hearing that there is reason to believe that imports of casein are materially interfering with the price-support program for milk. 2/ These witnesses did not state that such imports were rendering or tending to render ineffective the price-support program. 3/ Similarly, the position of the USDA is that imports of lactalbumin are very small and are not causing material interference with the price-support program. 4/ The USDA accordingly declined to recommend any level of import restriction which was appropriate to prevent or remedy any material interference or other adverse effect on the program which might be found by the Commission. 5/

The USDA testified in terms of the effects on the price-support program for milk of the maximum restrictions allowed under section 22--a tariff of 50 percent ad valorem or a quota of 50 percent of the quantity of casein entered in a representative period. In addressing both forms of restrictions, the USDA based its estimates on the level of imports and other conditions during 1979-1980. Representatives of the National Milk Producers Federation (NMPF), supported by other representatives of the domestic dairy industry, requested consideration of a 50-percent quota based on the average annual level of imports in the period 1976-80. The NMPF quota recommendation included provisions for the licensing of imports on a preferential basis determined by the intended use of the imported casein. The NMPF testified that the effects of quota restrictions beneficial to the program could be maximized through such a procedure while causing the least hardship on producers of articles which do not compete with domestic milk products and on producers who could not use currently produced domestic milk solids in their processing. Other

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1/ The methodology employed in analyzing the Commission's questionnaire data is discussed in detail in app. E.

2/ Transcript of the hearing, p. 57.

3/ Transcript of the hearing, p. 57.

4/ Transcript of the hearing, p. 58.

5/ Transcript of the hearing, p. 55.

parties to the investigation, including some opposed to the imposition of restrictions, testified that if restrictions are to be imposed under section 22, they also favor licensing and/or exemptions on an end-use basis.

The effects of tariff restrictions

No party to the investigation testified in favor of the imposition of tariffs on the importation of casein. The conclusion of the USDA study that the maximum tariff of 50 percent ad valorem would be insufficient to significantly affect the amount of casein imported for use in food and feed, where the greatest competition with domestic milk solids is occurring, apparently led most parties to consider only the possibility of quota restrictions. The imposition of the maximum tariff would raise the price of imported casein to about $1.80 per pound (based on the 1980 average import value of $1.20 per pound). The USDA study determined that any value for imported casein below at least $2.65 per pound would be too low to elicit domestic production of casein.

According to the USDA study, the imposition of a tariff of 50 percent ad valorem on imports of casein would cause such imports to decline to between 79 million and 92 million pounds annually. However, there would be no significant increase in the use of domestic skim milk solids as a result because those reducing their use of casein would shift to nondairy alternatives. Therefore, there would be no resultant reduction of CCC purchases. The USDA estimated that the additional direct costs of this restriction to the first level of user would be between $47.5 million and $55.1 million. This estimate of costs does not consider costs of reformulating products or higher prices of substitute ingredients.

Commission data indicate that the beneficial effects of a tariff of 50 percent ad valorem on imported casein may be greater than the effects estimated by the USDA. Although there would be no domestic production of casein at the price of $1.80 per pound resulting from the tariff, there may be some increased production of filled cheese, natural cheese, and NFDM-based products. The value of these benefits to the CCC are estimated to range from $8 million to $47 million, although at a cost to consumers of as much as $71 million to $83 million.

Questionnaire data suggest that if the price of casein had been $1.80 per pound in 1980, only an estimated 96 million pounds of casein-based imitation cheese would have been produced, compared with actual 1980 production of 162 million pounds. Since there would not be domestic production of casein at this price, the entire 26 million pounds of casein necessary for this level of production would be imported. Under the assumptions that there would be no penetration of wheat protein and lactoglobulin into the imitation cheese market and only minimal stretching of casein with soy protein, the decline in production of imitation cheese of 66 million pounds would be replaced by an estimated 35 million pounds of filled cheese and 11 million pounds of natural mozzarella cheese at prices higher than that of casein-based cheese. The value of the nonfat solids and butterfat components of these cheeses at the 1980 support price is $44 million. The likelihood of no substitution of wheat protein, lactoglobulin, or soy protein is very small. Any production using these ingredients would reduce the $44-million impact on the CCC program, and complete substitution would eliminate this impact totally.

The lower levels of CCC purchases under a tariff of 50 percent ad valorem would be offset by increased purchases of natural cheese which would have been used as an ingredient in casein-based cheese; the 1980 value of this natural cheese was $5 million. However, there would be increased commercial use of edible NFDM and increased sales to feed producers of spoiling NFDM from existing CCC stocks, together valued at $8 million. The total benefits to the CCC of the tariff restriction are, therefore, estimated not to exceed $47 million and could range as low as $8 million.

Offsetting the benefits from the tariff restrictions are increased costs to current users of casein. These users would have to pay higher prices for the casein itself, for higher cost alternatives, and for higher cost filled and natural cheeses. At the wholesale level, these costs are estimated to be between $71 million and $83 million, although substitution of lactoglobulin- or wheat-based imitation cheeses could lower these costs by an unknown amount.

The effects of quota restrictions

The USDA estimated the effects of a quota under section 22 using 1979 and 1980 as a representative period. The quota would be set at 50 percent of the average 151.5 million pounds of casein imported annually during that period. Other parties to the investigation testified that 1979 and 1980 were not necessarily the most representative years and that the average of several years might be more appropriate. The NMPF requested that the period 1976-80 be considered representative and that the quota be set at 50 percent of the annual average in that period. The annual average was 139.3 million pounds during 1976-80, and the maximum quota would then be 69.7 million pounds. 1/ The level of imports for 1976-81, average levels for several periods, and levels which would be permissible under the maximum restraint are shown in the following tabulation (in millions of pounds):

Period	Quantity	50-percent quota
1976	112.1	56.0
1977	144.2	72.1
1978	137.1	68.6
1979	150.8	75.4
1980	152.2	76.1
1981	1/ 126.0	1/ 63.0
1976-80	139.3	69.7
1979-80	151.5	75.8
1976-81	1/ 137.1	1/ 68.6
1978-81	1/ 141.5	1/ 70.8

1/ Estimated by the staff of the U.S. International Trade Commission.

1/ A quota could be set at any level above 50 percent. For example, a quota of 100 percent of the quantity imported during the representative period could be appropriate if it were determined that the program suffers no present interference but that such interference is imminent. Such a quota may remove the threat to the program by preventing increases in the level of imports while not adversely affecting the existing level of use determined not to be materially interfering with the program.

The NMPF suggested that a quota could be made most effective by a preferential licensing system in which certain end-users would have virtually unrestricted access to casein within the limits of the quota, and others would receive import licenses only after preferred users had filled their requirements. In particular, the NMPF testified that those users, such as glue manufacturers, whose articles did not compete with domestic milk products and who had indicated that they would switch to alternative nondairy protein sources at even a slight increase in the price of casein should receive the highest preference for import licensing. The second level of preference would be given to those users, such as those who produce medical products, who have no alternative to casein in their production processes and, were no casein available, would cease production. Other users that produce an article which competes directly with domestic milk products or that could switch to domestic milk ingredients other than casein in their production processes would receive the lowest preference and be allowed to import only the remaining amount of casein available under the quota. Based on the USDA data for 1980, the NMPF reports that this group would have been allotted about 9 million pounds of casein.

The NMPF proposal appears to maximize the effect of restrictions by limiting casein usage primarily to those end products posing the least competitive threat to domestic dairy products. An inconsistency in the proposal is that much of the group offered second preference would buy casein at the higher new price. Others of the same group indicated to the Commission that they would not purchase casein at the higher price in the future because, although it serves a desirable function, its benefits do not justify a higher price. Even at the price of $3.00 per pound, the lowest price at which domestic production of casein is likely to occur, the users included in this group expected their requirements to exceed 17.7 million pounds, or 56 percent of their current usage. This quantity accounts for about $50 million of the $103 million to $178 million cost to the CCC estimated earlier.

The preferential licensing procedure proposed by the NMPF assumes that for customers with licenses, the price of the imported casein would not be significantly affected by restrictions. If the domestic price continues to be determined by the world price owing to ample world supplies, this assumption is reasonable. However, world casein production appears to be a function of world butter and cheese production, both of which can vary. Rising world prices would decrease use by the preferred users and would increase the amount of the quota available to users competing with domestic dairy products. Since it is to this category of uses that the NMPF quota recommendation is directed, any such shift owing to higher prices will limit its effectiveness. Over the short term, the NMPF recommendation could be expected to limit use of casein in imitation cheese and certain less important uses to about 20 percent of actual 1980 use. In a longer time frame, this quota recommendation may have relatively little effect on imitation cheese production.

The Commission staff solicited opinions from the U.S. Customs Service and the USDA to determine the feasibility of administering a licensing system such as recommended by the NMPF. The two agencies agreed that such a system could not be successfully administered and enforced. The agencies do not have the resources to follow imported casein through its various levels of processing and distribution to its end use. There can be no certainty that casein licensed for one purpose would not be used for another unlicensed purpose.

seems likely that, unless substantial resources were to be made available to the agencies charged with administration and enforcement of the preferential quota, it will not have its intended effect. 1/

The USDA study addressed the effects of a 50-percent quota based on the level of imports in 1979 and 1980. Since an average of about 151.1 million pounds of casein was imported in those years, the quota would be 75.8 million pounds. The USDA estimates that such a quota would cause the price of casein to increase to about $2.65, the price at which domestic production of casein is theoretically possible. At that price, however, demand would still be about 79 million pounds. The users of about 3 million pounds of casein, unable to purchase imports, would turn to domestic casein or possibly switch to NFDM. The USDA estimated that increased commercial use of domestic skim milk solids would lead to a reduction of CCC purchases valued at $9 million. The additional costs to consumers using higher priced casein and NFDM, however, would be at least $115 million.

The quota proposed by the NMPF would permit imports of 69.7 million pounds of casein annually. Since a more restrictive quota is presumed to provide greater benefits to the Government than that considered by the USDA, it is the NMPF quota recommendation level which is discussed below. The benefits to the CCC in the form of reduced purchases of skim milk solids and increased sales of existing stocks of NFDM are estimated to be no more than $53 million, whereas higher prices for casein and dairy products will cost the consumer at least $95 million.

Questionnaire data suggest that if a quota of 69.7 million pounds annually were imposed on the importation of casein, the price of that casein would rise to slightly over $2.00 per pound from its 1980 value of about $1.20 per pound. As in the case of the maximum tariff restriction, this price is not high enough to result in domestic production of casein. Since all casein still used would be imported, the benefits to the CCC of such a restriction would come only from lower purchases owing to increased use of part-skim milk in natural and filled cheese production and to shifts to NFDM as an ingredient in animal feeds.

An estimated 42 million pounds of mozzarella or filled cheese could be produced from part-skim milk to replace the lost production of casein-based imitation cheese, assuming no substitution of wheat protein, lactoglobulin, and so forth, for casein. The 1980 value to the CCC of the components in the part-skim milk required to produce this 42 million pounds of cheese is $49 million. 2/ Additional purchases of the natural cheese component of the lost casein-based cheese production reduces the benefits from part-skim milk cheese production from $49 million to $44 million. Increased use of NFDM including

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1/ A copy of the memorandum summarizing these opinions is contained in app. F.

2/ Any substitution of casein-based cheese by lactoglobulin- or whey-based cheese and any dissemination of the technology for stretching casein with soy protein in imitation cheese production would be expected to reduce the $49-million savings to the CCC, and substantial substitution could reduce this savings to zero.

some from CCC stocks would be expected to net the Government $8 million. Therefore, the benefit to the CCC from the imposition of a quota of 69.7 million pounds is expected to range from $8 million to $53 million. The estimated benefit of a quota is offset by increased costs to users of casein and consumers of higher priced end products. Although these additional costs are estimated to be over $95 million at 1980 prices, substitution of wheat protein and lactoglobulin for casein could reduce such costs by an unknown amount. In addition, the revenues from the increased price of imported casein under the quota would be expected to accrue to the exporting nation. In the case of a tariff, such revenues would accrue to the U.S. Government.

Conclusion

In the event that higher prices and/or reduced availability of imported casein forces a decrease in the production of casein-based imitation cheese and, depending on the extent that lost production is replaced by imitation cheese based on soy protein, wheat protein, lactoglobulin, etc., the imposition of a tariff of 50 percent ad valorem on imports of casein is estimated to reduce the cost of CCC operations by $8 million to $47 million, and the imposition of a quota of 69.7 million pounds annually is estimated to reduce CCC costs by $8 million to $53 million. The costs to consumers of these restrictions are estimated to exceed $71 million and $95 million, respectively. The high-end estimate of reduced costs to the CCC in each case are based on existing, widely available technology. There is reason to believe that new technology will substantially reduce benefits of restrictions to the CCC in future years.

The high-end estimates of benefits to the CCC owing to restrictions are virtually all due to the assumption that there will be a decline in the production of imitation cheese and a concurrent increase in production of natural and filled cheese made from domestic milk ingredients. This may not actually occur. There has been extensive research into alternatives to the use of casein in cheese and other foods. Some firms now are able to extend casein through the use of soy protein. Others believe that they can now produce, or will soon be able to produce, imitation cheese from wheat protein or lactoglobulin. If the price of casein were to rise after imposition of restrictions, these technologies would most likely become commercially available under license. Although such availability would not be immediate, there are ample inventories of casein already in the United States to enable producers to continue production of their existing products at or near the current rate in the short term. 1/ Accordingly, there may be no decline in production of imitation cheese in either the short or the long term and no concurrent benefit to the CCC. Under these conditions, the only benefits to the CCC would come from slightly reduced purchases of NFDM and slightly increased sales of spoiling stocks, valued in 1980 at no more than $8 million in the case of either type of restriction.

1/ Based on questionnaire data, the Commission staff estimates that U.S. stocks of casein and mixtures in chief value of casein were 56 million pounds on Aug. 31, 1981.

APPENDIX A

PRESIDENT REAGAN'S LETTER TO THE COMMISSION AND A LETTER OF CLARIFICATION FROM THE USDA

THE WHITE HOUSE RECEIVED

WASHINGTON

P5:00 August 5, 1981 81 AUG 10 P4:59

OFFICE OF COMMISSIONER ALBERGER USITC

Dear Mr. Chairman:

Pursuant to Section 22 of the Agricultural Adjustment Act of 1933, as amended, I have been advised by the Secretary of Agriculture, and I agree with him, that there is reason to believe that casein and mixtures in chief value thereof and lactalbumin are being imported, or are practically certain to be imported, under such conditions and in such quantities as to materially interfere with the price support program for milk undertaken by the Department of Agriculture.

Specifically, reference is made to the following articles:

TSUS Item	Description
	Casein and mixtures in chief value thereof:
493.12	Casein
493.17	Other, not subject to quota
	Albumen, not specially provided for
190.15	Other

The United States International Trade Commission is therefore directed to make an immediate investigation under Section 22 of the Agricultural Adjustment Act of 1933, as amended, to determine whether the above-described articles are being, or are practically certain to be, imported under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with, the price support program for milk now conducted by the Department of Agriculture, or to reduce substantially the amount of products processed in the United States from domestic milk, and to report its findings and recommendations at the earliest practicable date.

Sincerely,

Ronald Reagan

The Honorable William R. Alberger
Chairman
United States International
Trade Commission
Washington, D.C. 20436

United States Department of Agriculture
Office of General Counsel
Washington, D.C. 20250

August 24, 1981

Mr. William Alberger
Chairman
United States International
Trade Commission
Washington, D. C. 20436

Dear Mr. Chairman:

This is in reference to the President's letter to you dated August 5, 1981, directing the United States International Trade Commission to make an immediate investigation under section 22 of the Agricultural Adjustment Act of 1933, as amended, with respect to the possible interference by imports of certain articles with the Department of Agriculture's price support program for milk.

In that letter the President stated that he agreed with the Secretary of Agriculture that there is reason to believe that imports of casein and mixtures in chief value thereof and lactalbumin are interfering, and are practically certain to interfere, with the Department's milk price support program. The President then referred specifically to Items 493.12, 493.17, and 190.15 of the Tariff Schedules of the United States (TSUS) and directed an immediate investigation as to these articles under section 22.

A member of your staff has requested the views of this office as to whether there should be included in the investigation all articles classified under TSUS item 190.15 or just lactalbumin classified under that item. TSUS item 190.15 covers all albumen not specially provided for, other than dried blood.

The basis for the institution of a section 22 investigation is the advice of the Secretary of Agriculture to the President, and the President's agreement with him, that there is reason to believe that the importation of specified articles are interfering with certain programs. In this case, the Secretary of Agriculture, in advising the President of such belief, referred only to casein and lactalbumin, and the President, in stating in his letter that he agreed with the Secretary, referred only to "casein and mixtures in chief value thereof and lactalbumin." It would appear, therefore, that the President's directive applies only with respect to lactalbumin classified for tariff purposes under TSUS item 190.15 and not to other types of albumen also classified under that same TSUS item.

Sincerely,

JAMES F. HINCHMAN
Associate General Counsel for
Production, Distribution and Assistance

APPENDIX B

COMMISSION'S NOTICE OF INVESTIGATION AND HEARING

infringing complainant's copyright and trademark rights in the Rally-X game. Artic opposed the motion. On August 14, 1981, the presiding officer issued a recommended determination that the motion be granted.

Issued: August 24, 1981.

By order of the Commission.

Kenneth R. Mason,

Secretary.

[FR Doc. 81-25625 Filed 9-1-81; 8:45 am]

BILLING CODE 7020-02-M

[Investigation No. 22-44]

Casein; Investigation

AGENCY: United States International Trade Commission.

ACTION: Institution of an investigation under section 22(a) of the Agricultural Adjustment Act (7 U.S.C. 624(a)) to determine whether lactalbumin and casein and mixtures in chief value of casein, provided for in items 190.15 and 493.12 and 493.17 of the Tariff Schedules of the United States, 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 program for milk of the Department of Agriculture, or to reduce substantially the amount of products processed in the United States from domestic milk.

EFFECTIVE DATE: August 24, 1981

FOR FURTHER INFORMATION CONTACT: Mr. J. Frederick Warren, 202-724-0090, or Mrs. Bonnie J. Noreen, 202-523-1255.

SUPPLEMENTARY INFORMATION:

Background

The investigation (No. 22-44) was instituted following receipt of a letter dated August 5, 1981, from the President directing the Commission to conduct it. The letter stated that the President agreed with advice from the Secretary of Agriculture that there is reason to believe that casein and mixtures in chief value thereof and lactalbumin are being imported or are practically certain to be imported under such conditions and in such quantities as to materially interfere with the price-support program for milk undertaken by the Department of Agriculture.

Public hearing

The Commission will hold a public hearing in connection with this investigation beginning at 10 a.m., e.s.t., on Monday, November 9, 1981, in the Hearing Room of the U.S. International Trade Commission Building, 701 E Street NW., Washington, D.C. Requests to appear at the hearing should be filed in writing with the Secretary to the Commission not later than the close of business (5:15 p.m., e.s.t.) on October 28, 1981. For further information concerning the conduct of the investigation, hearing procedures, and rules of general application, consult the Commission's Rules of Practice and Procedure, Part 204 (19 CFR Part 204) and Part 201 (19 CFR Part 201).

Prehearing procedures

A prehearing conference will be held on Thursday, October 29, 1981, at 10:00 a.m., e.s.t., in Room 117 of the U.S. International Trade Commission Building.

To facilitate the hearing process, it is requested that persons wishing to appear at the hearing submit prehearing briefs enumerating and discussing the issues which they wish to raise at the hearing. Nineteen copies of such prehearing briefs should be submitted to the Secretary to the commission no later than the close of business on November 2, 1981. Copies of any prehearing briefs submitted will be available for public inspection in the Office of the Secretary. While submission of prehearing briefs does not prohibit submission of prepared statements in accordance with section 201.12(d) of the Commission's Rules of Practice and Procedure (19 CFR 201.12 (d)), statements are unnecessary if briefs are submitted. Oral presentation should, to the extent possible, be limited to issues raised in the prehearing briefs.

Persons not represented by counsel or public officials who have relevant matters to present may give testimony without regard to the suggested prehearing procedures outlined in this notice.

Written submissions

In addition to or in lieu of an appearance at the hearing, interested persons may submit to the Commission a written statement of information pertinent to the subject matter of this investigation. Written statements should be addressed to the Secretary to the Commission, 701 E Street NW., Washington, D.C. 20436, and must be received not later than November 20, 1981. All written submissions, except for confidential business data, will be available for public inspection.

Any business information which a submitter desires the Commission to treat as confidential must be submitted separately, and each sheet must be clearly marked at the top "Confidential Business Data." Confidential submissions must conform with the requirements of section 201.6 of the Commission's Rules of Practice and Procedure (19 CFR 201.6). All written submissions, except for confidential business data, will be available for public inspection.

Issued: August 25, 1981.

By order of the Commission.

Kenneth R. Mason,

Secretary.

[FR Doc. 81-25622 Filed 9-1-81; 8:45 am]

BILLING CODE 7020-02-M

[Investigation No. 337-TA-84]

Chlorofluorohydrocarbon Drycleaning Process, Machines and Components Therefor; Settlement Agreement and Request for Public Comments

AGENCY: U.S. International Trade Commission.

ACTION: Request for public comments on the proposed termination of the above-captioned investigation on the basis of a proposed settlement agreement.

SUMMARY: Notice is hereby given that the presiding officer in the above-captioned investigation has certified to the Commission for action a joint motion to terminate the investigation, along with a settlement agreement executed by the complainant and the respondents. Before taking final action on the proposed termination of this investigation, the Commission requests that interested members of the public submit written comments thereon.

DATES: In order to be considered, comments must be received on or before October 2, 1981.

FOR FURTHER INFORMATION CONTACT: Jack Simmons, Esq., Office of the General Counsel, U.S. International Trade Commission, telephone (202) 523-0350.

SUPPLEMENTARY INFORMATION:

Background

On July 1, 1981, the complainant, all respondents, and the Commission investigative attorney filed a joint motion (motion 84-28) to terminate the investigation pursuant to rule 210.51(a) of the Commission's Rules of Practice and Procedure on the basis of a settlement agreement executed by all the parties. On July 22, 1981, the Commission investigative attorney filed a motion (motion 84-29) for a partial waiver of the requirements of rule 210.51(c) of the Commission's rules as authorized by rule 201.4(b).

On July 28, 1981, the presiding officer (Judge Duvall) recommended that both motions 84-28 and 84-29 be granted. The Commission granted motion 84-29, and

APPENDIX C

LIST OF WITNESSES APPEARING AT THE COMMISSION'S HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject	:	Casein
Inv. No.	:	22-44
Date and time	:	November 9, 1981 - 10:00 a.m., e.s.t.

Sessions were held in the Hearing Room of the United States International Trade Commission, 701 E Street, N.W., in Washington.

Congressional appearances:

Honorable Charles E. Grassley, United States Senator, State of Iowa

Honorable Robert W. Kasten, Jr., United States Senator, State of Wisconsin

Honorable James M. Jeffords, United States Congressman, State of Vermont

Honorable Arlan Stangeland, United States Congressman, State of Minnesota

Honorable Tom Petri, United States Congressman, State of Wisconsin

Government appearances:

United States Department of Agriculture, Washington, D.C.

J. Dawson Ahalt, Deputy Assistant Secretary for Economics

Kenneth C. Clayton, Economic Research Service

Felix Spinelli, Economic Research Service

Richard Iwamoto, Office of General Counsel

Donald Friedly, Agricultural Stabilization & Conservation Service

Bryant Wadsworth, Foreign Agricultural Service

William Doering, Foreign Agricultural Service

In favor of restrictions:

Cross, Murphy & Smith--Counsel
Washington, D.C.
on behalf of

National Milk Producers Federation, Washington, D.C.

Patrick B. Healy, Secretary

Neal Bjornson, Legislative Staff

Dr. Larry Claypool, Mid-America Dairy, Inc.

Charles W. Bills--OF COUNSEL

American Farm Bureau Federation, Washington, D.C.

Donald Haldeman, President, The Wisconsin Farm Bureau Federation

W. Glenn Tussey, Assistant Director, National Affairs Division

John J. Rademacher, Esq.

American Dry Milk Institute, Inc., Chicago, Illinois

Dr. Warren S. Clark, Jr., Executive Director

Wisconsin Cheese Makers Association, Chicago, Illinois

Stephan Bahl, President

Jim Tillison, Executive Director

Farmers Union Milk Marketing Cooperative, Madison, Wisconsin

Douglas J. Caruso, General Manager

Associated Milk Producers, Inc., San Antonio, Texas

Lynn E. Elrod, Assistant to the General Manager

In opposition to restrictions:

Johnston, McGeorge & Davidson--Counsel
Washington, D.C.
on behalf of

The Grocery Manufacturers of America, Inc., Washington, D.C.

Ronald D. Knutson, Professor of Agricultural Economics, Texas A & M University

Charles R. Johnston, Jr.)
Joseph Tasker, Jr.)--OF COUNSEL

Berry & Sandstrom--Counsel
Washington, D.C.
on behalf of

Committee to Assure the Availability of Casein

Harold Steinke, Vice President, Economics & Industry Relations, Borden Foods, Columbus, Ohio

PANEL #1

Jim Zettergren, Director, Raw Materials, General Foods Corp., Washington, D.C.

Arden Reisenbigler, President, Erie Casein Company, Inc., Erie, Illinois

Dr. Jerry Moore, Vice President, Research Nutritional Division, Mead Johnson & Company, Evansville, Indiana

Tony Victor, President, Western Dairy Products, San Francisco, California

Dr. John R. VanAtta, Assistant General Manager - Director of Product Development, Carnation Company, Van Nuys, California

- more -

PANEL #2

David C. Hibbard, General Manager, Sanna Division, Beatrice Foods Company, Vesper, Wisconsin

Charles H. Roach, Vice President and Manager of Whey Products, Foremost-McKesson, Food Group, San Francisco, California

William Mautino, Assistant Director of Research, Dean Foods Company, Franklin Park, Illinois

Elmer Evans, Vice President, National Casein of New Jersey, Riverton, New Jersey

PANEL #3

David D. Nusbaum, Chairman of the Board, L. D. Schreiber Cheese Co., Inc., Green Bay, Wisconsin

Michael Irwin, Marketing Manager, Cheese Division, Universal Foods Corporation, Milwaukee, Wisconsin

Jonathan H. Godshall, Vice President & General Manager, Non-Dairy Products, Anderson Clayton Foods, Dallas, Texas

Charles L. Kantner, Vice President, Manufacturing & Procurement, Fisher Cheese Company, Wapakoneta, Ohio

Robert S. Kerr, Plant Manager, Galaxy Cheese Company, Koppel, Pennsylvania

Max N. Berry, General Counsel

Busby, Rehm and Leonard--Counsel
Washington, D.C.
on behalf of

Ross Laboratories, a division of Abbott Laboratories

John G. Reilly, Principal, ICF Incorporated, Washington, D.C.

Dr. Susan Calvert, R.D. Director, Nutrition Services, Ross Laboratories, Columbus, Ohio

Signey Cohen, Consultant; formerly Chief, Dairy Branch, Procurement & Sales Division, Agricultural Stabilization Conservation Service, U.S. Department of Agriculture

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Will E. Leonard)
James Taylor) --OF COUNSEL

Bronz & Farrell--Counsel
Washington, D.C.
on behalf of

New Zealand Dairy Board

Reginald Graham Calvert, Deputy Chairman of the Board

Bruce Stuart, President, New Zealand Milk Products, Inc., Rosemont, Illinois

Dr. Neil J. Walker, Manager, Technical Service, New Zealand Milk Products, Inc.

Edward J. Farrell--OF COUNSEL

Williams & Ince--Counsel
Washington, D.C.
on behalf of

Australian Dairy Corporation, Melbourne, Victoria, Australia

Keith G. Carmody, International Marketing Manager

Richard DeFelice--OF COUNSEL

Harvard Medical School, Department of Surgery, New England Deaconess Hospital, Boston, Massachusetts

Dr. George L. Blackburn

Dr. Willford Hood

Medicum Intercon, New York

Dr. Campbell Moses, Director of Medical Services and Senior Vice President

Public Interest Witnesses:

Jim Moody, Esq., Capital Legal Foundation, Washington, D.C.

Ms. Marilyn M. Batie, Salisbury, Maryland

APPENDIX D

STATISTICAL TABLES

Table 1.--Butter, Cheddar cheese, nonfat dry milk, and milk for manufacturing: U.S. market prices, U.S. Department of Agriculture support prices, and price-support objectives for milk for manufacturing, 1976-81

Period	Butter (grade A) at Chicago		Cheddar cheese		Nonfat dry milk (spray process)		Milk for manufacturing		
	Market price	Support price	Market price (Wisconsin assembly points)	Support price	Market price (U.S. average)	Support price	Price received by farmers (average test)	Price-support objective	
								Amount	Percent of parity
	Cents per pound								
Apr. 1-Sept. 30, 1976	96.5	85.817	98.60	90.50	63.0	62.40	8.54	8.13	80
Oct. 1, 1976-March 31, 1977	91.1	90.817	93.00	92.50	62.9	62.40	8.49	8.26	80
Apr. 1, 1977-Mar. 31, 1978	100.8	100.710	98.80	98.00	67.8	68.00	8.90	9.00	82.3
Apr. 1-Sept. 30, 1978	109.8	106.710	105.10	103.25	71.3	71.00	9.44	9.43	1/ 82.3
Oct. 1 1978-Mar. 31, 1979	115.4	111.300	118.30	106.00	75.8	73.75	10.78	9.87	80
Apr. 1- Sept. 30, 1979	123.9	121.800	124.60	116.00	79.7	79.00	10.93	10.76	1/ 78
Oct. 1, 1979-March 31, 1980	130.0	131.330	126.80	124.00	83.9	84.00	11.70	11.49	80
Apr. 1-Sept. 30, 1980	139.8	140.580	132.03	132.50	88.7	89.50	11.80	12.36	1/ 79
Oct. 1, 1980-Mar. 31, 1981	147.4	149.000	139.80	139.50	93.5	94.00	12.90	13.10	80
Apr. 1-Sept. 30, 1981	147.5	149.000	138.80	139.50	93.9	94.00	12.55	13.10	2/ 74
Oct. 1-Oct. 20, 1981	148.7	153.000	140.00	143.25	93.3	96.50	13.18	13.49	75
Oct. 21, 1981	3/ 148.3	149.000	3/ 141.62	139.50	3/ 93.4	94.00	3/ 12.80	13.10	4/ 5/ 72.9

1/ Not a change in price-support objective but a midyear adjustment required by the Food and Agriculture Act of 1977.

2/ Current support level remained the same with no midyear adjustment.

3/ If the products were produced during the period Oct. 1 through Oct. 20, the CCC would, through Oct. 30, buy them at the higher purchase price that existed from Oct. 1 through Oct. 20.

4/ Public law 97-67, enacted Oct. 20, 1981.

5/ Public law 97-98, effective Dec. 22, 1981, continued the 13.10 cents per pound support price and the corresponding support prices until Sept. 30, 1982.

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

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Table 2.--U.S. milk production, milk cows and replacement heifers on U.S. farms on Jan. 1, production per cow, and number of farms selling milk, 1976-81

Year	Total milk production	Milk cows on farms on Jan. 1	Replacement heifers		Production per cow	Number of farms selling milk
			Quantity	Number per 100 cows		
	Million pounds	Thousands	Thousands		Pounds per cow	Thousands
1976	120,180	11,071	3,956	36	10,894	421
1977	122,654	10,998	3,887	35	11,206	402
1978	121,461	10,896	3,886	36	11,243	380
1979	123,411	10,790	3,932	36	11,488	350
1980	128,425	10,779	4,158	39	11,875	335
1981	1/ 132,320	10,869	4,353	40	12,145	2/

1/ Estimated by the U.S. Department of Agriculture.
2/ Not available.

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

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Table 3.--Milk: U.S. utilization of market supply, by end uses, 1976-81

Year	Fluid use	Manufactured dairy products					Total	Total market supply
		Butter	Cheese	Condensed and evaporated milk	Frozen products	Other 1/		
	Quantity (billion pounds (milk equivalent))							
1976	51.5	19.4	29.8	2.5	11.6	2.6	65.9	117.5
1977	51.4	21.9	30.0	2.4	11.7	2.8	68.7	120.0
1978	51.2	19.7	31.0	2.3	11.7	3.0	67.7	119.0
1979	51.4	19.4	32.6	2.3	11.7	3.8	69.8	121.2
1980	50.9	22.8	35.0	2.1	11.9	3.6	75.4	126.3
1981	50.6	24.7	37.5	2.1	11.8	3.6	79.7	130.3
	Percent of total market supply							
1976	43.8	16.5	25.4	2.1	9.9	2.2	56.2	100
1977	42.8	18.2	25.0	2.0	9.8	2.3	57.2	100
1978	43.1	16.6	26.0	1.9	9.8	2.5	56.9	100
1979	42.4	16.0	26.9	1.9	9.6	3.2	57.6	100
1980	40.3	18.1	27.7	1.7	9.4	2.8	59.7	100
1981	38.8	18.9	28.7	1.6	9.0	2.7	61.1	100

1/ Includes dry whole milk and other factory products. Also includes minor miscellaneous uses and any inaccuracies in data for independently determined use items.

Source: Compiled from official statistics of the U.S. Department of Agriculture, Economic Research Service, Dairy Section.

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

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Table 4.--Principal manufactured dairy products: U.S. production, by types, 1976-80, January-August 1980, and January-August 1981

Period	Butter	Cheese				Nonfat dry milk	Other dried milk	Canned milk	Whey products	Ice cream
		American-type	Mozzarella	Other	Total					
	Million pounds									Million gallons
1976	984	2,049	505	1,776	4,330	932	124	2,030	1,177	783
1977	1,086	2,042	544	1,789	4,375	1,115	84	1,865	1,161	810
1978	994	2,074	599	1,870	4,543	927	122	1,825	1,287	815
1979	985	2,189	633	1,893	4,715	909	130	1,826	1,222	811
1980	1,145	2,375	689	1,920	4,984	1,161	127	1,732	1,197	830
Jan.-Aug.--										
1980	788	1,626	417	1,310	3,353	852	82	1/	1/	579
1981	847	1,790	463	1,261	3,514	923	88	1/	1/	577

1/ Not available.

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

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Table 5.--Dairy products: Commercial and U.S. Government stocks, by types, as of Dec. 31 of 1976-80, Nov. 1, 1980, and Nov. 1, 1981

(In millions of pounds)

Period	Articles containing butterfat					Nonfat dry milk
	Butter	American cheese	Other cheese	Evaporated and condensed milk	Total milk equivalent 1/	
	Commercial					
Dec. 31--						
1976	28	410	67	71	5,299	99
1977	34	362	64	75	4,916	61
1978	15	349	78	70	4,475	40
1979	25	404	106	77	5,419	93
1980	37	402	99	52	5,752	85
Nov. 1--						
1980	52	409	107	76	6,073	75
1981	49	363	91	80	5,411	85
	U.S. Government					
Dec. 31--						
1976	2/ 19	3/ 2	-	0.1	410	387
1977	2/ 151	3/ 61	-	4/	3,710	617
1978	2/ 192	3/ 30	-	4/	4,254	545
1979	2/ 153	3/ 3	-	.3	3,180	393
1980	2/ 268	3/ 190	-	1.2	7,207	502
Nov. 1--						
1980	2/ 249	164	-	1.7	6,764	500
1981	2/ 415	505	-	1.4	13,556	751
	Total					
Dec. 31--						
1976	47	412	67	71	5,708	486
1977	185	423	64	75	8,626	678
1978	207	379	78	70	8,730	585
1979	178	407	106	77	8,599	486
1980	305	592	99	53	12,958	587
Nov. 1--						
1980	301	573	107	78	12,837	575
1981	464	868	91	81	18,967	836

1/ Includes manufactured products (except nonfat milk).
2/ Includes butter equivalent of butter oil.
3/ Includes process cheese held by USDA.
4/ Less than 50,000 pounds.

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

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Table 6.--Butter, Cheddar cheese, and nonfat dry milk: Commodity Credit Corporation purchases, contract basis, by quarters, January 1976-December 1981

(In millions of pounds)

Year and item	January-March	April-June	July-September	October-December	Total
1976:					
Butter	0	0	0	60	60
Cheddar cheese	1	10	0	51	62
Nonfat dry milk	26	76	85	69	258
1977:					
Butter	66	92	29	14	201
Cheddar cheese	38	43	41	3	125
Nonfat dry milk	83	174	164	68	490
1978:					
Butter	84	49	1/	1/	134
Cheddar cheese	3	39	2	0	44
Nonfat dry milk	64	140	67	14	285
1979:					
Butter	11	48	0	25	84
Cheddar cheese	0	12	1	44	57
Nonfat dry milk	5	116	66	69	256
1980:					
Butter	41	157	13	50	261
Cheddar cheese 2/	59	155	85	59	358
Nonfat dry milk	96	253	176	110	635
1981:					
Butter	144	127	37	44	352
Cheddar cheese	144	219	106	77	546
Nonfat dry milk	190	287	200	174	851

1/ Less than 500,000 pounds.
2/ Includes small quantities of mozzarella cheese.

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

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

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Table 7.--Net U.S. Government expenditures on dairy-support and related programs, marketing years 1977-81

(In millions of dollars)

Year ending Sept. 30--	Net support purchases 1/	Sec. 4(a) 2/	Total (excluding special milk program)	Special milk program 3/
1977	709.8	4.5	714.3	109.7
1978	446.4	5.0	451.4	137.8
1979	244.3	6.3	250.6	134.1
1980	1,274.0	5.8	1,279.8	156.8
1981	1,967.2	7.5	1,974.7	118.8

1/ CCC support purchases and related costs (for processing, packaging, transporting, and storing) of dairy products, less proceeds from sales.

2/ Purchases of dairy products at market prices under sec. 4(a) of the Agriculture and Consumer Protection Act of 1973, for domestic school lunch and welfare use.

3/ Expenditures under the program to increase milk consumption by children in schools, child-care centers, and similar institutions.

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

Table 8.--Dairy products: U.S. production of milk and whole-milk equivalent (fat-solids basis) 1/ of exports of domestic merchandise and imports for consumption, 1976-81

Year	Total milk production	Exports 2/		Imports		Negative trade balance
		Quantity	Ratio to total milk production	Quantity	Ratio to total milk production	
	Million pounds	Million pounds	Percent	Million pounds	Percent	Million pounds
1976	120,180	502	0.4	1,943	1.6	1,441
1977	122,654	459	.4	1,968	1.6	1,509
1978	121,461	368	.3	2,310	1.9	1,942
1979	123,411	362	.3	2,303	1.9	1,941
1980	128,425	892	.7	2,107	1.6	1,215
1981 3/	132,320	1,580	1.2	2,325	1.8	745

1/ Inasmuch as casein, mixtures in chief value of casein, and lactalbumin do not contain milkfat, these products are not included in the export and import data shown.

2/ Includes some commercial sales subsidized by the Commodity Credit Corporation and some donations by the Commodity Credit Corporation, chiefly to relief agencies for overseas shipment.

3/ Estimated by the U.S. Department of Agriculture.

Source: Compiled from official statistics of the U.S. Department of Agriculture, except as noted.

Table 9.--Casein and mixtures in chief value of casein: Reported distribution of use, by product types, and changes in inventory, 1978-80, January-August 1980, and January-August 1981

(In thousands of pounds)

Item	1978	1979	1980	January-August--	
				1980	1981
Use:					
Food and feed:					
Cheese-type foods:					
Imitation cheese:					
Mozzarella	8,186	14,880	21,584	13,786	15,415
American-type	***	***	20,530	12,972	16,264
Other	***	***	247	143	266
Total	14,962	25,876	42,360	26,901	31,945
Other cheese foods 1/ 2/	547	1,159	1,054	565	433
Total 3/	15,508	27,035	43,414	27,466	32,379
Animal feed:					
Calf and veal feed 2/	15,893	15,524	12,244	7,708	8,244
Other (including pet food) 2/	8,806	10,307	6,914	4,299	4,283
Total	24,699	25,832	19,158	12,007	12,527
Coffee whitener	12,631	13,662	11,230	7,139	7,032
Bakery products 2/	4,585	4,795	5,543	3,199	3,235
Medical/nutritional/pharmaceutical 2/	4,330	4,759	5,511	3,703	3,722
Frozen dessert/whipped topping	5,136	6,464	4,412	2,326	3,161
Breakfast foods 4/	***	***	***	***	***
Diet foods	***	***	***	***	***
All other 2/	12,181	12,983	11,404	7,791	6,803
Total	85,871	100,582	105,770	67,197	71,672
Industrial:					
Adhesives	8,683	9,077	8,285	5,903	5,248
Paper products	11,507	12,190	7,755	4,690	4,686
Leather finishes	441	350	359	222	290
All other	1,017	1,060	910	663	581
Total	21,648	22,678	17,309	11,479	10,806
Grand total	107,519	123,260	123,079	78,676	82,478
Inventory increase (decrease)	5,487	1,716	10,864	14,014	(8,238)
Total 5/	113,006	124,975	133,943	92,690	74,239

1/ Includes such items as cheesecake, fortified bakers' cheese, etc.

2/ Includes reported or estimated distribution of reported production of casein-whey blends, etc.

3/ Comparable with the imitation cheese classification in the Commission's 1979 report on casein.

4/ Includes such items as cereal, imitation egg, and instant-breakfast products.

5/ Represents 83 percent, 83 percent, 89 percent, 86 percent, and 88 percent of the available amount of casein and mixtures in chief value of casein during 1978, 1979, 1980, January-August 1980, and January-August 1981, respectively.

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

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

Table 10.--Casein and mixtures in chief value of casein: Estimated distribution of use, by product types, and changes in inventory, 1978-80, January-August 1980, and January-August 1981 1/

Item	1978	1979	1980	January-August-- 1980	January-August-- 1981
	Quantity (1,000 pounds)				
Use:					
Food and feed:					
Cheese-type foods:					
Imitation cheese:					
Mozzarella	8,518	15,479	22,140	14,242	15,819
American-type	***	***	21,059	13,401	16,690
Other	***	***	253	148	273
Total	15,569	26,918	43,452	27,791	32,782
Other cheese foods 2/ 3/	672	1,442	1,247	697	518
Total 4/	16,241	28,360	44,699	28,488	33,300
Animal feed:					
Calf and veal feed 3/	19,530	19,317	14,484	9,512	9,872
Other (including pet food) 3/	10,821	12,825	8,178	5,305	5,129
Total	30,351	32,142	22,662	14,817	15,001
Coffee whitener	15,522	16,999	13,285	8,809	8,420
Bakery products 3/	5,634	5,966	6,557	3,948	3,874
Medical/nutritional/pharmaceutical 3/	5,321	5,921	6,519	4,569	4,457
Frozen dessert/whipped topping	6,311	8,043	5,219	2,870	3,785
Breakfast foods 5/	***	***	***	***	***
Diet foods	***	***	***	***	***
All other 3/	14,969	16,154	13,490	9,614	8,146
Total	102,705	119,871	118,459	77,516	80,353
Industrial:					
Adhesives	10,670	11,294	9,800	7,285	6,285
Paper products	14,140	15,168	9,173	5,788	5,611
Leather finishes	542	435	425	274	347
All other	1,250	1,319	1,076	818	696
Total	26,602	28,216	20,474	14,165	12,939
Grand total	129,307	148,087	138,933	91,681	93,292
Inventory increase (decrease)	6,599	2,062	12,263	16,330	(9,319)
Total 6/	135,906	150,149	151,196	108,011	83,973

See footnotes at end of table.

Table 10.--Casein and mixtures in chief value of casein: Estimated distribution of use, by product types, and changes in inventory, 1978-80, January-August 1980, and January-August 1981 1/--Continued

Item	1978	1979	1980	January-August--	
				1980	1981
	Percent of total quantity				
Use:					
Food and feed:					
Cheese-type foods:					
Imitation cheese:					
Mozzarella	7	10	16	16	17
American-type	***	***	15	15	18
Other	***	***	7/	7/	7/
Total	12	18	31	30	35
Other cheese foods 2/ 3/	1	1	1	1	1
Total 4/	13	19	32	31	36
Animal feed:					
Calf and veal feed 3/	15	13	10	10	11
Other (including pet food) 3/	8	9	6	6	5
Total	23	22	16	16	16
Coffee whitener	12	11	10	10	9
Bakery products 3/	4	4	5	4	4
Medical/nutritional/pharmaceutical 3/	4	4	5	5	5
Frozen dessert/whipped topping	5	5	4	3	4
Breakfast foods 5/	***	***	***	***	***
Diet foods	***	***	***	***	***
All other 3/	12	11	10	10	9
Total	79	81	85	85	86
Industrial:					
Adhesives	8	8	7	8	7
Paper products	11	10	7	6	6
Leather finishes	7/	7/	7/	7/	7/
All other	1	1	1	1	1
Total	21	19	15	15	14
Grand total	100	100	100	100	100

1/ Data received in response to Commission questionnaires were expanded to account for 100 percent of all available casein during each period. Inventory and total end-uses were expanded proportionately; however, use of casein in imitation cheese was expanded by only one-fifth the factors used for expanding the figures for total end uses, because data received on imitation cheese production are believed to be more complete than for all other end-use classifications.

2/ Includes such items as cheesecake, fortified bakers' cheese, etc.

3/ Includes estimated distribution of casein-whey blends, etc.

4/ Comparable with the imitation cheese classification in the Commission's 1979 report on casein.

5/ Includes such items as cereal, imitation egg, and instant-breakfast products.

6/ Represents available casein (imports minus exports) during 1978-80, January-August 1980, and January-August 1981.

7/ Less than 0.5 percent.

Source: Estimated by the staff of the U.S. International Trade Commission.

Table 11.--Casein-based imitation cheese: Reported production, natural cheese component, and production minus natural cheese component, by types, 1978-80, January-August 1980, and January-August 1981

(In thousands of pounds)

Item	1978	1979	1980	January-August--	
				1980	1981
Production:					
American-type	28,958	46,396	88,582	52,374	78,557
Mozzarella	28,455	55,673	74,554	45,614	57,056
Other	284	524	960	557	1,043
Total	57,697	102,593	164,095	98,545	136,655
Natural cheese component:					
American-type and other 1/	***	***	5,442	***	5,505
Mozzarella	***	***	867	***	414
Total	***	2,946	6,309	3,254	5,918
Production minus natural cheese component:					
American-type and other 1/	***	***	84,100	***	74,095
Mozzarella	***	***	73,687	***	56,642
Total	***	99,647	157,787	95,291	130,737

1/ Because of confidentiality, data for the 2 categories have been combined.

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

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

Table 12.--Casein-based imitation cheese: Estimated production, natural cheese component, and production minus natural cheese component, by types, 1978-80, January-August 1980, and January-August 1981 1/

(In thousands of pounds)

Item	1978	1979	1980	January-August--	
				1980	1981
Production:					
American-type	30,132	48,265	90,864	54,105	80,617
Mozzarella	29,608	57,916	76,475	47,122	58,552
Other	296	545	985	575	1,070
Total	60,036	106,726	168,324	101,802	140,239
Natural cheese component:					
American-type and other 2/	***	***	5,582	***	5,649
Mozzarella	***	***	889	***	425
Total	***	3,065	6,471	3,362	6,074
Production minus natural cheese component:					
American-type and other 2/	***	***	86,267	***	76,038
Mozzarella	***	***	75,586	***	58,127
Total	***	103,661	161,853	98,440	134,165

1/ Data received in response to the Commission questionnaires were expanded to account for 100 percent of all available casein during each period. All data relating to imitation cheese were expanded by a factor of one-fifth the expansion factor applied to the total of all casein end uses during each period because data received on imitation cheese production are believed to be more complete than for all other end-use classifications.

2/ Because of confidentiality, data for the 2 categories have been combined.

Source: Estimated by the staff of the U.S. International Trade Commission.

Table 13.--Imitation, natural, and process cheeses: Reported domestic production of firms using casein in some imitation cheeses, by types, 1978-80, January-August 1980, and January-August 1981

(In thousands of pounds)

Item	1978	1979	1980	January-August--	
				1980	1981
Imitation cheese:					
Casein-based:					
American-type	28,958	46,396	88,582	52,374	78,557
Mozzarella	28,455	55,673	74,554	45,614	57,056
Other	284	524	960	557	1,043
Total	57,697	102,593	164,095	98,545	136,655
Domestic-dairy-ingredient based 1/	***	***	***	***	***
Total	***	***	***	***	***
Natural cheese:					
American-type	208,894	216,350	226,323	152,389	155,171
Mozzarella	108,019	110,372	125,984	77,926	82,813
Other	212,654	227,297	237,315	142,052	158,470
Total	529,567	554,020	589,622	372,367	396,453
Process cheese	1,188,077	1,171,134	1,166,008	739,907	762,428

1/ Imitation cheese based on domestic dairy ingredients (e.g., filled cheeses).

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

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

Table 14.--Casein and mixtures in chief value of casein: U.S. imports for consumption, by principal sources, 1976-80, January-August 1980, and January-August 1981

Source	1976	1977	1978	1979	1980	January-August--	
						1980	1981
	Quantity (1,000 pounds)						
New Zealand	55,558	96,327	84,263	92,095	76,763	58,939	42,104
Ireland	3,320	4,299	9,188	14,833	23,977	12,746	10,674
Australia	33,397	23,127	23,167	21,716	17,924	14,348	14,623
France	176	97	55	1,961	8,877	5,512	4,494
United Kingdom	1/ 269	1,669	2,997	2,751	5,575	3,398	1,594
Denmark	787	0	77	1,171	4,523	2,921	2,734
Poland	2,822	4,301	4,307	2,053	3,506	2,112	1,694
Netherlands	1,100	621	1,517	2,547	2,526	1,902	1,365
Argentina	10,128	6,976	3,008	1,462	2,182	1,494	1,546
Norway	386	890	2,016	1,703	1,970	1,339	1,775
All other	4,198	5,938	6,539	8,535	4,336	3,979	1,897
Total	112,141	144,245	137,134	150,827	152,159	108,690	84,500
	Value (1,000 dollars)						
New Zealand	26,940	46,289	45,432	67,922	82,001	59,768	54,391
Ireland	1,493	2,514	5,984	12,496	31,639	15,597	15,237
Australia	16,020	11,506	13,834	17,167	19,434	14,904	19,949
France	98	49	35	1,910	11,101	6,761	5,664
United Kingdom	1/ 183	979	2,096	2,176	7,468	4,339	2,242
Denmark	417	-	57	1,222	6,081	3,663	3,973
Poland	1,215	1,832	2,034	1,264	3,571	2,132	1,827
Netherlands	855	431	1,108	2,360	3,348	2,316	2,144
Argentina	3,824	2,842	1,965	1,266	2,710	1,800	1,971
Norway	173	380	1,088	980	1,873	1,133	2,101
All other	2,023	2,626	3,517	5,820	4,094	3,647	2,179
Total	53,241	69,448	77,150	114,583	173,320	116,060	111,678
	Unit value (cents per pound)						
New Zealand	48	48	54	74	107	101	129
Ireland	45	58	65	84	132	122	143
Australia	48	50	60	79	108	104	136
France	56	51	64	97	125	123	126
United Kingdom	1/ 68	59	70	79	134	128	141
Denmark	53	-	74	104	134	125	145
Poland	43	43	47	62	102	101	108
Netherlands	78	69	73	93	133	122	157
Argentina	38	41	65	87	124	120	127
Norway	45	43	54	58	95	85	118
All other	48	44	54	68	94	92	115
Average	47	48	56	76	114	107	132

1/ Data may contain error.

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

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Table 15.--Casein: U.S. imports for consumption, by principal sources, 1976-80, January-August 1980, and January-August 1981

Source	1976	1977	1978	1979	1980	January-August-- 1980	January-August-- 1981
	Quantity (1,000 pounds)						
New Zealand	48,177	86,477	72,288	78,219	65,883	51,324	37,758
Ireland	3,210	4,266	9,041	13,323	23,720	12,620	10,482
Australia	29,191	19,451	18,939	16,994	14,743	11,167	12,484
France	176	97	55	1,769	7,771	4,580	4,076
United Kingdom	1/ 1	1,277	2,576	1,936	5,411	3,235	1,529
Poland	2,822	4,301	4,307	2,053	3,506	2,112	1,694
Argentina	10,128	6,976	3,008	1,462	2,182	1,494	1,546
Norway	386	890	2,016	1,703	1,970	1,339	1,775
U.S.S.R	1,934	4,315	4,496	4,795	1,267	1,267	226
Denmark	785	0	0	28	658	454	928
All other	1,734	1,338	535	905	1,627	1,354	990
Total	98,544	129,388	117,261	123,186	128,737	90,946	73,487
	Value (1,000 dollars)						
New Zealand	22,978	40,665	38,051	57,391	67,386	50,111	47,698
Ireland	1,423	2,495	5,855	11,100	31,260	15,446	14,915
Australia	13,443	9,162	10,759	12,626	15,428	10,898	16,530
France	98	49	35	1,676	9,695	5,564	4,958
United Kingdom	1/ 5	731	1,771	1,444	7,230	4,099	2,139
Poland	1,215	1,832	2,034	1,264	3,571	2,132	1,827
Argentina	3,824	2,842	1,965	1,266	2,710	1,800	1,971
Norway	173	380	1,088	980	1,873	1,133	2,101
U.S.S.R	732	1,701	2,362	3,016	979	979	242
Denmark	415	-	-	27	828	541	1,195
All other	898	747	333	853	1,970	1,625	1,150
Total	45,204	60,604	64,253	91,643	142,929	94,329	94,726
	Unit value (cents per pound) 2/						
New Zealand	48	47	53	73	102	98	126
Ireland	44	58	65	83	132	122	142
Australia	46	47	57	74	105	98	132
France	56	50	64	95	125	121	122
United Kingdom	1/ 300	57	69	75	134	127	140
Poland	43	43	47	62	102	101	108
Argentina	38	41	65	87	124	120	127
Norway	45	43	54	58	95	85	118
U.S.S.R	38	39	53	63	77	77	107
Denmark	53	-	-	96	126	119	129
All other	53	56	62	94	121	120	116
Average	46	47	55	74	111	104	129

1/ Data may contain error.
2/ Calculated from the unrounded figures.

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

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Table 16.--Mixtures in chief value of casein: U.S. imports for consumption, by principal sources, 1976-80, January-August 1980, and January-August 1981

Source	1976	1977	1978	1979	1980 1/	January-August--	
						1980	1981
	Quantity (1,000 pounds)						
New Zealand	7,381	9,850	11,975	13,876	10,880	7,615	4,346
Denmark	2	0	77	1,143	3,865	2,466	1,806
Australia	4,206	3,676	4,228	4,722	3,181	3,181	2,139
Netherlands	1,100	621	1,517	2,547	2,526	1,902	1,288
France	0	0	0	192	1,106	932	417
Canada	460	225	1,455	2,475	642	618	7
Finland	0	0	26	317	688	635	608
All other	448	485	595	2,367	534	394	401
Total	13,597	14,857	19,873	27,641	23,422	17,743	11,012
	Value (1,000 dollars)						
New Zealand	3,962	5,624	7,381	10,531	14,615	9,658	6,693
Denmark	1	-	57	1,195	5,253	3,123	2,778
Australia	2,577	2,343	3,075	4,541	4,006	4,006	3,419
Netherlands	855	431	1,108	2,360	3,348	2,316	2,055
France	-	-	-	234	1,406	1,197	706
Canada	350	137	783	1,710	520	470	16
Finland	-	-	14	192	474	435	678
All other	292	310	479	2,178	770	526	607
Total	8,037	8,845	12,897	22,940	30,392	21,731	16,952
	Unit value (cents per pound)						
New Zealand	54	57	62	76	134	127	154
Denmark	50	-	74	105	136	127	154
Australia	61	64	73	96	126	126	160
Netherlands	78	69	73	93	133	122	160
France	-	-	-	122	127	128	169
Canada	76	61	54	69	81	76	210
Finland	-	-	54	61	69	69	111
All other	65	64	81	92	144	134	151
Average	59	60	65	83	130	122	154

1/ Includes imports entered under TSUS items 493.14 and 493.16. Imports entered under item 493.14 are believed to have been misclassified. Information from Customs specialists indicates that these imports should have been classified in TSUS item 493.16.

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

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Table 17.--Casein and mixtures in chief value of casein: U.S. exports of domestic merchandise, imports for consumption, inventory buildup, and apparent consumption, 1978-80, January-August 1980, and January-August 1981 1/

(Quantity in thousands of pounds; value in thousands of dollars; unit value in cents per pound)

Period	Exports	Imports	Inventory buildup or (decrease) 2/	Apparent consumption	Ratio (percent) of imports to consumption
			Quantity		
1978	1,228	137,134	6,599	129,307	106
1979	678	150,827	2,062	148,087	102
1980	963	152,159	12,263	138,933	110
January-August--					
1980	679	108,690	16,330	91,681	119
1981	527	84,500	(9,319)	93,292	91
			Value		
1978	1,910	77,150	3,713	71,527	108
1979	1,455	114,583	1,566	111,562	103
1980	2,574	173,320	13,968	156,778	111
January-August--					
1980	1,866	116,060	17,437	96,757	120
1981	1,282	111,678	(12,316)	122,712	91
			Unit value		
1978	156	56	56	-	-
1979	215	76	76	-	-
1980	267	114	114	-	-
January-August--					
1980	275	107	107	-	-
1981	243	132	132	-	-

1/ There has been no U.S. production of casein since the late 1960's. Although there s U.S. production of mixtures in chief value of casein, all such production is from mported casein.

2/ Estimated by the staff of the U.S. International Trade Commission.

Source: U.S. exports and imports compiled from official statistics of the U.S. epartment of Commerce. Inventory buildups compiled from data submitted in response to uestionnaires of the U.S. International Trade Commission.

Table 18.--Casein and mixtures in chief value of casein: U.S. exports, by principal markets, 1978-80, January-August 1980, and January-August 1981

Market	1978	1979	1980	January-August--	
				1980	1981
	Quantity (1,000 pounds)				
Mexico	235	37	265	122	179
United Kingdom	250	98	203	172	13
Federal Republic of Germany	28	72	64	54	22
Spain	52	31	47	28	29
Brazil	28	21	32	31	8
Peru	46	11	45	33	11
All other	589	408	307	239	265
Total	1,228	678	963	679	527
	Value (1,000 dollars)				
Mexico	225	99	691	410	413
United Kingdom	671	316	678	566	46
Federal Republic of Germany	74	179	176	137	63
Spain	126	90	175	100	109
Brazil	49	48	107	103	39
Peru	77	18	75	52	29
All other	689	706	672	498	583
Total	1,910	1,455	2,574	1,866	1,282
	Unit value (dollars per pound)				
Mexico	$0.96	$2.64	$2.61	$3.37	$2.31
United Kingdom	2.69	3.21	3.35	3.29	3.52
Federal Republic of Germany	2.61	2.50	2.73	2.54	2.91
Spain	2.45	2.89	3.73	3.65	3.81
Brazil	1.72	2.24	3.39	3.37	4.79
Peru	1.65	1.65	1.64	1.60	2.45
All other	1.17	1.73	2.19	2.08	2.20
Average	1.56	2.14	2.67	2.75	2.43

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

Note.--Unit values calculated from unrounded figures. Because of rounding, figures may not add to the totals shown.

Table 19.--Casein: World production and U.S. imports, 1976-80

Item	1976	1977	1978	1979	1980
World production:					
New Zealand--million pounds--	117	128	126	139	1/ 146
France----------do----	26	42	49	71	1/ 88
West Germany-----do----	29	29	33	35	1/ 42
Ireland----------do----	9	18	24	31	1/ 37
Australia--------do----	35	40	42	37	1/ 33
The Netherlands--do----	31	29	31	33	1/ 31
Other countries--do----	79	90	134	82	1/ 77
Total----------do----	326	375	439	428	1/ 454
U.S. imports 2/----do----	112	114	137	151	152
Ratio of U.S. imports to world production percent--	35	31	31	35	1/ 33

1/ Preliminary.
2/ Both casein and mixtures in chief value of casein.

Source: World production, compiled from official statistics of the U.S. Department of Agriculture; U.S. imports, compiled from official statistics of the U.S. Department of Commerce.

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

Table 20.--Milk: Costs of production in major exporting countries and the United States, 1978 1/

(U.S. dollars per hundred weight)

Costs	New Zealand	Australia	Ireland	France	Nether-lands	West Germany	United States
Cash costs:							
Feed purchased	$0.38	$0.42	$0.98	$2.02	$3.52	$1.85	$3.98
Feed grown	.30	2/	.39	.60	.52	.52	2/
Breeding	.06	.04	2/	2/	2/	2/	.07
Health	.11	.06	2/	2/	2/	2/	.14
Utilities	.09	.21	2/	2/	2/	2/	.22
Repairs	.35	.52	.11	.45	.39	.93	.24
Hired labor	.61	.25	.12	.21	.32	.13	.59
Miscellaneous	.73	.48	.19	.41	.65	1.47	.25
Total	2.63	1.98	1.79	3.69	5.41	4.90	5.49
Inputed costs:							
Family labor	.45	2.11	3.95	3.09	2.47	2.46	.97
Depreciation (except livestock)	.35	.80	.34	.65	.66	.57	.70
Opportunity cost 3/	.19	.40	.20	.39	.40	.33	.86
Management	.26	.20	.18	.37	.54	.49	.55
Total	1.25	3.51	4.67	4.50	4.07	3.85	3.08
Input subsidy	.19	.20	.00	.00	.00	.00	.04
Less taxes on inputs	(.00)	(.19)	(.36)	(.64)	(.33)	(.53)	(.00)
Land cost	.20	.18	.63	.20	.63	.29	4/ .16
Grand total	4.27	5.68	6.73	7.75	9.78	8.51	8.77

1/ Calendar year except for New Zealand (June-May) and Australia (July-June).
2/ Not calculated or given separately.
3/ Imputed interest on the value of all livestock, equipment, and machinery.
4/ The difference between this amount and that given in the Congressional Committee Print on Costs of Producing Milk for 1978 ($9.34/hundredweight) is due to the different methods employed in the studies and the omission of depreciation on livestock in this report. This omission was necessary in order to be consistent in making comparisons between different countries. Strict comparisons with foreign countries' costs of production cannot be made due to different exchange rate levels and also due to different methodologies employed.

Source: Cost of Milk Production in Seven Major Milk-protein Exporting Countries and the United States, by Lynn Austin. Sept. 1981, AGES810922, U.S.D.A.

Table 21.--Albumen: 1/ U.S. imports for consumption, by principal sources, 1976-80, January-August 1980, and January-August 1981

Source:	1976	1977	1978	1979	1980	January-August--	
						1980	1981
	Quantity (1,000 pounds)						
New Zealand	611	870	820	1,258	1,650	1,345	2,220
The Netherlands	794	1,153	706	671	68	65	4
All other	2/	7	2/	26	30	6	315
Total	1,404	2,030	1,527	1,955	1,749	1,415	2,540
	Value (1,000 dollars)						
New Zealand	346	460	503	985	1,660	1,299	2,699
The Netherlands	509	676	707	642	297	138	158
All other	1	57	2	20	501	38	640
Total	857	1,193	1,212	1,647	2,457	1,475	3,496

1/ TSUS item 190.15, albumen, n.s.p.f. (except blood albumen).
2/ Less than 500 pounds.

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

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

APPENDIX E

METHODOLOGY OF THE ANALYSIS OF QUESTIONNAIRE RESULTS

Methodology of the Analysis of Questionnaire Results

The USDA study estimated that displacement of domestic skim milk solids by imported casein is equal to:

1. The amount of casein expected to be used at a price high enough to elicit domestic production and all of which could be supplied domestically (direct displacement), plus

2. The increase in use of domestic milk solids to replace higher-priced casein as ingredients wherever such substitution was economically and functionally feasible (direct displacement), plus

3. The additional amount of natural domestic dairy products used because a casein-based substitute product was too expensive or no longer available (indirect displacement).

Questionnaire data in this investigation can be used in a similar fashion to suggest the range of displacement of domestic skim milk solids by imported casein. Under the conditions and assumptions described below, increased net CCC purchases of domestic skim milk solids and butterfat in 1980 are estimated to have ranged from $102.7 million to $178.0 million at the 1980 support prices. However, if the technology already in existence and under development results in the widespread production of noncasein imitation cheese, the costs to the milk-support program calculated here may dramatically overstate the true costs of imports of casein in future years.

The basic assumptions of the methodology

The most important assumptions underlying the methodology of estimating displacement of domestic skim milk solids by imported casein are as follows:

1. A decline in the production of an article by its current producer would not encourage another producer to begin production of a similar article from either casein or another protein source such as soy, wheat, whey protein concentrate, or lactoglobulin. An acceptable imitation cheese apparently can now be made with wheat protein substituted entirely for casein; also, whey protein concentrates are acceptable in most other articles not using casein (except where the presence of lactose is undesirable). These and other developments suggest that while both Commission and USDA estimates of displacement may be appropriate for the technology existing in 1980, they may not be a true indication of displacement of domestic dairy products in the future, given recent developments in technology.

2. There would actually be domestic production of casein at the hypothetical price for casein of $3.00 per pound. Testimony at the hearing did not adequately support a conclusion that casein either would or would not be produced in the United States at this price.

3. All casein used at the higher new price would be domestically produced. Effectively, displacement is calculated as though there was in effect a zero-level quota on the importation of casein.

A low-end estimate of displacement of domestic skim milk solids by imports of casein in 1980 is calculated by adding (1) the amount of casein expected to be used at the price required for domestic casein production to (2) the reported additional use of other skim milk solid ingredients at the higher new price of casein. A high-end estimate is calculated by increasing this estimate by the amount of presumed substitution of filled and natural cheese products for casein-based imitation cheese products. If a product made from casein is a substitute in the consumer's judgment for a natural dairy product, the purchase of the casein-based article displaces some of the natural product. It is possible that to some consumers imitation cheese is not a substitute for other dairy products but, rather, a substitute for nondairy products such as meat. This possibility is ignored in calculating a high-end estimate of displacement, since it is virtually impossible to measure without a nationwide survey of consumer preferences. As the USDA noted, the price of a domestic dairy product is generally higher than that of the allegedly competing casein-based product. It is likely, therefore, that any substitution of one for the other will not occur on a one-to-one basis.

The price of domestically produced casein

In its testimony before the Commission, the USDA stated that domestic production of casein would become feasible when the return on its production met or exceeded the return on NFDM. The USDA determined that the price at which domestic production of casein was likely to become feasible, although it may not actually take place, is $2.65 per pound based on 1980 prices. In its calculations, USDA assumed that the production costs of casein are equal to those for NFDM and that there exists a viable market for the whey byproducts. Testimony from other parties in this investigation suggested that these assumptions may not be realistic.

Industry representatives seem to agree that the production costs for casein are higher than those for NFDM, although no reliable estimates of such costs were provided to the Commission. It is also likely that substantial investments in new plant and equipment would be necessary before such production could take place in any significant volume. Furthermore, the excessive supply of whey from cheese production in the United States and other countries suggests that its value, and that of acid whey from casein

production, is and will remain very low for the foreseeable future. 1/ These factors concerning the assumptions underlying the USDA price estimate indicate that the price actually needed to elicit casein production in the United States is somewhat higher than that calculated by USDA. The Commission staff estimates that the price in 1980 terms would have been at least $3.00 per pound; the value of imported casein in 1980 was about $1.20 per pound.

The casein-NFDM conversion factor

The USDA study assumed that filled cheese would replace casein-based imitation cheese if the latter were not available or the price of casein was at least $2.65 per pound. The production of filled cheeses would accordingly increase the commercial use of skim milk solids and reduce CCC purchases. USDA testified that, for noncheese uses, casein could be converted to a NFDM-equivalent basis by applying a conversion factor of 3.16 to 1. However, when the alternative use of skim milk solids is the production of filled cheese, 5.68 pounds of skim milk solids (on a NFDM-equivalent basis) would be needed to produce the same quantity of cheese product as 1 pound of casein. Subsequent submissions by the USDA acknowledged that this ratio may not be appropriate in all cases, but did not provide a recommendation as to the correct ratio. Testimony at the hearing provided no support for a departure from the commonly used ratio of 3.16 to 1.

The price elasticity of demand for natural and imitation cheeses

USDA assumed that as articles such as imitation cheese, coffee whiteners, and frozen desserts were replaced by natural dairy products, the higher price would cause a decline in the absolute level of consumption. In calculating the decline resulting from this substitution, the USDA used an estimate of the price elasticity of demand of -0.5. That is, if the price of the article to be purchased increases by 1 percent, total purchases of the article will decline by 0.5 percent. The choice of -0.5 for the estimate of price elasticity appears to be based on empirical studies of demand for natural cheeses. The use of the same measure for other types of cheese and for noncheese products assumes that all such articles are essentially the same in the mind of the consumer. There is no empirical evidence to support this contention, but neither is there empirical evidence to disprove it.

1/ The USDA assumed a value of $0.14 per pound of dry whey. However, most whey presents a disposal problem, with an associated cost of $0.32 per pound of casein produced, or $0.90 for each 100 pounds of skim milk used. Substituting this negative value for that used by the USDA in its formula raises the price required to elicit domestic production of casein to at least $3.27 per pound. Even an assumption of no disposal cost and a zero value for the whey byproducts would raise the estimated 1980 price for domestic production of casein to $2.95 per pound. Higher production costs for casein would increase the price still further.

Producers of imitation cheese testified that filled cheese is inferior to both natural and casein-based imitation cheese; 1/ other testimony indicates little difference between these cheeses in the minds of consumers. It is unlikely that an elasticity value calculated using data with relatively small changes in price will also be applicable for the price differential of 40 percent which exists between casein-based imitation cheese and filled cheese or for the price differential of 100 percent between casein-based imitation cheese and natural cheese. Nevertheless, for the lack of a better estimate, -0.5 is used here. A higher elasticity value, such as -1.0, would significantly reduce the estimate of indirect displacement calculated here.

The effects of $3.00 casein on its use

As stated by the USDA, if imports of casein were not available, users of casein would have several alternative courses of action. They could (1) reduce production of their casein-based articles, (2) shift to alternative dairy or nondairy ingredients in their production formulas, or (3) pay the $3.00 per pound expected to be demanded for domestic casein. The Commission requested data in its questionnaires regarding the use of casein under conditions of increasing costs. Respondents were asked to estimate their use of casein, use of alternative ingredients, and the production levels of their end product as the price of casein increased from the 1980 value of about $1.20 per pound. 2/ From responses received, the following table, showing the estimated 1980 demand for casein at various price levels, was constructed.

The table indicates that, at a price for casein of $3.00 per pound, 35.9 million pounds of casein would have been utilized in 1980, compared with the estimated utilization of 138.9 million pounds in that year. The use of casein in imitation cheese would have declined by 76.0 percent to 10.4 million pounds. The share of casein use represented by imitation cheese would have declined from 31.3 percent to 29.1 percent. Casein used in casein-whey blends would have declined from 16.8 million pounds (12.1 percent of use) to 3.7 million pounds (10.4 percent of use). 3/ The amount of casein used in coffee whiteners would have declined from 13.3 million pounds (9.6 percent of use) to 9.3 million pounds (26.0 percent of use). This relatively small decline is indicative of the small portion of the total cost of coffee whiteners accounted for by casein and of the important functional characteristics of casein in whiteners. The use of casein in calf and veal feed would have declined from 10.4 million pounds (7.5 percent of total use) to about 2,000 pounds. Medical nutritive uses, at 6.5 million pounds (4.7 percent share) in 1980 would have declined to 3.7 million pounds (10.4 percent share). All industrial uses actually accounted for 20.5 million pounds (14.8 percent of use) in 1980 but at the higher price would have declined to 2.3 million pounds (6.5 percent share). The greatest declines in this category would have occurred in adhesives and paper products.

1/ See, e.g., Borden posthearing brief.

2/ Respondents were requested to provide their best estimate of casein use, production using casein, and so forth, at prices above the 1980 price.

3/ Casein-whey blends are used in calf and veal feed, bakery products, and so forth. Although reported separately in this discussion, the blends are distributed to the appropriate end use in tables 9 and 10 of this report.

Casein and mixtures in chief value of casein: Estimated distribution of use at specified price levels, by product types, 1980 1/

(In thousands of pounds)

Item	Price of casein (per pound)					
	$1.20 2/	$1.50	$1.80	$2.40	$3.00	$3.60
Food and feed:						
Imitation cheese:						
Mozzarella	22,140	19,305	15,658	10,613	6,234	3,505
American-type	21,059	16,305	10,189	6,659	4,097	2,173
Other cheese	253	245	237	135	116	48
Total	43,452	35,855	26,084	17,407	10,447	5,726
Casein-whey blends	16,812	14,294	10,923	5,592	3,732	3,732
Coffee whiteners	13,285	12,445	12,041	10,005	9,345	8,954
Calf and veal feeds	10,400	2,250	9	5	2	0
Medical/nutritional	6,519	5,648	5,297	3,963	3,731	3,401
Other	27,991	22,537	15,813	11,451	6,323	5,616
Total	118,459	93,029	70,167	48,423	33,580	27,429
Industrial uses	20,474	17,559	10,915	3,124	2,333	1,901
Total	138,933	110,588	81,082	51,547	35,913	29,330

1/ The Commission's questionnaire asked respondents to estimate what their 1980 production, casein use, and use of alternative ingredients would have been if the price of casein had been 25 percent, 50 percent, 100 percent, 150 percent, and 200 percent higher than the 1980 price of casein, assuming all other prices remained at the 1980 level. Responses to this question are necessarily speculative on the part of the respondents and may not reflect their decisions had the higher prices actually occurred. Because the Commission does not have the authority to compel nonfactual answers, responses to these questions were voluntary. Respondents providing this information accounted for 81 percent of the reported use of casein in 1980 and 71 percent of the estimated use of casein in 1980. The amount of casein reportedly used at the 1980 price was expanded to account for 100 percent of estimated use. Imitation cheese classifications were expanded by only one-fifth the expansion factor used for total casein used, because data for imitation cheese are believed to be more complete than for all other end-use classifications. For each end-use classification, the estimates of casein use at the indicated price increments were expanded using straight-line expansion techniques.

2/ Quantities may not equal those shown in table 10 of this report because of distribution of casein-whey blends to appropriate end uses in table 10.

Source: Estimated by the staff of the U.S. International Trade Commission.

The low estimate of displacement from use of casein in imitation cheese production

In 1980, 42.4 million pounds of casein were used to produce 161.9 million pounds of totally imitation cheeses (table 12). 1/ Of these cheeses, 75.6 million pounds were mozzarella and 86.3 million pounds were American-type; 2/ each type required about 1 pound of casein for 4 pounds of cheese. At $3.00 per pound for casein, only 10.4 million pounds of casein were expected to have been used in the production of 44.7 million pounds of imitation cheese, divided approximately equally between mozzarella and American-types. The amount of casein used in American-type imitation cheese at the higher price would be about 4.1 million pounds, while that in imitation mozzarella cheese would be about 6.2 million pounds. The expected increase in the amount of American-type cheese produced from a pound of casein at the higher price is consistent with statements by producers that it is possible to considerably stretch or extend casein with other proteins in American-type cheese but not, at the present time, in imitation mozzarella cheese.

If the 10.4 million pounds of casein used to produce imitation cheese were to be provided by domestic production, the use of domestic skim milk solids would increase by a minimum of 32.9 million pounds (NFDM-equivalent basis), with a 1980 value of $29.6 million. However, there would be an increase in CCC purchases of natural cheese which would normally have been used in producing imitation cheese but which would not be used in filled cheese. These increased purchases would be about 4.9 million pounds, with a 1980 value of $6.6 million. The net value to the CCC of the cheese portion of direct displacement was therefore $23.0 million in 1980.

Additional displacement from use of casein in other articles

All noncheese uses of casein in 1980 accounted for 95.5 million pounds of imported casein. At the higher price of $3.00 per pound, such utilization of casein would be expected to decline to 25.2 million pounds according to questionnaire responses. The direct displacement of domestic skim milk solids represented by this amount of imported casein is equivalent to 79.6 million pounds of NFDM, with an estimated 1980 value of $71.6 million.

In addition to the use of theoretically possible domestic casein, some users reported that they would increase their use of domestic NFDM as an ingredient in production of reformulated products by as much as 14.4 million pounds, if the price of casein had been $3.00 per pound. Of this NFDM, 1 million pounds would have been supplied by commercial sources, reducing CCC purchases by an estimated $0.9 million at 1980 support prices. The remaining 13.4 million pounds of NFDM, for use in calf and veal feed, would virtually

1/ A total of 168.3 million pounds of imitation cheese was produced in 1980. About 6.5 million pounds of natural cheese, used primarily for flavoring, were consumed as ingredients in this production. Therefore, the amount of totally imitation cheese actually produced was 161.9 million pounds.

2/ For purposes of this discussion, the * * * "other" type imitation cheeses has been included with the * * * American-type imitation cheese.

all be purchased from existing CCC stocks which are considered no longer suitable for human consumption, according to industry sources. The sale in 1980 of this NFDM would have reduced CCC losses by an estimated $7.2 million. 1/

Many producers indicated that rather than using NFDM in their formulations, protein requirements would be supplied by soy, dry whey, or whey protein concentrates. The latter two are produced from milk in the United States but are in ample supply and are not purchased as part of the support operations of the CCC. Use of these products would improve industry profits but would not reduce price-support program costs. The increased use of whey protein concentrates was expected to be about 12 million pounds annually. A small amount of * * * was also reported as a possible replacement in combination with other protein sources, but the quantity was relatively insignificant.

The total reduction in CCC purchases from noncheese uses of casein in 1980 is therefore estimated at no more than 80.6 million pounds (NFDM equivalent) valued at $72.5 million, with an additional reduction in CCC losses from spoiling NFDM stocks of 13.4 million pounds, valued at $7.2 million.

The high estimate of displacement by imports of casein

Questionnaire data show that in 1980 production of imitation American-type cheese was 86.3 million pounds and production of imitation mozzarella cheese was 75.6 million pounds. At the higher price for casein of $3.00 per pound, imitation American-type cheese production would have declined to 22.6 million pounds, and imitation mozzarella would have declined to 22.1 million pounds. Therefore, the decline of 117.2 million pounds in total imitation cheese production at the higher price comprises a loss of 63.7 million pounds of American-type and 53.5 million pounds of imitation mozzarella cheeses.

USDA testified that, if imported casein were no longer available, the imitation cheese produced from casein would be largely replaced by filled cheese made from skim milk. This contention was vigorously denied by several parties to the investigation producing imitation cheese. 2/ These firms explicitly stated that they do not consider filled cheeses to be acceptable alternatives to casein-based imitation cheese. Nevertheless, there is production of American-type filled cheeses in the United States which,

1/ Industry sources indicate that NFDM is economical for feed uses only when it can be obtained from spoiling CCC stocks. As such, it is sold at a price lower than the legislatively mandated CCC sale price of 110 percent of the support price. In 1980, this NFDM was sold at about $0.54, $0.36 below the CCC purchase price for NFDM. The use of such NFDM to replace imported casein in a feed use reduces the loss on existing CCC stocks by this amount, but does not reduce CCC purchases. Therefore, in this discussion, such benefits to the CCC are valued at $0.54 per pound.

2/ See, e.g., posthearing brief of Borden, Inc., pp. 3 and 4.

although only a small factor in the total market, appears to compete with both natural and other imitation cheeses. It is likely, therefore, that at least the imitation American-type cheese could be replaced by filled cheese. The imitation mozzarella cheese, however, appears to have no filled cheese substitute and would more likely be replaced by natural mozzarella if casein were valued at $3.00 per pound.

The price of filled cheese is estimated by the USDA to be 40 percent higher than that of imitation cheese in 1980. Application of the assumed elasticity value of -0.5 suggests that the higher price of filled cheese would cause a 20-percent decline in the portion of demand for these cheeses not satisfied by casein-based imitation cheese. Therefore, the "lost" imitation American-type cheese production of 63.7 million pounds would most likely be replaced by only 51.0 million pounds of filled cheese. This quantity is estimated to require the use of 46.4 million pounds of 1 percent skim milk, the components of which were valued at $46.4 million in 1980. 1/

The price of natural mozzarella cheese is estimated to be twice that of imitation mozzarella. 2/ Application of the elasticity value of -0.5 to this 100-percent difference suggests that the higher price would cause a 50-percent decline in the portion of demand not satisfied by casein-based cheese. Under these conditions, the 53.5 million pounds of "lost" production would be replaced with only 26.8 million pounds of natural mozzarella cheese, utilizing 252 million pounds of 2 percent skim milk. The value of the components in this cheese was $28.9 million in 1980. 3/ Therefore, the value of indirect displacement by the two types of casein-based imitation cheese in 1980 is estimated to be no more than $75.3 million.

There could be some increase in use of domestic dairy products concurrent with the expected decline in production of casein-based products. This increase, however, is expected to be relatively small. In its study, the USDA applied the elasticity value of -0.5 to the lost production of such products as desserts, coffee whiteners, and animal feeds, as well as imitation cheese discussed above. Questionnaire data indicate that major production declines are found only in frozen desserts (down 12 percent), coffee whiteners (down 18 percent), and pet foods (down 36.8 percent). It is difficult to estimate the amount of lost production of these articles which would be picked up by dairy products. Some such replacement would occur, for example, if ice cream or puddings replaced casein-based desserts, but there is no empirical evidence to support an estimate of the extent of this replacement.

1/ Industry sources indicate that filled cheese is now made primarily from 1 percent skim milk and that 9.5 pounds of such milk is needed to make 1 pound of cheese. The 1980 value of skim milk solids in each pound of such cheese was about $0.74, and the value of the butterfat was about $0.17. If producers used skim milk (having a maximum of 0.5 percent butterfat) as suggested by the USDA, the support value to the CCC of the components of the 51.0 million pounds of filled cheese would have been $42.6 million.

2/ Posthearing brief, Anderson Clayton Foods, p. 9.

3/ The 1980 value of the butterfat and skim milk solids in each pound of part skim mozzarella was $1.08.

Results

The total displacement of domestic dairy products by imported casein and by products made from casein can be estimated by the amount of direct displacement of domestic casein production, the direct displacement of other domestic dairy products which might be used as ingredients in place of casein, and by the indirect displacement of natural and filled cheese by casein-based imitation cheese. The low estimate is $23.0 million of direct casein displacement in imitation cheese and $72.5 million in noncheese uses, totaling $95.5 million in 1980. The high estimate of displacement includes the additional filled milk and natural cheese that might have been produced had the cost of casein been $3.00 per pound. This additional amount is $75.3 million. Losses on existing stocks would have been reduced by $7.2 million in either case. Therefore, under the conditions and assumptions described above, the additional costs to the CCC in 1980 as a result of the availability of lower priced imported casein is estimated to range from $102.7 million to $178.0 million.

Probable Effects of Import Restrictions

The methodology by which the effects of import restrictions are estimated parallels that by which displacement and increased purchases of domestic milk products by the CCC is estimated. Effectively, the estimates of displacement are predicated on a zero-level quota, i.e., a total embargo on imports of casein. Therefore, virtually all the assumptions and conditions described above also apply to the estimates of the effects of less extreme restrictions. The primary differences between these calculations and those of displacement are that the price of casein under import restrictions is not expected to be raised to a level sufficient to elicit domestic production of casein and, also, more casein would be used at these lower prices than would have been used at the $3.00-per-pound price necessary for domestic production.

The effects of tariff restrictions

The maximum tariff restriction which could be imposed under section 22 is 50 percent ad valorem. On the basis of the value of imported casein in 1980, imposition of such a tariff would raise the price of casein in the United States from $1.20 per pound to $1.80 per pound. Since there would be no domestic production of casein at that price, there would be no increased commercial use of nonfat milk solids in the domestic production of casein and no resultant reductions in CCC purchases; the only reductions in CCC purchases would be the result of shifts to domestic dairy ingredients rather than casein in various products and to filled and natural cheese.

Producers indicated that if casein were 50 percent higher in price than in 1980, they would still have used a total of 81.1 million pounds in their products, representing a decline of 42 percent from estimated use of 138.9 million pounds in 1980. Producers of imitation cheese expect that they would have used 40 percent less casein. There would have been a decline in use of

casein-whey blends from 16.8 million pounds to 10.9 million pounds. 1/ The use of casein in calf and veal feeds most likely would also have declined from an estimated actual use of 10.4 million pounds to 9,000 pounds at the higher price. Among the sharpest declines at the higher price of about $1.80 is the 48.9-percent drop in use of casein in adhesives and paper products from 19.0 million pounds to 9.7 million pounds, accounting for most of the decline in the industrial products category.

Questionnaire data show that if the price of casein had been about $1.80 in 1980, only 95.9 million pounds of imitation cheese would have been produced, compared with actual 1980 production of 161.9 million pounds. The decline of 66.0 million pounds of such cheese comprises 43.8 million pounds of American-type cheese and 22.1 million pounds of mozzarella cheese. As shown previously in the discussion regarding increased CCC purchases, because of casein imports, the lost production of American-type cheese would most likely be replaced by only 35.0 million pounds of filled cheese made from domestic part-skim milk. Production of this quantity of filled milk would have utilized about 332.9 million pounds of part-skim milk (1 percent butterfat), with a component value of $31.9 million. The amount of natural cheese used in the lost production of imitation cheese had a 1980 value of $4.7 million. CCC purchases could be expected to increase by this amount. Therefore, the net reduction in CCC purchases because of lower levels of imitation American-type cheese production would be $27.2 million. In addition, the reduction of 22.1 million pounds in imitation mozzarella cheese would have led to an increase of 11.0 million pounds in natural mozzarella cheese purchases. The value of the milk components in the part-skim milk (2 percent butterfat) used in this production was $11.9 million in 1980. The net decrease in CCC purchases because of reduced production of all casein-based imitation cheese would therefore have been about $39.1 million in 1980.

Questionnaire data show that producers of other casein-based food, feed, and industrial articles would have been expected to use 55.0 million pounds of imported casein, representing a 42.4-percent decrease from the 95.4 million pounds used at actual 1980 prices. Most of the users reported that they would not have substantially reduced their production of casein-based articles, but would only shift to other ingredients; NFDM, soy, and whey protein concentrates were mentioned most often. Only a few of the products in which production decreases were indicated as the price of casein increased were of the type likely to be replaced by dairy products. Among these were frozen desserts (which would have declined from 23.7 million pounds to 8.7 million pounds) and whipped toppings (from 155.4 million pounds to 150.9 million pounds). It is not apparent how much of this lost production would be replaced by domestic dairy products, but producers of these products did not indicate that they would shift to milk ingredients in their existing product at the higher price of casein. The only identifiable increase in use of dairy products with the effect of reducing CCC purchases would occur if NFDM replaces casein in a product formulation. Such replacement was reported to be 0.6 million pounds, having a support value in 1980 of $0.5 million. In addition, calf and veal feed was identified as a use for 13.4 million pounds of spoiling CCC stocks of

1/ Casein-whey blends used in calf and veal feeds, bakery products, and other food and feed uses are shown separately here. In tables 9 and 10 of this report, these blends have been distributed to the appropriate end-product categories.

NFDM which would be combined with whey and whey protein concentrates. The reduction in CCC losses from these sales would have been $7.2 million. No industrial user of casein indicated that he would shift to a dairy product if the price were to rise by 50 percent.

The maximum reduction of CCC purchases resulting from the imposition of a 50-percent tariff is estimated on the basis of the expected increased use of milk in production of natural mozzarella and filled cheeses, and of a small quantity of NFDM in other articles. The value of reduced purchases at 1980 prices would have been $39.6 million as a result of increased natural and filled cheese production and increased use of NFDM, and an additional $7.2 million reduction in losses from sales of feed-grade NFDM stocks, totaling $46.8 million.

The costs to consumers associated with the imposition of a tariff of 50 percent ad valorem on casein and casein-based products are not expected to substantially exceed the increased costs were all current consumers to continue using casein at their existing rate. In 1980, 138.9 million pounds of casein was used. If the tariff had raised the price by $0.60 per pound, the total additional expense to these users would have been $83.4 million at the wholesale level.

A low-end estimate of consumer costs can also be calculated. Under the 50-percent tariff, purchasers of 79.8 million pounds of casein would have paid additional $47.9 million in higher duties to the Government. Users of another 19.7 million pounds would have paid at least $0.30 per pound before they would switch to alternative ingredients, 1/ costing them $5.9 million. Finally, the additional cost to consumers for higher priced cheese, at the wholesale level, would have been at least $17.1 million above the costs of casein-based imitation cheese. The costs from these three categories of users of casein suggest that imposition of a tariff of 50 percent ad valorem would have cost consumers at least $70.9 million.

The effects of quota restrictions

The quota proposed by the NMPF would permit imports of 69.7 million pounds of casein annually. Since this quota is more restrictive than the quota considered by the USDA, and therefore presumed to provide greater benefits to the Government, the effects of the NMPF quota are addressed in the discussion below.

Questionnaire data show that demand for casein would have declined in 1980 to 81.1 million pounds if the price of casein were about $1.80 per pound. The data also show that at $2.40 per pound, utilization of casein would have been only 51.5 million pounds. Interpolation of these data suggests that, had a quota of 69.7 million pounds been imposed in 1980, the price of casein would have risen to about $2.00 per pound.

1/ Questionnaire data show that between $1.50 per pound and $1.80 per pound, utilization of casein would have declined by 29.5 million pounds. Cheese uses account for 9.8 million pounds for which costs are calculated separately. Therefore, alternative ingredients can be assumed to cost at least the equivalent of $1.50 per pound before users of 19.7 million pounds switched from casein.

As in the case of a tariff of 50 percent ad valorem, the price of casein under this restriction would not be high enough to elicit domestic production. Therefore, no substitution of domestic casein for the imported product would occur. Any beneficial reduction in costs to the CCC from such restrictions must accordingly result from the substitution of other domestic dairy ingredients for casein and from the substitution of domestic dairy products for the casein-based end products.

Questionnaire data indicate that as the price of casein increased to $2.00 because of the quota, its use in imitation cheese would have declined at a slower rate than in other end products. At $2.00 per pound, interpolation of the data indicates that 85.8 million pounds of imitation cheese would have been made in 1980, comprising 38.2 million pounds of American-type and 47.5 million pounds of mozzarella. The amount of casein used in these imitation cheeses would have been 8.4 million pounds and 13.8 million pounds, respectively.

The 47.1-million-pound decline in production of imitation American-type cheese attributed to the price effect of the quota would have resulted in an increase in filled cheese production of 37.7 million pounds. The 1980 value of the components of this quantity of filled cheese was $34.3 million. There would have been a concurrent increase, estimated at $5.2 million, in CCC purchases of the natural cheese which would have been used in the production of the imitation product. The net gain to the CCC would have been $29.1 million.

The 28.1-million-pound decline in production of imitation mozzarella cheese would have resulted in an increase in production of natural mozzarella of about 14.0 million pounds. The 1980 value of the components of the part-skim milk required to produce this 14.0 million pounds of natural mozzarella cheese would have been about $15.1 million should such components have been purchased by the CCC. The net gain to the CCC resulting from the increased production of both filled cheese and natural mozzarella cheese under a quota of 69.7 million pounds of casein is estimated to have been no more than $44.2 million.

As in the case of the imposition of a tariff of 50 percent ad valorem, under the quota, some NFDM, whey protein concentrate, and soy protein are likely to be substituted for casein in certain end products. Questionnaire data show that a price increase from $1.80 to $2.40 would have caused an additional 600,000 pounds of NFDM to be used. Assuming that all of this shift occurred by the quota-induced price of $2.00, the quota benefits to the CCC from noncheese end products are estimated at $1.1 million, plus reduced losses on existing stocks of NFDM amounting to $7.2 million.

A quota restriction set at 50 percent of the average annual imports during 1976-80, or 69.7 million pounds, would have been expected to benefit the CCC in 1980 through reduced purchases of skim and part-skim milk, together valued at $44.2 million, reduced purchases of NFDM valued at $1.1 million, and reduced losses of $7.2 million on existing NFDM stocks. The net gain to the CCC therefore would be $52.5 million. The price of casein under the quota in 1980 would have been expected to rise to about $2.00 per pound (based on the 1980 price of $1.20 per pound).

Costs to the consumer of quota restrictions are calculated in a manner similar to those for tariff restrictions. These costs could have been as high as $115.3 million if all current users had been willing to pay the higher price for casein. On the other hand, users of at least 69.7 million pounds would have paid an additional $56.5 million resulting from the higher price under the quota. Those switching to alternatives would have paid an additional $18.4 million for the higher priced noncasein ingredients. Consumers purchasing filled or natural cheese rather than the casein-based cheese would have paid an additional $19.5 million. Therefore, the costs of a quota limiting imports of casein to 69.7 million pounds in 1980 is estimated to have been at least $94.7 million.

Alternative assumptions

The benefits estimated above for the CCC resulting from import restrictions for casein are virtually all due to the assumption that there will be a decline in the production of imitation cheese and a concurrent increase in production of natural and filled cheese made from domestic milk ingredients. This may not actually occur. There has been extensive research into alternatives to the use of casein in cheese and other foods. Some firms now are able to extend casein through the use of soy protein. Others believe that they can produce presently, or will soon be able to produce, imitation cheese from wheat protein or lactoglobulin. If the price of casein were to rise after imposition of restrictions, these technologies would most likely become commercially available under license. Although the availability of these technologies will not be immediate, there are ample inventories of casein sufficient for continued production of existing products, in the short term, at or near the current rate. There may accordingly be no decline in production of imitation cheese in either the short or the long term and no concurrent benefit to the CCC. Under these conditions, the only benefits to the CCC would come from slightly reduced purchases of NFDM and slightly increased sales of spoiling stocks, valued in 1980 at no more than $7.7 million in the case of a tariff restriction and $8.3 million in the case of a quota restriction.

Conclusion

Under the assumptions and conditions described above, the imposition of a tariff of 50 percent ad valorem on imports of casein is estimated to reduce the cost of CCC operations by $8 million to $47 million, and the imposition of a quota of 69.7 million pounds annually is estimated to reduce CCC costs by $8 million to $53 million. The costs to consumers of these restrictions are estimated to exceed $71 million and $95 million, respectively. The high-end estimate of benefits in each case are based on existing, widely available technology. There is reason to believe that new technology will substantially reduce benefits to the CCC of restrictions on casein imports in future years.

APPENDIX F

MEMORANDUM FROM THE COMMISSION'S OFFICE OF TARIFF AFFAIRS REGARDING THE FEASIBILITY OF RESTRICTING IMPORTS OF CASEIN FOR USE IN APPLICATIONS COMPETING WITH DOMESTIC DAIRY PRODUCTS

MEMORANDUM December 17, 1981

TO: Director, Office of Investigations

FROM: Director, Office of Tariff Affairs

SUBJECT: Inv. No. 22-44--Casein: Feasibility of restricting imports of casein for use in applications competing with domestic dairy products

1. In general, imported casein may be classified as either edible grade or industrial grade. Import quantity restrictions based on grade would not achieve the desired result of restricting imports of casein products, since both industrial and edible grades can be used in competitive applications as well as in noncompetitive applications. In addition, industrial grade casein can be upgraded to edible grade with relative ease.

2. According to the U.S. Customs Service and the U.S. Department of Agriculture (USDA), the use of value breaks, chemical labelling, or physical means of identification (e.g., dyes) would not be feasible for distinguishing casein imported for use in competition with domestic dairy products from that used in noncompetitive applications. Physical or chemical adulteration would render the imported casein unsuitable not only for applications where domestic dairy products would be substituted, but also in some applications where domestic dairy products would not be substituted.

3. Recognizing the foregoing, the National Milk Producers Federation proposed a licensing program, recommending that in issuing licenses, preference be accorded to importers who can satisfactorily certify that the imported product would be used in applications where domestic dairy products would not be substituted for casein. The consensus of Customs and the USDA is that such a program is not feasible, for the following reasons:

   (a) The program assumes that only end-use consumers of casein would be importers of the product. However, if the importer is not an end-user, but merely a seller on the open market, he would be unable to certify end use of the product.

   (b) Any certification program based on end use would be vulnerable to fraud. For example, a "dummy" corporation could be set up as a "pharmaceutical" firm and import casein which would not be subject to restriction; yet, that firm could then resell its "excess" casein to a processed cheese manufacturer.

   (c) Enforcement of a certification program would require a policing mechanism to monitor the physical flow of imported casein from the point of importation through to the end-use application. Neither Customs nor USDA has sufficient manpower or funds to operate the continuous monitoring system that would be needed to insure proper enforcement of a quantity restriction based on end use.