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**UNITED STATES TARIFF COMMISSION**

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**MUSHROOMS PREPARED OR PRESERVED**

**Report to the President on Investigation No. TEA-I-8 Under  
Section 301(b) of the Trade Expansion Act of 1962**

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January 1965**

**UNITED STATES TARIFF COMMISSION**

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(TC22552)

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## REPORT TO THE PRESIDENT

U.S. Tariff Commission,  
January 27, 1965.

To the President:

In accordance with section 301(f)(1) of the Trade Expansion Act of 1962 (76 Stat. 885), the U.S. Tariff Commission herein reports the results of an investigation made under section 301(b) of that act relating to mushrooms prepared or preserved (other than dried).

### Introduction

The purpose of the investigation to which this report relates was to determine whether--

mushrooms prepared or preserved (not including dried) provided for in item 144.20 of the Tariff Schedules of the

United States

are, as a result in major part of concessions granted thereon under trade agreements, being imported into the United States in such increased quantities as to cause, or threaten to cause, serious injury to the domestic industry or industries producing like or directly competitive articles.

The investigation was instituted on July 31, 1964, upon petition filed under section 301(a)(1) of the Trade Expansion Act on July 27, 1964, by the Mushroom Cannery Committee of the Pennsylvania Cannery and Food Processors Association. Public notice of the institution of the investigation and of a public hearing to be held in connection

therewith was given by publication of the notice in the Federal Register (29 F.R. 11399). The public hearing was held on October 20 and 21, 1964, and all interested parties were afforded opportunity to be present, to produce evidence, and to be heard. A transcript of the hearing and formal briefs submitted by interested parties in connection with the investigation are attached. 1/

In addition to the information adduced at the hearing and contained in the briefs, the Commission obtained information from its files, from other agencies of the U.S. Government, through fieldwork by members of the Commission's staff, and from responses to questionnaires sent to domestic growers, canners, driers, and importers of mushrooms. No statistics concerning the output of mushrooms in the United States are published regularly by either governmental or private sources. Accordingly, a large part of the statistical data shown in this report are based on information supplied in responses to questionnaires sent to all known growers and canners. Respondents to the questionnaires accounted for the bulk of the output of both fresh and canned mushrooms.

The imported prepared or preserved mushrooms covered by this investigation consist primarily of mushrooms canned in brine; also included, but of minor importance, are such canned products as pickled mushrooms, cocktail mushrooms, and mushrooms in wine. Throughout this report, the term "canned mushrooms" is used to describe the imported products involved in this investigation. Imports of fresh mushrooms, of dried

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1/ Transcript and briefs were attached to the original report sent to the President.

mushrooms, and of other products containing mushrooms (e.g., mushroom sauce, mushroom gravy, and mushroom soup) are not within the scope of the investigation.

#### Finding of the Commission

On the basis of its investigation the Commission unanimously finds that mushrooms prepared or preserved provided for in item 144.20 of the Tariff Schedules of the United States are not, as a result in major part of concessions granted under trade agreements, being imported in such increased quantities as to cause, or threaten to cause, serious injury to the domestic industry or industries producing like or directly competitive articles.

### Considerations in Support of the Foregoing Finding

The Commission finds that canned mushrooms are being imported in increased quantities within the meaning of section 301(b) of the Trade Expansion Act. It does not find, however, that such increased imports are attributable in major part to trade-agreement concessions.

Under the trade agreements program duty concessions on imports of canned mushrooms were granted on several occasions. The principal reductions in duty were made in 1936 and 1948; subsequent reductions have been relatively minor. Commencing in 1961/62 (crop year)--13 years after the last major concession was granted--quantitative increases in imports became very substantial. The increases were accounted for almost wholly by imports from Taiwan. Prior to 1961 France and Japan were the principal U.S. sources of imported mushrooms.

The Commission finds that major changes in the world demand-supply situation provide the principal explanation of the substantial rise in U.S. imports. The rapid emergence of Taiwan as a leading world producer and exporter of canned mushrooms, coupled with a U.S. demand that had already begun to expand prior to that

development, have been far more significant factors in the recent increase of imports than trade-agreement concessions whose stimulative force has largely been spent.

The emergence of Taiwan as the world's leading exporter of canned mushrooms must be taken into account in explaining the increased U.S. imports. The development of that country's mushroom industry was generated by forces little affected by U.S. tariff policy. Momentous political and economic changes on the island after 1949 were produced by the fall of the mainland of China to the Communists. The subsequent massive migration from the mainland greatly expanded Taiwan's population. Extensive programs were undertaken to provide the island and its people with a viable and expanding economy. The United States, through the extension of technical skills and financial aid, contributed materially to this overall endeavor. It was logical that the production of mushrooms should be considered a promising venture; the necessary components of a successful industry were at hand. The modest U.S. assistance to Taiwan's mushroom canning industry was extended primarily in the form of financial aid. Taiwan became a factor in world markets, but the success, and the very establishment, of its mushroom exporting industry was but part of a broad program of the country's economic development.

Taiwan also greatly increased its exports of mushrooms to countries other than the United States; the increase to such countries between 1961-63 was more than sevenfold. Its exports in 1963 of canned mushrooms to West Germany were nearly 50 percent greater than those to the United States. The increase in the exports between 1961 and 1963 was more than 40 percent greater to that country than to the United States. <sup>1/</sup> Taiwan has not benefited in recent years from any tariff concessions by West Germany on canned mushrooms. <sup>2/</sup> Indeed, with the progressive implementation of the European Economic Community, Taiwan's competitive position as a supplier of canned mushrooms in that market has been reduced. Taiwan's principal competitor in the West German market (France) <sup>3/</sup> has benefited from the progressive reduction of tariff and other restrictions on imports originating within the Community.

Assuredly the U.S. duty concessions were part of the complex of factors that encouraged Taiwan to undertake the production and exportation of mushrooms, not only to the United States but elsewhere. The foregoing facts, however, support

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<sup>1/</sup> Table 11.

<sup>2/</sup> Since 1959 the West German duty on canned mushrooms imported from non-EEC countries has ranged narrowly between 23 and 25 percent ad valorem (which is about one-third higher than the rate imposed by the United States).

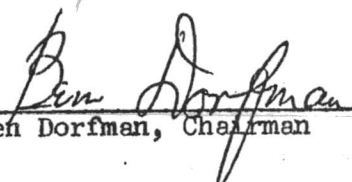
<sup>3/</sup> For many years France had been the world's leading exporter of mushrooms.

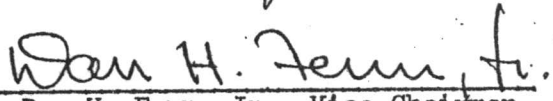
the conclusion that there were other and more compelling reasons for Taiwan's successful exploitation of its mushroom-producing potentialities. The development of a mushroom canning industry was not an isolated response by Taiwan in its search for export industries.

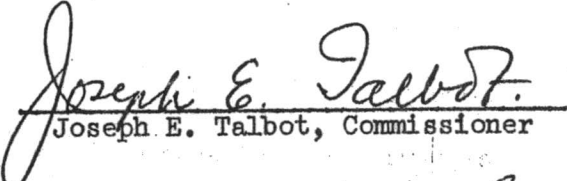
The same circumstances that attracted increased imports of mushrooms into the United States also induced domestic producers to expand both their growing and canning operations. The common factor was not the duty concessions but the greatly expanded U.S. consumption of mushrooms. Although the availability of imports from Taiwan helped to stimulate U.S. consumption, the expanding use of mushrooms in the United States had its origin primarily in forces unrelated to imports. Indeed, the rise in consumption anteceded the increased imports by many years. The annual consumption of mushrooms (fresh-weight basis) tripled between 1930 and 1960 and rose by an additional third during 1960-64. Among the factors contributing to this extraordinary increase were the increased U.S. population, the general rise in personal incomes, and the progressive development of a taste for mushrooms by the consuming public--so much so that mushrooms have become commonplace in the diet of many Americans. Imports and domestic production have both shared, though not equally, in supplying the increased quantities consumed. Between the crop years 1960 and 1964, the U.S. annual consumption of mushrooms

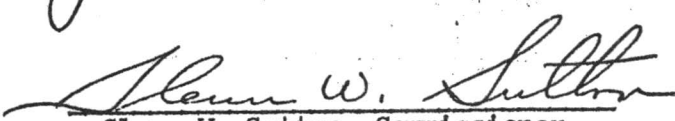
(fresh-weight basis) rose from 119 to 160 million pounds, while the domestic production of mushrooms increased from 108 to 131 million pounds.

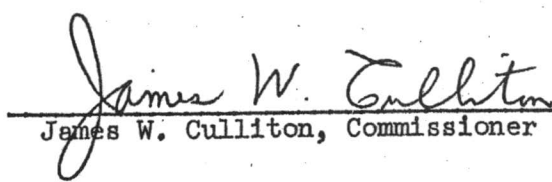
Respectfully submitted.

  
Ben Dorfman, Chairman

  
Dan H. Fenn, Jr., Vice Chairman

  
Joseph E. Talbot, Commissioner

  
Glenn W. Sutton, Commissioner

  
James W. Culliton, Commissioner



## Information Obtained in the Investigation

U.S. tariff treatment

Imported prepared or preserved mushrooms (except dried mushrooms) provided for under item 144.20 of the Tariff Schedules of the United States (TSUS) are dutiable at the rate of 3.2 cents per pound on drained weight plus 10 percent ad valorem (table 1 in the appendix). Before the effective date of the TSUS, such mushrooms were provided for in paragraph 768 of the Tariff Act of 1930. The rate originally provided by that act, 10 cents per pound on drained weight plus 45 percent ad valorem, has been modified four times in trade agreements--three times in negotiations with France <sup>1/</sup> and once (two stages) in negotiations with the European Economic Community under the GATT. The resulting modified rates and their effective dates are shown below:

June 15, 1936-----	8 cents per pound on drained weight and 25 percent ad valorem,
January 1, 1948---	5 cents per pound on drained weight and 15 percent ad valorem,
June 6, 1951-----	4 cents per pound on drained weight and 12.5 percent ad valorem,
July 1, 1962-----	3.6 cents per pound on drained weight and 11 percent ad valorem, and
July 1, 1963-----	3.2 cents per pound on drained weight and 10 percent ad valorem.

The ad valorem equivalent of the present rate averaged 16 percent based on imports from all countries during 1963; it also averaged 16 percent based on imports from the major supplier, Taiwan, in 1963.

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<sup>1/</sup> Once in a bilateral agreement and twice under the General Agreement on Tariffs and Trade (GATT).

The U.S. Food and Drug Administration regularly inspects all imports of canned mushrooms for adulteration and misbranding. Shipments failing to meet its standards are not permitted entry unless the defect is corrected. Such detentions have been equal to less than 2 percent of the total value of imports of canned mushrooms in recent years.

#### Description and uses

Mushrooms are the fruiting bodies of certain edible fungi. They are marketed either fresh, dried, frozen, or canned. Fresh mushrooms are used primarily as a garnish with meats and other food, as a separate "vegetable," and as an ingredient in gravies, sauces, relishes, and soups. For some consumers, canned mushrooms, frozen mushrooms, and to a lesser degree, dried mushrooms, are completely interchangeable with fresh mushrooms. Conversely, other consumers would not generally substitute canned, frozen, or dried mushrooms for fresh mushrooms.

Fresh mushrooms are perishable and must be marketed within a few days after harvesting even though properly refrigerated. In recent years, approximately 50 percent of the mushrooms grown in the United States have been canned, 30 percent have been sold to fresh-market outlets, 15 percent to soup canners, and less than 5 percent to other outlets, such as freezers and freeze-driers (table 4).

The domestic mushrooms destined for fresh-market sales are usually sold (with roots trimmed off) in 3- or 9-pound baskets either through retail stores or to institutional users (restaurants and other bulk buyers). Consumer handling of the fresh product in retail markets generally results in many damaged mushrooms which must be sold at re-

duced prices or discarded. Some representatives of the trade believe that the established methods of retailing fresh mushrooms have kept sales from expanding to levels they might have reached. The "picked over" mushrooms lack eye appeal and, therefore, sales appeal. As a result, many attempts have been made to prepackage fresh mushrooms in consumer-size containers. Many problems have been encountered, however, in choosing the right types and sizes of containers and in inducing consumers to purchase prepackaged mushrooms; hence, only a small part of fresh-market sales have been accounted for by prepackaged mushrooms.

Mushrooms destined for canning are usually sold, with roots attached ("pulls"), in containers holding about 9 pounds; 1/ those for processing into soup are sold with roots removed ("cuts") in similar size bulk containers.

Before mushrooms are canned, they are trimmed (roots removed), washed, graded, sometimes sliced, and then blanched. They are then put into containers, covered with a preserving medium (usually brine), sealed airtight, and pressure cooked. Small quantities of canned mushrooms are also preserved in such mediums as vinegar (pickled mushrooms), wine (mushrooms in wine), and oil (marinated mushrooms).

The three main styles of canned mushrooms are stems and pieces (including random sliced mushrooms), sliced mushrooms, and whole mushrooms (including buttons). Mushrooms are typically sold in containers

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1/ In the past several years, an increasing share of the mushrooms destined for canning have been sold with roots removed.

ranging in size from 2 to 68 ounces (drained weight). Containers holding more than 8 ounces of mushrooms (drained weight) are generally referred to as institutional sizes. <sup>1/</sup>

Most of the imported canned mushrooms are of the same species as the domestic canned mushrooms, and are similar in flavor and appearance. Virtually all of the imports from Taiwan and France, and most of the imports from Japan, are of this species. French mushrooms have been marketed in the United States for many years, principally to the institutional trade and to gourmet food stores, where they are purchased by persons willing to pay higher prices for them than for domestic canned mushrooms. A small portion of the imported mushrooms canned in brine consist of either cultivated or wild species of mushrooms that are not grown commercially in the United States and differ from the domestic cultivated mushroom in flavor and appearance. Perhaps the most important of these species is the "shiitake" type mushroom which is cultivated in Japan. This species comprises an estimated 20 percent of the U.S. imports of prepared or preserved (except dried) mushrooms from Japan and accounted for less than 2 percent of the imports from all countries in 1963/64.

Mushrooms canned in brine are used largely for the same purposes as fresh mushrooms. Most of the other types of canned mushrooms, both domestic and foreign (e.g., those packed in such mediums as vinegar, wine, or oil) have limited uses (largely for appetizers and snacks).

Less than 5 percent of the domestic output of fresh mushrooms is marketed to commercial freezers. Mushrooms that are to be frozen are

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<sup>1/</sup> Institutional-size containers are those usually purchased by restaurants, hospitals, institutions, and other mass-feeding establishments.

prepared in a manner similar to those that are to be canned; however, they are "quick frozen." They are then packaged in consumer- or institutional-size containers. Mushrooms frozen for consumer use consist principally of whole mushrooms and are used for the same purposes as fresh mushrooms. Frozen mushrooms used in the manufacture of freeze-dried mushrooms consist almost entirely of diced or sliced mushrooms.

U.S. production of dried mushrooms (except freeze-dried) is negligible. Mushrooms may be dried either outside by sunlight or inside by circulating warm dry air. Between 10 and 12 pounds of fresh mushrooms are required to produce 1 pound of dried mushrooms. Air- or sun-dried mushrooms are moderately interchangeable with fresh and canned mushrooms in making certain sauces, relishes, and soups. However, such dried mushrooms cannot satisfactorily replace fresh or canned mushrooms in most uses because, after reconstitution, they have a tough, rubbery consistency.

In recent years a radically different process of dehydrating foods known as freeze-drying has been developed. <sup>1/</sup> During the past 5 years small quantities of mushrooms have been dried in the United States by this process. When moisture is added, the mushrooms (usually diced or sliced) regain approximately the size, shape, texture, and flavor

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<sup>1/</sup> A U.S. Department of Agriculture publication by Kermit Bird, Freeze-Dried Foods: Palatability Tests, Marketing Research Report No. 617, July 1963, briefly describes the freeze-drying process as follows: "Freeze-drying is a drying process known as sublimation. It is the removal of moisture from a product while that moisture is frozen. Foods to be sublimated are first frozen, then placed in a drying chamber, heat is applied, and low vapor pressures remove the moisture from the product. Because the moisture never goes through the liquid stage while being removed from the food, the food does not shrink or lose shape. The final product is dried to a moisture level of 2 percent or less."

of the original fresh product and can be substituted for fresh or canned mushrooms in most uses. Freeze-dried mushrooms, however, cost considerably more than fresh or canned mushrooms; in terms of a fresh-weight basis they generally sell at four to five times as much as fresh mushrooms and about three times as much as canned mushrooms. Domestically produced freeze-dried mushrooms are marketed in both retail and bulk packages, as well as in soup and other products.

#### U.S. consumption

The U.S. annual consumption of mushrooms 1/ increased by 34 percent between the crop years 1959/60 and 1963/64. 2/ It is estimated that 119 million pounds (fresh-weight basis) of mushrooms were consumed during 1959/60, compared with 160 million pounds in 1963/64 (table 5). The indicated increase continued the growth in the U.S. consumption of mushrooms evident over the past 30 years. Data received from the industry 3/ indicate that the U.S. consumption of mushrooms was about 38 million pounds in 1930, 44 million pounds in 1940, and 67 million pounds in 1949. Consumption of mushrooms thus tripled between 1930 and 1959/60, while the population of the United States during the same period increased 46 percent; per capita consumption of mushrooms, therefore, has been increasing sharply.

Several factors have contributed to the increased consumption of mushrooms, including (a) an increase in the U.S. population, (b) an

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1/ Apparent U.S. consumption consists of the estimated U.S. production of fresh mushrooms plus imports (on a fresh-weight basis) of prepared or preserved mushrooms, including dried.

2/ The mushroom crop year begins July 1.

3/ Briefs before the Committee for Reciprocity Information, submitted in 1946 and 1950 by representatives of the mushroom producers.

increase in per capita disposable income, (c) an increased availability of mushrooms in many areas of the United States, resulting from marketing enterprise and improvements in transportation, and (d) an extension of the marketing season for fresh mushrooms, resulting from increased use of air conditioning in growing operations. Additional factors contributing to the increased consumption in recent years include promotional work by the American Mushroom Institute and others, and somewhat lower prices for fresh and canned mushrooms in 1962/63 and 1963/64 than in 1959/60 to 1961/62.

During the 5-year period ending in 1963/64, about 54 percent of the mushrooms consumed (fresh-weight basis) were canned, 25 percent were marketed through fresh-market outlets, 6 percent were dried (largely imported), and 15 percent were in other foods, including soup.

Estimated U.S. annual consumption of canned mushrooms rose from less than 10 million pounds (drained weight) in the 1930's to about 56 million pounds in 1963/64. The quantity of canned mushrooms consumed in each of the past 4 crop years was greater than in the preceding year, increasing from 43 million pounds (drained weight) in 1959/60 to 56 million pounds in 1963/64, representing an increase of 30 percent (table 6). Meanwhile the consumption of mushrooms sold through fresh-market outlets increased by an even greater percentage--from about 31 million pounds in 1959/60 to 42 million pounds in 1963/64, representing an increase of more than 35 percent. The U.S. annual consumption of imported dried mushrooms, which changed little during this period, averaged about 8 million pounds, fresh-weight equivalent (table 5).

Increasing quantities of domestically produced freeze-dried mushrooms have been consumed in recent years.

U.S. producers

Mushrooms were first commercially grown in the United States in the latter part of the 19th century. New York City and nearby Long Island constituted the first growing center. By 1890, greenhouse operators in the Kennett Square area <sup>1/</sup> had begun to grow mushrooms in the unused spaces under their greenhouse benches. Soon many farmers in that area were utilizing idle space in barns, sheds, and cellars for growing mushrooms. At the turn of the century, special houses were being built for the sole purpose of growing mushrooms. The availability of horse manure from nearby stables facilitated mushroom growing in the Kennett Square area, which had an additional advantage in that it was located near several large metropolitan centers where fresh mushrooms were in demand. Until recently all commercially produced mushrooms were grown on well-composted horse manure; presently synthetic compost and mixtures of the two are also used.

Growers.--Commercial producers of mushrooms are still concentrated in the Kennett Square area, although mushrooms are also grown near many of the larger U.S. population centers. The following tabulation shows

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<sup>1/</sup> The Kennett Square area is comprised of southeastern Pennsylvania and nearby portions of Delaware and Maryland.



the percentage distribution in 1964 of mushroom growers among the principal producing States:

<u>State</u>	<u>Percent of total growers</u>
Pennsylvania	75
Delaware	5
New York	4
Illinois	3
California	2
Michigan	2
Maryland	2
Ohio	1
Other <sup>1/</sup>	6
Total	<u>100</u>

<sup>1/</sup> Connecticut, Florida, Indiana, Kentucky, Massachusetts, Missouri, New Jersey, Oregon, Tennessee, and Wisconsin.

The size of a mushroom-growing operation is usually measured in terms of square feet of growing space. The operations of most growers, other than the canners, are small, generally utilizing less than 50,000 square feet of growing space. A few individual noncanner growers, however, utilize more than 300,000 square feet of space. Canners growing all or part of their fresh-mushroom supply utilize an average of more than 300,000 square feet of growing space each; more than half of these operations are located in Pennsylvania. The following tabulation indicates the approximate distribution of growers within four size categories and shows the percentage of total production

in the 1962/63 crop year that was accounted for by the growers in each of these categories:

<u>Size of operation</u> <u>(square feet)</u>	<u>Percent 1/ of</u>	
	<u>Growers</u>	<u>Production</u>
Under 50,000	77	26
50,000-99,999	13	10
100,000-299,999	7	17
300,000 or over	3	47
Total	100	100

1/ Estimated from data reported by growers.

Mushroom growing is the source of more than 90 percent of the aggregate farm income of the noncanner growers. For a few, however, mushroom growing is supplemental to other ventures, such as selling supplies and providing various services to other mushroom growers.

Most mushrooms are grown during the period from October through May, when climatic conditions favor growth. In recent years, however, the use of air conditioning has resulted in substantially increased production during the months of June through September.

A recent innovation in the growing of mushrooms has been the "tray" system. This system involves moving the trays holding the growing medium from one controlled environment to another during the early growth of the mushroom. Through mechanization, the "tray" system eliminates a number of hand-labor operations essential to the conventional "bed" system. It allows the production of as many as five crops per year, instead of a maximum of three crops obtained with the "bed" system, and permits a more even production throughout the year. However, installation of the "tray" system is a costly advancement from which only the larger, well-financed firms can benefit.

Because the use of air conditioning permits year-round growing and the "tray" system permits additional crops per year, these practices afford an increased annual output per square foot of growing space; however, they have only a minor effect on the average yield per crop. Average crop yields range up to 3.5 pounds per square foot harvested, depending largely upon the length of the harvest period. During the 5 years ending 1963/64 the yield per crop for all growers averaged 2.2 pounds per square foot.

Canners.---Canned mushrooms were produced by 34 firms during the 5-year period 1959/60 to 1963/64 (table 7). Thirty of them supplied the Commission with usable production data. More than half of the canners were located in Pennsylvania; the remaining firms that reported substantial production were located in California, Delaware, Michigan, New York, and Ohio. During 1963/64 seven of the larger mushroom canners, including four in Pennsylvania, imported canned mushrooms from Taiwan.

About half of the reporting firms each produced more than 1 million pounds of canned mushrooms in at least 1 recent year. No single firm, however, accounted for more than 10 percent of the estimated U.S. production in any of the 5 years. Most of the mushroom canning firms are incorporated; two operate as divisions of large nationwide corporations. Two of the firms are grower-owned cooperatives, and another firm which had been a grower-owned cooperative reorganized as a corporation in 1961.

For the most part, mushroom-canning operations are similar to those of other small canneries in the United States. However, unlike most canneries, which operate during only a few weeks or months of the year,

mushroom canneries generally operate during as many as 7 or 8 months. <sup>1/</sup> A few, whose mushroom-growing operations benefit from either favorable climatic conditions or air conditioning, operate during the entire year. Most mushroom canners, particularly those in the Kennett Square area, process few other products; most of them are located in areas economically unsuited for growing other canning crops because of unfavorable climatic and soil factors.

Less than 15 percent of the total value of sales by the canners in any of the years 1959/60 to 1963/64 consisted of products other than canned mushrooms; the most important other products were fresh mushrooms and canned products containing less than 50 percent mushrooms.

Driers.---In 1959/60, only one U.S. firm produced freeze-dried mushrooms; by 1963/64, eight firms were doing so. Freeze-dried mushrooms are the only type of dried mushrooms produced in the United States. <sup>2/</sup> The eight driers were widely distributed throughout the United States; the three largest accounted in 1963/64 for nearly 80 percent of the production. Only one of the eight firms grew mushrooms, and none produced canned mushrooms.

#### U.S. production, sales, and inventories

Fresh mushrooms.---U.S. annual production of fresh mushrooms (partly estimated) increased from 108 million pounds in 1959/60 to

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<sup>1/</sup> Canning operations usually begin in October or November and end in May.

<sup>2/</sup> A dried-mushroom powder was produced by another firm from a species of mushroom (morel type) different from that usually grown in the United States (*Agaricus campestris*); this product is not competitive with freeze-dried mushrooms.

131 million pounds in 1963/64 (table 8). Production data for recent years are shown below:

<u>Crop year</u>	<u>Production</u> (million pounds)
1959/60	108
1960/61	115
1961/62	127
1962/63	132
1963/64	131

Fresh mushrooms are sold not only in the fresh market, but also to canneries and other outlets, including soup processors. The share of the reported annual production shipped to canneries <sup>1/</sup> declined from 54 percent of the total in 1959/60 to 49 percent in 1963/64 (table 4).

In the same period the share sold on the fresh market increased from 29 to 32 percent of the annual output, and the share sold to processors other than canners increased from 17 to 19 percent.

Growers other than those who also can mushrooms account for approximately two-thirds of estimated U.S. production of fresh mushrooms (table 8). Their production increased annually during the period 1959/60 to 1963/64. The following tabulation shows the estimated production (trimmed weight basis) by noncanner growers:

<u>Crop year</u>	<u>Production</u> (million pounds)
1959/60	71
1960/61	77
1961/62	84
1962/63	88
1963/64	89

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<sup>1/</sup> Including transfers by the canner-growers to their own canneries.

The share of mushrooms grown annually by the noncanner growers in facilities having air-conditioning equipment increased from 10 percent of their total production in 1959/60 to 1.7 percent in 1960/61 and continued at about that percentage through 1963/64.

Some of the aforementioned growers sell only to the fresh market, others sell only to processors such as canners and soup processors, and many sell in whatever market offers the highest return. During the period 1959/60 to 1963/64, the noncanner growers sold increasing quantities in the fresh market. From 1959/60 to 1963/64 the share of their sales made to the fresh market rose from 39 percent to 43 percent of total sales (table 4). Sales to the canneries, on the other hand, declined from 35 percent of the total in 1959/60 to 31 percent in 1963/64. The share sold to soup processors and miscellaneous markets remained fairly constant at about 25 percent of the total.

For the most part fresh mushrooms have been sold near the growing areas. With the advent of improved refrigerated transportation, however, market areas have expanded. In 1963/64 more than a million pounds of fresh mushrooms were shipped by air from Pennsylvania to the west coast.

The annual production of fresh mushrooms by canner-growers increased during the period 1959/60 to 1962/63, but was moderately smaller in 1963/64 than in the preceding year (table 8). Meanwhile, purchases of fresh

mushrooms by canners increased annually through 1961/62 and declined thereafter, as indicated by the following tabulation (in millions of pounds): <sup>1/</sup>

<u>Crop year</u>	<u>Production by 23 canner-growers</u>	<u>Purchases by 19 canners</u>
1959/60	37	29
1960/61	38	33
1961/62	43	35
1962/63	44	32
1963/64	42	32

The production of fresh mushrooms by the seven canners (included above) that imported canned mushrooms from Taiwan in 1963/64 increased annually during the period 1959/60 to 1963/64. Purchases of fresh mushrooms by these seven canners, however, declined annually from 1960/61 to 1963/64; in 1963/64 the seven canners grew 67 percent of the mushrooms they canned.

During each of the past 5 years, the canner-growers sold, in the fresh market, more than 10 percent of their output of fresh mushrooms; the remainder was processed in their own canneries. The share of total production of fresh mushrooms grown by canner-growers in facilities having air conditioning equipment rose from 43 percent in 1959/60 to 52 percent in 1963/64.

Canned mushrooms.---U.S. production of canned mushrooms (partly estimated) increased from 40 million pounds in 1959/60 to 46 million pounds in 1961/62 (table 7). Thereafter, it declined, and amounted to 41 million pounds in 1963/64. The production reported by the seven

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<sup>1/</sup> Of the 23 canner-growers, 12 are among the 19 canners reporting purchases of fresh mushrooms.

canner-importers followed the same general trend as that of the total U.S. production. <sup>1/</sup> The decline in production by the seven canner-importers, however, began in 1962/63, while the annual production by other canners did not decline until 1963/64.

The following tabulation shows sales of domestically produced canned mushrooms by the canner-importers and the other canners in the period 1959/60 to 1963/64 (in millions of pounds):

Crop year (July 1-June 30)	Sales by 7 canner-importers	Sales by other canners	Total sales
1959/60	15	26	41
1960/61	15	26	41
1961/62	15	28	43
1962/63	15	29	44
1963/64	14	29	43

Whereas sales of domestically canned mushrooms by the seven canner-importers remained nearly unchanged throughout the period shown above, sales by other canners increased moderately. The seven canner-importers increased their total sales in 1963/64 by selling about 3 million pounds of canned mushrooms imported from Taiwan.

Four small producers discontinued production of canned mushrooms during the period 1960-64, one in early 1960 and the others in 1962/63 or 1963/64. One large producer ceased operations in August 1963, but resumed production in April 1964 under new ownership.

<sup>1/</sup> In 1963/64, imports by the seven firms totaled 5 million pounds.



U.S. exports of canned mushrooms are not separately reported; however, Canada is believed to be the only important export market for U.S. canned mushrooms. Canadian import statistics show that imports of canned mushrooms from the United States declined from 373,000 pounds in the calendar year 1959 to less than 11,000 pounds in 1963. The decline in Canadian imports from the United States was more than offset by increased Canadian imports from Taiwan.

June 30 inventory holdings of domestic canned mushrooms reported by 23 canners during 1959-64 were at their lowest level in 1960, when they totaled 11.1 million pounds (table 9). They increased through 1963, when they totaled 16.1 million pounds, but declined to 14.8 million pounds in 1964. The decline reflected largely a decrease of 1.9 million pounds in the inventories of domestic product held by the seven canner-importers. Production by these seven firms in 1963/64 was smaller than that in 1962/63; in June 1964 their inventories of imported canned mushrooms totaled 3.2 million pounds.

Dried mushrooms.--U.S. production of freeze-dried mushrooms increased from a small quantity in 1959/60 <sup>1/</sup> to 95,000 pounds in 1963/64. Production in 1963/64 was equivalent to about 1.1 million pounds of fresh mushrooms.

#### U.S. imports

More than 150 U.S. concerns have imported canned mushrooms in recent years; many of them, however, have imported only small quantities.

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<sup>1/</sup> Only one firm produced freeze-dried mushrooms in 1959/60 and 1960/61.

Among the larger importers are the aforementioned domestic canners; 2 of them began importing from Taiwan in 1962/63 and the others began in the following year. In 1963/64 the 7 canners entered 37 percent of the U.S. imports of canned mushrooms.

Trend.---U.S. imports of mushrooms, prepared or preserved (other than dried), have consisted almost entirely of mushrooms canned in brine. Such imports have increased markedly in recent years; they reached a record high of 13.6 million pounds (drained weight), having a foreign value of \$6.9 million, in 1963/64 (table 10). 1/ As set forth earlier, the major reductions in duty on canned mushrooms occurred in 1936 and 1948, followed by smaller reductions in 1951, 1962, and 1963. Imports of canned mushrooms increased from approximately 0.5 million pounds in 1936 to 0.9 million pounds in 1939 (table 3). During the war, imports virtually ceased; they accounted for a negligible share of U.S. consumption until 1951. Imports increased substantially during 1951-54, amounting by 1954 to 2.6 million pounds. From that year to 1960 they leveled off at an average of about 2.3 million pounds per year.

U.S. imports of canned mushrooms during the crop year 1963/64 were six times the quantity entered in 1959/60 (tables 3 and 10). The largest increase in this period occurred from 1960/61 to 1961/62; imports totaled 10.0 million pounds in 1961/62, compared with 3.3 million pounds in 1960/61.

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1/ Imported fresh and dried mushrooms are not covered by this investigation. U.S. imports of fresh mushrooms have been negligible. During the period 1959/60 to 1963/64, imports of dried mushrooms averaged more than 800,000 pounds annually, which is equivalent to about 8 million pounds of fresh mushrooms.

In 1963/64, imports of canned mushrooms totaled 13.6 million pounds, which was 36 percent more than those in 1961/62. Imports during January-November 1964 amounted to 10.5 million pounds, compared with 13.0 million pounds in January-November 1963. The share of U.S. apparent consumption of canned mushrooms supplied by imports rose from 5 percent in 1959/60 to 24 percent in 1963/64 (table 6).

Major supplying countries.---Until recently France had been the largest supplier of canned mushrooms to the United States (table 10). In 1960/61 France supplied 48 percent of U.S. imports of canned mushrooms; Japan supplied 39 percent; and Taiwan, about 10 percent. By the following year, Taiwan had become the most important source. The imports from that country rose from 0.3 million pounds in 1960/61 to 5.3 million pounds in 1961/62, 7.6 million pounds in 1962/63, and 11.2 million pounds in 1963/64. In 1963/64 it supplied 82 percent of U.S. imports; France and Japan each supplied about 8 percent.

The Taiwan industry.---The mushroom-canning industry in Taiwan has expanded rapidly in recent years. The preponderant share of its output has been exported. The Taiwanese canners process a cultivated mushroom of the same type that is grown and canned in the United States and France. Canned mushrooms, first produced in Taiwan in 1958, achieved importance as an article of export within a few years. Mushroom canning is well adapted to Taiwan, where labor is plentiful and land is scarce. Mushrooms are cultivated during the winter months (December through March), generally in simple sheds made of bamboo and rice straw, by farmers who grow rice during the rest of the year. Most of the canneries that process mushrooms

also can other products, such as pineapple, bamboo shoots, and water chestnuts.

The U.S. Agency for International Development provided assistance to the Taiwanese mushroom industry in the early 1960's in the form of grants and loans of local currency (equivalent to US\$82,574) generated under U.S. economic aid programs. The stated purpose of the grants and loans was to assist in meeting local consumption requirements. The funds were used to assist in the development of mushroom-canning procedures and sanitary practices in growing, harvesting, and marketing mushrooms, and as loans to a Chinese farmers' organization for building facilities for growing and processing and for financing mushroom production. Chinese technicians supervised the development of both the production and processing of the mushrooms.

A trial export of canned mushrooms was made by the Taiwanese producers in 1958. By 1962 Taiwan had become the world's foremost exporter of canned mushrooms, and was shipping to 19 different countries; West Germany and the United States were its most important customers (table 11). During the 1961/62 season, 31 canneries were operating in Taiwan; the number had increased to 69 by 1962/63; in February 1964, 78 canners were processing mushrooms.

Because of the increasing importance of canned mushrooms in Taiwan's exports, the Government of Taiwan established a Committee on Canned Mushrooms under the Foreign Exchange and Trade Control Commission (FETCC). Each year this Government agency establishes a canned-mushroom-production goal (quota) after analyzing the world market and ascertaining the pro-

duction capacity of local growers and canners. To qualify as a producer for export, a cannery must pass sanitary and quality inspections. The older establishments are allocated the major part of the production quota, based on historical records of their production; a certain share is reserved, however, for newcomers. The production (export) goal increased from 650,000 standard cases 1/ in 1961/62 to 1 million standard cases in 1962/63.

In late 1963 the Taiwan Mushroom Packers United Export Corp. (TMPUEC) was established with the objective of stabilizing export prices and protecting the interests of foreign importers. The TMPUEC controls exports by allocating export shares among the individual packers in accordance with the aforementioned FETCC production allocations.

In October 1963, representatives of a group of American canners visited Taiwan in an attempt to persuade the TMPUEC to restrict its exports destined for the United States. They concluded an agreement with the TMPUEC for the purchase of approximately 70 percent (about 370,000 standard cases) 2/ of the 1963/64 export quota earmarked for the United States. The balance could be sold to other U.S. importers. Because of poor weather conditions, the occurrence of an earthquake, and the deterioration of growing facilities in Taiwan, the 1963/64 export goal, according to reports, would not be reached. Imports of canned mushrooms

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1/ A standard case is equivalent to twenty-four 16-ounce cans or 24 pounds drained weight per case.

2/ The export quota year for Taiwan covers the months of December through November; the 1963/64 quota for exports to the United States was 500,000-550,000 standard cases.

from Taiwan totaled 8.6 million pounds in January-November 1964, compared with 10.6 million pounds in January-November 1963.

In July 1964, representatives of six U.S. mushroom-canning companies<sup>1/</sup> visited Taiwan, urging the Chinese to establish a smaller export quota to the United States for 1964/65 and suggesting that the price of the Taiwanese product be raised. Their effort to have the quota lowered failed; no agreement was concluded at that time with the TMPUEC for 1964/65. Instead the Taiwanese reinstated the 1963/64 quota of 500,000-550,000 standard cases to be exported to the United States during the 1964/65 season. TMPUEC indicated that the 1964/65 prices for Taiwanese canned mushrooms had been increased by 2 percent.

Unit values and container sizes.---The average foreign value per pound of imported canned mushrooms (all sources) declined from 64 cents in 1959/60 and 1960/61 to 54 cents in 1961/62, to 53 cents in 1962/63, and to 51 cents in 1963/64 (table 10). A similar trend was reported in the unit value of sales of imported canned mushrooms by the importers; their average unit values declined from about 93 cents per pound in 1959/60 to 79 cents in 1960/61, to 78 cents in 1961/62, and to 67 cents in 1962/63, but increased to 71 cents in 1963/64. The decline in these average unit values reflected the increased importation of low-cost mushrooms from Taiwan. The foreign value of imports from Taiwan averaged 48 to 49 cents per pound in each of the years 1961/62 to 1963/64. During the period 1959/60 to 1963/64, the foreign value of canned mushrooms from France

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<sup>1/</sup> Brandywine Mushroom Corp., Delaware Mushroom Corp., Fred Mushroom Products Co., Kennett Canning Co., Keystone Mushroom Co., Inc., and Oxford Royal Mushroom Products, Inc.

averaged about 69 cents per pound; that of the Japanese product averaged 56 cents per pound.

Data reported to the Commission show that the average price received in February 1964 by U.S. canners for the most common type of canned mushrooms (4-ounce cans of stems and pieces) was the same as that received by importers, i.e., \$2.25 per dozen cans. For mushroom stems and pieces packed in 16-ounce cans, however, U.S. canners received an average of \$8.48 per dozen, whereas importers received \$7.49.

During the 5-year period 1959/60 to 1963/64 the share of U.S. imports of canned mushrooms entered in consumer-size packs increased, while the share entered in institutional sizes decreased (table 12). <sup>1/</sup> However, the actual quantities entered in both size categories increased. Before 1961/62 nearly three-fourths of the imports consisted of institutional sizes; the remainder were about evenly divided between the 8-ounce container size and the smaller container sizes for retail sales. In 1961/62 (when Taiwan became the major supplier) imports of canned mushrooms in institutional-size containers were about 4 million pounds greater than in the preceding year, and imports in consumer-size containers were about 2 million pounds greater. Thereafter, most of the increase in imports was accounted for by the consumer-size packs.

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<sup>1/</sup> Institutional size refers to the 16-ounce and the 68-ounce (No. 10) cans. Consumer size refers to containers of less than 8 ounces, which consist primarily of the 2-, 2-1/2-, and 4-ounce cans or jars. The 8-ounce size is sold to both institutional and retail outlets.

During 1963/64 the institutional- and consumer-size packs each accounted for somewhat less than half of U.S. imports, the remainder, about one-tenth, consisted of 8-ounce size containers. 1/

The domestic pack of canned mushrooms did not vary significantly by size of container during the 5-year period 1959/60 to 1963/64; it averaged about 60 percent in consumer-size containers, 27 percent in institutional sizes, and 13 percent in 8-ounce containers (table 12).

#### U.S. employment

Growing.--The data available to the Commission do not permit satisfactory estimates of the trend in employment by growers of mushrooms. The number of such growers is large. Many of their operations are family-type operations which do not lend themselves to meaningful reporting of man-hour and other employment data. A good many growers keep no records from which such data could be derived. About a third of the workers employed by growers other than canner-growers are members of the immediate families of the operators. 2/ The flexibility of family labor is especially important during the planting and harvesting seasons, when the bulk of the work is done.

The record of production in recent years provides the best available measure--albeit crude--of annual changes in the number of man-

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1/ Of the imports entered by the seven canner-importers during 1963/64, about two-thirds consisted of consumer sizes, a little more than one-quarter consisted of institutional sizes, and less than one-tenth were in 8-ounce containers.

2/ Including worker-owners.



hours afforded workers in recent years in the growing of mushrooms (table 5). Index numbers derived from the data already presented on the production of fresh mushrooms are presented below:

1959/60-----	100
1960/61-----	106
1961/62-----	118
1962/63-----	122
1963/64-----	121

At their best, these indexes reflect only the general trend in employment. Moderate improvements in production techniques have been made; the size of various growing operations have been increased; a substantial number of entries and withdrawals from the ranks of the growers have occurred; and the management of various concerns has been altered.

Data on the man-hours worked in mushroom-growing operations of canners are available for 19 firms (table 13). The annual man-hours worked by production and related workers in these growing operations increased by 14 percent from 1959/60 to 1960/61, and remained moderately stable from 1960/61 through 1963/64. The reported output of fresh mushrooms per man-hour increased each year from 1960/61 to 1963/64. Man-hours worked and output per man-hour in the mushroom-growing operations of the 19 canners are shown below:

<u>Crop year</u>	<u>Man-hours worked</u> <u>(1,000 hours)</u>	<u>Output per man-hour</u> <u>(Pounds, trimmed weight)</u>
1959/60-----	2,982	9.4
1960/61-----	3,408	8.7
1961/62-----	3,381	10.0
1962/63-----	3,517	10.7
1963/64-----	3,357	10.9

It is estimated that the number of workers engaged in the growing of mushrooms in the United States increased irregularly from an average of about 4,700 in the 1959/60 crop year to 5,100 in 1963/64 (table 14). About a third of the workers reported to have been engaged in the growing of mushrooms during these years were employed by the 23 canner-growers.

Canning.--Returns from the Commission's questionnaire were sufficiently complete to indicate for recent years the trend in employment in mushroom canning operations. The number of man-hours worked annually by the reporting concerns increased from 1960/61 to 1961/62 but declined thereafter (table 13); 10 percent fewer man-hours were worked in these canning operations in 1963/64 than in 1959/60, whereas production was 9 percent higher. The output per man-hour, on the other hand, was 22 percent higher.

In 1963/64 the canners reported that an average of 3,000 production and related workers were employed in all of their operations (canning and growing) compared with 3,800 in 1960/61 (table 13). About half of these workers were engaged in canning operations. The average number of production and related workers employed exclusively in the canning of mushrooms declined each year from 2,100 in 1960/61 to less than 1,600 in 1963/64. Much of the work in the canneries is done by women, who are employed in the late fall, winter, and spring only. During the slack season, however, most of the employees are men engaged in maintenance and shipping operations.

Prices received by U.S. growers and canners

Fresh mushrooms.---The most reliable measure of the trend in the prices received by U.S. growers of mushrooms is the wholesale price series published by the U.S. Department of Agriculture for the New York City market (table 15). Prices in this market, however, are higher than those received by most growers at the point of shipment.

The average annual wholesale price for fresh mushroom sold in New York City increased from 49 cents a pound in 1960 to 53 cents in 1961 but declined to 47 cents in 1963. Prices in January-November 1964 averaged 51 cents, compared with 47 cents in the corresponding period of 1963. Data obtained from the growers show that the average sales value of mushrooms sold in the fresh market declined from 39 cents a pound in 1959/60 to 35 cents in 1963/64 (table 16). In 1963/64 the average unit values of sales to fresh market ranged from 28 cents for Maryland growers to 59 cents for Illinois growers, and was 32 cents for Pennsylvania growers, who accounted for the bulk of U.S. sales.

The average unit values of growers' sales to canners were generally lower than the prices received in the fresh market. The canners, rather than the growers, generally trim the mushrooms to be canned, but in the past several years, an increasing share of the mushrooms sold to canners have been trimmed by the growers. Moreover, the bulk of the mushrooms to be canned are purchased during the main production season, when prices are lower than during the off season. Based on data reported to the Commission by the major canners, the average values

per pound of mushrooms purchased by the canners were as follows:

1959/60-----	\$0.29
1960/61-----	.32
1961/62-----	.30
1962/63-----	.26
1963/64-----	.26

The decline in the prices and average unit values shown above occurred during 1960/61 to 1962/63, when the domestic production of mushrooms increased from 115 million to 132 million pounds (fresh weight) and imports of canned mushrooms (fresh-weight basis) increased from 5 million pounds to 16 million pounds.

Canned mushrooms.--Prices received by U.S. canners for most types of canned mushrooms generally declined through the period 1960-64 (table 17). The average net selling prices, f.o.b. plant, received by U.S. canners for stems and pieces in 4-ounce cans declined by 14 percent from February 1960 to February 1964. Meanwhile, average prices of the higher valued whole, button, and sliced mushrooms declined by about 6 percent. Stems and pieces comprise the bulk of the mushrooms sold by U.S. canners; hence, the decline in such prices contributed materially to a general decline in the prices received by the canners for domestic canned mushrooms.

Prices of most domestically canned mushrooms increased in the fall of 1964 (table 18), partly because imports of canned mushrooms in July-October 1964 were 40 percent lower than in the comparable period in 1963. Nevertheless, prices of stems and pieces were generally somewhat lower in the fall of 1964 than in February 1960, before imports of Taiwan mushrooms entered in quantity. In November 1964

prices of most canned buttons and slices were appreciably higher than those in February 1960.

Profit-and-loss experience of domestic canners

Sixteen domestic concerns furnished the Commission with usable data on the profit-and-loss experience of their establishments in which canned mushrooms were produced. <sup>1/</sup> These 16 canners together accounted for about 65 percent of the estimated total domestic production of canned mushrooms during 1960-64.

The aggregate net sales of canned mushrooms (domestic and imported) and other products of the same establishments in which mushrooms were canned by 16 canners were \$28.0 million in 1960, \$28.2 million in 1961, \$32.8 million in 1962, \$31.8 million in 1963, and \$31.4 million in 1964 (table 19). The ratio of aggregate net operating profits to aggregate net sales for the same establishments was 5.7 percent for 1960, 5.6 percent for 1961, 5.2 percent for 1962, 5.3 percent for 1963, and 4.1 percent for 1964. Two canners reported net operating losses for 1960; one reported net operating losses for both 1961 and 1962; four reported net operating losses for 1963; and two reported net operating losses for 1964.

Most of the 16 mushroom canners that supplied data also produced products other than canned mushrooms. Such other products, mainly fresh mushrooms, accounted for approximately 10 percent of the aggre-

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<sup>1/</sup> Each canner furnished data for its last 5 accounting years. The accounting years for 15 of the canners ended on various dates (from Mar. 31 to Sept. 30) in the year shown in the text; the accounting year for 1 canner ended on Dec. 31 of the year preceding the year shown.

gate value of net sales by the 16 canners (establishments) in each of the 5 years under review. Of the 16 canners, 14 own or rent their own facilities for growing mushrooms. The profit-and-loss data shown above are for the combined growing and canning operations of these establishments.

During the crop year 1962/63, 2 of the 16 domestic producers of canned mushrooms for which data were given above began importing canned mushrooms; 4 more of them commenced importing canned mushrooms during the crop year 1963/64. Sales of the imported canned mushrooms by the 6 canners in their accounting years ending in 1963 were insignificant, but such sales accounted for approximately 16 percent of the aggregate value of their total net sales in their accounting years ending in 1964. The sales of imported canned mushrooms are included in the aggregate profit-and-loss data shown above. Considered as a group, these 6 canners reported combined profits of 4.8 percent of net sales in 1960; 5.1 percent in 1961; 5.5 percent in 1962; 3.6 percent in 1963; and 2.0 percent in 1964. The other 10 of the 16 canners imported no canned mushrooms during the years under review; their aggregate profits as a percent of aggregate net sales were 6.5 percent in 1960; 5.9 percent in 1961; 5.0 percent in 1962; 6.6 percent in 1963; and 6.0 percent in 1964.

## Appendix

Table 1.--Mushrooms, fresh, dried, or otherwise prepared or preserved:  
U.S. rates of duty in the Tariff Schedules of the United States (TSUS),  
effective Aug. 31, 1963

TSUS No.	Description	Rate of duty <u>1/</u>	
		1	2
	Mushrooms:		
144.10	Fresh-----	5¢ per lb. + 25% ad valorem.	10¢ per lb. + 45% ad valorem.
144.12	Dried-----	4¢ per lb. + 20% ad valorem.	10¢ per lb. + 45% ad valorem.
144.20	Otherwise prepared or preserved-----	3.2¢ per lb. <u>2/</u> + 10% ad valorem	10¢ per lb. <u>2/</u> + 45% ad valorem.

1/ The rates in col. 1 apply to all products except (a) Philippine articles, which receive preferential treatment, (b) products of most Communist-controlled countries, which are dutiable at the rates shown in col. 2, and (c) certain products of insular possessions. Imported mushrooms which are "Philippine articles" are currently subject to a rate equivalent to 40 percent of the rates shown in col. 1. For the period 1968 through 1970 the rate will be equivalent to 60 percent; for the period 1971 through 1973 the rate will be equivalent to 80 percent; and thereafter the rate will be 100 percent of the rates shown in col. 1.

2/ Drained weight.



Table 2.--Mushrooms, prepared or preserved except dried: U.S. rates of duty under the Tariff Act of 1930, June 18, 1930-Aug. 30, 1963

Tariff paragraph and description	Statutory rate effective June 18, 1930	Trade-agreement modification	
		Rate	Effective date
Par. 768:			
Mushrooms, otherwise	10¢ per lb. +	8¢ per lb. <u>1</u> / +	June 1936.
prepared or pre-	45% ad val.	25% ad val.	
served.		5¢ per lb. <u>1</u> / +	January 1948.
		15% ad val.	
		4¢ per lb. <u>1</u> / +	June 1951.
		12.5% ad val.	
		3.6¢ per lb. <u>1</u> / +	July 1962.
		11.0% ad val.	
		3.2¢ per lb. <u>1</u> / +	July 1963.
		10% ad val.	
<u>1</u> / Drained weight.			

Table 3.--Mushrooms, canned: U.S. rates of duty and imports for consumption, calendar years 1930-59, crop years 1959/60 to 1963/64

Period	Rate of duty	Average ad valorem equivalent	Imports	
			Quantity (drained weight)	Foreign value
		Percent	1,000 pounds	1,000 dollars
1930:				
Jan. 1-June 17-----	45 percent	45.0	3,834	1,016
June 18-Dec. 31-----	10¢ per lb. + 45%	80.6	1,143	321
Total 1930-----			4,977	1,337
1931-----	10¢ per lb. + 45%	81.4	2,773	761
1932-----	-----do-----	86.5	1,982	478
1933-----	-----do-----	84.8	1,417	356
1934-----	-----do-----	77.4	820	253
1935-----	-----do-----	76.6	560	177
1936:				
Jan. 1-June 14-----	-----do-----	76.7	146	46
June 15-Dec. 31-----	8¢ per lb. + 25%	50.5	316	99
Total 1936-----			462	145
1937-----	8¢ per lb. + 25%	53.7	999	278
1938-----	-----do-----	59.6	890	206
1939-----	-----do-----	63.5	890	185
1940-----	-----do-----	57.9	419	102
1941-----	-----do-----	50.3	38	12
1942-----	-----do-----	49.0	9	3
1943-----	-----do-----	39.9	1/	2/
1944-----	-----do-----	36.4	1/	2/
1945-----	-----do-----	36.5	23	16
1946-----	-----do-----	32.3	11	12
1947-----	-----do-----	30.7	5	7
1948-----	5¢ per lb. + 15%	23.5	159	94
1949-----	-----do-----	23.4	380	225
1950-----	-----do-----	23.4	337	200
1951:				
Jan. 1-June 5-----	-----do-----	22.9	156	99
June 6-Dec. 31-----	4¢ per lb. + 12½%	19.5	277	158
Total 1951-----			433	257
1952-----	4¢ per lb. + 12½%	19.2	955	570
1953-----	-----do-----	19.7	1,718	959
1954-----	-----do-----	20.0	2,572	1,378
1955-----	-----do-----	19.9	2,039	1,105
1956-----	-----do-----	19.2	2,040	1,220
1957-----	-----do-----	18.4	2,071	1,407
1958-----	-----do-----	18.9	2,501	1,567
1959-----	-----do-----	19.1	2,323	1,415
Crop years (July 1-June 30):				
1959/60-----	-----do-----	18.8	2,237	1,430
1960/61-----	-----do-----	18.8	3,265	2,087
1961/62 3/-----	-----do-----	20.0	10,013	5,367
1962/63 3/-----	3.6¢ per lb. + 11%	17.8	10,499	5,520
1963/64 3/-----	3.2¢ per lb. + 10%	16.2	13,555	6,949

1/ Less than 500 pounds. 2/ Less than \$500. 3/ Preliminary.

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

Table 4.--Mushrooms, fresh: Percentage distribution of sales by 522 growers and 23 canner-growers in the United States, crop years 1959/60 to 1963/64

Outlet	Crop year (July 1-June 30)				
	1959/60	1960/61	1961/62	1962/63	1963/64
Sales of 522 growers to--					
Fresh market-----	39	37	39	41	43
Canneries-----	35	35	37	34	31
Other <u>1</u> /-----	26	28	24	25	26
Total-----	100	100	100	100	100
Sales (or transfers) of 23 canner-growers to--					
Fresh market-----	11	10	12	12	12
Canneries <u>2</u> /-----	86	87	86	86	83
Other <u>1</u> /-----	3	3	2	2	5
Total-----	100	100	100	100	100
Sales (or transfers) of 522 growers and 23 canner-growers to--					
Fresh market-----	29	28	29	30	32
Canneries <u>2</u> /-----	54	53	55	53	49
Other <u>1</u> /-----	17	19	16	17	19
Total-----	100	100	100	100	100

1/ Includes sales to soup makers and limited sales to freezers and others.

2/ Sales to canneries include transfers from canners' growing operations to their canneries.

Source: Compiled from data supplied the U.S. Tariff Commission by domestic growers and canner-growers.

Table 5.--Mushrooms: U.S. production, imports for consumption, and apparent consumption, crop years 1959/60 to 1963/64

(In millions of pounds, fresh-trimmed-weight equivalent)

Crop year (July 1-June 30)	Production <u>1/</u>	Imports		Apparent consump- tion <u>4/</u>
		Canned <u>2/</u>	Dried <u>3/</u>	
1959/60	108	3	8	119
1960/61	115	5	8	128
1961/62	127	15	9	151
1962/63	132	16	8	<u>5/</u> 157
1963/64	131	21	8	160

1/ Partly estimated (see table 8).

2/ Imports of mushrooms prepared or preserved (except dried) converted to fresh-weight equivalent on the basis of 1 pound of drained weight to 1.538 pounds of fresh weight.

3/ Imports of dried mushrooms converted to fresh-weight equivalent on the basis of 1 pound of dried weight to 10 pounds of fresh weight.

4/ Production of fresh mushrooms plus fresh-weight equivalent of imported mushrooms.

5/ Because of rounding, figures do not add to the total shown.

Source: Imports compiled from official statistics of the U.S. Department of Commerce; production compiled from data supplied the U.S. Tariff Commission by domestic growers and canner-growers.

Note.--Imports of fresh mushrooms have been negligible; exports are believed to have consisted of small quantities of canned mushrooms to Canada; exports of fresh or dried mushrooms are believed to have been nil.

Table 6.--Mushrooms, prepared or preserved, except dried: Sales of U.S. product, U.S. imports for consumption, and apparent consumption, crop years 1959/60 to 1963/64

(Quantity shown in drained weight)				
Crop year (July 1-June 30)	Sales of U.S. product <sup>1/</sup>	Imports	Apparent consumption <sup>2/</sup>	Ratio of imports to consumption
	<u>Million</u> <u>pounds</u>	<u>Million</u> <u>pounds</u>	<u>Million</u> <u>pounds</u>	<u>Percent</u>
1959/60-----	41	2	43	5
1960/61-----	41	3	44	7
1961/62-----	43	10	53	19
1962/63-----	44	10	54	19
1963/64-----	43	14	<sup>3/</sup> 56	<sup>3/</sup> 24

<sup>1/</sup> Represents the sales of mushrooms canned in airtight containers containing 50 percent or more of mushrooms by weight; partly estimated (see table 7).

<sup>2/</sup> Sales of U.S. product plus imports.

<sup>3/</sup> Calculated from the unrounded figures.

Source: Sales of U.S. product compiled from data supplied the U.S. Tariff Commission by domestic canners; imports compiled from official statistics of the U.S. Department of Commerce.

Note.--Exports are not separately reported. Canadian statistics indicate that imports of canned mushrooms from the United States declined from 373,000 pounds in the calendar year 1959 to 11,000 pounds in 1963; U.S. exports to other countries have probably been negligible.

Table 7.--Mushrooms, canned: U.S. production and sales of domestically canned mushrooms, crop years 1959/60 to 1963/64

(In millions of pounds, drained weight)

Item	Crop year (July 1-June 30)				
	1959/60	1960/61	1961/62	1962/63	1963/64
Production:					
Reported by 30 firms <u>1</u> /--:	37	40	45	43	41
Estimated for 4 firms <u>2</u> /-:	3	1	1	1	-
Total, all firms-----:	40	41	46	44	41
Sales:					
Reported by 30 firms <u>1</u> /3/:	39	40	42	43	43
Estimated for 4 firms <u>2</u> /-:	3	1	1	1	-
Total, all firms-----:	4/ 41	41	43	44	43

1/ Includes 1 firm that ceased operations in August 1963; this firm resumed operations in April 1964 under new ownership.

2/ Each of these firms ceased operations at sometime within the 5-year period and did not supply usable data. Estimates were prepared for these firms from information obtained by the staff of the Tariff Commission.

3/ 5 firms did not supply sales data. The sales by these firms were considered to be the same as their reported production. The combined production of the 5 accounted for less than 3 percent of the estimated U.S. production for the 5-year period.

4/ Because of rounding, figures do not add to the total shown.

Source: Compiled from data supplied the U.S. Tariff Commission by domestic canners, except as noted.

Table 8.--Mushrooms, fresh: U.S. production (partly estimated), by categories of growers, crop years 1959/60 to 1963/64

		(In millions of pounds, trimmed weight)				
Number of growers:	Category of growers	Crop year (July 1-June 30)				
		1959/60	1960/61	1961/62	1962/63	1963/64
522	Growers (except canner-growers) that supplied usable data----	61	67	74	78	79
23	Canner-growers that supplied usable data----	37	38	43	44	42
160	Growers for which usable data were not available 1/----	10	10	10	10	10
	Total, 705 growers and canner- growers----	108	115	127	132	131

1/ Based on fieldwork and on other information obtained by the Commission's staff, it is estimated that about 160 growers produced some mushrooms in one or more of the years shown and that their total output approximated 10 million pounds per year.

Source: Compiled from data supplied the U.S. Tariff Commission by domestic growers and canner-growers, and estimates made by the Commission's staff.

Table 9.--Mushrooms, canned: June 30 inventories of U.S. product reported by 7 canner-importers and 16 other canners, 1959-64 <sup>1/</sup>

(In millions of pounds, drained weight)

Item	June 30--					
	1959	1960	1961	1962	1963	1964
Inventories reported by--						
7 canner-importers-----	7.3	6.9	7.2	8.8	8.3	6.4
16 other canners-----	4.5	4.2	4.4	6.4	7.8	8.4
Total of 23 firms-----	11.8	11.1	11.6	15.2	16.1	14.8

<sup>1/</sup> 7 domestic canners reported either that they held no inventory of canned mushrooms or that records were not available; these firms accounted for about 10 percent of the total estimated production in 1963/64.

Source: Compiled from data supplied the U.S. Tariff Commission by domestic canners.



Table 10.--Mushrooms, canned: U.S. imports for consumption, by principal sources, crop years 1959/60 to 1963/64

Country	Crop year (July 1-June 30)				
	1959/60	1960/61	1961/62 <sup>1/</sup>	1962/63 <sup>1/</sup>	1963/64 <sup>1/</sup>
	Quantity (1,000 pounds, drained weight)				
Taiwan-----	-	317	5,331	7,630	11,180
France-----	1,560	1,564	1,773	1,100	1,118
Japan-----	597	1,288	2,758	1,665	1,057
Switzerland----	15	32	24	34	22
Italy-----	22	6	23	12	15
West Germany----	21	15	27	17	14
All other-----	22	43	2/ 77	41	3/ 149
Total-----	2,237	3,265	10,013	10,499	13,555
	Foreign value (1,000 dollars)				
Taiwan-----	-	167	2,534	3,733	5,468
France-----	978	1,088	1,200	813	798
Japan-----	387	753	1,518	888	543
Switzerland----	18	30	23	37	28
Italy-----	16	6	22	10	17
West Germany----	14	16	25	16	16
All other-----	17	27	2/ 45	23	3/ 79
Total-----	1,430	2,087	5,367	5,520	6,949
	Unit value <sup>4/</sup>				
Taiwan-----	-	\$0.53	\$0.48	\$0.49	\$0.49
France-----	\$0.63	.70	.68	.74	.71
Japan-----	.65	.58	.55	.53	.51
Switzerland----	1.25	.96	.96	1.10	1.27
Italy-----	.71	.95	.93	.85	1.09
West Germany----	.67	1.04	.92	.93	1.16
All other-----	.78	.61	.59	.58	.54
Total-----	.64	.64	.54	.53	.51

<sup>1/</sup> Preliminary.

<sup>2/</sup> Includes 41 thousand pounds, valued at 22 thousand dollars, reported from Hong Kong.

<sup>3/</sup> Includes 59 thousand pounds, valued at 29 thousand dollars, reported from Canada.

<sup>4/</sup> Calculated from the unrounded figures.

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

Table 11.--Mushrooms, canned: Taiwan exports, by selected countries, 1960-63

(In thousands of pounds)				
Country	1960	1961	1962	1963
West Germany-----	-	2,474	12,236	25,706
United States-----	-	1,177	10,353	17,544
Netherlands-----	-	454	1,254	3,523
Sweden-----	-	-	9	842
Belgium-----	-	7	104	615
Canada-----	-	15	161	317
Great Britain-----	-	9	33	68
All other-----	20	857	1,395	1,097
Total-----	20	4,993	25,545	49,712

Source: Compiled from The Trade of China, a publication of the Statistical Department, Inspectorate General of Customs, Taipei, Taiwan.

Note.--Data were reported in kilograms and converted to pounds. Data reported are believed to be gross weight.

Table 12.--Mushrooms, canned: Percentage distribution of U.S. sales of domestic and imported product, by 23 canners and 33 importers, by size of container, crop years 1959/60 to 1963/64

Item	Crop year (July 1-June 30)				
	1959/60	1960/61	1961/62	1962/63	1963/64
Sales of domestic product reported by 23 canners: <sup>1/</sup>					
Consumer sizes <sup>2/--</sup>	62	61	59	63	57
Institutional sizes <sup>3/-----</sup>	26	26	28	25	30
Other <sup>4/-----</sup>	12	13	13	12	13
Total-----	100	100	100	100	100
Sales of imported product reported by 33 importers: <sup>5/</sup>					
Consumer sizes <sup>2/--</sup>	11	15	25	33	44
Institutional sizes <sup>3/-----</sup>	73	73	65	57	47
Other <sup>4/-----</sup>	16	12	10	10	9
Total-----	100	100	100	100	100

<sup>1/</sup> The share of total estimated sales of domestic product accounted for by these firms increased from about 80 percent in 1959/60 to 90 percent in 1963/64.

<sup>2/</sup> Consumer sizes consist of containers holding less than 8 ounces.

<sup>3/</sup> Institutional sizes consist of 16-ounce and No. 10 (68 ounce) sizes.

<sup>4/</sup> "Other" refers to the 8-ounce size, which is sold to both institutional and retail outlets.

<sup>5/</sup> The share of total U.S. imports of canned mushrooms entered by these importers (including 7 domestic canners) ranged from 32 percent in 1959/60 to 68 percent in 1963/64.

Source: Compiled from information supplied the U.S. Tariff Commission by domestic canners and importers.

Table 13 --Number of employees, 1/ man-hours worked by production and related workers, and output of 27 U.S. mushroom canners, 2/ crop years 1959/60 to 1963/64

Item	Crop year (July 1-June 30)				
	1959/60	1960/61	1961/62	1962/63	1963/64
Average number of workers employed:					
All persons-----	3,950	4,154	4,090	3,659	3,345
Production and related workers engaged in--					
Growing operations-----	1,682	1,728	1,736	1,648	1,452
Canning operations-----	1,933	2,098	2,045	1,703	1,578
Total-----	3,615	3,826	3,781	3,351	3,030
Man-hours worked by production and related workers engaged in--					
Growing operations					
1,000 hours--	2,982	3,408	3,381	3,517	3,357
Canning operations					
1,000 hours--	2,712	2,612	2,966	2,658	2,439
Total-----do-----	5,694	6,020	6,347	6,175	5,796
Output of fresh mushrooms:					
Total-----1,000 pounds, trimmed weight--	28,189	29,566	33,848	37,497	36,585
Per man-hour-----pounds--	9.4	8.7	10.0	10.7	10.9
Output of canned mushrooms:					
Total-----1,000 pounds, drained weight--	31,280	33,463	37,181	35,470	34,076
Per man-hour-----pounds--	11.5	12.8	12.5	13.3	14.0

1/ The annual average of the number employed on the 15th of each month.

2/ Data on the number of workers in growing operations are for 23 firms. Data on man-hours worked in growing operations and on output of fresh mushrooms are for 19 firms. The data on man-hours worked in canning operations and on output of canned mushrooms are for 22 firms.

Source: Compiled from data supplied the U.S. Tariff Commission by domestic canners.

Table 14.--Number (partly estimated) of U.S. production and related workers employed in the growing of mushrooms, crop years 1959/60 to 1963/64 <sup>1/</sup>

Number of growers	Category of growers	Crop year (July 1-June 30)				
		1959/60	1960/61	1961/62	1962/63	1963/64
522	Growers (except canner-					
	growers) that sup-					
	plied usable data---	2,566	2,724	2,998	3,166	3,234
23	Canner-growers that					
	supplied usable data	1,682	1,728	1,736	1,648	1,452
<sup>2/</sup> 160	Growers for which					
	usable data were not					
	available <sup>2/</sup> -----	410	410	410	410	410
	Total, 705 grow-					
	ers and canner-					
	growers-----	4,658	4,862	5,144	5,224	5,096

<sup>1/</sup> The annual average of the number employed on the 15th of each month.

<sup>2/</sup> Estimated.

Source: Compiled from data supplied the U.S. Tariff Commission by growers and canner-growers, and estimates by the Commission's staff.

Table 15.--Mushrooms, fresh: Wholesale prices <sup>1/</sup> in New York City of a 3-pound basket, by months, January 1960-November 1964

Month	1960	1961	1962	1963	1964
January-----	\$1.30	\$1.46	\$1.49	\$1.26	\$1.28
February-----	1.32	1.54	1.52	1.26	1.35
March-----	1.30	1.59	1.56	1.32	1.43
April-----	1.29	1.55	1.45	1.35	1.31
May-----	1.40	1.61	1.52	1.41	1.48
June-----	1.60	1.58	1.58	1.44	1.62
July-----	1.78	1.67	1.75	1.60	1.86
August-----	1.83	1.76	2.00	1.49	1.92
September-----	1.62	1.66	1.44	1.60	1.60
October-----	1.51	1.50	1.33	1.43	1.48
November-----	1.35	1.51	1.45	1.36	1.50
December-----	1.48	1.54	1.31	1.42	2/
Average per					
3-pound basket-	1.48	1.58	1.53	1.41	3/1.53
Average per pound	.49	.53	.51	.47	3/.51

<sup>1/</sup> The prices quoted represent monthly average prices calculated by the U.S. Department of Agriculture from the midpoints of Tuesdays' prices for mushrooms of generally good quality and condition.

<sup>2/</sup> Not available.

<sup>3/</sup> 11-month average.

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

Table 16.--Mushrooms, fresh: Sales reported by U.S. growers other than canner-growers, selected States and all States, by outlets, crop years 1959/60 to 1963/64 <sup>1/</sup>

State and crop year	Volume of sales reported <sup>2/</sup>	Unit value			
		Fresh market	Canneries	Soup- makers	All other
	<u>1,000 pounds, trimmed weight</u>	<u>Per pound</u>	<u>Per pound</u>	<u>Per pound</u>	<u>Per pound</u>
Selected States:					
Pennsylvania:					
1959/60-----	43,041	\$0.36	\$0.29	\$0.31	\$0.22
1960/61-----	45,728	.36	.30	.33	.22
1961/62-----	50,362	.34	.28	.32	.29
1962/63-----	53,888	.32	.26	.31	.25
1963/64-----	50,583	.32	.28	.30	.26
California:					
1959/60-----	4,825	.56	.39	.26	-
1960/61-----	5,446	.52	.36	.25	-
1961/62-----	6,260	.52	.34	.26	-
1962/63-----	6,737	.51	.33	.26	-
1963/64-----	7,203	.53	.34	.26	.45
Illinois:					
1959/60-----	4,138	.44	.36	.32	.31
1960/61-----	5,357	.44	.36	.28	.34
1961/62-----	4,815	.44	.37	.30	.30
1962/63-----	4,364	.49	.39	.33	.38
1963/64-----	4,586	.59	-	.36	-
Maryland:					
1959/60-----	416	.34	.33	-	-
1960/61-----	634	.33	.27	-	-
1961/62-----	875	.32	.28	-	-
1962/63-----	1,037	.29	.27	-	-
1963/64-----	869	.28	.24	-	-
All States:					
1959/60-----	54,820	.39	.30	.30	.23
1960/61-----	59,626	.39	.30	.30	.23
1961/62-----	66,282	.36	.29	.30	.30
1962/63-----	69,348	.35	.26	.30	.25
1963/64-----	66,472	.35	.28	.31	.27

<sup>1/</sup> Sales in 1963/64 are for 40 fewer growers than in other years.

<sup>2/</sup> Includes data only for growers that reported sales by type of outlet; these growers accounted for about 90 percent of the total sales.

Source: Compiled from data supplied the U.S. Tariff Commission by domestic growers.

Table 17.--Mushrooms, canned: Indexes of net selling prices received by U.S. canners, f.o.b. point of shipment, by style of pack and size of container, during February 1960-64 <sup>1/</sup>

(February 1960=100)

Date	Stems and pieces		Whole or buttons		Sliced whole	
	4 oz.	16 oz.	4 oz.	16 oz.	4 oz.	16 oz.
February 1960---	100	100	100	100	100	100
February 1961---	97	99	99	99	98	100
February 1962---	98	98	99	98	100	101
February 1963---	89	92	95	96	96	98
February 1964---	86	89	93	94	94	93

<sup>1/</sup> These indexes are the arithmetic means of price relatives.

Source: Compiled from data supplied the U.S. Tariff Commission by domestic canners.



Table 18.--Mushrooms, canned: Prices per case <sup>1/</sup> for domestic product, by size of can and style of pack, selected months, 1959-64

Date	Number of cans per case and size of can				
	2 1/2-oz.	2 1/4-oz.	2 1/8-oz.	2 1/16-oz.	6/68-oz.
	Stems and pieces				
February 1959---	\$2.58	\$4.62	\$8.88	\$16.70	\$16.88
February 1960---	2.71	4.86	9.35	17.58	17.26
February 1961---	2.81	5.14	9.91	18.33	18.84
February 1962---	2.63	4.85	8.93	17.34	18.70
February 1963---	2.50	4.60	8.48	16.47	17.76
September 1963--	2.50	4.60	8.48	16.47	17.76
February 1964---	2.43	4.30	8.42	15.99	15.15
May 1964-----	2.40	4.30	8.40	15.90	15.12
September 1964--	2.50	4.30	8.91	17.82	17.82
November 1964---	2.50	4.30	8.91	17.82	15.59
	Whole or buttons				
February 1959---	\$3.73	\$6.40	\$11.99	\$22.92	\$23.54
February 1960---	3.93	6.73	12.62	24.12	24.78
February 1961---	3.93	6.73	12.62	24.12	24.78
February 1962---	3.57	6.37	12.33	23.80	23.38
February 1963---	3.39	6.06	11.71	22.61	22.21
September 1963--	3.39	6.06	11.71	22.61	22.21
February 1964---	3.37	5.98	11.69	22.25	20.20
May 1964-----	3.27	5.84	11.48	21.97	19.97
September 1964--	3.80	7.20	14.36	27.72	27.22
November 1964---	3.80	7.20	14.36	27.72	27.22
	Slices				
February 1959---	\$3.38	\$6.04	\$11.37	\$21.58	\$21.76
February 1960---	3.55	6.36	11.97	22.72	22.91
February 1961---	3.55	6.36	11.97	22.72	22.91
February 1962---	3.23	6.12	11.90	22.10	21.25
February 1963---	3.07	5.81	11.31	21.00	20.19
September 1963--	3.07	5.81	11.31	20.99	20.18
February 1964---	3.18	5.81	10.94	20.94	19.36
May 1964-----	3.07	5.64	10.79	20.69	19.16
September 1964--	3.76	7.00	13.86	25.74	23.50
November 1964---	3.76	7.00	13.86	25.74	23.50

<sup>1/</sup> Lowest prices at which canned mushrooms were readily available to wholesalers, net of trade discounts.

Source: Biddle Purchasing Co.

Table 19.--Profit-and-loss experience before income taxes, reported for 16 U.S. canners of mushrooms, accounting years ending in 1960-64 <sup>1/</sup>

Item	Accounting years ending in--				
	1960	1961 <sup>2/</sup>	1962	1963	1964
Percent of estimated total U.S. production of canned mushrooms accounted for by reporting canners-----	62	66	65	64	63
Net sales-----1,000 dollars--	27,979	28,182	32,791	31,775	31,395
Net operating profit-----do-----	1,586	1,565	1,712	1,672	1,295
Ratio (percent) of net operating profit to net sales-----	5.7	5.6	5.2	5.3	4.1

<sup>1/</sup> Data shown are for the overall operations of the reporting establishments; canned mushrooms accounted for approximately 90 percent of the total sales shown for the accounting years ending in 1963. The accounting years for 15 of the canners ended on various dates (from Mar. 31 to Sept. 30) in the years shown; the accounting year for 1 canner ended on Dec. 31 preceding the years shown.

<sup>2/</sup> Data for 1 large canner are for 5 months only owing to a change in his accounting year from a year ending Oct. 30 to one ending Mar. 31.

Source: Compiled from information supplied the U.S. Tariff Commission by domestic canners.



