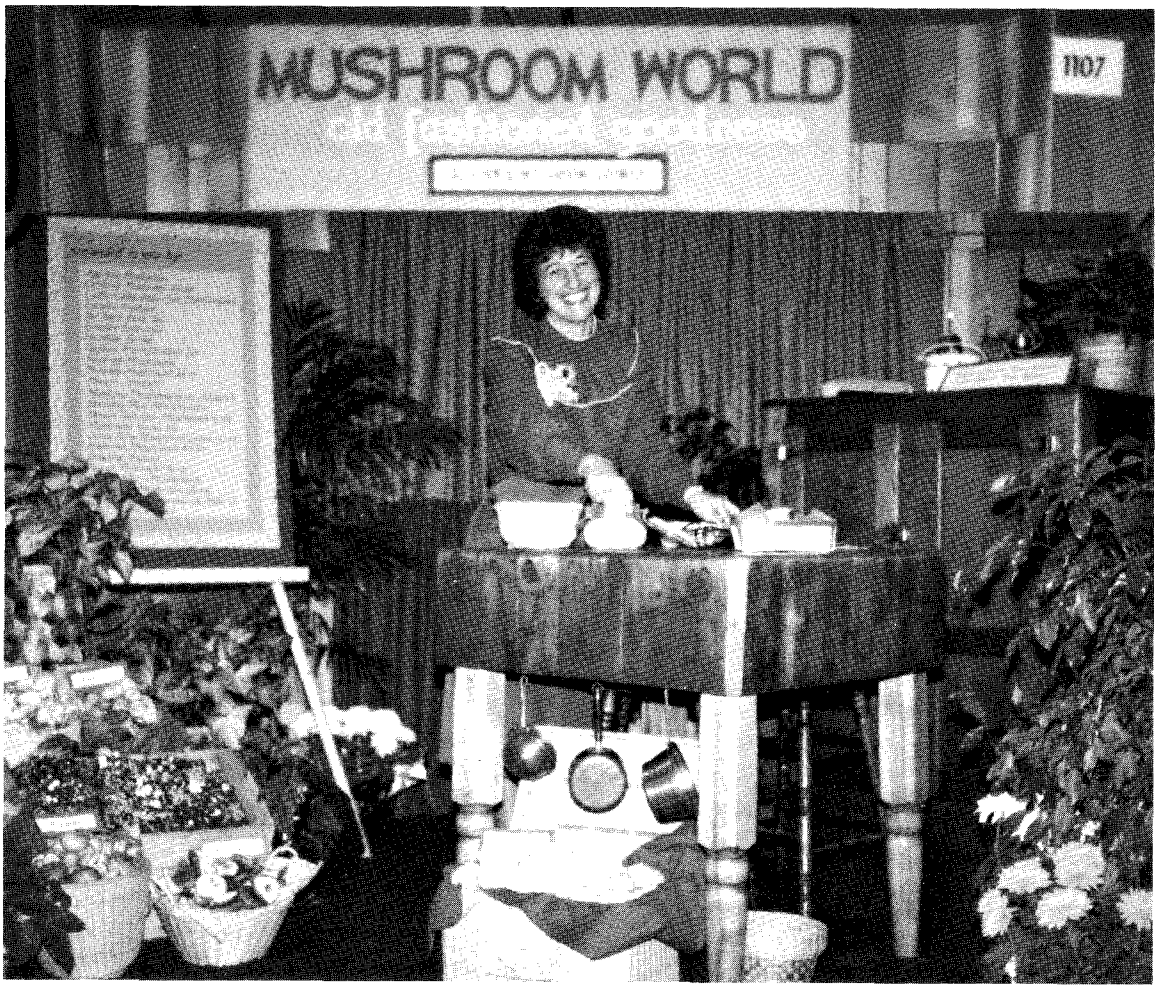
AMERICAN MUSHROOM INSTITUTE May, 1983

MUSHROOM NEWS

Vol. 31—No. 4



MUSHROOM WORLD

Old Fashioned Goodness

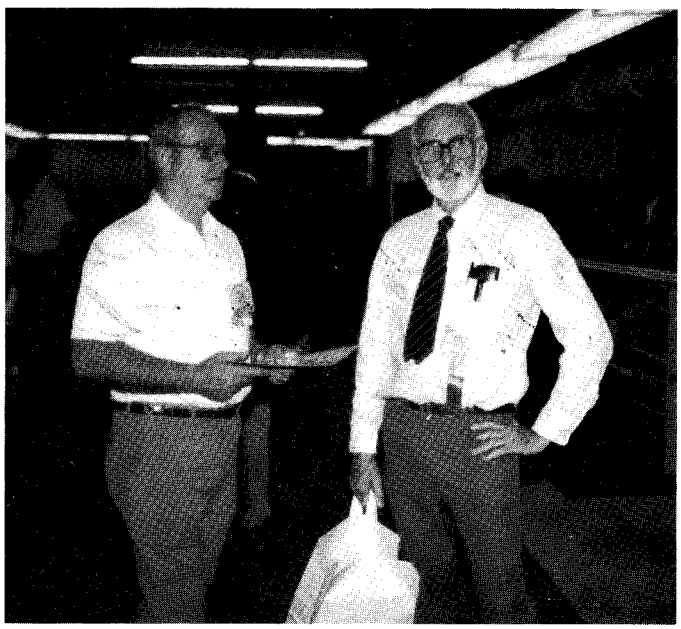
Susan Peterson of Oxnard, Calif., coordinator for the California Mushroom Growers promoting mushrooms at the "Mushroom World—Old Fashioned Goodness" booth at the United Fresh Fruit and Vegetable Association Annual Convention and Exposition in Anaheim, Calif. *(Story and more photographs on inside cover).*

Report on Mushroom World

The California Mushroom Growers sponsored an exhibition of mushrooms at the United Fresh Fruit and Vegetable Association's annual Convention and Exposition in Anaheim, California, at the Disneyland Hotel, February 20-22nd. There were over 5500 attendees to the convention and the California Mushroom Growers' booth, "Mushroom World", was one of more than 300 exhibitors. The theme of the booth was Mushroom World—Old Fashioned Goodness and was coordinated by Susan Peterson of Oxnard, Calif.

The booth provided an excellent opportunity for promoting mushrooms and for educating the public in the availability and handling of fresh mushrooms. Samples of the various varieties of mushrooms that are available in California were displayed. Tips were given on proper handling, ordering, storage, rotation and display of fresh mushrooms, as well as consumer information concerning buying, storage, preparation, and nutritional value of fresh mushrooms.

There were many who contributed to the success of this booth.



Dick Skillicorn of Springfield Mushrooms, Calif., and Archie Bard of Del Norte Foods, Oxnard, Calif., discuss the Expo.

Some of the helpers at the booth (left to right): Linda and David Cerini of Petaluma Mushroom Farm, Calif. Susan Peterson, Oxnard Calif., booth coordinator, Terry & Bill Manfredi, Manfredi Mushrooms, Kennett Square, Penna., Ken Leach, Monterey Mushrooms Inc., Calif., Dick Skillicorn, Springfield Mushrooms, Calif.

Three examples of other booths at the United Fresh Fruit and Vegetable Exposition. From left to right: Washington State Apples, California Iceberg Lettuce and Dole (Castle & Cooke) fruits and vegetables.

Serving the U.S. mushroom industry *Vol. 31—No. 4*

MUSHROOM NEWS

American Mushroom Institute
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MUSHROOM NEWS

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Letters to the editor—The *Mushroom News* welcomes letters to the editor from its readers on subjects of interest to the mushroom industry. All contributions to this department must bear the writer's signature and address, and should be sent to Letters to the Editor, The American Mushroom Institute, 907 East Baltimore Pike, Kennett Square, PA 19348.

PRESIDENT'S CORNER

Is A.M.I. At a Crossroads?

AMI, it is 28 years old. Mushroom growers organized it to promote their product and for research. From then til now, AMI has served the growers in many other ways. I must add "quite well."

Today, is AMI at a crossroads? Do we need direction? A newly organized committee, the Up-Date Committee, was formed to try to come up with these answers. We had a meeting with another trade organization to compare notes. After several meetings, our committee felt, with our members having limited time to spend on these problems, to seek outside help. Several consulting firms were considered and we decided on Lawrence-Leiter and Company of Kansas City, Missouri, as they came highly recommended.

We are looking forward to the results of this study and will keep you informed.

Joe Versagli

Joe Versagli

Welcome to the AMI

ASSOCIATE MEMBERS

Barney's Tire & Automotive
719 W. Cypress Street
Kennett Square, PA 19348

Brandywine Group—Murray Eight Agency
845 West Chester Pike
West Chester, PA 19380

Marlboro Hauling, Inc.
200 Upland Road
West Grove, PA 19390

Hudson Farms, Inc.
P.O. Box 487
Avondale, PA 19311

State Equipment Division of Secorp National Inc.
Route 309, P.O. Box 356
Montgomeryville, PA 18936

Sue-perior Mushroom Company
P.O. Box 445
Clementon, NJ 08021

The Triad Group, Inc.
1720 Mt. Vernon Road
P.O. Box 888667
Atlanta, GA 30356

GROWER MEMBERS

Faust Bio-Agricultural Services, Inc.
Route 1
Filer, ID 83328

P.E.K. Associates
R.D. #1
Shushmn, NY 12873

Capo Di Monte Farm
5016 Sawdey Road
Horseheads, NY 14845

Greenhill Farms
P.O. Box 826
Avondale, PA 19311

Diamond Mushrooms
423 Ellicott Avenue
Avondale, PA 19311

AMI Mailing Address Change

We now have our own mailbox at the office.

NEW ADDRESS:

907 East Baltimore Pike
Kennett Square, PA 19348

Historical Preview and Outlook for the Mushroom Industry for Bank Management

(Excerpts taken from THE MUSHROOM INDUSTRY RESEARCH, March '83. A report prepared by Paul R. Maihan, assistant Vice President Research/Planning Farm Credit Banks of Baltimore, MD).

The objective of this report is to review the current status of the mushroom industry throughout the Pennsylvania area in terms of its financial health, past and present developments affecting the industry, as well as to estimate the likely direction of the industry in the next few years. This analysis was undertaken at the request of Operations since some indicators suggest that the industry is extremely weak, potentially impacting credit quality for those associations financing mushroom production. Background information is supplied on the overall structure of the industry, production in and outside of Pennsylvania, the import problem, consumption and demand, production costs, and assessment about where the industry is going. The following highlights information found in the main body of the text.

- In 1980, on a nationwide basis, there were around 550 mushroom growers with approximately two thirds of them located in the Kennett Square/Temple area of Pennsylvania. There are about 30 growers in California and another relatively high concentration in Michigan.
- During the 1981/82 marketing year, mushroom production in the U.S. set a record at 517.1 million pounds. Pennsylvania mushroom production accounted for 53 percent of the total, California accounted for 17 percent, Michigan accounted for 4 percent, and Delaware accounted for a little over 1 percent.
- While the financial health of the mushroom sector has been fairly volatile over the past decade, acute problems are present today. Economic theory would suggest that firms failing to cover all variable costs would immediately exit the industry. Since the alternative use value of a mushroom growing operation is negligible, exit from the industry is being inhibited by the inability to realize a positive return upon liquidation, which freezes marginal firms in the industry and causes delay in the adjustment process.
- Total domestic production of mushrooms from the 1970/71 to the 1981/82 marketing years increased at a compounded annual rate of 8.7 percent. Growth in sales of fresh mushrooms was double the overall growth rate, while sales of processed mushrooms have shown little expansion.
- Imported mushrooms accounted for 18.6 percent of total disappearance of mushrooms in the U.S. during the 1981/82 marketing year. This, however, is down sharply from the 1979/80 and 1980/81 marketing years when imports accounted for about a quarter of total disappearance.
- A reduced level of imports has been the result of the tariff schedule imposed on mushroom imports in November 1980. The higher tariff schedule is due to expire in November 1983. It is uncertain if new tariffs will be imposed.
- Pennsylvania has historically been the top mushroom producing state in the nation. During the early part of the 1970s Pennsylvania production represented over 60 percent of total U.S. output, with that figure gradually sliding to below 50 percent during the 1978/79 and 1979/80 marketing years. The latest available data for the 1981/82 marketing year show that Pennsylvania output has again increased relative to total U.S. production and now represents 53 percent of the total output.
- During the 1981/82 marketing year, 44 percent of Pennsylvania production went to the fresh market. This compares with 62 percent of total U.S. production going to the fresh market and 82 percent of U.S. production (excluding Pennsylvania) going to the fresh market.
- The average national spread between fresh and processed market mushroom prices during the 1981/82 marketing year was a little over 41 cents/lb. Growers in the West received the highest fresh market price, while growers in Pennsylvania received the lowest fresh market price.
- Per capita consumption of fresh mushrooms has grown dramatically over the 1970s and into the early 1980s. From the 1970/71 to the 1981/82 marketing year, fresh mushroom sales increased by 450 percent, with per capita consumption moving up from a mere .29 pounds to 1.4 pounds. Per capita consumption of fresh mushrooms is about three times higher in California relative to the rest of the nation. Sales of processed mushrooms on a per capita basis have shown little growth.
- For all growers in and around the Pennsylvania area, the average variable production cost per pound was 57 cents in 1980. Overall, the largest growers tend to have the highest average per pound production costs, reflecting, to a large extent, the labor component of cost, as well as relatively low yields compared to smaller growers.
- Based on a USDA study published in 1982, considerably more larger growers were unable to cover their variable costs relative to smaller growers. The study results are

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such that this does not mean that all the growers not covering variable costs are losing money. If a firm is producing more for the fresh market than average, that producer will see a higher price than reported.

- Considering fixed costs, total production costs (variable and fixed) for growers in the Pennsylvania area are probably running around 70 to 75 cents/lb. Per pound production costs have not shown much growth in Pennsylvania over the last two years, reflecting sharply higher productivity of mushroom growers. Nevertheless, overall input costs have increased.
- On balance, both commercial banks and PCAs tend to finance about the same proportion of mushroom growers. Commercial banks have higher numbers of mushroom accounts, but PCAs have a slightly higher volume.
- Price elasticity measurements suggest that mushroom demand is indeed sensitive to price. On the other hand, data would suggest that the demand for mushrooms is increasing due to a number of factors.
- Income elasticity measurements suggest that as income goes up by 1 percent, the demand for fresh mushrooms will increase by 1.3 percent.
- Despite the growth in fresh market sales by Pennsylvania growers, projections of total mushroom production and fresh market sales still suggest that the fresh market will account for less than half of Pennsylvania mushroom output during the 1984/85 marketing year.
- Due to the financial problems that have plagued the industry during the last few years, a number of sources have indicated that the mushroom industry is in for a "shakedown." While around ten percent of the current growers may exit the industry in the next few years, few will be leaving permanently.
- Given the market orientation (distribution of fresh and processed sales) of smaller mushroom producers (less than 13 doubles), larger producers may be expected to have greater difficulties. Overall, large operations tend to have low yields which are indicative of diseconomies of scale that are quickly realized in mushroom production. The industry trend seems to be away from larger units to smaller units where managers can concentrate their management skills to increase production.
- Overall, the problem of overproduction of fresh mushrooms and disorderly marketing conditions has been a function of creating supply before market demand. There are indications that market demand has been increasing and that the mushroom industry should be set for a limited recovery starting in late 1984. A permanent recovery, however, may be difficult to achieve.
- In the absence of sustained strong economic growth that would increase the employment opportunities of growers who would leave the industry on a temporary basis, the prospects for longer term profitability in the mushroom industry are not encouraging. While individual firms may leave on a temporary basis, if prices and profitability improve, they may be expected to

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resume mushroom production due to the relatively low barriers to re-entry.

WHERE IS THE MUSHROOM INDUSTRY HEADING?

Demand, Prices, and Consumer Income

It has been argued by a number of growers and the AMI that what the mushroom industry needs is to increase its prices by around 10 cents/lb in order for the industry to realize good profitability. While this may be true in the broad sense, economic theory would suggest that as prices rise, consumer demand would fall. This might be especially true for a luxury good versus a necessity. While one might argue that mushrooms are not a luxury good per se, they are surely not a necessity such as bread or other types of traditional staples in the American diet.

Calculations were made on the elasticity of the fresh mushroom demand over the past two marketing years in order to assess the likely impact of higher mushroom prices on demand. Mushroom price elasticity is measured by the percent change in quantity demanded (mushrooms) divided by the percent change in price. Price elasticities were measured for both national consumption and for Pennsylvania output. Elasticity measurements from the 1979/80 to the 1981/82 marketing years show that fresh mushroom demand is extremely sensitive to price. While price elasticity is designed to measure only the relationship between price and quantity demanded, the extreme elasticity would suggest that mushroom demand is not only highly sensitive to price changes, but that demand for fresh mushrooms is also increasing due to a number of other variables.

On the one hand, a high price elasticity would suggest that consumers do indeed take the price of mushrooms into consideration when making purchasing decisions. In a micro sense, it would also suggest that in the absence of an increasing market mushroom producers would find it difficult to increase price and simultaneously experience an increase in total revenue. Thus, in the absence of any promotional scheme to increase mushroom consumption, it seems that mushroom producers might not find it advantageous to simply raise prices. On the other hand, however, if the overall market is expanding (as extreme price elasticity might indicate), economic theory would state that both prices and total revenue could rise simultaneously. This might be especially true for growers in the PAMDEL region, reflecting the relatively modest per capita consumption of fresh mushrooms in this region as well as consumption patterns for the balance of the country, excluding California. There are indications that producers in California might have less latitude for price increases, reflecting the relatively high per capita consumption and indications that per capita consumption may have peaked in California.

As mentioned earlier, price is not the only variable that influences mushroom demand; income is also significant. In order to carry the elasticity analysis one step further, income elasticity for mushroom demand was also measured. Results indicate that as income goes up by 1 percent, the demand for fresh mushrooms will go up by 1.3 percent. Despite the severity of the recession over

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the last two years, disposable personal income has increased. In addition, record unemployment levels have not, on the surface, disturbed the growth in fresh mushroom consumption, perhaps reflecting relatively modest mushroom consumption patterns by income groups currently unemployed or the fact that mushrooms could be used to "dress up" lesser cuts of meat or poultry during recessionary times. Nevertheless, the prospects for rising levels of consumer income would indicate that the demand for fresh mushrooms will be increasing. Nevertheless, the price and income elasticity measurements combined suggest that if prices rise too rapidly, growth might be stymied, even with higher income levels.

Estimating Future Demand

Econometric techniques were used to estimate total production and fresh market allocation for Pennsylvania growers through the 1984/85 marketing year. Analysis indicates that total production from the 1981/82 marketing year to the 1984/85 marketing year will be up by 20 percent, while the fresh market demand will increase by around 30 percent over the same period. Thus, fresh market sales are likely to edge up slightly over the next three years, with fresh market sales accounting for around 48 percent of total mushroom output in Pennsylvania during the 1984/85 marketing year, compared to the current 44 percent. This growth in demand in fresh market sales would suggest that the average producers will be receiving a slightly higher price for their product. Nevertheless, the projected growth rate for fresh market consumption is fairly modest.

Industry Adjustments

Due to the financial troubles that have plagued the industry over the last few years, a number of sources inside and outside the mushroom industry have stated that a shakedown is inevitable. Given the financial problems facing the industry, 1983 will be a "make-or-break" year for a number of growers. Several estimates place the number of likely departures in the 10 to 25 percent range for growers in the PAMDEL region. The probability of realizing the upper end of that range is extremely unlikely; however, it appears that around 10 percent of the growers could exit the industry over the next few years—some permanently, but most for a short period. Those exiting will be the more marginal growers with relatively high debt loads, low cash flow and those growing poor quality mushrooms. Consequently, bankruptcies in the industry to be continued at a fairly high level in 1983 and beyond.

While the actual cost of production data might suggest that more failures are likely to occur among smaller operations, market orientation data (i.e., distribution between fresh/processed market sales) combined with cost data might suggest the opposite. Table 7 showed that stratum 1 producers had the highest total costs; however, estimated fixed costs for these growers are grossly exaggerated. But, market orientation data from the USDA study show that only around 40 percent of the output of stratum 3 producers (13 to 21 doubles) went to the fresh market, while about half was sold to processors, with the balance being sold to an indeterminate source. Market orientation for stratum 4 growers (over 21 doubles) shows the greatest penetration

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of fresh market sales among all producers. Stratum 4 producers saw 65 percent of their output sold to the fresh market. However, stratum 4 producers also experienced the highest variable costs of all growers, reflecting, for the most part, low yields. Low yields for large growers are indicative of an industry in which diseconomies of scale are quickly realized. Mushrooms, unlike most agricultural enterprises, might be characterized as such an industry because of the high level of management expertise needed to maximize production. Consequently, it appears that the larger growers might be having more financial problems vis-a-vis smaller producers (less than 13 doubles). While outright failures of larger producers do not appear imminent, a good number of these producers are likely to contract their operations in order to achieve more control over costs and higher production per square foot via better management practices. In fact, one of the nation's largest mushroom producers, Ralston Purina, liquidated their mushroom holdings throughout the country. Presumably this liquidation occurred due to relatively low production and quality as a result of "thin management," which resulted in a very narrow margin and/or loss.

Conclusion

Basically, the problem of overproduction of fresh mushrooms and the disorderly marketing conditions are a function of creating supply before market demand. While the number of canners going out of business in the last several years exacerbated the disorderly marketing conditions, the mushroom market lacks organization. Recent discussions in the Kennett Square area indicate, however, that a number of producers have joined to form an association that would create more control over production and marketing of fresh mushrooms. If this group is successful, and if the AMI and others related to the industry can increase demand for fresh market mushrooms via advertising/sales promotion, the industry should be set for limited recovery starting in late 1984 or 1985. But, a permanent recovery might be difficult to achieve.

In the absence of sustained strong aggregate economic growth that would increase employment opportunities of growers who might leave the industry on a temporary basis, the prospects for longer term profitability for the mushroom sector are not encouraging. Without improved employment options, those growers who temporarily exited the industry would be encouraged to again commence production if prices and profitability improved. Their re-entry into mushroom production would occur, because of the relatively low barriers to re-entry that characterize this particular group in the mushroom industry. Thus, as more firms move back into production, another oversupply situation could be created. Consequently, without strong economic growth **and a vigorous campaign designed to increase fresh market consumsption**, the industry is likely to be faced with on/off problems for an extended period. This is not to suggest, however, that the industry will collapse. Indeed, growers with good management skills who can control cost and produce quality mushrooms will survive and do reasonably well over the long term. But, the more marginal growers and those who spread themselves too thin will continue to experience difficulties.

"Soup" Market Gets a Lift

Campbell Soup Company has, for the past several months, been in the market buying "soup" mushrooms for prices ranging from 60 to 65 cents per pound. Dino Ruggieri of Ruggieri Mushroom Corporation—growers, packers, and shippers of canned and fresh mushrooms, Kennett Square—handles purchases for Campbell's, as well as his own purchases, and stated that, "Campbell is outselling their own production, and the increase in soup and other alternate product sales have created this demand."

"Eddie" E. H. Rouh, a buyer of mushrooms for Campbell for many years, has been called out of retirement to coordinate this purchase.

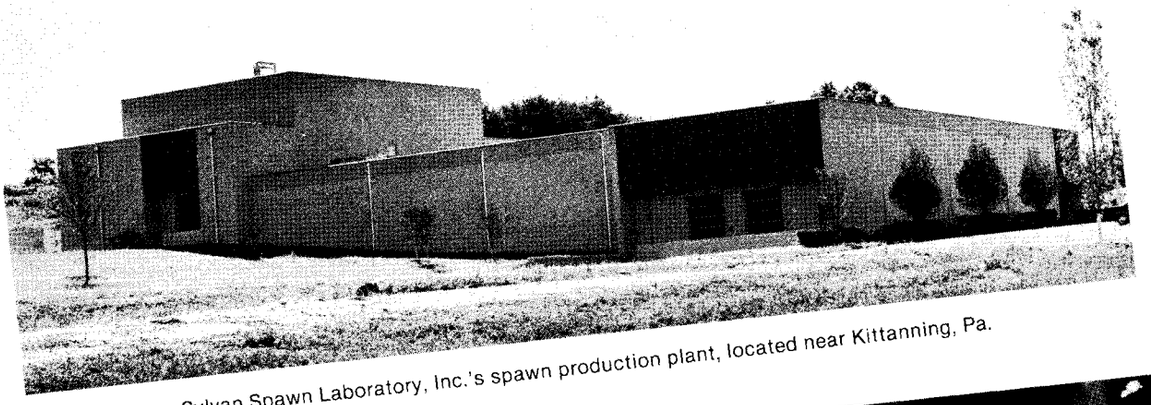
"I'm now doing business with sons and grandsons of mushroom farmers that I dealt with, and we are in the field to help the mushroom growers, not hurt them," Eddie said. "Campbell, in all these years, has never advocated that growers fill to grow a cheap product. They don't go out to buy cheap mushrooms—when we need mushrooms, we go out and buy them."

Campbell has purchased approximately 2 million pounds in the first 60 days and anticipate purchasing through May. According to Ruggieri, the levels of canned inventory have been reduced and a demand has developed in the canned market. Mushrooms going to Campbell are not going to the fresh market. Campbell has been creating new markets for new products and are continually experimenting with new product development—a lift the alternate product market surely needs.

Daughter Lisa Ruggieri added that, "These prices for 'soup' mushrooms keeps everything more honest and should help strengthen the price for primes."

Many factors can influence a market at any one time. Mushroom growers, like the rest of the nation, are feeling the effects of the economy, but an increase in "soup" prices for however long, is one lift that should be recognized.

Introducing SYLVAN SPAWN

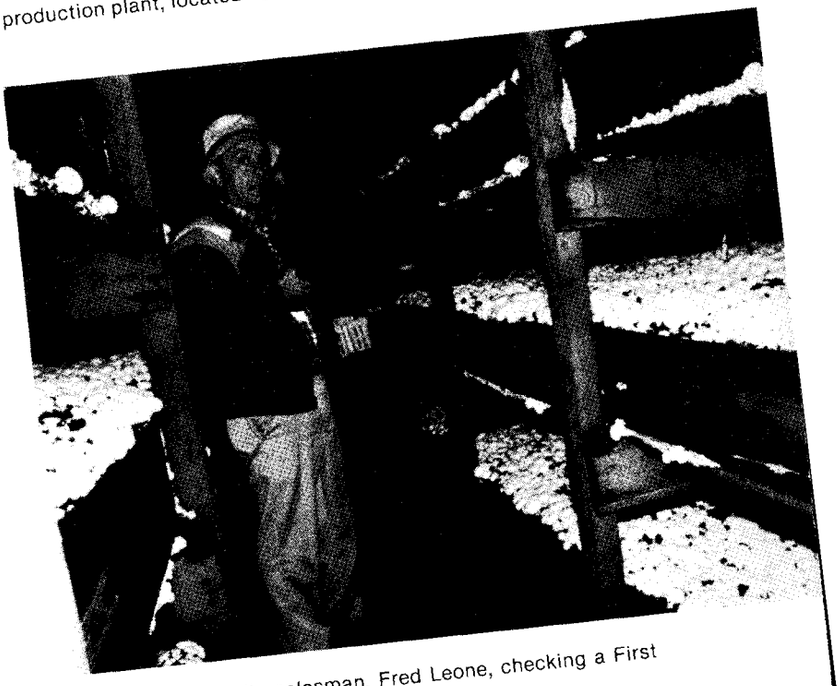


Sylvan Spawn Laboratory, Inc.'s spawn production plant, located near Kittanning, Pa.

EASTERN DISTRIBUTOR

Mushroom Central

420 West Cypress Street
Kennett Square, PA 19348
Ernest Leone, Proprietor
(215) 444-5508
444-5620



Mushroom Central's salesman, Fred Leone, checking a First Break of B.C.M.F.'s Sylvan Spawn.

Sylvan Spawn Laboratory, Inc. is a subsidiary of Butler County Mushroom Farms, Inc.

Quality Spawn Makers for more than 35 years

Look for Sylvan's New White Strain Soon

Lifetime Nursery Products Presents

THE AMAZING STORY OF

plus*peat®

plus*peat is widely acclaimed for its ideal pH rating of 5.5-6.0 as well as for its superior nutrient properties and water-holding capacity.

plus*peat has a high buffer capability and will therefore maintain a consistent pH level.

What is Peat?

Peat is a partially carbonized organic residue of plants, decomposition of which has taken place under standing water. Expressed another way: peat is made upof plant remains that have accumulated in bogs over thousands of years under relatively airless conditions.

Thus when the process of decay of such substances as tree trunks, mosses, grasses and the like takes place under water, the decomposition is greatly retarded because of the exclusion of air. The resulting product is known as peat and differs considerably from regular humus which is found in upland forests.

No wonder then that peat is rich in organic matter, highly asorbent, retentive of moisture, free of seeds, soil nematodes and generally free of harmful fungi.

What is Hypnum Peat?

Peat may be divided into two main types depending on the plants from which they were formed: (1) Sphagnum Peat (peat moss or Highmoor peat) which is derived from species of the sphagnum plant; (2) Lowmoor peat formed from sedges, reeds, mosses or trees.

There are several grades of Lowmoor peat. The best grade is Hypnum which is superior not only to other Lowmoor peats but also to Sphagnum peat because Hypnum has a virtually ideal pH factor; a capacity to decompose more readily and possesses superior nutritional properties. (See back page.)

On the next page, is a specific comparison between Hypnum peat (sold under the trade mark of **plus*peat**) and horticultural sphagnum peat.

Comparative Table of Nutrients

	plus*peat	Horticultural Sphagnum
pH rating range	5.5-6.0	3.3-3.5
Total Nitrogen	1.5-3.5%	0.00-1.0%
Ash (inorganic)	8-10%	5-8%
Phosphorous	trace	trace
Potassium	trace	trace
Calcium	8379 ppm	2125 ppm
Magnesium	1215 ppm	504 ppm
Manganese	24 ppm	10 ppm
Iron	573 ppm	159 ppm
Zinc	176 ppm	2.5 ppm
Copper	0.45 ppm	0.30 ppm
Moisture-holding capacity	1000% (or 10 times its wgt in H_2O)	15000% (or 15 times its wgt in H_2O)
Bulk density (vol. wgt.)	15 lbs. cu. ft.	5 lbs. cu. ft.

Above research furnished by Department of Soil Science, University of Minnesota.

How Advertising Affects Food Sales in America

Advertising is such an accepted part of American life that sometimes its value for selling a product is taken for granted. But is this assumption right? In order for farmers to know exactly what they may expect out of promotion of a food product, it's a good idea for them to understand what advertising can and cannot do.

Brand advertising, for example, may benefit other products besides the one it's directly promoting. It's no secret that brand advertising usually increases sales for that particular brand. But according to a study by USDA's Economic Research Service, sales for all brands in a particular product class may increase when manufacturers of any of the products advertise.

Breakfast cereals are a good example. USDA data show that when any cereal manufacturer advertises, sales for all cereal brands may increase—probably at the expense of less-advertised breakfast foods.

In the long run, advertising also makes people buy more of a product. Product classes that are heavily advertised by brand manufacturers generally get a bigger share of the consumer dollar than less heavily promoted classes. But the USDA study also found that advertising may only cause a shift among the kinds of foods Americans eat. Almost never has it caused the total amount of food eaten to increase.

Deciding What to Buy

Advertising and promotion have two main effects on consumers. They increase consumer food costs by about 4 cents for every dollar spent. But they also affect the kind and amount of food we eat.

Within budget constraints, consumers must first decide how to allocate their incomes between food and nonfood expenditures; then between food eaten at home and food eaten away from home; next among types of foods (e.g., dairy products versus meat versus produce); and finally, among brands of specific foods. However, economists don't know whether branch advertising affects purchases of broad classes of closely substitutable products. This is called the "primary demand."

Nearly all food-industry advertising and promotion is intended to influence consumers to make choices of what to buy or where to shop. There is virtually no advertising designed to increase total food consumption or influence consumer choices between food and nonfood items. Moreover, there is very little advertising that promotes broad classes of food such as dairy, meat, and produce.

Changing Preferences

Consumer preferences among classes of foods (such as apples versus oranges) can be changed, especially over long periods of time. Some companies have tried to improve their brands' sales by calling attention to the product and its uses without mentioning their own brand.

The effectiveness of brand advertising in either maintaining or increasing a brand's market share was substantiated by a 1976 study of 197 brands in 16 product classes marketed in eight western European countries. It showed that when advertising was increased by 10 percent, sales, on the average, increased 2.9 percent.

Of course, that effectiveness comes at a price. According to ERS estimates, advertising accounted for about 4 percent of the at-home expenditures for food in the 1970s. Moreover, that cost doesn't end. Without advertising at standard advertising-to-sales ratios, food-manufacturing firms are rarely able to maintain market shares of branded, packaged products.

According to industry data, the leading national advertisers in nearly every food-processing industry are those which have the largest share of the market. This is true even though leading firms often can advertise less in proportion to their share of sales simply because they are better known.

Shifts in Categories

A USDA study of manufacturers' shipments in 71 food-product categories show that advertising and promotion not only influence brand preference, but also makes people eat more of entire categories of foods. Between 1967 and 1977, the portion of total shipments accounted for by some food product groups changed sharply. For example, the bottled-and canned-drinks category rose from about 4.8 percent of foods shipped in 1967 to about 6 percent in 1977.

These changes may be due to price adjustments, shifts in population, changing consumer preferences and the "intensity" of advertising and promotion expenditures. Intensity is measured by determining the percentage of sales spent in advertising a product.

Changes in the consumption of a particular product are influenced not only by advertising and other kinds of consumer information, but also by changes in relative prices and the income, race, family size, and tastes of the households that purchase the products. Food advertising and promotion appears to have had little discernible impact in increasing the total quantity of food consumed by Americans from the mid 1950s to the late 1970s.

Mature Market

When adjusted for price increases and population changes, U.S. Department of Commerce data indicate that between 1965-67 and 1975-77 periods, national real spending for food eaten at home rose less than 0.5 percent annually. Some of this change reflected higher volume, but some may also have reflected changes in the product mix. USDA disappearance data for food eaten at

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both and away from home also show less than a 0.5 percent positive yearly growth rate. By contrast, the Nationwide Food Consumption Survey shows about a 1.25 percent yearly decline.

American per-capita food consumption is one of the highest in the world, and, other than for low-income consumers, income increases shouldn't increase total quantity of food consumed at home .Because of changes in the "quality" of foods or in the mix of foods purchased, real expenditures on food increased slightly, but much less than the increase in disposable personal income. Advertising may have increased demand for foods and beverages over what it would otherwise have been, but the ratio of food to nonfood advertising stayed more or less the same during this period (at about 30 percent). Thus any impact of advertising on food consumption could well have been offset by countervailing advertising on nonfood products.

Reprinted from *The California Farmer, Jan. 15, 1983*

German Abstracts Available

The American Mushroom Institute has engaged the service of Mrs. Alice H. Bergman of State College, Pa., to translate abstracts or summaries of articles from the German publications *Der Champignon*. These abstracts or summaries will be published as they are received. If there is interest in purchasing the translation of the complete article, please contact AMI.

Some remarks on breeding of new species, continuous breeding, and growth of Agaricus bisporus and Agaricus bitorquis.

by Gerda Fritsche, Mushroom Experiment Station, Horst, Netherlands. (This was translated from Dutch into German).

Summary: This is a general survey of breeding methods. One of the breeding purposes of A. bisporus is to combine the good conservation quality of the white varieties with favorable characteristics of the intermediate varieties. Methods and results to-date are reported.

In A. bitorquis, the main purpose is the development of stems which in cultivation are less sensitive than those now on the market. It is being explored if the faster growth of the mycelium can be regarded as a criterion for insensitivity.

Multiple spore cultivation of A. bitorquis resulted in much lower yield than with the original stems.

Following a general survey of methods of preservation of stems, the methods used in Horst are described. Tests were run with young hetero-karyos and some up to 4½ years old from two hybrids of A. bitorquis. There were no yield differences between the hetero-karyos of various ages; however, young hetero-karyos from Horst K_{26} grew initially faster than the others.

Mushroom Report 1981

1. The renewed increase of per-capita consumption of mushrooms in the Federal Republic of Germany is, among other factors, the result of strictly structured marketing procedures for domestic production, initiated in recent years. The fact that import of fresh and processed material increased, proves that the foreign competition profits equally from these activities of the CMA and the professional organization.

Under these circumstances it has to be the aim of the German growers to increase the domestic portion of the total consumption. Increase of per-capita consumption of mushrooms does not help the German growers when it predominantly favors the foreign sector.

2. Stagnation of the production volume of domestic mushrooms, noted during the past four years, is definitely linked to the worsening of the economic situation. The main points were made in the notes for Table 2 (energy cost, labor problems, increased protectionism in the Common Market countries, etc.). The German mushroom growers demand more harmonious conditions for competition within the European Common Market and with other countries. This applies primarily to the use of plant protection measures. The German mushroom growers expect that foreign mushroom growers have to adhere to the same extensive and rigid laws and regulations as they do.

3. Import of fresh mushrooms has again increased this year. This applies particularly to The Netherlands and France. In the future, quality problems are expected to play a decisive role.

4. It was especially noted that the import of fresh mushroom to the Federated Republic of Germany increased considerably between January and April, mainly from France. The Dutch export quota during this time shows a decreasing tendency.

5. Import values for fresh mushrooms, which were partially stagnant in 1980, increased again in 1981 for the

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Visiting Caputo & Guest's plant are (left to right): Marge Edwards, Anna Basciani, Elizabeth Riely (food writer), Carolyn Catena, and Marcia Malchione. Louis Caputo in back.

FMAA Bits O' News

Phyllis Roberts was on a program to promote fresh mushrooms on March 29, 1983, on Channel 3, at 5:20 a.m.

The tour group took a tour with Jack Kooker and food writer, Elizabeth Riely, of Savoir Fare. The trip was very informative to the people, they learned what to do when they take groups on tours of mushroom houses.

The demonstrations group held a demo at the Shop-N-Bag, and at the Ramada Inn in Downingtown. These demos are to instruct how to serve fresh mushrooms and to answer any questions they may have about how to serve, clean, and cook mushrooms. The demo group also informs the people they demonstrate to about the nutritional value of fresh mushrooms. Fresh mushrooms, mushroom salads, marinated mushrooms and cookbooks are sold at these demos.

Renee Versagli reported that the trip to Atlantic City was a success. Future trips to various places are being planned. All ladies deserve a big thanks for doing all the work.

Well, that's all for this month. The next meeting will be held at Perkin's Cake and Steak on April 27 at 7:30 p.m. All are welcome to attend.

See you then!

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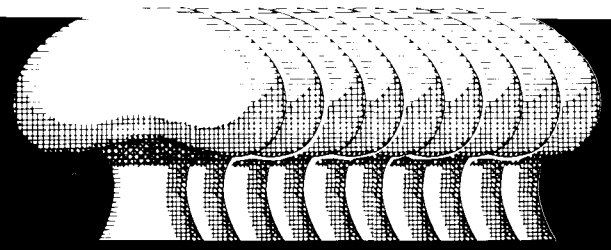
most important supply countries. The Netherlands again showed the largest increase.

6. Import of canned mushrooms has increased considerably this year as compared to 1980. The Netherlands have increased their share of the inland trade. This increase in the use of canned mushrooms shows that the consumer does not yet clearly differentiate between canned and fresh mushrooms as far as nutritional and taste values are concerned.

7. No increase in export of German mushrooms can be expected at this time. First priority is increase of the domestic market.

8. The report of the Federal Department of Food, Agriculture, and Forestry 1980/81 shows a tendency which has been evident for the past three years: A constant decrease of profits and production values. The economic situation was worsened. With farm management methods alone, the growers are not sufficiently competitive. In recent years, the mushroom growers have adapted the structure of their operations as much as possible to the changed economic conditions.

They demand fair competition with identical economic and marketing conditions with the Common Market and other countries.



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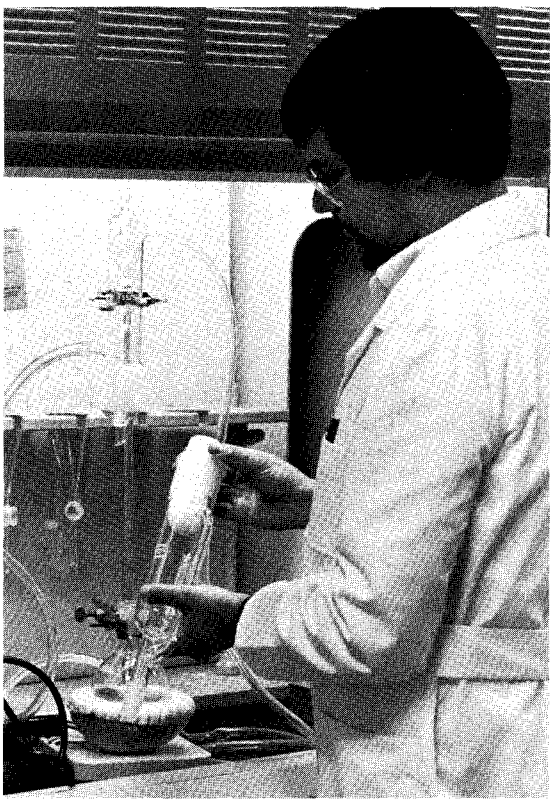

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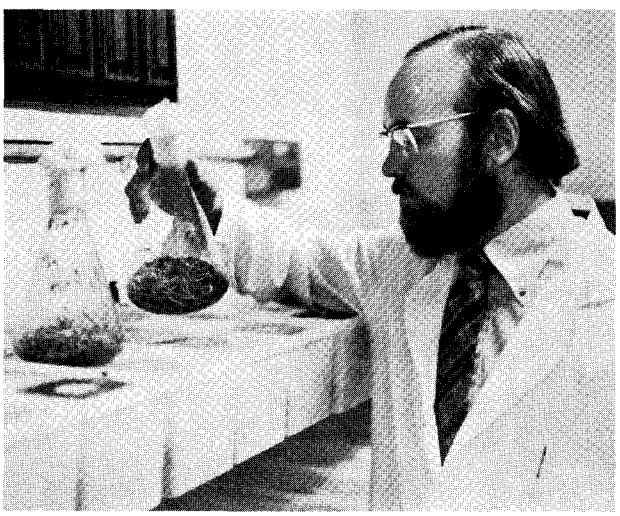

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Chemical and Biological Qualification of Synthetic Composts for Mushrooms (Agaricus bisporus)

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SUMMARY

Low mushroom yields revealed the necessity of developing quantitative parameters for the evaluation of synthetic composts produced in Israel. This work suggests a quality control system for synthetic compost producers, with special attention being paid to local conditions. The system includes proper sampling and laboratory analysis methods. Optimal values for "good" compost at spawing included: Water content—68%, pH—7.5 and dry matter which included a composition of: ash content—32%, nitrogen—2.2%, C/N ratio—13, crude fibre—24%.

Ideal compost at spawning contained 10^2 fungal propagules as compared to 10^4 per gramme of poor compost. Mycelial linear growth of Agaricus bisporus on centrally inoculated plates containing compost was also examined and was found to be significantly faster on properly made compost than on poor ones. A quality control method based on these parameters are already in use in Israel.

INTRODUCTION

Mushroom compost is commonly produced from horse manure, (6). Due to the unavailability of this commodity in Israel, local mushroom production is exclusively based on synthetic composts, which are mainly made of wheat straw and chicken manure, (10). Mushrooms are grown on this substrate according to the Dutch method, (10). However, local yields are rather low (2-3 lb/C + ²), probably because of the composts' quality, which calls for a careful analysis. The most used parameters for qualification of composts are moisture content, pH, total nitrogen, ammonia content, ash and C/N ratio (1, 2, 3, 5, 6, 10). Values of these parameters cannot be just adopted from one country to another. Differences in climatic conditions and raw materials composition makes it necessary to evaluate each locality separately, the parameters required for the assessment of the composts' quality. The aim of this work is to define the proper parameters for compost analysis in Israel.

MATERIALS AND METHODS

The commercial synthetic compost was supplied by "Compit" Company (the compost co-operative factory) of Maona, in northern Israel. The following compost formula was used:

wheat straw	100 Kg.
chicken manure	40 Kg.
soyy-bean meal	5 Kg.
gypsum	7 Kg.
urea	1 Kg.

where all the components were in their natural state.

The mushroom growth cycle was based on the Dutch method:

Composting (Phase 1)	12 days
Pasteurization and conditioning (Phase II)	7-8 days
Spawn run	14 days
Spawn run after casing	7 days
Fructification and picking	52 days
	94 ± 6 days

Chemical and physical analysis of fresh compost: After diluting the fresh compost 1:5 with distilled water, pH was measured by means of pHM-84 research pH-meter (Radiometer, Copenhagen). The same dilution was used for conductivity measurements with conductivity—meter CDM-3 (Radiometer). Ammonia was determined with Keljtec 1 distilling unit (Tecator, Sweden) according to Mason (14). Moisture content was estimated by loss in weight after drying composts samples overnight, at 105 °C, in a mechanically aerated AL-3 oven (Arie Levy, Israel).

Chemical analysis of dried compost: Samples were dried at 60 °C to a constant weight and ground in a blender to a homogeneous powder (200-500)* particle size). The following parameters were measured, according to A.O.A.C. (13). Ash was determined by weighing, after ignition at 600 °C in a PA-36 furnace (Bifa, Israel). Total nitrogen was measured according to Kjeldahl with a Kjeltec 1 unit (Tecator, Sweden). Phosphorous was determined by acidic digestion and spectrophotometric determination of orthophosphate by molybdate method with a Stasar II spectrophotometer (Gilford, U.S.A.). Calcium was determined according to the permanganate method, Fat (Ether extractable) according to Soxhlet and Crude fibre according to Wandda.

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Microbiological analysis: Bacterial counts; the medium used for bacterial counts consisted of 20g. Yeast extract agar (Difco), in 1.0 litre of distilled water, which had been formerly used to extract 25g. of fresh compost, filtered with Whatman paper number 40. Actinomyces counts; the medium consisted of 80g. fresh compost and 20g. agar (Difco) blended in 1.0 litre of distilled water. Fungal counts; the medium used for fungal was Martins' medium supplemented with rose bengal. All the micro-organisms were counted according to the plate count method, after incubation of 48 hours; incubation temperature was 50°C for thermophiles and 25°C for mesophiles. Linear growth of the mushrooms (Agaricus bisporus) mycelium was measured by placing spawn unit from commercial spawn (Somycel var-53) in the centre of a petri-dish filled with compost. Colony area was measured after incubation for 7 days at 25°C.

RESULTS

Data on the composition of wheat straw and chicken manure are presented in Table 1. A considerable variability was found in water, ash and nitrogen content of chicken manures from different origins. Compost piles were sampled immediately after turning over. Samples were taken from ten locations chosen randomly from around the compost pile. The chemical composition of a mixed sample was compared with ten individual samples from different sites (Table II) and the results indicated that the mixed sample indeed represented the average condition of the compost pile.

Changes in pH, moisture, total nitrogen, N-NH_4^+, phosphorous, calcium, crude fibre content and C/N ratio of the compost were noted during the growth cycle. Mushrooms yields were measured for every compost pile in commercial farms. According to the yields obtained, the optimal values of the above mentioned parameters during the main stages of the growth cycle were selected (Table III). The optimal values for ash and organic matter are indicated in Fig. 1.

Microbial counts of composts which showed rapid and dense spawn run were compared with those composts with a weak spawn run. Both bacterial and fungal populations were considerably lower in "good" than in "bad" composts. (Table IV).

Linear growth of mushroom mycelium was significantly faster on "good" composts than on "bad" ones. There was also a significant difference between mycelium linear growth on sterilized and unsterilized composts. (Table V).

Table I—Chemical analysis of wheat straw and chicken manure used for the production of "synthetic" composts in Israel.

	Chicken manure	Wheat straw
pH	7.3	—
*% Moisture	10.1 - 18.0	10.0
% Ash	19.1 - 30.0	12.3
% Organic matter	80.9 - 70.0	87.7
% Total nitrogen	4.5 - 3.5	0.5
% Calcium	3.0 - 3.5	0.6
Crude fibre	9.0 - 14.0	31.4
% Ether Extractable substances	0.9 - 1.4	0.4

*Water content calculated on fresh material basis
All other parameters calculated on dry material basis.

Table IV. Microbial analysis of "good" and "bad" compost (Propaguelis/gr compost).

	"good" comp.	"bad" comp.
*Thermophilic bacteria	5.10^4(a)	5.10^7(b)
**Mesophilic bacteria	6.10^6(a)	2.10^8(b)
Thermophilic fungi	2-50 (a)	$1x10^3$(b)
Mesophilic fungi	3-30 (a)	$1x10^4$(b)
Thermophilic actinomycetes	$1x10^7$(a)	$1x10^7$(a)
Mesophilic actinomycetes	$1x10^4$(a)	$1x10^5$(a)

* Mesophilic—incubation at 76°F
**Thermophilic—incubation at 122°F
Numbers in same row accompanied with different letters differ significantly.

Table II. Chemical analysis of mixed sample compared with average values of ten samples from a compost pile at the beginning of Phase I.*

	% Water	% Ash	% Organic matter	% Nitrogen	pH
**Mixed sample	71.4	32.4	67.6	1.2	7.2
Average values of ten samples	70.8	31.8	68.2	1.3	7.3
Standard deviation of ten samples	1.5	3.9	4.0	0.3	0.3

*The values of the above parameters are not optimal for the beginning of Phase I.
**The results are an average of three determinations.

Table III. The optimal * composition of synthetic compost in Israel at the main stages of growth cycle.

	DAY STAGE			
	1	12	21	42
Parameter	Beginning of Phase I	Beginning of Phase II	Beginning of Spawn run	Beginning of picking period
% Water	78.0	73.0	68.0	66.0
% Ash	21.0	28.0	32.0	40.0
% pH	8.8	8.0	7.5	6.8
% Total nitrogen	1.3	1.8	2.2	2.3
C/N ratio	26.0	16.0	13.0	12.0
% N-NH_4+	0.6	0.4	0.01	0
% Crude fibre	35.0	30.0	24.0	15.0
% Calcium	2.0	3.8	4.5	6.0

*These values vary within the range of ±5%.

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Table V. Linear growth of mycelium of Agaricus bisporus on composts after ten days of incubation at 25°C.

The Composts	Colony Area cm^2
Sterilized "good" compost	23.7[b]
Unsterilized "good" compost	41.8[a]
Sterilized "bad" compost	17.6[b]
Unsterilized "bad" compost	20.5[b]

Numbers accompanied by the same letter do not differ significantly.

FIG. 1

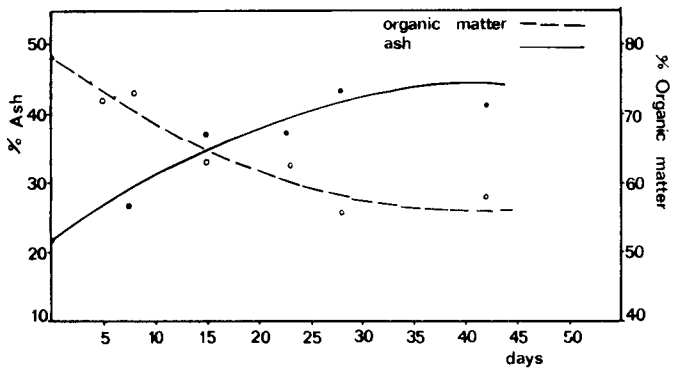

Fig. 1—Changes in ash and organic matter in compost.

DISCUSSION

Good quality compost is essential for high mushroom yields. The aim of this work was to define proper quantitative parameters for the evaluation of synthetic composts. Differences in raw materials composition and ecological conditions, makes it impossible to adopt such parameters developed in Europe or in the U.S.A. The first stage in obtaining meaningful results is proper sampling. In this work, a sampling method for compost piles was developed (Table II). Samples must be taken immediately after turning the compost pile, when the compost is homogeneous. Ten samples from randomly scattered locations were therefore mixed into a combined sample, which represented the whole compost pile.

For an evaluation of the compost in the commercial farms, combined samples made by mixing ten samples taken from beds of all heights and from both sides of the growing room. Composition of the raw materials has a direct influence on the composting process. In Israel wheat straw and chicken manure are relatively dry (Table 1). We found great variations in ash content (18%-35%) and in total nitrogen content (2.5%-4.5%) of chicken manure (Table I). Knowledge of raw material composition is a prior condition for compost formulation. According to our results, we recommend a formulation based on a mixture of 1000 Kg. wheat straw and 500 Kg. chicken manure.

The changes in several physical and chemical parameters were also checked during the mushroom cycle. The optimal values for some of these parameters (Table III, Fig. 1.) did not differ significantly from the composts being produced abroad (2, 3, 5, 6, 12). However, it was necessary to develop local parameters for optimum

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mushroom production, because local raw materials differed widely in their composition and the ecological conditions (especially during compostation—Phase I) differed from those of Europe and North America. Our optimal values are based on several years' experience in compost analysis and recording yields from every compost pile at the mushroom farms. Usually a deviation of ±5% from the otpimal values is not harmful for compost quality. Larger deviations are usually accompanied by weak mushroom mycelium growth and low yields. Quality control of compost production in the compost plant using the system we developed is under way now. The pH level, $N\text{-}NH_4^+$ and water content of fresh compost and total nitrogen of dried compost are checked immediately after stacking the compost pile. Adjustments to the optimal values are made at the first turning, if necessary. pH and humidity are checked after each turning of the compost pile. Water is added instantly if addition by the compost turner was found to be insufficient (because of dry weather or winds).

In comparing the microbial population counts of "good" and "bad" composts, the quality of the compost was assessed by the colonization extent of the compost by mushroom mycelium. We found significantly more bacteria and especially more fungi in "bad" composts than in "good" ones (Table IV). The compostation process is designed especially for creating selective conditions for mushroom growth (4, 6, 7, 8). The presence of high numbers of fungi and especially 'weed' moulds is considered as a failure in compost making (7).

According to these results it seems possible to use alien fungal counts as a parameter for compost quality. Another possible biological parameter for compost quality is the linear growth rate of mushroom mycelium (Table V) on the compost surface. However, there are objections to the use of this parameter because of its inconsistency (9). In this work, linear growth was consistently and significantly higher on "good" composts than on "bad" ones. The fact that these results agreed with other differences between "good" and "bad" composts in all the other parameters discussed above supports our conclusion that linear growth rate of mushroom mycelium is a meaningful parameter and could serve as a preliminary bio-assay for compost quality. Sterilization of compost has an adverse affect on mushroom growth (Table V). The relationship between mushroom mycelium and composts' bacteria was investigated (4, 8, 9) but is still obscure. Our results agree with the idea that presence of bacteria in the compost has a favourable effect on mushroom growth, but we must agree that this phenomenon is still far from being understood and therefore requires further investigation.

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Trouble Enough to go Around

By Frank Robinson
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We've all heard that old saying "misery loves company" and if there is any truth at all in this saying, we should be very happy because beekeepers are joined in our misery by many other agricultural commodity groups. Just as a major part of the beekeepers' problems can be blamed on the unrestricted flood of imported honey so can these other groups point to "imports" as the source of their troubles too.

Just knowing that other groups are having the same type of problems doesn't make the beekeeper's situation any better but it may help us to realize that we aren't trying to contend with a policy that was designed just to make it hard on beekeepers. Instead, we are having to contend with basic trade philosophies which might be sound in theory but which in practice are making the U.S. the dumping ground for the world's production of many agricultural commodities and other products.

A recent article detailing the plight of the U.S. mushroom industry was brought to our attention by Dr. Roger Morse of Cornell University, and the similarity of their situation and that of the U.S. beekeeping industry is quite startling! Even the source of their trouble, China, is the same source as much of the beekeepers' trouble.

According to this report, the imports of mushrooms from China increased from 17,000 pounds in 1978 to 14.8 million pounds in 1980. While this was certainly a dramatic increase it was nothing compared to what happened next! In February 1980 China was granted "Favored Nation Status" and in 1981 their export of mushrooms to the U.S. reached 27.4 million pounds!

By undercutting the prices of other mushroom exporting countries such as Korea and Taiwan by as much as 37 per cent and underselling domestic mushroom producers by 17 cents per pound, China now supplies 80 percent of all canned mushrooms consumed in the U.S.

As a direct result of this foreign competition 25 per cent of the U.S. mushroom producers and nearly ⅓ of all the U.S. mushroom processors have gone out of business.

Spearheaded by the American Mushroom Institute, the domestic industry has lobbied intensely for many years for some import relief spending from $50,000 to $100,000 per year for paid lobbyists and specialized attorneys but so far their efforts have been fruitless.

A similar course of events was experienced by the U.S. Cut Flower producers in recent years but this time the main foreign competitor was Columbia, S.A. instead of China. However, that same "Favored Nation Status" played a key role. The trade advantage provided by this designation together with export subsidies provided by their own government made it possible for Columbian growers to gain control of 62 percent of the U.S. markets in less than 10 years time. During this period the number of cut flower growers in Florida dropped from 70 to only 15 today.

Fortunately the flower growers' situation has taken a turn for the better since the U.S. Department of Commerce recently announced that they were imposing a countervailing duty of 4 per cent on Columbian cut flowers and this rate would increase to 5 per cent Jan. 1, 1983.

The U.S. Dept of Commerce action came in response to a petition filed jointing by three Florida cut flower growers and the Florida Farm Bureau. The petition charged that Columbian growers were in unfair trade competition because of the export subsidies of their government.

This action by the U.S. Dept . of Commerce does provide a glimmer of hope for our honey industry if we can show evidence of export sibsidies or other unfair trade practices by any of the major exporters of honey to the U.S. Whether or not our industry can develop such evidence remains to be seen but, at least, a first, tentative step has been taken. On November 12, 1982, Sen. Lawton Chiles (FL) wrote to the Dept. of Commerce requesting that a "fact finding" investigation be conducted into the export trading practices of certain of the major honey exporting countries.

What the outcome of this request by Sen. Chiles will be, or what such an investigation will show, we have no way of knowing but at least some wheels are in motion.

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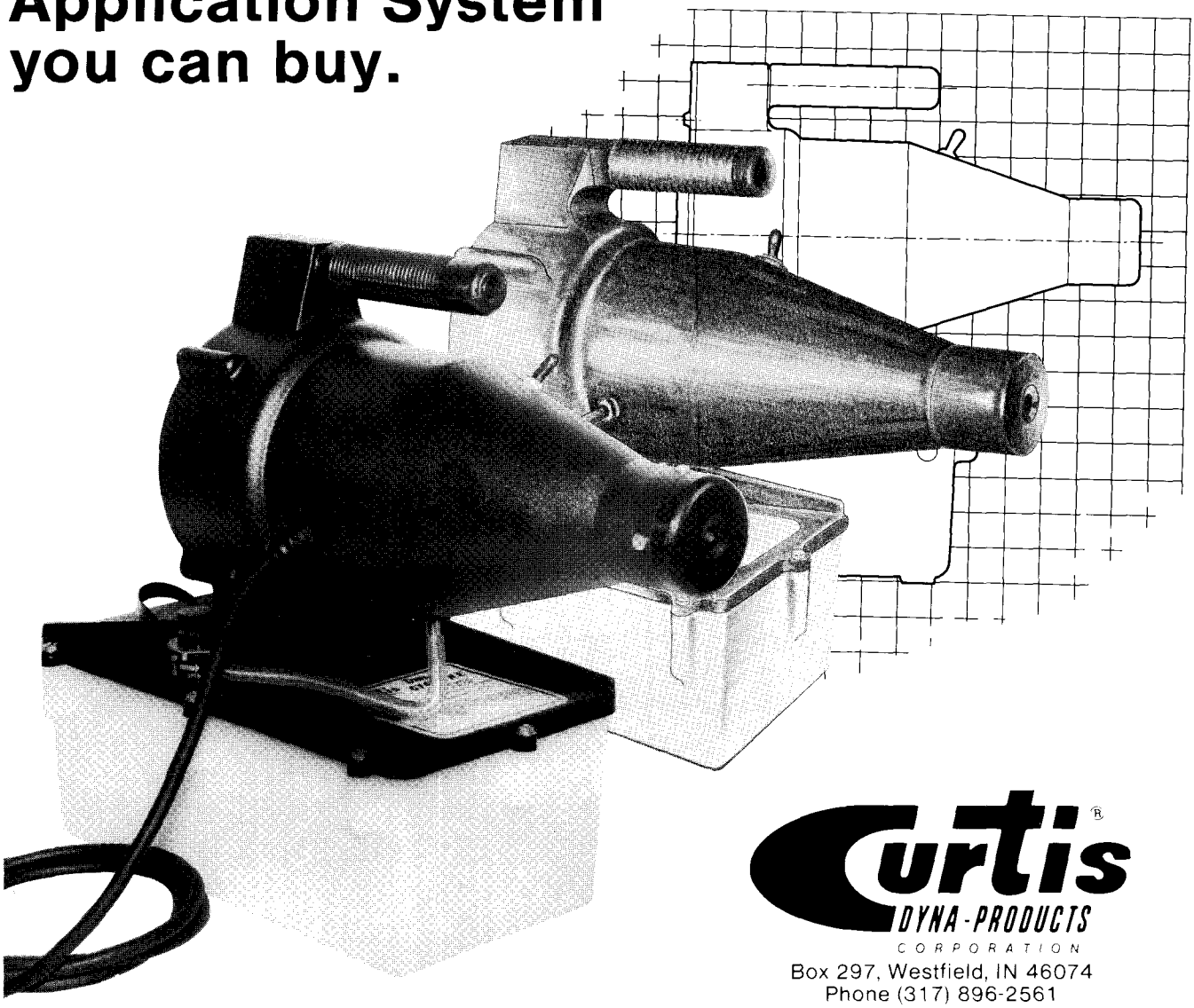

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16th Quarterly Report On Processed Mushrooms

During the fourth quarter (October-December) 1982, compared with the same quarter 1981:

- APPARENT CONSUMPTION of canned mushrooms increased 8 percent to 57.8 million pounds;
- DOMESTIC PRODUCTION declined 20 percent to 21.9 million pounds;
- SALES of domestic canned mushrooms increased 1 percent to 25.6 million pounds;
- PRODUCER ENDING INVENTORIES of canned mushrooms declined 47 percent to 16.0 million pounds;
- IMPORTS rose 12 percent to 26.2 million pounds, constituting 45 percent of consumption compared with 43 percent last year; and
- EXPORTS declined 27 percent to 104,000 pounds.

QUARTERLY STATISTICS

For the fourth quarter of 1982, compared with the same quarter a year earlier, domestic production and ending inventories of canned mushrooms declined while sales by domestic producers, imports, and apparent consumption increased (table 1). Domestic production totaled 21.9 million pounds (−20 percent); ending inventories by producers, 16.0 million pounds (−47 percent); sales by producers, 25.6 million pounds (+1 percent); imports, 26.2 million pounds (+12 percent); and apparent consumption, 57.8 million pounds (+8 percent). Data was also collected for the first, second, and third quarters of 1982 and are presented in table 2. For the first three quarters of 1982, compared with the same quarters a year earlier, production, sales, and exports all declined, while ending inventories, imports, and apparent consumption increased.

Sales

The slight increase in sales of domestic canned mushrooms (1 percent) in the fourth quarter of 1982, compared with the same quarter of 1981, primarily reflected increases in mushrooms packed as stems and pieces in institutional-size containers and sliced mushrooms packed in retail-size containers; these increases more than offset declines in sales of stems and pieces in retail-size containers and sliced mushrooms in institutional-size containers. Sales of the frozen mushrooms (6.1 million pounds), however, were 17 percent more than in the corresponding period of 1981. Sales of frozen mushrooms were equivalent to 24 percent of canned mushroom sales, up from 21 percent in the same quarter 1981. Exports decreased 27 percent to 104,000 pounds, but remained negligible with respect to U.S. production and apparent consumption.

A decline in sales during the first three quarters of 1982, compared with those in the same quarters of 1981, reflected a sharp drop in sales of sliced mushrooms, packed in both retail-size and institutional-size containers, and in stems and pieces in retail-size cans. Sales of frozen mushrooms averaged 26 percent of canned mushroom sales during the first three quarters of 1982 compared with 22 percent during the same quarters of 1981. Exports in the 1982 period were 57 percent less than those during the same period of 1981.

Imports

The 12-percent increase in imports of processed mushrooms in the fourth quarter of 1982, compared to the same quarter of 1981, reflects in part the downward adjustment of the temporary rate of duty increase which was imposed on prepared or preserved mushrooms, effective on November 1, 1980. The temporary duty increase, directed by the President, was taken under provisions of the Trade Act of 1974 following a U.S. International Trade Commission determination that imports of prepared or preserved mushrooms are a substantial cause of serious injury, or the threat thereof, to the domestic industry. Fourth quarter 1982 imports were equivalent to 45 percent of consumption, compared with 43 percent in the same quarter a year earlier.

The People's Republic of China (China) was the principal supplier of imported processed mushrooms in the fourth quarter of 1982, a position it had also attained in the last three quarters of 1981. Other major suppliers of imported mushrooms are Taiwan, Hong Kong, and the Republic of Korea (Korea). Between October-December 1981 and 1982, China's share of imports rose from 38 to 44 percent and Taiwan's increased from 31 to 43 percent while Hong Kong's share dropped from 26 to 9 percent and Korea's declined from 2 to 1 percent.

MARKET YEAR DATA

Production, sales, ending inventories, imports, and apparent consumption all declined for the most recent

(Continued on page 24)

A report to the President on Investigation No. 332-84 under Section 332 of the Tariff Act of 1930. United States International Trade Commission, Washington, DC 20436, for the fourth calendar quarter of 1982. This report was prepared principally by Timothy P. McCarty; Agricultural, Fisheries and Forest Products Division and assisted by Marretta A. Johnson; Agricultural, Fisheries and Forest Products Division.

(Continued from page 23)

marketing year (July 1981-June 1982) compared with the preceding marketing year (1980/81), but the ratio of imports to consumption rose from 45 to 46 percent. In 1981/82, domestic production totaled 98.3 million pounds and imports, 95.7 million pounds, decreases of 2 percent for production and 1 percent for imports from the previous year. Apparent consumption correspondingly fell 2 percent to 209.1 million pounds. Sales of canned mushrooms decreased 7 percent to 92.2 million pounds in 1981/82. In regard to frozen mushrooms, sales in 1981/82 reached 21.6 million pounds, an increase of 23 percent from 1980/81. In 1981/82, sales of frozen mushrooms were equivalent to 23 percent of canned mushroom sales, up from 18 percent in 1980/81.

(The information provided in this report was compiled by the United States International Trade Commission as requested by the President in accordance with section 332(g) of the Tariff Act of 1930, as amended (19 U.S.C. 1332(g)), in order to monitor import competition in the domestic market for processed mushrooms. Data included herein cover the stocks, production, and sales of U.S. producers of canned mushrooms, sales of U.S. processors of frozen mushrooms, imports under items 144.20 and 922.56 of the Tariff Schedules of the United States, exports, and apparent consumption.)

Table 1—Processed mushrooms: U.S. producers' carry-in and carry-out stocks, production, sales, exports of domestic merchandise, imports for consumption, and apparent consumption, October-December 1981 and 1982 and marketing years July 1, 1980-June 30, 1981, and July 1, 1981-June 30, 1982.

(In thousands of pounds, drained-weight basis)

Item	October-December		Marketing year	
	1981	1982	July 1, 1980-June 30, 1981	July 1, 1981-June 30, 1982
Carry-in stocks of canned mushrooms	25,099	19,900	28,140	28,751
Carry-out stocks of canned mushrooms:				
9 ounces or less:				
Whole	1,254	442	417	847
Sliced	895	1,353	1,293	1,662
Other	19,763	9,767	21,146	18,158
Total	21,912	11,562	22,856	20,667
Over 9 ounces:				
Whole	52	49	64	73
Sliced	2,959	475	1,801	596
Other	5,305	3,962	4,030	5,917
Total	8,316	4,486	5,895	6,586
Total carry-out stocks	30,228	16,048	28,751	27,253
Production of canned mushrooms:				
9 ounces or less:				
Whole	885	620	2,741	3,153
Sliced	1,352	1,613	6,773	5,768
Other	15,267	11,146	54,935	54,499
Total	17,504	13,379	64,449	63,420
Over 9 ounces:				
Whole	68	69	291	409
Sliced	4,288	3,309	16,769	16,598
Other	5,367	5,114	18,852	17,914
Total	9,723	8,492	35,912	34,921
Total production	27,227	21,871	100,361	98,341

See footnotes at end of table.

(Continued on page 25)

(Continued from page 24)

Item	October-December		Marketing year	
	1981	1982	July 1, 1980-June 30, 1981	July 1, 1981-June 30, 1982
Sales:				
Canned mushrooms:				
9 ounces or less:				
Whole	810	710	4,080	2,489
Sliced	1,412	1,862	8,169	5,491
Other	14,585	14,102	48,576	51,095
Total	16,807	16,674	60,825	59,075
Over 9 ounces:				
Whole	82	200	369	279
Sliced	3,817	3,369	19,135	15,781
Other	4,596	5,386	19,164	17,114
Total	8,495	8,955	38,668	33,174
Total sales, canned	25,302	25,629	99,493	92,249
Frozen mushrooms 1/	5,205	6,087	17,464	21,566
Exports	142	104	339	440
Imports from--				
People's Republic of China	8,817	11,480	20,214	32,239
Taiwan	7,249	11,292	39,448	30,238
Hong Kong	6,162	2,264	21,398	21,408
Republic of Korea	528	312	11,258	6,531
All other	584	852	4,185	5,266
Total	23,340	26,200	96,503	95,682
Apparent consumption 2/	53,705	57,812	213,121	209,057
Ratio of imports to consumption--percent--	43	45	45	46

Table 2—Processed mushrooms: U.S. producers' carry-in and carry-out stocks, production, sales, exports of domestic merchandise, imports for consumption, and apparent consumption, January-March 1981 and 1982, April-June 1981 and 1982, and July-September 1981 and 1982.

(Continued from page 25)

(In thousands of pounds, drained-weight basis)

Item	January-March		April-June		July-September	
	1981	1982	1981	1982	1981	1982
Carry-in stocks of canned mushrooms	19,230	30,228	18,636	26,008	28,751	27,253
Carry-out stocks of canned mushrooms:						
9 ounces or less:						
Whole	777	793	417	847	1,062	532
Sliced	1,809	1,502	1,293	1,662	404	1,591
Other	13,022	16,555	21,146	18,158	16,707	12,675
Total	15,608	18,850	22,856	20,667	18,173	14,798
Over 9 ounces:						
Whole	126	46	64	73	65	180
Sliced	1,311	1,002	1,801	596	2,950	675
Other	1,591	6,110	4,030	5,917	3,911	4,247
Total	3,028	7,158	5,895	6,586	6,926	5,102
Total carry-out stocks	18,636	26,008	28,751	27,253	25,099	19,900
Production of canned mushrooms:						
9 ounces or less:						
Whole	827	742	637	497	1,029	181
Sliced	1,825	2,082	1,563	1,618	716	1,184
Other	14,563	13,410	16,180	12,399	13,423	4,570
Total	17,215	16,234	18,380	14,514	15,168	5,935
Over 9 ounces:						
Whole	91	119	57	149	73	160
Sliced	3,531	3,165	4,706	3,307	5,838	3,116
Other	5,195	4,842	6,883	5,698	2,007	4,481
Total	8,817	8,126	11,646	9,154	7,918	7,757
Total production	26,032	24,360	30,026	23,668	23,086	13,692

See footnotes at end of table.

(Continued on page 27)

(In thousands of pounds, drained-weight basis)

(Continued from page 26)

Item	January-March		April-June		July-September	
	1981	1982	1981	1982	1981	1982
Sales:						
Canned mushrooms:						
9 ounces or less:						
Whole	893	644	1,048	431	604	502
Sliced	2,232	1,384	2,088	1,280	1,415	1,340
Other	11,744	13,457	8,198	11,353	11,700	9,165
Total	14,869	15,485	11,334	13,064	13,719	11,007
Over 9 ounces:						
Whole	88	77	116	59	61	53
Sliced	4,212	3,509	5,737	3,535	4,920	2,984
Other	5,465	4,647	4,239	5,914	1,957	6,125
Total	9,765	8,233	10,092	9,508	6,938	9,162
Total sales, canned	24,634	23,718	21,426	22,572	20,657	20,169
Frozen mushrooms 1/	4,431	5,644	5,568	6,038	4,679	5,735
Exports	81	44	85	63	191	46
Imports from--						
People's Republic of China	2,620	7,060	6,822	7,177	9,186	9,651
Taiwan	4,807	7,568	6,085	8,929	6,493	10,929
Hong Kong	5,677	6,054	6,748	4,298	4,894	3,622
Republic of Korea	2,046	2,140	4,147	1,158	2,705	1,570
All other	857	1,388	1,526	2,610	682	1,267
Total	16,007	24,210	25,328	24,172	23,960	27,039
Apparent consumption 2/	44,991	53,528	52,237	52,719	49,105	52,897
Ratio of imports to consumption--percent--	36	45	48	46	49	51

1/ Data on frozen mushrooms converted to drained-weight equivalents.
2/ Data do not take into account disappearance from losses or waste of domestic canners or changes in stocks of producers of canned or frozen mushrooms or importers.

Source: Stocks, production, and sales were estimated from data submitted in response to questionnaires of the U.S. International Trade Commission; exports and imports were compiled from official statistics of the U.S. Department of Commerce.

Note.—Data on stocks, production, and sales may not add because of losses.

Majestic Farms, Inc.

March 22, 1983

Ms Denise DiNorscia
c/o American Mushroom Institute
Mushroom News
P.O. Box 373
Kennett Square, PA 19348

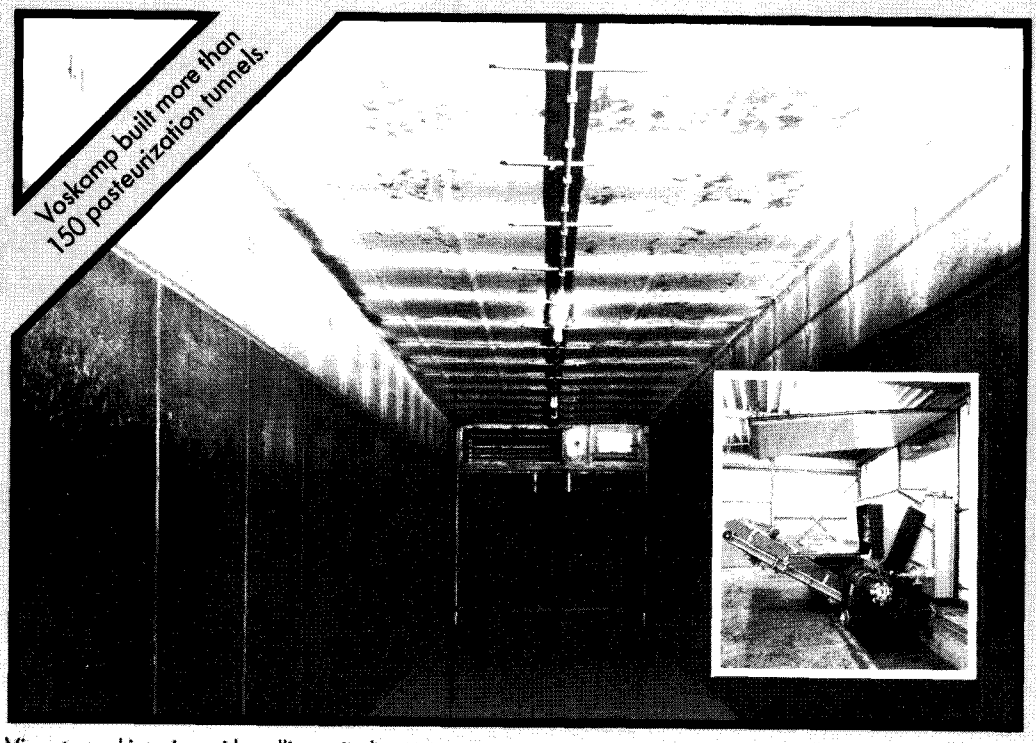
Dear Ms DiNorscia;

I appreciate the excellent write up in the *Mushroom News* and let me compliment you on your wording and uniqueness of the article. Thanks again!

Kindest regards,

P. V. Vendegna,
President,
Majestic Farms, Inc.
Golden, CO 80403

Voskamp Agroprojecten b.v., The world wide specialist in the construction of mushroom farms



View tunnel interior with pulling winch.

Voskamp Agroprojecten B.V. has experience in the installation of tunnels for pasteurization and spawnrunning of compost in bulk for already many years. The use of tunnels offers many advantages - including cost savings on energy, labour and organic matter.
Loading and unloading of the tunnels is entirely mechanised and automated. Tunnels offer an increase in the number of cultivation cycles in the growing rooms.
The average production, by using the Voskamp System, with an 8 weeks productioncycle will achieve up to 28 kgs/m^2 and more. Insulation and vapour-tightness are of extreme importance to control the temperature, ventilation and humidity.
Cultivation can take place on an exact schedule, and the nurseries are fitted to render the maximum saving of effort and energy. Complete automatic harvesting is made possible.
Our initial goal in the development of our system is to ensure a maximum return on mushroom farming. The latest cultivation techniques and the most advanced technological knowledge has been incorporated in this development, resulting in our world-wide reputation.
Our services include:

- Consulting, planning and engineering
- Construction and supervision
- Supply of equipment
- Personnel recruiting
- Management training
- Cultivation technology guidance

Our services are available for assistance in training a new farm, in extending an existing one, or in the renovation of an absolute one. If you demand high production rates and top quality products, write for more information to:

Voskamp Agroprojecten b.v.

P.O. Box 143 - 2690 AC 's-Gravenzande Holland
Telephone (01748) 3221 - Telex 32351 agro nl

or contact our office in the U.S.A. p/o Box 739 Medford N.Y. 11763.
Telephone: (516)698-2564. Telex: 968622

Mushroom nurseries
Poultry Projects
Coldstores
Slaughteries

Once King of Mushrooms . . .

Louis Piantoni
a high school picture

Just as the first mushroom plant began in Kennett Square, one began in Michigan, and that was where Louis Piantoni, the first kid to start working in the mushroom business, began his career.

The first child of the second generation and a member of the AMI, Louis was born in 1916 in the town of Ophir, Utah, near Salt Lake City. After his family—mother, father and sister—moved to Detroit, Michigan, where Louis finished school at Eastern High School, he began his mushroom career in 1935, during the Depression, at 17 years of age.

Louis worked for the first growers in the state of Michigan, Joe Marzetti and Gabriel Meli, who moved next door to the Piantoni family on Ryan Road. Louis' father had also worked for the partners, on a parttime basis.

Returning home from the war in 1945, Louis said he took over the Marzetti and Meli business, and in 1946, he started the Detroit Hot House Mushroom Cooperative, where he sold his mushrooms to a Chicago market and Campbells Soup. Later, in 1949, the name was changed to the Great Lakes Mushroom Cooperative, a cannery where 18 growers joined. Louis' part of the cannery was Shelby Mushrooms where he was president, vice president, and secretary. He said when he first started the co-op, 90% of the mushrooms were fresh, and 10% were canned.

Louis recalled the equipment used when he started in the mushroom business.

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Louis today near his mushroom houses.

A portion of the 6 singles of Shelby Mushrooms, Inc.

. . . Now Claims King of Welfare

(Continued from page 29)

"We used the fork, shovel, pick and wheelbarrel. That was our first class equipment back then," he said.

Retired at the ripe age of 66, Louis advises growers not to go in the mushroom houses alone at night, and he's speaking from experience. He said after an incident on the job involving one of his employees about a year ago, Louis had gone into the mushroom house alone one night. Suddenly, Louis was hit over the head with a 1½ foot pipe about three times, he said. The employee, or should we say "former" employee, had taken his money, his truck and escaped. Louis got up, staggered home unconsciously, and was rushed to the hospital where he received 80-90 stitches.

"Someone was looking out for me," Louis said. "It took me 12 days to realize where I was. Nobody could believe that I had survived. I was lucky."

And lucky he was. Now "safe and sound", Louis is married and is the proud father of two girls and a boy. He is also the oldest of the second generation—all the others are gone, including the first growers Marzetti and Meli. Left to take on the business is Louis' son, Tony. No, Louis didn't quit yet, he said. He still helps out "here and there", but is actually retired. He's put in his hard work for almost a life time and is now going to "take life easy", he said.

Fresh Approach To Visit 25 Cities During 1983

Fresh fruits and vegetables will be highlighted to consumers in market visits to 25 cities in 1983 by The Fresh Approach campaign, the consumer education program sponsored by the United Fresh Fruit and Vegetable Association. Many cities will be included for the first time, Salinas, Bakersfield, Wenatchee, Yakima, McAllen and more.

Fresh Approach spokesperson, Tere Linehan, says there is something new in the itinerary for market visits this year with the addition of cities near growing areas. "So many of our members live in these areas, I am really looking forward to meeting them and showing them what The Fresh Approach does to promote the products they grow," says Linehan. The Fresh Approach visits are multifaceted, promoting fresh fruits and vegetables through television, radio and newspaper advertising. Linehan will visit wholesalers and retailers to see first-hand the ins and outs of their operations. Since many members sell to foodservice establishments, she says, they might want to increase sales through a "BEST-FRESH RECIPE CONTEST" among local chefs. Or perhaps they might want to spotlight a particular restaurant that is doing something special with FRESH.

United members will serve as hosts for the market visits, and all local members are encouraged to get involved. Here is a list of cities that Linehan will visit, along with dates.

1983 Market Visits

Birmingham	March 28-30
Atlanta	March 30-April 1
Miami/Ft. Lauderdale	April 4-6
Lakeland/Tampa/St. Petersburg	April 6-8
Salinas	May 2-4
San Francisco	May 4-6
Bakersfield/Delano	May 9-11
Fresno	May 11-13
Portland	June 6-8
Seattle	June 8-10
Wenatchee	June 13-14
Yakima	June 15-17
Pittsburgh	July 11-13
Chicago	July 14-15
St. Louis	July 18-20
Indianapolis	July 21-22
Philadelphia	August 22-24
Vineland, NJ	August 26
Kennett Square, PA	August 27
Houston	November 7-9
McAllen	November 9-11
San Antonio	November 14-16
Dallas	November 16-18
New York City	December 12-14
Boston	December 14-16

For further information on any market visit or Fresh Approach Activity, contact Sandra Struass or Tere Linehan, United Fresh Fruit and Vegetable Association, 727 North Washington Street, Alexandria, Virginia 22314, telephone, 703/836-3410.

Mushroom Cook-Off Winner Announced

The mystical, magical mushroom isn't a mystery to Pennsylvanians anymore, as evidenced by Deborah Yandric of Middletown, Dauphin County, winner of the Pennsylvania Mushroom Recipe Cook-Off.

Hundreds of people viewed the contest as judges exercised their palates for an hour, declaring Yandric's "Elegant Mushroom Quiche" the first place winner. She took home $50 cash, compliments of the Department's Mushroom Promotions Program.

Second prize, a $25 gift certificate from Mishkin of Strawberry Square in Harrisburg, went to Shirley DiSantis of Bethlehem, Lehigh County, for her "Mushroom Manicooti." The third prize, a $20 gift certificate from Strawberry Square merchants, went to Josephine Smith of Kennett Square, Chester County, for her "Mushroom Savouries," and fourth prize went to Judith K. Reinhart of Mechanicsburg, Cumberland County, for her "1-2-3 Chicken Dinner." Winners were selected from eleven finalists in the cook-off.

The winning dish contained 12 ounces of fresh mushrooms, meeting the contest's minimum requirements. All entrants had to be over 18 years old, without a professional food status. Dishes were judged on taste, appearance, originality and ease of preparation.

The Mushroom Recipe Contest is one of the activities the Department's Mushroom Promotion Program uses to educate consumers about fresh mushrooms.

Deborah Yandric of Dauphin County, right, shows off her winning recipe, "Elegant Mushroom Quiche," in the Mushroom Recipe Cook-Off with the help of Pennsylvania Queen Angela DiProspero.

ELEGANT MUSHROOM QUICHE

1 (8 oz.) can refrigerated crescent dinner rolls
8 strips of bacon, cooked crisp and crumbled
¾ cup shredded cheddar cheese
¾ cup shredded swiss cheese
12 oz. fresh mushrooms, washed and sliced
3 tablespoons butter
1 cup boiling water
1 individual serving envelope of cream of mushroom soup mix
1 individual serving envelope of cream of chicken soup mix
3 eggs, beaten
⅓ cup milk
¼ teaspoon pepper
2 teaspoons flour
¼ cup dairy sour cream
½ teaspoon chopped chives
¼ teaspoon paprika

Separate crescent dough into 8 triangles. Place triangles in an ungreased 10-inch pie pan or quiche dish. Press over bottom and up sides to form a crust.

Mix cheeses and bacon together. Reserve ¼ cup of this mixture for later use. Arrange remainder evenly over bottom of prepared crust. Saute mushrooms gently in large skillet, in the 3 tablespoons butter. Remove from skillet with slotted spoon. Set aside.

In large mixing bowl, empty both envelopes of soup mix. Pour in the boiling water, stirring until smooth. On medium speed of electric mixer, or with rotary beater, mix in the eggs. Beat in the milk, pepper, flour,and sour cream till thoroughly blended. With a spoon stir in the mushrooms. Pour into crust.

In a preheated 350° oven, place carefully on center rack. Bake 25 minutes. Add reserved bacon-cheese mixture by sprinkling evenly over top of quiche. Bake more minutes. Sprinkle with chives and paprika. Bake 10-15 minutes longer (till puffy and lightly brown). Remove to a rack and allow to cool 10 minutes. Cut into wedges and serve. Make 6 servings.

Deborah Yandric
Middletown, Pa.

How the Steel Industry Dictated the Trade Agreement

By Art Pine

David M. Roderick has never been appointed the chief U.S. trade negotiator, but he might as well have had that portfolio during the talks leading to the recent agreement restricting Western Europe's steel exports to the U.S.

The U.S. Steel Corp. chairman didn't actually handle the day-to-day bargaining with the Europeans, but as spokesman for the American steel industry he called the shots in the negotiations with the Common Market. Commerce Secretary Malcolm Baldrige reached a tentative agreement with the Europeans in early August, but had to back away because the American steel industry thought the terms inadequate. Had Mr. Roderick declined to accept a second version late last month, the U.S. would have been forced to impose stiff penalty duties on European steel—seriously raising U.S.-European tensions.

That an industry executive can have veto power over U.S. trade policy isn't a matter of business's closeness to Republicans. It's written into the U.S. trade law. Under a series of amendments enacted by Congress in 1979, once a domestic industry has filed an unfair-trade-practices complaint, the only way any administration—Democratic or Republican—can work out a settlement with a foreign government is to win the approval of the American firms that filed the trade cases. There are some technical exceptions, but one central point remains: If the domestic industry refuses to withdraw its complaints in order to permit settlement of a trade dispute, a government-to-government agreement can't go through.

Giving U.S. industry a stronger say in such negotiations may not have seemed unreasonable when the 1979 legislation was passed. Until the mid-1970s, industry had almost no say in the trade-complaint process. Allegations about unfair practices were handled by the Treasury Department, which somehow always found offsetting factors to render any penalty duties moot. Thus the whole idea of filing unfair-trade-practice complaints became absurd.

But many trade experts seriously question whether the current legislation—which includes language drafted by steel-industry lawyers and lobbyists—doesn't go too far the other way.

First, the agreement negotiated by Mr. Baldrige last month gives the U.S. industry far more protection than it would have received had the government been forced to impose penalty duties instead. For one thing, the pact calls for limits on European shipments of steel pipe and tube products—a sector that wasn't even covered by the U.S. industry's original complaints. Moreover, it imposes restrictions on all European countries—even those that had been cleared of unfair-trade-practice charges by the U.S. International Trade Commission.

Second, the requirement that the administration win the U.S. industry's approval before signing any pact reduces Mr. Baldrige to the status of Pittsburgh's messenger—and minimizes the government's traditional role as a buffer between the industry's demands and the public interest.

The complaints of the American steel industry weren't the only things at stake in the recent negotiations. Amid the fracas over the U.S. embargo on equipment for the Soviet pipeline, failure to reach a steel agreement could have seriously worsened U.S.-European relations. The steel dispute has already helped sour the Europeans on U.S. proposals to be offered at this month's 88-country ministerial-level trade conference; those proposals call for extending current trade rules to cover international investment and trade in services and high-technology products.

Finally, despite such costs to the nation's trade policy, the steel industry received almost everything it wanted from the U.S.-European pact without having to give anything in return.

It's no secret that Pittsburgh's inability to compete in the international market isn't all the fault of Western Europe's insistence on subsidizing its steel exports. Over the years, the U.S. industry also has failed to modernize its aging plant facilities rapidly enough, has allowed its workers' wages to get far out of line with those of other factory workers and has misjudged the market. There's now excess steelmaking capacity world-wide, with little hope of a major turnaround.

It's clear to most analysts that the American steel industry, along with producers in other countries, will have to adjust to these realities. Yet the newly negotiated pact contains no provisions calling for such action. In theory, steel executives can continue to spend their money buying up oil companies. The U.S. may have to put its international bargaining chips on the line for naught.

That situation may be about to change, if some government policy makers have their way. The White House has begun exploring the possibility of proposing legislation that would require complaining U.S. industries to agree to a long-term adjustment plan as part of any negotiated settlement of complaints about import competition. Even such a steel industry stalwart as Sen. John Heinz is looking at the idea seriously, possibly for consideration in the coming Congress. "It may well be an

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(Continued from page 32)

important part of the debate next year," a Washington-based trade expert predicts.

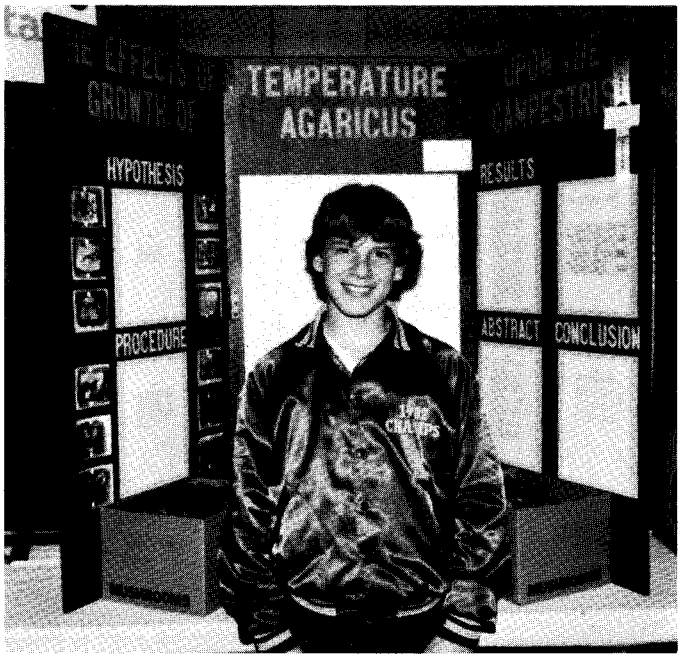
It's not clear how the steel pact would have turned out had the administration been empowered to negotiate such an adjustment plan with the U.S. industry. But the companies and unions might have worked out a long-range plan for realigning wages and providing for orderly cuts in the work force and for modernizing outmoded equipment—and even, if need be, for getting into other businesses.

To be sure, the approach raises some serious issues. It's not always easy to draft an industrywide agreement that treats all companies fairly. The political opposition to belt-tightening in a hard-hit industry such as steel would be enormous. And the process would result in more government involvement in the decisions of private industry.

Industry spokesmen also make another point: The concessions they won from the Europeans ostensibly were compensation for the Common Market's unfair trade practices. Why shouldn't they be given without any strings?

But critics of the current law argue that the industry now is able to dictate the terms of a major international trade negotiation—and in effect determine U.S. trade policy—without any checks and balances. If any U.S. businessman or labor leader is going to be able to exact that much in government support, shouldn't he have to give something in return?

Reprinted from *The Wall Street Journal*, Nov. 23, 1982.



Science Project Wins Award

Robert W. DiCecco, 14, son of Thomas DiCecco, President of Oxford Corporation, Oxford, Pa., and eighth grade student at A.I. DuPont Middle School, won first place award for his science project, "The Effects of Temperature Upon the Growth of *Agaricus Campestris*." Bob's project will now be submitted for competition at the regional level in Philadelphia, Pa.

Commodity Happenings

CONSUMER REPORT

There has been a lot of talk over the years about how consumption of fresh produce could be increased if consumers were better educated about the preparation and uses of fruits and vegetables. Although some progress has been made, the industry as a whole has done surprisingly little about this. Such information at point-of-purchase is still a rarity.

The need for such education was reinforced by a speaker at the United Fresh Fruit and Vegetable Association convention in Anaheim, Calif., Sunday through Wednesday, Feb. 20-23. William Joseffer, marketing director for grocery products for Better Homes and Gardens magazine, told the audience fresh fruits and vegetables are highly popular with consumers, but would be even more popular if more information on ripeness and preparation were available.

In a seminar titled, "What 1,000 Consumers Say About Fresh Fruits and Vegetables," Joseffer said 74 percent of the consumers interviewed said they would buy "new types" or "more new types" of fruit if they had more information on preparing or serving them. Less than 20 percent of the respondents said their particular supermarkets provide such information.

Remarkably, even without much of this type of information, consumers are trying new items. For instance, nearly 54 percent of the consumers reported they are eating more fresh vegetables today than they did three years ago, 44 percent are eating about the same amount, and only 2 percent are eating less.

Their response to fruit was about the same. About 60 percent of the consumers reported they are eating more fresh fruit than they did three years ago. Much of this increase stems from their interest in diet and health.

About 82 percent said they like "very much" or "somewhat" trying new types of fresh vegetables, while 77 percent said they like "very much" or "somewhat" trying new types of fresh fruits.

The most frequently mentioned reason for not liking to try new types of fresh fruits or vegetables is that consumers are not sure how to select good-quality produce items, or do not recognize the degree of ripeness of the product.

Obviously, the remedy to this disturbing situation is for industry promotion groups and retailers to furnish more information on produce items. Consumers particularly need help on new items. Recipes and information on how to assess ripeness and how to prepare products are especially good for unfamiliar items.

Studies showed that some 88 percent of the consumer panel said they always bought fresh fruits, within 67 percent said they always bought fresh vegetables. When given a choice between fresh, canned or frozen produce, 90 percent preferred fresh if the prices were the same, Joseffer said. He added that 65 percent said they would buy what they liked if there were only a slight price difference.

Joseffer said consumers were "buying wiser and not cheaper," with quality their top criteria for purchases. He added that 80 percent said they used a shopping list, indicating a trend toward less impulse buying.

He said today's consumers demanded more personalized selling, and pointed to efforts by Safeway Stores as possible trendsetters, with produce sections offering more variety and extras such as in-store salad bars and flower stalls.

On a question from the audience, as to why total consumption of fresh fruits and vegetables was not going up, Joseffer said he believed the total was dispersed between more varieties, that population growth was declining, and that consumers were "eating less and eating lighter."

THE SELLING PROPOSITION

The selling proposition is the product, concept, or idea you wish to sell. What is the key thought you want your advertising to trigger in your target audience? What is unique about your product that brings the key thought to mind?

Say, for example, you grow apples. (I know, I know. You grow mushrooms—but just pretend.) What are you going to sell? Did you say apples? Of course! But what else are you selling? Are you selling low price? High quality? What if consumers ALREADY expect these things "at-the-farm?" Why do customers come to YOUR farm to buy YOUR apples? Is it a day in the country? A family adventure? Bulk supplies for canning? The best cider in the county? Nutritious food? A rare variety? Convenient hours? A seasonal favorite? Pick your own? Easy access? A special price? The best baking apples? A picnic area? Produce direct from the farm? WHAT IS YOUR SELLING PROPOSITION?

Naturally there may be several messages you want to get across; however, with limited advertising space, money, or time, the key is to discover those propositions which are MOST effective in achieving your promotional objective.

Take a look at your sales operation. What are the trends? What has worked in the past? Survey your customers. Estimate the potential of various possible selling propositions for selling propositions for achieving your promotional objective, and rank them by effectiveness. By using this technique, you may be able to avoid advertising that looks good, but doesn't do what it is supposed to do.

What are you selling? Now don't just say apples—or if you must—mushrooms!

RETAILERS: WHAT THE FUTURE HOLDS FOR COMMODITIES

In a trade publication the AMI receives, an article featured six retailers and their thoughts on the future of commodities.

Robert Backovich, produce merchandising division manager for Safeway Stores Inc., Oakland, Calif., said with proper identification and merchandising, "non-

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popular" or specialty fruits and vegetables will post dramatic gains during the balance of the 1980s.

"There are more gourmet cooks now than ever before. The key is to let them know not only an item's origin and name, but how to cook, store and prepare it," he said.

He also said as mass merchants, supermarket retailers have a responsibility to identify and cater to the wants of all their customers with consistent high-quality supplies of even obscure fruit and vegetable items.

Susan Mayo, director of consumer affairs for Farm Fresh Supermarkets, Inc., Norfolk, Va., said all produce commodities will see increased sales in the future "because consumers are better informed; they know they should eat less fat, more fiber and have less sodium in their diets. The interest in fresh fruits and vegetables will increase in the coming decade."

Another retailer, Doug Blumb, produce director of Country Club Market Inc., a Twin Cities supermarket chain based in Minneapolis, said people are turning more and more to fresh produce.

"All the news media have helped to establish that trend. People are just buying everything fresh, but, if I had to pick a single growth category, it would be the Oriental vegetables," he said.

He went on to say that the factors that can affect produce sales seem to be working in the industry's favor.

"The wok and the microwave have been influential, with so many women working. Quality of produce is always improving. Produce is a food bargain, and the media is telling people that produce is very good for their health. I see the trend definitely up," he said.

Leonard Wong, floral director and assistant produce merchandiser for Bel Air Mart Inc., Sacramento, Calif., said people like to have a variety.

"If they learn how to make use of specialty products, they are going to do their own thing, rather than eat out. Sales will gain simply by their getting exposed to (speciality items)," he said.

Wong also said that mass retailers should put more emphasis on fresh items that quickly can be prepared at home.

John Grant, vice president of sales and produce procurement for Stop & Shop Companies Inc., Boston, said he sees in the future of the produce business a "less centralization of the vegetable industry." He sees growth trends closer to the marketplace with some fairly major commodities such as broccoli and Iceberg lettuce.

"I don't see any decline in the whole produce spectrum," said Charles Tryon, corporate director of produce for Super Valu Stores Inc., Minneapolis. "There are increases in all the varieties, but nothing is going backward."

Tryon noted that most consumers are extremely health conscious, and that those with special problems are even more aware of what fresh fruits and vegetables can do for them in "helping them follow doctor's orders regarding low-sodium and low-cholesterol diets."

Overall, there doesn't seem to be any change in the produce market, and if there is, it's on its way up.

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GRAPEFRUIT DOWN, ORANGE UP IN '82-'83 SEASON

Texas citrus growers have been looking forward to a good crop this season, despite a slight drop in grapefruit production.

According to a fall projection from the Texas Crop and Livestock Reporting Service, grapefruit harvest will amount to 13.5 million boxes or 540,000 tons, a 3 percent decrease from last year but more than double the 1980-81 harvest. The 1981-82 season was the largest since 1947-48.

Texas Citrus is produced in the lower Rio Grande Valley at the southern-most tip of the state. Harvest begins in late September and ends in June. Hidalgo County ranks first in production, with more than 80 percent of the citrus acreage and trees.

The Valley's sub tropical climate and loamy soil contribute to the sweetness of the fruit grown here. Most Valley citrus is produced from considered superior to other root stock. The combination of factors results in oranges and grapefruits that are exceptionally sweet and juicy.

Texas grapefruit is more well known than its oranges, particularly the Ruby Red, a variety discovered growing in Texas on Florida root stock in 1929.

HOW TO LOVE YOUR CUSTOMER

Adapted from Southeast Food Service News Dec. '82

By Wayne Gauldin

Recently a famous Hollywood actress said in an interview that a good actress (or actor) has to be a manipulator—manipulating the viewer—actually millions of viewers. And I'll bet you've heard people say, as I have, that good salesmen are actors.

I won't buy that. No, I think the best ones are sincere and genuine, and I guess I've met all the types there can be.

Traits and words such as sincere and genuine go hand-in-hand with the game we call love. Love should not be called a game. It's serious business. Love can be both easy and demanding. When love is returned, it is rewarding.

I believe that a foodservice sales representative who loves his career also loves his customer, genuinely. And some customers are not easy to love. Some are not friendly, some don't play fair, some are not even competent. But all customers have some good qualities—a few, at least. And all customers have emotions. Most have pride. And then there is that little thing we call ego. It's there, as surely as there is a nose on his face.

So what does all this have to do with a foodservice distributor sales rep? Well, the success of selling is directly related to the rep's ability to like, yes, even love, the people he sells to.

As youngsters, most of us learned a Bible verse that teaches, "Be ye kind, one to another." What a lesson for us as adults in business, or anywhere else. But in selling, it is a must. You simply start with a smile. Usually that smile encourages a smile in return. Two people, buyer and seller, have begun to communicate. The buyer senses that the rep has a loving attitude towards him.

Ask the customer questions about his skills, his accomplishments, his family. Show a sincere interest in him as a person. Listen to his answers. Let him talk about himself, freely, as long as he wants.

Some reps will likely counter all of this with "I don't need more friends, I need more business."

Again, the success of selling is direclty related to this personal interaction. Selling is not like production line factory work. You may not be filling up your order pad while the customer is telling about his wife's first place in the flower show but—You are SELLING! The order pad part is just a later phase.

Selling is persuasion. And persuasion is more powerful by far thanhaving the lowest price. You know, the words love and persuasion, sort of go hand-in-hand, too, don't they? Spend five mintues sincerely building that buyer's ego, and many more minutes will follow building the list of products he is buying from you.

If a customer is a good customer, find ways to thank him. An invitation to dinner, to a sporting event, or concert, a gift, or even a letter from your company. Make him aware that his business is appreciated.

I've heard people say of another person, "He doesn't understand any language except that of money." If all your selling efforts, listening efforts and loving efforts have failed, what next? Give him money? Bribe him? "Buy" his business? Of course not. But there may be ways you can save him money. There are countless opportunities for the sales rep to improve the profits of his customer. In future columns, we will examine some of these opportunities.

I've made many calls on foodservice operators. From time to time, I have heard some of them say, "I wouldn't buy a case of anything from anyone except Joe Doe Distributing Co.," or whomever.

When the rep hears that from a prospect, he can be fairly sure of one fact. John Doe Distributing Company has somehow succeeded in making this individual feel good about himself. He has been shown a degree of love.

Whenever the sales rep succeeds in helping the foodservice operator have a better opinion of himself, it always follows that the operator will have a better opinion of the rep, of his company and of his products and services.

Then something wonderful begins to happen! When the rep feels better about his customer, he begins to feel better about himself.

Didn't someone say that success breeds success? So does love.

HOW TO SPOT HIDDEN THREATS TO YOUR BUSINESS

Adapted from Nation's Business 1983

By Abraham E. Getzler

Failure often catches businesses by surprise. As they slide closer to bankruptcy, they don't know how much money they are losing or why they are losing it or where the losses are coming from.

I have observed in hundreds of cases that what separates the survivors from the failures is the ability to recognize trouble early and do something to eliminate it.

Too many businesses go on doing things in a certain way because they have always done them that way and

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have been successful in the past. In perpetuating itself, the system destroys itself.

Let's take the example of XYZ, a manufacturer of torque rods and automobile diesel pistons. XYZ has always divided overhead costs equally between its two basic products, not recognizing that the diesel pistons—because they are more complex—are actually taking two thirds of office, factory and showroom space and two thirds of the time of management and employees. Ten clerks are assigned to diesel pistons and two to torque rods. But XYZ charges the same amount for overhead to both products.

When XYZ first went into business, 30 years ago, sophisticated cost allocation may have been unnecessary. Both torque rods and diesel pistons were good, steady, predictable sellers. But more and more motorists have been turning to diesel engines, and sales of the diesel pistons have skyrocketed. That is good news, but the overhead costs of the diesel pistons are going through the roof compared with the more modest requirements of the torque rods.

If XYZ continues to misapply costs instead of analyzing them and relating them to what is really going on, it is headed for serious trouble, because it is underpricing its diesel pistons and overpricing its torque rods.

Similarly, management often breeds unpleasant surprises for itself by failing to react quickly and decisively when the competition comes out with a better product at a lower price. Management hesitates to mark down its own obsolete product because that would do damage to the balance sheet. Yet it often is more economical to take a quick write-off loss than to maintain an inventory for years—particularly in an era of high interest rates.

A key to avoiding unpleasant surprises is being alert to what is happening in the industry and in the company itself. How willing are you to listen to the views of new salesmen? How active are you in going to trade shows and reading trade publications.

Here the pride factor often works against the founder-owner of a company. As a firm gets bigger and more diverse, a founder-owner often loses touch. He can't be aware of every new product in his industry or of the day-to-day efficiency of every executive in every department.

But he continues to think that he necessarily knows more about the company than anyone else.

Like a mother who can see no wrong in an errant child, a founder-owner can fail to ask the tough, critical questions that could provide a better idea of the scope of his problems.

A founder-owner can be so close to a problem that he can't see it. (He usually fails to eliminate deadwood early in the game; the executives drawing top dollar for little effort are frequently relatives or golf partners.) What's more, the founder-owner may be the cause of the difficulty himself and not want to admit it.

Sometimes, businesses fall back on the computer as their guarantee against an outbreak of unpleasant surprises. This is a grave mistake. It is not enough to read the numbers; you must understand what the numbers say.

For example, the computer of a producer of high-speed steel and carbide drills showed that sales were running wild in the Rocky Mountain area. That didn't seem to make sense. What the print outs didnt't say was that the drill producer's competitors were on strike in the area and the drill producer had become the only source of supply.

The cold numbers also didn't reveal that management had failed to keep in close touch with the market—its drills were being sold perilously close to

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production costs and well below the prices charged by the competition.

Unpleasant surprises can even lurk in what appears to be an encouraging situation. For example, the industrial equipment field requires heavy capital investment. Have chief executive officers and chief financial officers in this field, who complained as the prime rate reached 20 percent, ever considered the possibility that there may be more bankruptcies when rates are lower? When rates are lower, companies are less cautious and tend to throw good money after bad.

In some, surprises are something that should be handed to you on your birthday or found under the Christmas tree. Only when the management of a troubled firm is prepared to have its assumption challenged and see bad news brought to the surface—if necessary, hope to avoid the unpleasant surprise of seeing a once viable business go down the drain.

CHECK-LIST FOR SURVIVAL

1. Are you blindly following the false prophet of volume, producing too many different items and too much merchandise?
2. Are you blinded by "the pride of parenthood" into failing to close obsolete plants or unprofitable divisions?
3. Have you carefully analyzed actual manufacturing costs and the true demand for your company's products, monitored the marketplace and been prepared to adjust quickly to new situations?
4. Are you still employing long-time executives, salesmen or other employees who are making little or no contribution to the company's profits? Are you?
5. Have you diversified away from your main strength or overexpanded when business was good only to find yourself cash-short now?
6. Have you seriously considered selling off inefficient facilites and contracting out the work instead?
7. Are you concentraing on preventing the symptoms of trouble—by simply raising money to meet payrolls, bills and accounts payable—rather than taking the necessary steps, no matter how difficult they may be, to avoid major problems?

1983 Revision

Commodity Storage Manual
Mushrooms Section

STORAGE CONDITIONS

	Temperature	Storage Period	Relative Humidity or Packaging
Fresh	32° to 34°F (0° to 1.1°C)	3 to 5 days	90-95%
CA Storage	32° to 34°F (0° to 1.1°C)	5 to 8 days	90-95%
Frozen	0° to -10°F (-18° to -23°C)	6 months	Vapor-proof
	-10° to -20°F (-23° to -29°C)	1 year	Packaging
Canned	70° to 75°F (21° to 24°C)	1 year	30-50%
	40° to 45°F (4° to 7°C)	2 years	
Dehydrated	70°F (21°C)	6 months	Gas-tight, preferably
	36°F (2.2°C)	1 year	Vacuum packaging
Freezing Point	30.4°F (-0.9°C)		

Contributed by the Refrigeration Research Foundation, Bethesda, Maryland.

FRESH MUSHROOMS

Cultivated mushrooms are delicate and discolor quickly after harvest, particularly if bruised. They are not ordinarily stored prior to fresh sale but should be cooled quickly after harvest and kept refrigerated for accumulation purposes before marketing or processing. They are sometimes cold stored after the pre-processing operations just prior to canning in order to increase canned product yield, according to research at The Pennsylvania State University.

Deterioration is marked by brown to black discoloration of the surfaces, dehydration, elongation of the stems or expansion of the caps, opening of the veils and decay. Storage at 32°F (0°C) will retard the deterioration of tissues. If allowance for a marketing period of one day at higher temperatures immediately after storage is made, mushrooms should be kept at 32°F (0°C)1for only 3 to 5 days or at 40°F (4°C) for about 2 days. Refrigeration during transportation and display for sale is also essential.

Commercial washes for fresh mushrooms to extend life do not prevent spoilage and deterioration, but may give them an initial attractive white appearance when sulfites are employed in wash water. Moisture-retentive film overwraps or film caps usually are beneficial in reducing moisture loss, but increase spoilage caused by surface bacterial especially with washed mushrooms. Such overwraps if sealed may provide a modified atmosphere (MA). In fact it has been reported that controlled atmosphere (CA) storage may extend storage life at 32° to 41°F (0° to 5°C) by retarding cap opening and inhibiting mold development. A CA atmosphere containing 10-15% CO_2 is probably best, and the beneficial effect persists after mushrooms are removed to air. Reduced 0_2 levels have little or no value, in fact 0_2 levels of 2 and 5% stimulate growth according to a University of California study. Oxygen levels below 6% are now discouraged as a safety measure to prevent the potential outgrowth of *C1.* botulinum spores in fresh market mushrooms. Filmwraps must be performated with at least two $\frac{1}{8}$-inch diameter holes per package.

PREPARATION FOR PROCESSING

The most important mushroom used for processing in the United States is the cultivated mushroom commonly known as *Agaricus bisporus* (Lange) Imbach but some *A. bitorquis* are canned. Mushrooms which are destined to be sold as whole or fancy sliced mushrooms, packed with or without a sauce, are necessarily of higher quality than mushrooms which are going to be sold as diced or random cut.

The harvested mushrooms should be precooled by the grower as soon as possible to 35° to 40°F (2° to 4°C). Before processing, diseased, decayed, and other cull mushrooms are sorted out. Where mushrooms are to be packed as whole buttons or fancy slices, the base of the stem is mechanically cut off, leaving a small stub of about $\frac{3}{16}$ in.

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The major problem in the preparation of mushrooms for freezing is reduction of bacterial counts and maintenance of a white or light color. To obtain low counts a preliminary soaking followed by a gentle washing is essential. High levels of residual chlorine, up to 200 ppm in the wash-water, have been found to be useful in reducing the microbiological load. After washing, the mushrooms are graded for size by passing through a stainless steel rotating cylinder, with various size openings, which operates above or under cold water. This technique results in a minimum of bruising during the grading operation.

To prevent discoloration, it is necessary to inactivate enzymes. In canning, a steam or water blanch adequate to destroy the enzyme system (i.e. heating tissue to about 180°F (82°C)) unfortunately results in an appreciable shrinkage, as high as 30% by weight, and may also produce an undesirable gray color. Processors of frozen mushrooms may use additives rather than blanching to halt discoloration. The additives may be 0.5% ascorbic + 0.5% citric acids, or ½ to 1% acidified sodium bisulfite dips.

At present, regulation as to use of other additives for color, yield and thermophilic spoilage control of canned mushrooms are being reviewed by FDA.

FREEZING

Frozen mushrooms are prepared as slices and stems, buttons, or large whole pieces. The most important step is speed, from the time fresh mushrooms are received at the freezer plant until it is fully frozen. A rapid freezing rate is essential. One processor aims for a center temperature of -10°F (-23°C) to be reached in 3 to 5 mintues in diced, or in 20 minutes in whole mushrooms. Because such rates are difficult to obtain in the freezing of packaged mushrooms. IQF freezing is recommended to obtain a high-quality frozen mushroom. Mushrooms have been successfully frozen on a semifluidized belt, approximately 1 layer deep for caps and 4 to 5 layers deep for diced. Both liquid nitrogen and powdered dry ice have also been successfully used to freeze mushrooms rapidly. Mushrooms packed in pouches for boil-in-bag may be first IQF frozen and then filled into the bag, or they may be filled in the unfrozen state. The later technique is considered less desirable. In either case a sauce may be added, the bag sealed, placed in a carton, and the freezing completed in a plate freezer. Vacuum packaging of mushrooms is desirable in order to eliminate discoloration from oxidation. A sauce coating may serve the same purpose. Mushrooms are particularly sensitive to time-temperature relationship in storage. One processor insists on storage at temperatures below -10°F (-23°C).

CANNING

Over 4 million cases of canned mushrooms are consumed in the U.S. annually, with an increasing portion packed abroad and imported. About ¾ of the pack is in the form of stems and pieces packed in tins, with about 10% each packed as buttons or sliced. Less than 10% of the total is packed in glass, usually as whole buttons. Because of the substantial heat processing required,

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canned mushrooms are not white but usually a light gray. Speed of handling and processing and acidification help retain a lighter color and improve firmness. Use of vacuum hydration prior to blanching increases canned product yield and color according to research at The Pennsylvania State University.

DEHYDRATION

Dehydration of mushrooms has been practiced for many years, with the dehydrated product being used primarily as a condiment so that the inevitable dark-brown color was not detrimental. With the advent of freeze-drying, dehydrated mushrooms of excellent quality became possible. A part of the frozen mushroom pack is now being used for freeze-drying. To maintain original quality, freeze-dried mushrooms should be packed in an oxygen-free atmosphere, and if held for more than just a few months, at cooler temperatures.

NUTRITIONAL COMPOSITION

The following nutritional label for fresh mushrooms is based on a recent study conducted by the Produce Marketing Association and its use is encouraged.

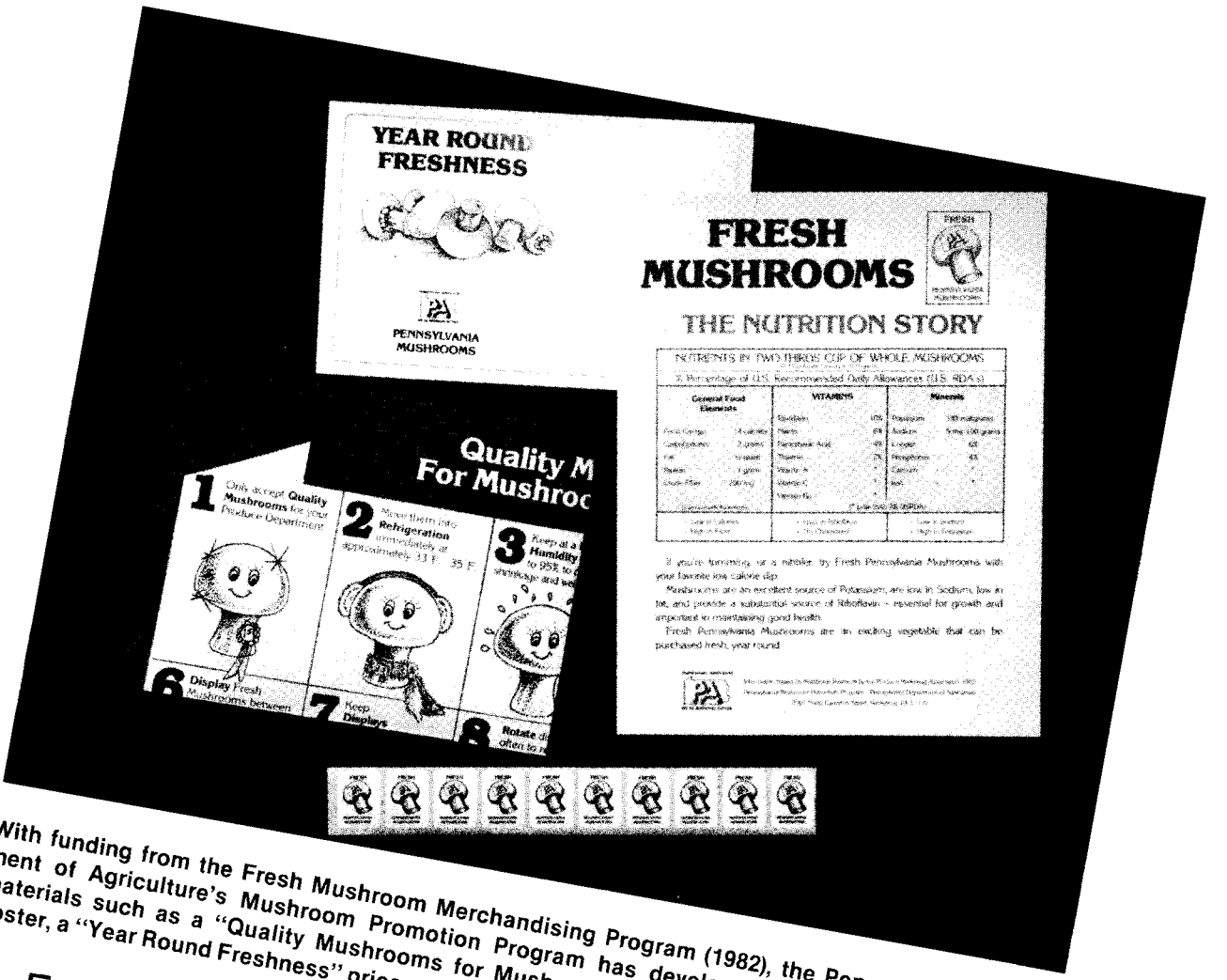
Serving Size	two-thirds cup whole mushrooms
Calories	14
Protein	1 gram
Carbohydrate	2 grams
Fat	1 gram
Sodium	5 mg/100 grams
Potassium	140 milligrams

Percentage of US Recommended Daily Allowances (US RDA's)

Protein	2%
Vitamin A	*
Vitamin C	*
Thiamin	2%
Riboflavin	10%
Niacin	8%
Calcium	*
Iron	*
Vitamin B6	*
Phosphorous	4%
Copper	6%
Pantothenic Acid	4%
Crude Fiber	200 mg

*Less than 2% USRDA

The Foundation is indebted to Professors Robert B. Beelman and Gerald D. Kuhn, Food Science Department, The Pennsylvania State University, University Park, Pennsylvania and Dr. R. E. Hardenburg of the USDA Horticultural Crops Quality Laboratory, Beltsville, Maryland, for reviewing this release.



With funding from the Fresh Mushroom Merchandising Program (1982), the Pennsylvania Department of Agriculture's Mushroom Promotion Program has developed several new promotional materials such as a "Quality Mushrooms for Mushrooming Profits" poster, a "Nutrition Story" poster, a "Year Round Freshness" price card, and a "Fresh Pennsylvania Mushrooms" sticker.

Fresh Mushroom Promotional Materials Available

In an effort to assist Pennsylvania mushroom growers increase sales of fresh mushrooms, the Pennsylvania Department of Agriculture's Mushroom Promotion Program, with funding from the Fresh Mushroom Merchandising Program (1982), has developed several new promotional materials. These materials are now available to mushroom growers, repackers, wholesalers and retailers throughout the state.

A 17"x22" one-color poster titled *Quality Mushrooms For Mushrooming Profits* leads the pack. This poster explains the best handling techniques to keep fresh mushrooms "looking good". This item can be very effective when used by produce managers to help educate produce handlers in the correct handling of fresh mushrooms for "mushrooming profits".

Fresh Mushrooms—The Nutrition Story is a two-color 11"x14" information poster that contains all the nutritional information recently approved by the Food and Drug Administration. Mushroom nutrition facts contained in the poster were prepared, after a three-year market basket study, conducted by the Produce Marketing Association of Newark, Delaware. This new information should have an impact within health circles and, when made available to the consumer at the Point-of-Purchase will help increase sales of fresh products. With consumers becoming more nutrition-conscious, this is a popular promotional piece.

Also available is a 7"x11", two-color price card for use by retailers throughout the industry. Fresh mushrooms are available to consumers in a very fresh condition all year, and as a result, the appropriate heading for this item is *Year Round Freshness*.

The last item of the group is an eye-catching 1⅛"x1½" two-color pressure-sensitive label. This sticker could be used in many different ways but is ideal for use by repackers on fresh pack overwraps. This sticker will

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help to attract attention to the product and help to increase sales—which increases profits.

William Piper, coordinator of the Mushroom Promotion Program, notes that 25 of each of these items will be made available free to mushroom growers, repackers, wholesalers and retailers throughout the industry or while supplies last. If additional amounts are desired, they are available at cost by sending a letter of request to Mushrooms, Pennsylvania Department of Agriculture, Bureau of Markets, 2301 N. Cameron Street, Harrisburg, PA 17110. The cost of each items follows:

Item (1) 17"x22"—1 color
Quality Mushrooms for Mushrooming Profits poster—30¢ each

Item (2) 11"x14"—2 color
Fresh Mushrooms—The Nutrition Story poster—30¢ each

Item (3) 7"x11"—2 color
Year Round Freshness price card—50¢ each

Item (4) 1-⅛"x1½"—2 color, 1,000 per roll
Fresh Pennsylvania Mushroom sticker—$10.00/roll

Please make checks payable to:
PENNSYLVANIA MUSHROOM PROMOTION PROGRAM
2301 North Cameron Street
Harrisburg, PA 17110

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Zoecon ..... Outside Back Cover

CLASSIFIED ADVERTISEMENTS

REAL ESTATE

FOR SALE: Mushroom tray plant complete with all new modern equipment. Growing two million lbs. per year. Full production presold at plant. No worry for home for mushrooms. Golden opportunity for right personnel. Mahoning Valley Farms, Inc., John E. Vecchione, 216-549-9800 ARS5.

PRODUCT SALE

FOR SALE: Cottonseed meal in bulk trucks delivered to your door. Contract for a fast shipment or fix a price for the entire Autumn through April. (This is the time to contract ahead.) Call Jack LaBrasca collect (312) 364-1550. (APS8)

FOR SALE: Peat moss—Canadian sphagnum direct from our own bogs. Oldest name in the industry—since 1886. Call your distributor or 416-834-3641.

FOR SALE: Cocoa-Bean Shells, Brewers Grains, Cottonseed Meal and Soybean Screenings, in dump trucks, for immediate or later delivery. Call Roland Delgado at 627-6295 for our low prices. AGRICOL, PHILADELPHIA. AMS3

HELP WANTED

Mushroom Grower for medium size year-round operation in Berks County, Pa. Experience required, interested persons send resume to Box F-1, American Mushroom Institute, 907 E. Baltimore Pike, Kennett Square, PA 19348. Excellent growth opportunity for the right person. AHW2Z

EQUIPMENT WANTED

WANTED: Used compost turner. Must be in good condition! Mar-Bo Mushrooms, Hudsonville, MI 49426, (616) 669-0698. AEW3

WANTED: 1 set of 7/8 inch aluminum casing rings. Call any time (215) 444-2725. BEW5P-IT

EQUIPMENT SALES

FOR SALE: Generators with ISUZU Diesel, water cooled, cold start glow plugs, light weight, very good on fuel, low upkeep, low noise, compact, radiator on rubber mounts, control panel rain proof on rubber mounts, long life, puts more money in your pocket. Built by the people with 18 years of experience. Call or write: Martin Electric Plants, R.D. #2, Pleasant Valley Road, Ephrata, Pa. 17522, Phone (717) 733-7968. BES3P-6T

PANNELL TURNER—TD6 Diesel engine, automatic pull-up, ex. condition. Previously owned by G.S.P. 268-2262. AES5

AMI Addresses Sales Tax

Harry Roberts, RKR Mushroom Farms, Kennett Square, Pa., and AMI Executive Director, Jack Kooker, visited recently with legislators and Pa. Secretary of Agriculture in the state capitol to resolve some problems concerning sales tax exemption for mushroom farms. Standing, left to right, are Jack Kooker, Senator Noah Wenger, Vice Chairman Agriculture and Rural Affairs Committee, Harry Roberts, RKR Farms, and Penna. Agriculture Secretary Penrose Hallowell.

Announcing

APEX™

An Insect Growth Regulator to Prevent the Emergence of Adult Sciarid Flies in Mushroom Culture

Label Change

In order to provide more flexibility for growers using APEX, SPAWN MATE, INC. announces a new method of application. This new method of application will allow growers with longer spawn runs to take better advantage of the benefits of APEX.

SPAWN MATE entomologists are ready to visit your farm to help with your total Integrated Pest Management program. They can also help determine which APEX application method is best for *your specific* farm needs.

Contact your local SPAWN MATE representative for details.

DIRECTIONS FOR USE

METHOD, RATE AND TIMING OF APPLICATION

For best results, APEX should be incorporated in the mushroom growing medium.

FOLLOW EITHER METHOD A, METHOD B or METHOD C application instructions.

A. INCORPORATE IN CASING AT TIME OF CASING.

Apply APEX at the rate of 5½ fluid oz. per 1,000 sq.ft. Make application evenly and mechanically mix into casing material prior to the casing operation, or drench evenly onto the surface of the casing immediately after placement.

B. INCORPORATE IN COMPOST AT TIME OF SPAWNING AND IN CASING AT TIME OF PLACEMENT OF CASING LAYER.

IN COMPOST: Apply APEX at the rate of 5½ fluid oz. per 1,000 sq.ft. in adequate water for even distribution. Spray or sprinkle on the surface of compost at the time of spawning and thoroughly incorporate using a spawning machine or other suitable mechanical means.

IN CASING: Apply APEX at the rate of 2¼ fluid oz. per 1,000 sq.ft. Make application evenly and mechanically mix into casing material prior to the casing operation, or drench evenly onto surface of the casing immediately after setting it in place.

C. COMPOST SURFACE DRENCH BEFORE CASING AND IN CASING AT TIME OF PLACEMENT OF CASING LAYER.

For those crops that have a 16-day or longer spawn run, a split application can be used.

1ST APPLICATION, ON COMPOST: Apply APEX 12-13 days after spawning. Drench APEX evenly on the surface at the rate of 2¾ fluid oz. per 1,000 sq.ft. in adequate water for even distribution.

2ND APPLICATION, IN CASING: Apply APEX at the rate of 2¾ fluid oz. per 1,000 sq.ft. Make application evenly and mechanically mix into casing material prior to the casing operation, or drench evenly onto the surface of the casing immediately after setting it in place.

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