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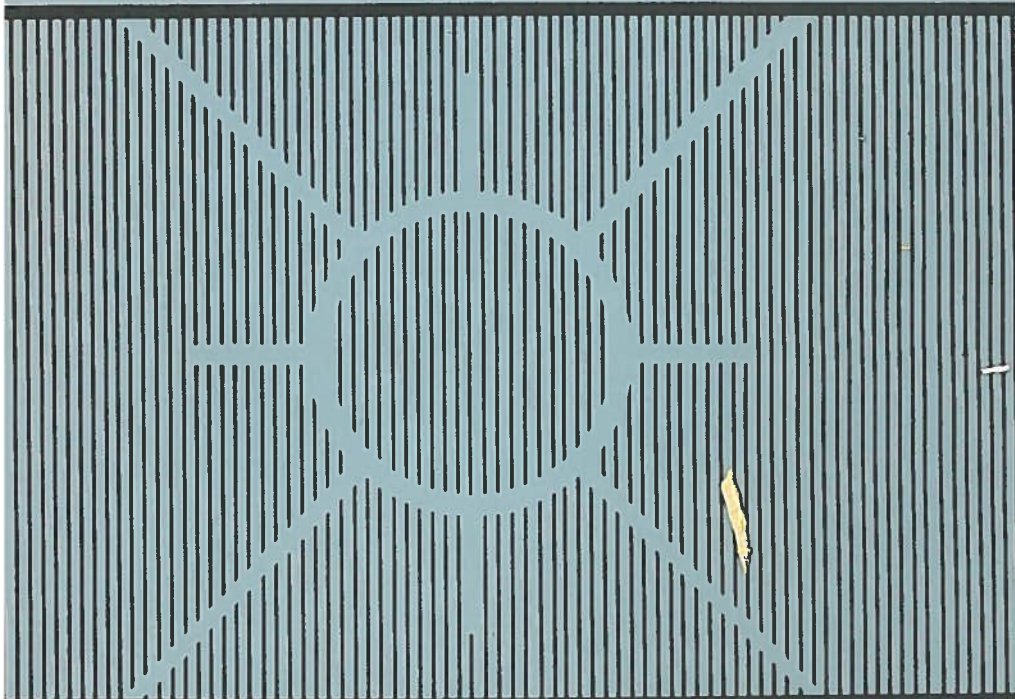
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THE TART CHERRY SUBSECTOR OF U.S. AGRICULTURE: A REVIEW OF ORGANIZATION AND PERFORMANCE



Agricultural Experiment Stations of Alaska, California, Cornell, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Ohio, South Dakota and Wisconsin.

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Chapter 3

SUPPLY-PRICE FLUCTUATIONS AND PRICE DETERMINATION OF TART CHERRIES

The conduct of the tart cherry industry is highly related to the fluctuating supplies of tart cherries. Industry structure is also influenced by the wide fluctuations in supplies and the accompanying risks. The supply-price fluctuations and price determination of tart cherries are discussed in this chapter.

SUPPLY AND PRICE FLUCTUATIONS

Cherry crop size, and hence cherry prices, fluctuate widely from year to year (Table 2). For a noteworthy example, the 1976 cherry crop was only 48% of the 1975 crop. Annual crop fluctuations of 130 to 180 million pounds from large crop to short crop, or vice versa, are not uncommon, while the average production has been approximately 210 million pounds during the past six years.

Killing spring freezes, or the lack of them, are the primary cause of the wide variations in annual crop size. Since tart cherry production is concentrated in a relatively small geographic area (Michigan, New York, and Wisconsin), the same weather conditions frequently affect much of the nation's cherry-producing region.² This is in contrast to some other fruits such as apples which are geographically more widely distributed so that a freeze in one area usually has a more limited impact on the nation's production. Another factor that contributes to fluctuating production is somewhat of a tendency of the trees to bear a larger crop in alternating years.

Demand for cherries is much more stable from year to year than is supply. Therefore, much of the annual variation in cherry prices can be attributed to supply fluctuations.

Carry-over stocks of processed cherries from previous years' crops also affect farm and processed cherry prices. These carry-over stocks are an important component of total cherry supplies in a given year. Although carry-over stocks have tended to counterbalance fluctuations in crop size, the magnitude of this balancing effect has been relatively small.

The wide and frequent supply and price fluctuations put extreme stress on many phases of the cherry industry. Few industries outside the food sector live with risk and uncertainty of the magnitude faced by cherry firms.

²Due to differences in the stage of bud development at any one time during the spring, certain areas are, however, more susceptible to freezing than others on a given date.

Table 2. U.S. Production, Farm Prices and Processed Prices for Tart Cherries, 1965-1980

Year	Total U.S. Production (mil. lbs.)	Farm Prices (cents/lb.)	Processed Cherry Prices	
			Frozen (cents/lb.)	Canned (\$/case)*
1965	353	5.1	12.4	5.15
1966	180	13.8	24.2	11.30
1967	178	17.5	32.4	13.61
1968	275	15.2	25.2	11.35
1969	317	7.8	16.3	7.93
1970	251	7.6	18.2	8.14
1971	279	10.0	18.6	9.45
1972	311	8.3	21.6	9.01
1973	175	18.8	40.0	15.54
1974	264	18.5	34.4	15.31
1975	290	10.2	29.0	11.86
1976	147	25.1	55.0	23.00
1977	147	25.1	55.0	23.00
1978	181	43.8	76.0	35.00
1979	170	47.2	75.3	36.50
1980	218	19.9	46.0	24.00

* No. 10 cans

Source: U.S. Department of Agriculture and trade sources.

IMPACT OF FLUCTUATING SUPPLIES

A widely fluctuating supply adversely affects the cherry industry by: (a) causing high risks to growers, processors and food manufacturers who use cherries, (b) curtailing long-run demand expansion possibilities, and (c) causing high overhead costs for cherry firms in short-crop years. The unstable supply situation hampers expansion of long-run demand for tart cherries in a number of ways, a fact important to cherry growers as well as consumers who desire a selection of cherry products. A fluctuating supply:

1. Hampers development and introduction of new cherry products
2. Reduces the number and frequency of cherry products offered for sale by restaurants and other food service establishments
3. Causes consumers and food service managers to discontinue buying and using cherry products (for some this remains a fairly permanent behavior pattern)
4. Restricts manufacturers' promotional activities for tart cherry products
5. Reduces the budget of industry promotional organizations such as the National Red Cherry Institute and thus hampers and disrupts their promotional activities

6. Reduces the amount of shelf space and hence consumers' exposure to cherry products in retail grocery stores
7. Hampers the development of export markets
8. Reduces the incentive for processors to build sufficient processing facilities to handle the largest crops

Fluctuating supply as an obstacle to the development and introduction of new cherry products warrants further discussion. New food products, particularly convenience food items, continue to offer potential demand expansion for commodities such as tart cherries. Although consumers and the food trade now seem to be giving somewhat less emphasis to new products than in past years, U.S. consumers and the retail grocery trade have been oriented toward a continuous series of new, mostly convenient, products packaged in a variety of colors, sizes and shapes. Consumer food industries devote substantial efforts to developing, testing, advertising and merchandising new food products to take advantage of this historical consumer orientation. As a result, food industries which compete with tart cherries for grocery store shelf space have produced many new products which are packaged and promoted in a number of enticing ways.

To successfully develop and introduce a new food product on a regional or nationwide basis can cost many millions of dollars. Costs include product research and development, package development, market testing, and large sums for advertising, promotion and introductory allowances. Many food manufacturing firms are reluctant to spend large sums to introduce new cherry products because cherries are likely to be in short supply with high prices every second or third year. In these short-supply, high-price years, cherries of the desired quality are either unavailable in sufficient quantities or are so high priced that the firm's profits on a new cherry product are likely to be eliminated. This is particularly so for a cherry product which is part of a line of similar products with the same retail price for each item in the line.

In response to high cherry costs, a food manufacturer introducing a new cherry product could raise the retail price of that new product in the short-supply years. However, substantial retail price increases, particularly for a product in the introductory stage, may well reduce the product's sales volume to the point that grocers will not stock the item. Once grocers drop a relatively new item, it is very difficult, if not impossible, for the manufacturing firm to get it reintroduced into the stores. A constant retail price may also be desired by the manufacturer if the new cherry product is one in a line of new products — for example, in a line of prepared fruit desserts. Grocers may exert pressure on the manufacturing firms to maintain a uniform price for all items in a product line of this type.³

Wide fluctuations in supply, particularly the short crops, not only affect demand for new cherry products, but also hinder expansion of demand for established cherry products. During years of large cherry supply and low prices, restaurants and food service establishments have a profit incentive to offer several cherry products, such as tarts and cakes, in addition to cherry pie. Food service firms are also more likely to

³Although the *tendency* is to charge a uniform price for all items in a line of similar products, under certain circumstances the cherry item might be priced differently from the others.

offer cherry pie every day of the week during these low-price years. Retailers are more likely to feature cherry products in their promotional activities such as newspaper advertising, menus, and point-of-sale materials. Retail grocers may devote more shelf and freezer space to tart cherry products during the low price periods. Furthermore, the promotional budget for industry organizations such as the National Red Cherry Institute will be relatively large in large crop years because their budgets are based upon assessments on grower tonnage sold. All of these actions tend to increase demand both in the short and long run.

By contrast, in short crop years, high cherry prices curtail most if not all of the above mentioned activities which are necessary to build strong long-run demand. When the next large crop occurs, the cherry industry attempts to substantially increase demand-expanding activities in order to move the large available cherry supply. But because of behavior patterns generated by the previous high-price years food manufacturers, retailers, and consumers respond reluctantly. For example, managers may have "discovered" alternative products or product lines which sell very well for their businesses. They are, therefore, reluctant to switch their product offerings, merchandising, and promotional emphasis back to tart cherry products. Consumers also may have developed new tastes for substitute products—especially if they regard the substitutes as less fattening than cherry pie or other cherry products. Because of these changed behavior patterns, an especially large price decrease for cherries is necessary to provide sufficient incentives for the food managers and consumers to switch back to tart cherry products on a large scale during the large crop, low price years.

Widely fluctuating cherry supplies also hinder development of export markets. Although European countries provide a large potential market for U.S. tart cherries, sufficient U.S. tart cherry supplies must be available every year at prices which are competitive with European cherries (after accounting for any quality differences) before European user firms will rely heavily upon U.S. tart cherry supplies. In years of extremely short U.S. crops, U.S. cherries usually have either not been available in large quantities for European markets, or Europeans have had to pay what they regard as extremely high prices. These conditions hamper the ability and inclination of European firms to provide a large market for U.S. cherries during the large-crop years when the U.S. cherry industry is vitally concerned with finding expanded markets for their product.

Because tart cherry production in a given geographic area may fluctuate as much as 500% from one year to the next, processing facilities with sufficient capacity to handle the largest crops in the area would be used at approximately 20% of capacity in some of the short-crop years. This type of situation results in high overhead costs per pound of processed cherries. (In practice this problem is somewhat reduced in certain areas by shipping raw cherries in some years from areas of relatively high production to areas of relatively low production.)

Because of processing facility under-utilization in short-crop years, proprietary processors do not have a great incentive to invest in expanding their processing capacity. Thus, because of the fluctuating supply situation, there have been large-crop years when even the entire industry's facilities were insufficient to process the crop within the necessary harvest period. In those years a substantial portion of the crop was wasted due to this lack of processing capacity.

Widely fluctuating supplies also mean high overhead costs per pound of cherries for growers since growing costs for labor, machinery, spray materials, etc., are approximately the same per acre regardless of crop size. Thus, these costs per pound of cherries vary greatly depending upon the yield per acre obtained, and result in very high growing costs per pound if frost severely reduces the crop.

The effect of yield upon grower costs per pound has been magnified in recent years with the industry's almost complete shift to mechanical harvesting. Previously costs of hand harvesting varied almost directly with the number of pounds harvested per acre. Now, however, mechanical harvesting means a high percentage of harvesting costs are fixed regardless of yield. This is due to the large overhead investment for the equipment and because labor and operation costs for mechanical harvesting do not vary directly with yield per acre.

The instability and high risk associated with widely fluctuating cherry supplies also pose difficulties for processors and growers to obtain adequate financing. Bankers and other lenders are sometimes reluctant to extend loans to firms operating under such risks especially if the firm does not have a high equity position to protect the lender. Obtaining adequate financing is often particularly difficult for processors who pay a firm cash price to growers but sell at uncertain prices throughout the year and young growers who attempt to purchase a cherry farm with little equity.

PRICE DETERMINATION

Tart cherry pricing is influenced by several interrelated markets. These include the following markets: (1) between processor-sellers and remanufacturer-buyers, (2) between processor-buyers and grower-sellers, (3) between manufacturers and retailers, (4) between retailers and consumers (including both grocery and away-from-home retailers), (5) between processor-sellers and European importer-buyers, and (6) occasionally between processor-sellers and government purchase agencies such as military and school lunch programs.

Of these markets an understanding of pricing phenomena is probably not complete between (1) grower and processor and (2) processor and manufacturer. These two markets are closely related. The market between processor-sellers and remanufacturer-buyers is the largest processed product market and deals primarily with frozen cherries sold as an unbranded commodity. Frozen cherries have served as the "barometer pack" for processed cherry prices and for grower prices, especially in recent years.

The processors who pay a definite cash price to growers base their buying prices, in part, on their expectations of prices for finished products such as frozen cherries. The grower pricing pattern has typically been fairly uniform from one processor-buyer to another and is characterized by price leadership among these processors.

Historically, processors have purchased cherries for cash from growers during the July-August harvest period at a definite grower price and sold the cherry pack during the rest of the marketing year at somewhat uncertain prices. The cash-to-grower buying pattern involves substantial risks to the processors. This risk is compounded by large

financing requirements to pay the grower a definite cash price in the summer while sales may be made throughout a year's marketing season.

Recently there has been a trend for more processors to move to pricing arrangements with no definite grower price at harvest time. Rather, the grower price is determined by actual frozen cherry prices during the marketing year minus a margin for processors' cost and investments. This is the pricing approach used by cooperatives. A small percentage of the cherry processing industry has long operated as cooperatives, but recently the percentage processed by cooperatives and grower-owned processing has increased noticeably. The percentage using the cooperatives' pricing approach will probably continue to increase significantly in the future.

Estimating finished product prices, such as for frozen cherries, is an uncertain yet important area for both processors and growers. Economists at Michigan State University have used statistical price analysis as one analytical base for assisting the industry to accurately predicting finished produce prices.

Since the late 1950s grower prices for raw cherries have also been influenced by bargaining associations. Bargaining associations have attempted to provide more complete information on prices for frozen and canned cherries and to use their influence to boost raw product prices. They have also attempted to reduce an individual processor's risk that a competing processor might be able to buy the cherries more cheaply. The grower bargaining groups have sought, and in most cases obtained, uniform pricing from the processors, thus reducing a certain kind of risk to processors and presumably leading to somewhat higher grower prices as a result of this reduced risk [12].

Bargaining associations have attempted to use market power to influence processors' pricing decisions. Since bargaining association memberships has represented 30-60% of the tart cherry tonnage, this suggests the bargaining association obtained a significant degree of market power. However, because tart cherries are highly perishable at harvest time, and because variable harvest costs constitute a low percentage of the total value of the product, the real impact of the cherry bargaining association's market power has apparently not been very large historically. Bargaining associations have been able to influence the price to a significant degree in short-crop situations and somewhat with medium-sized crops. However, in most large-crops years, the effect of the bargaining associations has probably been of somewhat minor significance.

In recognition of these difficulties and the fact that grower prices were low relative to costs during the 1960s and early 1970s, many in the cherry growing industry, along with some other fruit and vegetable industry leaders, supported passage of Michigan bargaining legislation in the early 1970s. This law was designed to strengthen the position of farmer bargainers including cherry growers. This bargaining law and its effect on the cherry industry will be discussed more fully in Chapters 5 and 8.