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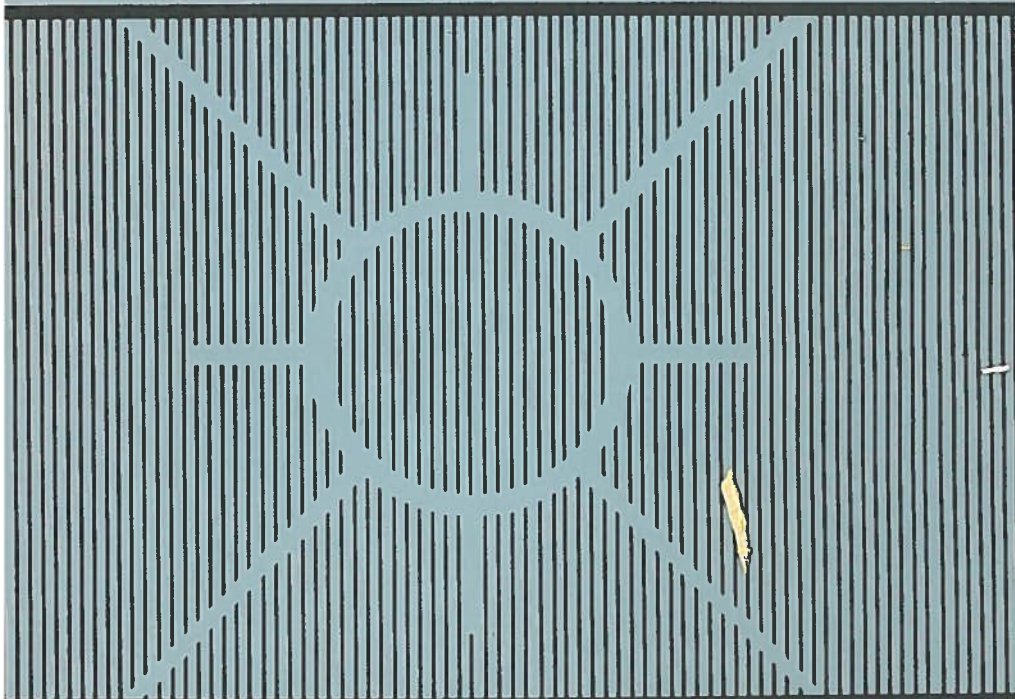
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# THE TART CHERRY SUBSECTOR OF U.S. AGRICULTURE: A REVIEW OF ORGANIZATION AND PERFORMANCE



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 4

# THE STRUCTURE OF VARIOUS MARKETS FOR TART CHERRIES

Tart cherries are marketed through a series of interrelated markets (Chapter 2). Various market structures are exhibited in these different cherry markets. The major markets are described below.

### THE GROWER-PROCESSOR MARKET FOR RAW CHERRIES

In this market a large number of growers are the sellers while substantially fewer processors are the buyers. Grower-owned processing and cooperatives are increasingly important in the industry, a trend which decreases the importance of the grower-processor market since this market for raw cherries is essentially bypassed with cooperatives and grower-owned processing.

#### The Grower-Sellers

Tart cherry growers usually have several different fruit crops. However, in Michigan, tart cherries are typically one of the most important crops on fruit farms. In northwestern Michigan tart cherries are usually by far the most important crop for the grower. In other parts of Michigan, in New York and in Pennsylvania, cherries are usually one crop among several on the farm.

Most recently available data show that there are 1,700 growers in Michigan and approximately 4,000 in the U.S. Each grower sells essentially undifferentiated raw commodity. No grower is large enough to influence cherry prices by individual action. Cherry grower numbers continue to decline in all producing states. In Michigan, for example, grower numbers declined from about 3,500 in 1964 to 2,000 in 1973 and 1,700 in 1978. The larger growers produce a disproportionate percentage of the cherries. Michigan data for 1973 shows that the growers with 30 acres of tart cherries or more represent 17% of the grower numbers, but have about 60% of the cherry acreage (Table 3). Although data by size and number of growers is not available for recent years, the trend toward fewer and larger growers continues, in part because of the economies of size associated with mechanical harvesting.

Despite the trends discussed above, atomistic competition prevails among cherry growers. Even the largest growers do not have the ability to influence market price. In some cases, processor-buyers may give the largest growers some preference over very small growers, but this usually takes the form of advantageous treatment regarding delivery schedules and/or the volume which will be purchased in a large-crop year.

A new tart cherry grower may enter the business by planting new orchards, or by purchasing an existing fruit farm. In both cases rapidly rising investment requirements are providing growing entry barriers for many potential cherry growers.

**Table 3. Michigan Tart Cherry Growers by Size**

Acreage Size Group	Growers		Acreage	
	Number	Percent	Acres	Percent
1- 9	1,120	50	4,660	11
10-19	510	22	6,710	16
20-29	240	11	5,550	14
30-49	200	9	7,280	18
50-99	130	6	8,610	21
100 +	50	2	8,410	20
Total	2,250	100	41,220	100

Source: [19]

The economies of size for tart cherry production are increasing but, compared with other parts of the economy, remain relatively minor. Before mechanical harvesting, an efficient size cherry enterprise was in the neighborhood of 10-20 acres. Mechanical harvesting requires large investments for specialized equipment which is advantageous to spread over a sizeable production. Now an efficient tart cherry enterprise seems to be about 80-150 acres.

Another barrier to grower entry is the difficulty in acquiring a desirable frost-free orchard site. Such a desirable orchard site is an important way to reduce the risk of spring freezes which can reduce production to near zero in orchards on freeze-susceptible sites. In some cherry-growing areas freeze-free sites are also in demand for homes and recreational activities since many of these sites have excellent scenic views of Michigan's lake country. Hence, the cost of land for superior cherry sites has increased rapidly in recent years, especially in certain parts of the state.

The high risk and the exacting timeliness of the cherry growing and harvesting operations, along with returns on investment which are highly variable and quite low in many years, have combined to provide a deterrent to nonfarm capital entering the cherry business on a large scale. During the late 1970s some entry by nonfarm capital occurred, however. This has been encouraged by expectations of long-term land appreciation — especially because of the prospects for eventual use of cherry sites for other purposes such as for homes. Nonfarm investments in cherry orchards are also encouraged by certain tax laws such as the investment credit allowances for cherry trees.

An important development affecting market structure at the grower level has been the recent trend for large growers to build their own on-farm processing facilities or to join with other growers in a cooperative processor. In this way growers become committed to a processing firm on a long-term basis — either through a joint processing or by processing their own cherries — and their tonnage is essentially removed from the market at the grower level because there is no specified market price for these raw cherries. Instead, the processed cherry markets determine grower returns and the raw product market is therefore less relevant.

An additional approach has recently become important in the industry through cooperative/joint venture arrangements where the raw cherry price to growers is determined by the price that competing proprietary processors pay for raw cherries and a sharing of the profits of the processing company with the grower members of the affiliated cooperative. This arrangement is not the same as a typical coop pricing which ties grower returns more directly to the processed cherry market. Although the joint venture approach shares with members the returns from branded or other processed products, this pricing arrangement has an effect, somewhat similar to other grower-owned processing, of removing that tonnage from the market at the grower or raw product level. In effect this also changes the market structure in the grower level market.

A processing season of only a few days and the extreme perishability of cherries are important reasons why more growers are joining cooperative processors or building their own processing facilities. With ownership in a processing facility growers gain access to the limited industry processing capacity during the short period of time when it is needed. This is a particularly serious consideration in a large-crop year.

A shortage of investment capital by proprietary processors is another important factor contributing to the recent growth of cooperatives and grower-owned processing. This situation is related to high risks and low returns on investment for proprietary processors.

As stated in the previous chapter, grower bargaining associations bring an element of oligopoly power to the grower raw-product cherry market. The degree to which they have achieved grower market power has been hampered recently by the significant trend for a greater amount of cooperative and other grower-owned processing. Although the bargaining associations have close communications and working relationships with many of the processing cooperatives, the impact of raw product bargaining only indirectly affects the market for frozen cherries.

There is a possibility that future cherry bargaining will be done under the Michigan Agricultural Marketing and Bargaining Act (although this law is being challenged in court). This law might, under certain conditions, increase market power for the cherry bargaining association since the association could then operate as an exclusive-agent bargaining group in Michigan. Nevertheless bargaining association market power will be limited because the percentage of the crop sold through processing cooperatives and grower-owned processing is increasing and this tonnage is not covered by the bargaining law. The law would also not apply to competing cherries grown in other states.

### **Processor-Buyers**

On the processor side of the raw cherry market, approximately 75 firms operate in the Great Lakes area. Of this number about 40 are cooperatives or process mainly what they grow on their farms. The processing cooperatives have long-term contractual arrangements<sup>4</sup> with their grower-suppliers. The cooperatives and grower-processors do not usually operate in a major way as buyers for a specified price on the raw product market. There are approximately 35 proprietary processors.

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<sup>4</sup> Often these contracts provide an annual opportunity for either party to terminate the arrangement if they so desire.

A number of factors have contributed to the substantial changes taking place in the ownership patterns of processing firms, including: (1) mechanical harvesting and the magnified need to coordinate mechanical harvesting, cooling, handling and processing; (2) inadequate pitter capacity in large-crop years; (3) insufficient profits to private processors in a number of past years; (4) grower bargaining, including Michigan's bargaining law with its exemption for processing cooperatives; and (5) substantial risks to processors from a number of causes.

In the past, the cherry processing industry was dominated by proprietary processors who paid a definite price, usually in cash, specified at harvest time. In addition there was (a) a significantly but relatively small amount processed by cooperatives, (b) a rather insignificant amount grown by processors, and (c) very little processed by what are now called "grower-processors."

The historical ownership pattern is documented by data for 1970 when processors buying at specified price to growers represented 83% of the Michigan cherry pack (Table 4). In that year grower-owned cooperatives accounted for approximately 15% of the pack. Very few cherries were grown by processors (1%) or processed by grower-owned individual processing facilities which were not cooperatives (0.5%) in 1970.

By 1975 the cherries handled by cash-buying processors had decreased to 65%. At the same time cooperatives had increased their percentage to 25% and the grower-owned processors had increased from almost nothing to 9%.

Adding the amount processed by cooperatives and grower-processors to the small amount grown by processors results in a total for which there was no price at the grower level at harvest time, accounting for 35% of the Michigan tart cherry crop in 1975.

**Table 4. Cherry Processing and Buying Patterns**

	1970	1975
Buying Processors	83%	65%
Processor Grown	1%	1%
Cooperatives	15%	25%
Grower-Processors	0.5%	9%
<b>Total With No Grower Market</b>	<b>16%</b>	<b>35%</b>

The 1975 figures discussed above and shown in Table 4 understate the change which has occurred since 1970. The understatement results partly because the volume handled by cooperative-corporation joint ventures was included in the category "buying processors" for 1975, even though this tonnage is now purchased under a substantially different arrangement than in 1970. The price paid to growers now is determined by prices paid by competing processors plus profit-sharing joint venture arrangements. The joint venture incorporates a pricing mechanism different from those of the more traditional processing cooperatives. Joint venture cherry prices are still influenced by raw product bargaining (although in a

somewhat more indirect manner than before) and because of this joint venture arrangements have been lumped with "cash-buying" processors, even though they are in many respects distinctly different from most other "cash-buying" processors. If joint ventures were included in the "cooperative" category (and they are a special kind of cooperative), the percent of the crop handled by "cash-buying" processors would be significantly reduced from the 65% figure shown in Table 4.

Although precise numerical data are not readily available for recent years, it is clear that the above discussed trends are continuing. The percentage processed by cooperatives and grower-processors has increased further while the proportion handled by proprietary processors has continued to decrease.

Although there are a substantial number of buyers in the raw cherry market, growers in a local area generally have only two to five alternative buyers. Hence the cash portion of this market might be described as one of a local or regional oligopsony on the buying side.

Raw cherry buyers, however, are not powerful oligopolists as sellers. Most of these processors sell in national commodity markets for frozen cherries or private label canned cherries. In these markets there are a relatively large number of sellers each selling unbranded commodities. None of the firms is able to influence the price it receives to a significant degree. On the selling side these firms compete directly with the cooperative and grower-owned processors as well as with other cash-buying processors with whom they compete in purchasing raw product.

Strong competition for these processors in their selling markets, and high risks associated with that market have caused cash-buying firms to explore methods to avoid the risk involved with a specified cash price at the grower level, thus contributing to the trend toward more grower-owned processing and/or to price-later arrangements. These trends will probably continue in the future and will in turn contribute to the need for alternative means for pricing raw product.

## **THE PROCESSOR-MANUFACTURER MARKET FOR FROZEN CHERRIES**

The market for frozen cherries, with about 66% of the total pack, is the most important processed cherry market. In this market, freezer processors are the sellers while the buyers are firms such as frozen pie manufacturers, bakeries, dessert manufacturers, pie filling manufacturers, and food service firms including fast food chains.

### **The Freezer-Sellers**

There are approximately 55 freezer-processor-sellers in the U.S. This number has been gradually increasing in recent years.

Each freezer-seller markets essentially the same unbranded, undifferentiated product – frozen cherries. There are some quality differences in cherries, but these are generally handled by quality standards such as grade and score. Some larger freezer-processors attempt to establish a differentiation for their company by providing extra services to buyers, such as special delivery terms or more reliable supplies. The degree to which they have succeeded in this, however, is limited.

The sellers of commodity-like frozen cherries approach atomistic competition. This is especially noteworthy since the buying side of this market is dominated by a few core firms who do possess a degree of oligopsonistic power, particularly under certain conditions.

The increase in the number of freezer-processor firms is due primarily to more grower-owned, on-farm processing operations. These operations tend to be fairly small and some process only tart cherries. This trend increases the number of sellers and further reduces any market strength for sellers in the frozen cherry market. The trend toward more freezer-sellers is expected to continue in the future.

A few of the new on-farm processing firms have agreed to have another established processor with a marketing staff to do the selling for them. Others of these small on-farm processors market through a marketing cooperative. Hence, even though the number of sellers is increasing, the number actually operating in the market is somewhat less than the potential.

Some additional processors freeze cherries but market essentially all of their frozen cherries through their own branded consumer products such as frozen pies or pie filling. Hence, even though these firms are potential sellers of frozen cherries, in most instances they are not active sellers in the frozen cherry market. In practice these firms frequently buy frozen cherries to supplement their own packs.

The number of freezer-sellers is influenced by the economies of size in processing frozen cherries. Economies of size for this type of plant are not especially large in comparison to other food processing businesses, particularly for firms that freeze only cherries and do no other processing since in this case overhead investments can be kept fairly minimal. Many freezer-processors rent freezer storage which helps minimize their overhead costs for facilities.

For freezer-processors most potential cost economies can apparently be obtained by firms with a 1-2 million pound volume per year provided that the manager-owner and key employees engage in farming during the non-processing season. A plant processing 1-2 million pounds can handle 2-3 times the average production of a moderately large grower. Hence, 2-3 growers may jointly undertake a processing business. A few of the very largest growers can attain an efficient size of plant with only their own production.

The small economical size of cherry freezing firm can be contrasted to the traditional fruit processor who cans and freezes a number of fruits and perhaps vegetables with considerably greater economies of size. For this traditional type of processor an efficient size of plant probably needs to be 30-40 times the size of a moderately large grower.

Many sellers of frozen cherries also process other frozen fruits such as apple slices, blueberries, strawberries, and perhaps canned fruits such as plums, applesauce and canned cherries, and/or in some instances vegetable crops such as asparagus. For these multi-product processing firms, cherries are only one part of their business, although cherries are usually one of the most important crops for these firms. Processing several crops is a risk-reducing strategy for processors and permits cross-product subsidization for the processor in certain years. In fact there would probably be considerably more processor bankruptcies of



the larger and medium-sized firms if they relied only upon tart cherries with the inherent market weaknesses and high risks for this crop.

Of the 40 freezer-processors of tart cherries in Michigan only 15 process just tart cherries. The remaining 25 firms process at least one additional commodity.

### **The Manufacturer-Buyers**

The buying side of the frozen cherry market consists of a few large dominant firms with a fringe group of small and medium-size firms. The dominant buyer firms are mainly frozen pie or dessert manufacturers. The 10 largest pie and dessert manufacturers buy as ingredients as much as 35% of the frozen cherry pack. The largest two or three firms buy an especially significant portion of the pack. These few large buying firms are of sufficient importance that most of the freezer-processor-sellers attempt to sell some of their output to these few very large buyers. The much greater number of median to smaller-size firms buying cherries tend to be price-followers to the dominant oligopsonists.

Almost all buyers of frozen cherries are diversified companies that handle many food products. Some are divisions of very large conglomerate food firms. Some are specialized pie-manufacturing firms. For these firms cherries are an important part of the business, and even though the firm may be a division of a larger conglomerate, for that division cherries are given considerable attention as a major commodity ingredient. For other food manufacturing firms, both small and large cherries are a fairly unimportant part of diverse product lines.

On the selling side for large food manufacturers, substantial advertising budgets, particularly for TV advertising, constitute an important entry barrier. The phenomenon is common for many food products. In regard to this barrier to entry these manufacturing firms are not operating as "cherry" firms, but rather as marketers of their lines of various food products under their strongly advertised brands. Although tart cherries are only a minor item in the total scenario, the advertising cost barrier is important for the cherry marketing system in that relatively few firms have the most effective consumer access through advertising which may or may not be used for cherry products. This barrier to entry is also relevant for certain large fast food and other restaurant chains.

Large budgets and high risks involved with new product research, development, market testing, market analysis and market establishment also provide barriers to entry. Relatively few large manufacturing firms have the ability to succeed with new products. This barrier to entry applies to products other than cherries, but is highly relevant for tart cherries since they are sold primarily as an ingredient commodity.

Substantial budgets and earning power to afford a well-developed marketing and sales staff provide an additional barrier to entry. This aspect may be an especially significant obstacle for smaller commodity canners and freezers, particularly those trying to enter retail grocery markets for the first time.

The need for product line diversity and hence a large capital requirement to purchase a firm (or firms) with several product lines or to develop competitive market volume by internal growth also constitutes a type of barrier to entry. Examples of this include the frozen dessert and

pie markets and prepared food lines such as frozen TV dinners. Grower cooperatives desiring to vertically integrate forward by acquiring consumer product manufacturing companies have difficulties with this barrier to entry.

For cherries the importance of these barriers to entry is that commodity-oriented firms, e.g., cherry processors and co-ops, tend to have substantial trouble surmounting the advertising and firm marketing barriers to entry. On the other hand, food manufacturers with strong brands tend to select away from a commodity – particularly an unstable commodity like tart cherries.

## **Canned Cherry Markets**

A number of years ago the cherry processing industry was primarily one of canned cherries. In recent years, however, both the consumer-size and institutional-size cans have become relatively minor packs. Since canned cherries are packed primarily in water with no sugar added, the canned cherries provide a low calorie product for diet-conscious consumers. Nevertheless canned cherry usage has trended downward during the past two decades.

Approximately 20 firms can cherries in the U.S. Of these, about 15 operate in Michigan. Many of these firms pack both consumer-size (No. 303) cans and the institutional-size (No. 10) cans. Most canners also pack frozen cherries.

### **Consumer-Size Canned Cherries**

In recent years, approximately 15 processors have been selling consumer-size canned cherries. This number has trended downward over time.

Most of these firms sell private label canned cherries, although certain firms also sell some under their own packer label. One cherry canning firm has a nationally recognized brand for vegetable and other products, however, this brand is not as strong for cherries. Other packers' labels are not advertised and are primarily weak regional brands. Essentially, the canned cherry sellers market an undifferentiated (private label) or weakly-differentiated canned product.

Although on the surface the fairly small number of selling firms might indicate a degree of oligopoly power, this is not the case. In part this is because consumer-size canned cherries have experienced a substantial declining demand market. Canned cherries are also a product for which there are many close substitutes – some of which seem to be considerably preferred by most consumers. In addition, the product is essentially undifferentiated. Hence, the canned cherry sellers are primarily price-takers for a limited volume of this product.

The buyers in this market are chain-store and affiliated wholesaler grocery buyers. There are substantially fewer grocery buyers than grocery retailers. Many sizeable grocery retail firms belong to private label procurement organizations (such as Topco, Shurfine Central, Federated Foods, etc.). Thus the buyers are significantly more concentrated than might appear on the surface.

To retail grocers, canned cherries are a very minor product. This coupled with the declining consumer demand trend, has the result that canned cherries are a product constantly under the threat of being removed from grocery store shelves.<sup>5</sup> Retailers rarely stock more than one brand of cherries, either private or packer label, a fact which adds to the strong competition between canner-sellers bidding for the very limited and declining shelf space crucial for consumer access for the product. As a result of the above factors, retail grocery buyers' market power is substantially greater than that of the small canner-sellers. However, since canned cherries are a very minor product for grocers, they probably use this power infrequently.

### **Institutional Size Canned Cherries**

In recent years about 25 firms have been selling institutional-sized canned cherries, some under buyers' private labels and some under packer labels. However, no labels are strong in this market. Essentially it is an undifferentiated product market.

The domestic portion of this market has declined markedly. A significant percentage of the pack in institutional-sized cans is not exported, primarily to western European countries such as West Germany. These exports are usually sold under the packers' labels or sometimes under the label of an exporter or export agent. Some allegiance to certain brands has been noted in the importing countries but brand preference tends to be weak. Even in the export market, canned cherries are traded in an undifferentiated market.

In the domestic market buyers for this product are primarily wholesalers serving institutions, small bakeries and food service firms. A small number of buyers apparently comprise the buying side, although data on the specific number is not readily available.

Since the numbers of both buyers and sellers are quite small this might be taken as an indication of a degree of oligopoly and oligopsony power on both sides of the market. The domestic institutional-size market for canned cherries has, however, declined to such a small volume that the significance of the small number of firms on either side is of minor consequence. This is especially so since for most of these firms canned cherries are a fairly minor part of their business.

In the export market for institutional-sized cans, it has been estimated that there are approximately 10-15 processor-sellers. In addition to selling their own cherry exports, many of these firms also sell through export brokers. Hence, in the export trade there are potentially 25-30 sellers of No. 10 canned cherries. However, the largest 5-6 firms constitute a substantial percentage of the export cherry sales. There appears to be a potential for a degree of oligopoly strength on the part of export sellers of canned cherries. In some instances, such as when market supplies are short, processor-sellers apparently are able to achieve some degree of market strength in the export market. However, under market conditions with large supplies, this dissipates.

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<sup>5</sup>For a more complete description and discussion of wholesale grocery procurement and grocery buyer behavior, see Larry G. Hamm, *Food Distributor Procurement Practices: Their Implication for Food System Structure and Coordination*. Unpublished Ph.D. thesis, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan, 1980.

The export cherry market is complicated by an especially important lack of market information across country boundaries. Hence, the ability to exert market power is diminished by this factor even though the small number of sellers would in itself indicate otherwise.

The export market has developed into a volume market only within the most recent 10 years. Furthermore, four of the last six years have been short-crop years in which only a small volume was exported. Many firms selling in the canned cherry export market are relatively new to the business. The exporting segment might be characterized as one of an immature oligopolistic industry in which the firms are not taking advantage of their potential oligopolistic positions. Under large-supply conditions they behave as an essentially atomistically competitive industry.

## THE CONSUMER-SIZE PIE FILLING MARKET

Consumers use cherry fruit filling for a variety of desserts, toppings and meat sauce as well as for home baked pies. Although pie filling apparently enjoys more popularity with consumers than do canned cherries, pie filling has had a fairly stable (no-growth) demand situation in recent years.

Cherry pie filling is marketed as one item in a broad line of fillings by almost all processors of pie filling. The supplier firm's ability to offer a full line of pie fillings to grocery customers is a key factor influencing whether or not the pie filling firm can gain and maintain grocery store shelf space. Those firms that do not have a full line of pie fillings are at a distinct disadvantage in this market.

Retail sales of pie filling involve relatively few brands which tend to be regional in nature. Private label is increasingly important. There are approximately 10 firms in the U.S. producing cherry fruit filling. In recent years cooperatives have become involved in the pie filling business by purchasing the pie-filling divisions being spun-off by large food conglomerates.

In pie filling there are elements of oligopolistic structure as is the case with many branded grocery items in the United States. However, any market power abilities are limited by the fact that there are many close substitutes for pie filling. Consumers can readily find substitutes for cherry pie filling, including frozen pies, canned fruits, other prepared cherry desserts (such as cherry tarts) and all other desserts, especially jello and ice cream. In fact the trend seems to be for consumers to increasingly substitute these other desserts for pie filling which contributes to the general no-growth trend in demand for pie fillings. Furthermore, although firm numbers *per se* would indicate a degree of oligopolistic structure, profits in this sector have apparently been low.

While several of the important pie filling firms were formerly owned by large conglomerate food companies which are some of the largest in the United States, these have all now been sold to cooperatives. Presumably these changes occurred because the pie filling divisions (of the former owners) did not generate sufficient net return on investment to warrant their continued ownership by the parent company. Cooperatives, on the other hand, have been willing to purchase pie filling firms to assure markets for their commodities such as cherries, and to improve the vertical coordination by providing a *commodity orientation* in the marketing

system. This has been the case even though the profit performance was too low to satisfy the large national food manufacturers. In other words, the commodity cooperatives are willing to take lower return on investment than the large food firms and thus the commodity cooperatives can achieve effective forward vertical coordination and enhance their market access position. This phenomenon illustrates behavior patterns of cooperatives vs. national brand food firms in other subsectors in the U.S.

Some companies make limited advertising expenditures for pie fillings. Formerly, when most of the larger pie filling processors were divisions of conglomerate food firms, there was at least a potential through the parent company for substantial pie filling advertising budgets. Even during that ownership period, however, few expenditures were made to advertising pie fillings. This was apparently because it was felt that there would be greater advertising advantage to spend these funds on other food company products. Since the pie filling processors have now been sold to cooperatives there has been a distinct and substantial decrease in the financial ability of the owner firms to advertise pie fillings on a large scale. Because of this there will probably continue to be little consumer advertising of pie filling. This is not the expected type of behavior an oligopolistic structure would suggest.

Buyers in this market are chain store and affiliated wholesale grocery buyers. The grocery buyers are accustomed to having brand owners advertise and promote their products to consumers. If the new cooperative owners of pie filling brands are financially unable to continue or increase consumer oriented activities, sales growth may decline. In that event, the grocery buyers will tend to play one brand off against another for price concessions. In the absence of strong brands, grocery distributors will also tend to favor their own private label products.

The pie filling segment of the tart cherry marketing system seems to be presently at a critical point. With adequate advertising and marketing support, pie filling will likely continue as an important part of the cherry market system. However, without that support consumers may gradually shift to other desserts.

## **FROZEN PIE MARKET**

The bulk of the frozen cherry pie market is comprised of about 20 firms ranging from large broad-line frozen food and dessert processors to rather small regional frozen pie manufacturers. There are only a few national frozen pie manufacturers, distributing over a broad geographic area with fairly substantial brand identification. Competing with those national frozen pie manufacturers are regional manufacturers who usually have fairly strong brand acceptance in certain markets. A few retail food chains also sell private label frozen pies. Therefore, the frozen pie market is concentrated on a regional market basis but less concentrated on a national basis.

Cost data are not readily available for pie manufacturers, but several reasons suggest that economies of scale are moderately high. Since cherry pies are only one of many kinds of fruit and cream pies, successful regional firms must be able to produce and market a full pie line. The larger firms do brand advertising either on a regional or national scale.

The moderately high capital and advertising requirements, product differentiation, and concentration at the regional level present substantial barriers to entry.

The frozen pie industry (both fruit and cream) has been a growth segment of the food industry. From 1972 to 1977 frozen pie sales increased from \$142 million to \$264 million [16]. Since 1977 adverse weather has shortened supplies. This particular utilization of cherries has over a number of years substituted for canned cherries. If the past growth for frozen pies continues, it may create enough new markets that new pie firms can enter. Some small regional frozen pie manufacturers have captured a small part of the increasing demand and are apparently developing into viable regional competitors.

## **SUMMARY OF TART CHERRY MARKET STRUCTURE**

Tart cherry production is geographically concentrated with a fairly large number of atomistically competitive growers. Most cherries are processed in undifferentiated frozen forms. The number of initial freezer-processors has increased recently as more growers have integrated forward. Canned cherry markets have been declining.

Most cherries are sold by diversified large food manufacturers. These manufacturers illustrate the structure of the current food manufacturing industries. The large food manufacturing firms are primarily oriented to sales of their firm's brands and product lines—often with relatively little importance given to coordinating an ingredient commodity such as tart cherries. Recently many of these manufacturers have been retreating from tart cherry use either by stressing non-commodity-based dessert products or by spinning-off commodity-oriented divisions. The pie filling segment has recently undergone this spin-off process. Many of the structural changes occurring are attempts to reconcile the commodity-based nature of tart cherries with the needs of the contemporary food distribution system.