

THE OUTLOOK FOR APPLES, GRAPES AND TART CHERRIES
IN THE NORTHEAST

by

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A wide variety of fruit crops are grown in the Northeast, and the local conditions under which many of these crops are produced and marketed differ so widely that it would be impossible for me to determine, let alone describe, each situation. The increasing importance of direct-to-consumer sales has provided many fruit growers in the Northeast with some insulation from fluctuations in national supplies and markets, although not complete protection by any means. In the time available I would like to look particularly at the current situation and prospects for apples, grapes, and tart cherries. I believe that general conditions in the production and marketing of these three crops warrant our attention at this time, and have serious implications for public policy and educational program development.

Maintaining a proper balance between crop production and market requirements is more difficult, it seems, for tree and vine crops than for any other major agricultural commodity group. Change in fruit productive capacity, especially increases, take several years to achieve and market conditions may change drastically between the time decisions were made and the results accomplished. Then too, fruit production is extremely sensitive to weather conditions. Unusual weather may obscure or mask changes in productive capacity and increase the difficulty in forecasting future output. Accurate knowledge of productive capacity at any point in time requires detailed information on numbers of trees or vines by variety, age, spacing, rootstock and possibly other characteristics. Such information is expensive to obtain nationally on a continuing basis.

I would like first to review the current economic situation facing growers of apples, grapes and tart cherries and provide some background to explain present conditions, then suggest some public policies and educational programs that seem desirable in the light of future prospects.

Apples

The current apple situation is dominated by the possibility of record production (Table 1). The August estimate is 12 percent above last year for the United States, and 16 percent over the five year average. The crop in the West is expected to be only a little smaller than the large crop of 1973, while

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in the Central and Eastern States forecasted production is a little larger than the 1971 crop.

Based on movement to July 1 the carryover of canned applesauce will be substantially above the last two seasons of relative shortage, and may even exceed the large stocks of 1966 and 1970 (Table 2). The 1974 pack was large in spite of high sugar costs, but relatively good movement was only achieved at the expense of reduced returns. Unfortunately, as Smith and Ricks have determined, changes in carryover stocks of canned applesauce have in the past had an even greater effect on sauce prices than did an equivalent volume in crop size.

Stocks of canned apple juice and frozen slices will probably end the season below the level last year. For frozen apples the smaller pack last year was followed by a favorable rate of shipments.

The market for fresh apples was strong early this season, but there is apprehension concerning future trends and the level of processor prices which are still to be announced. Some processors are reported to be planning a reduction in pack in spite of lower expected costs for raw material and ingredients. Grower prices may drop considerably below the last two years (Table 3).

Apple growing and marketing has been going through a period of considerable change. Growers have been replanting old orchards and setting trees on new land, in many cases with size controlled root stock that comes into bearing sooner, promises higher production per acre, and provides greater convenience for hand harvest. Orchard renewal has permitted, as Duymovie noted, a shift toward more highly colored varieties and to those suitable for either fresh market or processing. The construction of more controlled atmosphere storage has enabled growers to extend their marketing season for fresh fruit, and some processors their plant operations. Mechanical harvesting of apples for processing, which now appears to be commercially feasible on well managed orchards with adequate volume, is reducing dependence on seasonal labor.

The total market for apples appears to be expanding slowly. Per capita consumption of fresh apples has apparently stabilized in recent years after a period of decline following World War II. Consumption of processed products in terms of raw material content is on the increase although the direction and rate of change varies from one item to another. Most of the increase has been in canned apple juice and frozen slices, although canned applesauce still takes a large share of all apples processed.

For the longer run the major question facing the apple industry is to what extent the 1975 crop size represents the unusual coincidence of good growing conditions in all major areas, or a fundamental increase in productive capacity. If we are facing the prospects of larger supplies can markets be expanded to provide adequate grower returns, or must other means be taken to provide adjustment?

Tree surveys provide the best information on changes in productive capacity, but these are only taken at irregular intervals and not coordinated between regions. The last comprehensive fruit tree survey in New York was made in the fall of 1970, although another is planned for this fall. Tree

surveys also provide a better basis for forecasting production, as Wang found recently and Magleby earlier. Analysis of trends in production may be especially deceptive if older trees have been removed to make room for higher density plantings.

If current production estimated do reflect increased productive capacity as well as favorable weather this is likely due to growers response to favorable returns received during the 1960s and expectations based on technological developments, such as the use of size controlled rootstock, mechanical harvesting, and controlled atmosphere storage. New York fruit growers on Cornell Cost Accounts showed a profit every year from 1960 through 1968, averaging \$86 per acre. Similar conditions in other areas encouraged growers to set out additional acreage which is just coming into bearing.

The apple industry may be under severe competitive pressure for the next few years. If so, there is no simple solution in sight. The controlled allocation of the crop, or supply management, might, as Piggott and others before him have found, temporarily increase grower net returns but is neither politically nor administratively feasible on a national basis at this time. A general improvement in the efficiency of production and marketing, as O'Rourke has suggested for Washington State, is obviously in order but may not be adequate. Many growers and processors may find the decisions made a few years ago based on expectations at that time are not working out as hoped.

Grapes

Grape growers face problems similar to those being encountered by apple growers, but for different reasons. A large grape crop is expected this fall in the United States, although not much bigger than the last two years (Table 4). The crop is expected to be above average in New York and Pennsylvania, down from last year. Higher production compared to both last year and the five year average is indicated for other states producing American type grapes, Michigan, Ohio, and especially Washington. California total production is comparable to the past two years, but tonnage of wine varieties is expected to increase compared to table and raisin varieties.

Increasingly the market prospects for grapes depend on the fortunes of the wine industry. The volume of grapes sold fresh, mainly from California, has been declining. In 1972 and 1973 about half the California crop of raisin varieties was used for wine. In grape growing states other than California, the production of American type grapes still dominates and except for New York is used mainly for juice, jellies and jam with very little sale directly to fresh market. The volume of grapes used for unfermented products has shown little trend up or down in recent years. In New York between 1971 and 1974 the quantity of grapes crushed for wine rose from 70,697 tons to 100,672 tons, or from about 40 to 60 percent of total crushings. The Concord variety, although declining relatively, still provided more than half the tonnage crushed for wine in New York in 1974, with french hybrids amounting to about 10 percent and on the increase.

The volume of wine marketed in the United States in 1974 was about equal to that sold in 1973, a marked change from the annual increase that occurred in the late 1960s and early 1970s (Table 5). The number of gallons of wine imported has about tripled since 1965, but only accounts for one-seventh of

United States sales. Wine prices have increased substantially at retail recently, and this combined with reduced business activity probably accounts for the failure of the market to grow in volume last year.

It is too soon to tell to what extent the larger supplies of American type grapes in prospect in the Midwest and Washington will influence Northeast growers markets. One major winery in New York has announced a small reduction in prices to be paid for Concord grapes compared to last year, while apart from a few adjustments is maintaining the level of prices paid for other varieties. Other wineries have announced sharply lower prices and quantities to be purchased this season.

The large California crop will be the third in a row, and would have been even larger if weather had been favorable. A sizeable acreage of new vineyards has been set out in California financed not only by established growers but also by outside investors. Over 60,000 acres of grapes were set in California in 1972 and in 1973 bringing non-bearing acreage to one-quarter of the total. The rate of planting was reduced sharply in 1974 but the addition to capacity had already been made. There is clear evidence, as Moulton pointed out recently, that California faces a critical longer run supply situation.

Indications are that productive capacity has increased in other areas also. Favorable returns for several years in a row plus new technology and prospects for market expansion encouraged growers to set out additional vines just as apple growers were encouraged to plant orchards. Additional plantings of Concord varieties are believed to have been made in Washington in recent years, but Washington has never had an official fruit tree or vine survey.

Prices paid New York grape growers rose substantially beginning in 1968 (Table 6). During the period 1969-71 the operators of about 30 vineyards in the Finger Lakes region of New York who participated in a Cornell farm management record keeping project reported an average labor income per year of \$23,800 from 57 acres of bearing grapes. Interest was developing in the Geneva Double Curtain trellis system which was known to require additional capital investment but expected to substantially increase yields. Growers were gradually becoming convinced that the newer French hybrid varieties preferred for premium wines could be grown profitably in New York. After 10 years of developmental work, the first mechanical grape harvesters resulted in sharply reduced harvest cost in commercial vineyards. The record 1971 grape crop of 200,000 tons was marketed with very little reduction in grower prices. Even the disastrous growing conditions of 1972 that cut grape yields in half, compared to previous years, failed to dampen growers enthusiasm although their incomes did suffer severely.

Wine sales will continue to increase once economic conditions improve, although probably not at the previous rate. Market research indicates there are good opportunities to expand wine sales. Folwell, for example, reports that 15 percent of U.S. families are believed to purchase 90 percent of the wine sold. The Northeast will face competition both from California and imported wines in spite of local advantages. In the meantime, rising costs of labor and materials have increased growing costs, as Good and Jordan found in New York, and Kelsey in Michigan.

California growers are becoming concerned about the supply situation. The trade press reports that the California Wine Advisory Board that administered funds collected under the State Marketing Order has dissolved rather than accept the regulations issued by the Governor. A new organization, the California Association of Wine Grape Growers, is being formed with the help of Ralph Bunje, formerly with the Cling Peach Growers Association. Whether this group will attempt to control production or simply bargain collectively is unclear at this time.

Tart Cherries

The June forecast of U.S. tart cherry production at 314.6 million pounds was 18 percent greater than the 1974 crop and 22 percent above the 1970-74 average (Table 7). Most of the increase in production was expected in Michigan, where over three-quarters of the crop in the Great Lakes region is usually grown. Wind and hail in Michigan and dry weather in New York between the time of the June forecast and July harvest reduced the crop below earlier estimates.

Most tart cherries are either commercially canned or frozen, and then sold either to bakers or homemakers for pies. Canned and frozen stocks in recent months have been running above the past two seasons, but below the level following the 1972 pack (Table 8). New York growers received 10 to 12 cents per pound this season compared to 18 to 20 cents in 1973 and 1971.

No strong trends are apparent in U.S. tart cherry production. A little larger tonnage was produced in Michigan in 1970-74 than in 1965-69, and a little less in New York. Most cherries are now harvested by machine, although on some farms hand harvesting is still considered as economical. Growers are concerned at the damage the limb and trunk shakers have inflicted on some trees.

Tart cherry growers and processors have been faced with severe fluctuations in production and prices in the past. Voluntary efforts on the part of grower groups in the 1960s to stabilize prices were largely unsuccessful. In January, 1971, a federal Marketing Order was issued governing the handling of red tart cherries grown in Michigan, New York, Wisconsin, Pennsylvania, Ohio, Virginia, West Virginia and Maryland. The Order established a Cherry Administrative Board (CAB) consisting of 6 growers and 6 handlers to administer the provisions of the Order. On the recommendation of the CAB the Secretary of Agriculture may limit the percentage of the crop that may be marketed by handlers and direct them to establish a reserve pool. Producers may voluntarily elect to divert that proportion of their cherries that would otherwise become part of the reserve pool. The Secretary, on recommendation of the Board, may authorize the release of cherries from the reserve pool.

In June 1972, the USDA estimated the Great Lakes tart cherry crop at 297 million pounds. Under the Marketing Order, 22.9 million pounds were diverted to other uses or left unharvested and 19.1 million pounds were processed at grower expense and placed in the reserve pool. In addition, an estimated 20.4 million pounds were not delivered for economic reasons. That year growers received an average of 8 cents per pound at time of harvest in Michigan and 8.3 cents in New York. Frozen cherries f.o.b.

Midwestern plants were quoted at 16.5 to 17.0 cents per pound during July and August 1972. Prices strengthened during the season and three-quarters of the reserve pool cherries were released before the end of the marketing year. Following the short crop in 1973, prices of frozen cherries continued to advance. Growers who had participated in the 1972 reserve pool received more for cherries in the pool than those they sold at harvest time.

This year a June forecast of 290 million pounds of tart cherries in the Great Lakes region resulted in the decision to divert or set aside 15 percent of production. Information is not yet available on the quantity diverted compared to that processed and placed in the reserve pool. Charges to growers for participation in the reserve pool were set at 8.36 cents for processing and one month storage, 3.0 cents for sugar, and 2 cents for the next 11 months storage. Grower prices at harvest time were in the range of 10 to 12 cents per pound. The market for frozen cherries was about 22-23 cents per pound during harvest, but has since strengthened considerably due in part perhaps to the unfavorable weather and reduced production in Michigan. Cherries probably will be released from the reserve pool this fall at prices above those prevailing at harvest.

The Tart Cherry Order provides that growers must vote next spring to determine whether the Order should be continued or not. If reserve pool cherries are released this fall and sold at favorable prices, the growers who participated in 1972 and 1975 will have obtained increased returns through the operation of the Order. Other benefits or costs of the Marketing Order are more difficult to determine. It appears the Order may be more useful in stabilizing prices within a marketing season than from one season to the next, which was the original intent. The operation of the Order and opportunities for improving it should be carefully reviewed before the vote whether or not to continue it is taken next spring.

Policy and Program Recommendations

United States capacity to produce apples and grapes appears to be out of line with market requirements, while tart cherry production continues to fluctuate widely from year to year. The development of new technology, largely at public expense, has encouraged growers to increase productive capacity for apples and grapes. The adoption of new methods holds the prospect of improving the welfare of consumers through reductions in production costs, but has required and will require substantial adjustment by many individual growers. Some will eventually be benefited by the changes, but others will be placed at a greater disadvantage. Until needed adjustments are completed all will suffer reduced returns.

Group action by cherry growers made possible by federal legislation has partially cushioned the impact of large crops on market prices. The program does not attack the problem of fluctuations in production, nor does it substantially reduce price variability. Growers must decide whether the program should be continued, and if so what changes should be made in it.

The conditions facing apple and grape growers in the Northeast, and the decision facing Great Lakes cherry growers, suggest several policies and programs that should be considered by those of us in the public service.

These may help to fulfill our responsibility to aid in the adjustment of production to new technology, changing market demands, and variable weather conditions.

1. Tree and vine surveys should be coordinated nationally and conducted more frequently. Intervals of 5 years between surveys, as in many states, are too long not only for grapes but also for tree fruit that on size controlled rootstock may come into commercial production in half the time it took varieties on standard rootstock. Public support for policies to improve the marketing of apples should be based on the willingness of growers, especially in the Northwest, to provide information on current plantings and on bearing and non-bearing acreage.

2. Greater effort should be made to provide the fruit industry with more accurate projections in future levels of production and price, based not only on tree and vine surveys but on careful market analysis. There is no joy in bringing bad tidings, but if there are possibilities of difficult times ahead it is surely better to include this in current planning rather than ignore it.

3. Public assistance should be provided to aid the removal of obsolete or neglected orchards or vineyards. Experimental evidence has been insufficient in many instances to predict performance of new technology under commercial conditions. Orchards or vineyards that cannot be maintained in prime conditions for economic or other reasons are often a source of insect and disease infestation, and represent a use of land that is probably not in the public interest.

4. Attempts have been made to predict the impact of new technology on various aspects of the economy. New technology has certainly caused severe disruptions in the fruit industry. Further studies should focus on the development of strategies to ease the problems of adjustment of those disadvantaged by the adoption of new methods.

5. Year to year variations in weather conditions cause wide fluctuations in production that in turn result in considerable variation in grower prices and incomes. Such variability obscures basic trends in productive capacity and market demands, and probably desirable adjustments. Efforts to attack the problem of instability directly through the development of practical means of reducing the effect of weather variation, or indirectly through the development of improved storage methods should be explored.

6. Interest in group action in marketing is likely to increase if economic pressures become more intense. Restraint may be necessary in the development of new programs or the operation of existing ones. Experience with the Tart Cherry Marketing Order can provide some useful information on the cost and benefits of using at least two forms of supply management. Other programs conducted earlier for other crops can also add information not only on potential theoretical gains but also on administrative costs and possible individual inequities.

7. The increase in productive capacity for grapes and apples has been greater in the West than in the Northeast. Regional differences in the effect of new technology reduce the likelihood of reaching agreement on national programs to manage supply. Effort will have to be directed in the Northeast to taking advantage of our favorable location with respect to markets, and to developing more effective methods of marketing and distribution direct to consumers or to retail outlets.

In summary, productive capacity for certain major fruit crops has been growing at an alarming rate due to the adoption of new technology and favorable market demand. There has been considerable public input into the new equipment, methods and varieties. There should also be public concern with the adjustment process this necessitates. Several recommendations intended to ease the impact of previous adjustments and avoid severe future dislocations have been made.

Table 1: Commercial Apples - Total Production by States and Regions

	Average 1960-64	Average 1965-69	1970	1971	1972	1973	1974	Average 1970-74	Indicated 8/1/75
New York	877.0	905.0	995.0	1050.0	770.0	720.0	900.0	887.0	1060.0
Appalachian States ^{1/}	1187.5	1097.9	1310.0	1367.0	1101.0	1195.0	1130.0	1220.6	1356.0
North Carolina	112.9	176.9	234.0	190.0	250.0	212.0	300.0	237.2	300.0
Total Eastern	2636.0	2630.8	3007.8	3140.3	2536.8	2493.0	2809.5	2797.5	3216.5
Michigan	633.0	635.0	690.0	730.0	730.0	470.0	670.0	658.0	720.0
Total Central	1149.5	1122.7	1203.9	1297.3	1249.5	893.5	1121.4	1153.1	1302.6
California	488.8	505.0	500.0	400.0	530.0	490.0	440.0	472.0	460.0
Washington	1147.0	1357.0	1392.0	1206.0	1393.0	1860.0	1775.0	1525.2	1900.0
Total Western	1889.4	2171.8	2185.0	1933.5	2095.0	2862.0	2561.0	2327.3	2778.0
Total U.S.	5675.0	5925.2	6396.7	6371.1	5881.3	6238.5	6491.9	6275.9	7297.1

- million pounds -

^{1/} Pennsylvania, Virginia, West Virginia and Maryland

Source: Non-Citrus Fruits and Nuts, Statistical Reporting Service, USDA, 1974 Annual Summary and earlier issues.

Table 2: Processed Apples - Processors Carryin, Pack and Shipments

Season ^{1/}	Canned Applesauce			Canned Apple Juice			Frozen Apples		
	Carryin	Pack	Shipments	Carryin	Pack	Shipments	Carryin	Pack	Shipments
	- 1000 cases, basis 24/2-1/2 -			- 1000 cases, basis 24/2 -			- million pounds -		
1965	2,500	15,947	14,356		9,611		26.5	93.4	80.0
1966	4,091	11,481	13,938		8,889		39.9	94.3	107.1
1967	1,634	13,885	13,097		8,726		27.1	97.6	89.8
1968	2,422	14,119	13,848		9,365		34.9	117.2	100.8
1969	2,693	16,758	15,281		13,390		51.3	122.3	115.5
1970	4,170	14,131	15,211		14,118		58.1	100.4	118.9
1971	3,090	15,148	14,911		13,696		39.6	97.0	113.5
1972	3,327	11,942	13,954	1,995	13,832	13,961	23.1	130.4	132.6
1973	1,315	15,166	14,076	1,866	14,793	13,385	20.9	135.1	101.3
1974	2,405	(16,700)	(14,205)	3,274	(14,900)	(14,974)	54.7	99.2	(115.4)
1975	(4,900)			(3,200)			(38.5)		

^{1/} September 1 for canned applesauce and apple juice, October 1 for frozen apples.

Source: Fruit Situation, Economic Research Service, USDA, July 1975 and earlier issues.

Table 3: Apples - Commercial Crop, Prices to New York Growers

Use	Crop Year			
	1971	1972	1973	1974
Fresh Use	126.00	208.00	280.00	240.00
Processed:				
Canned	46.40	60.60	149.00	120.00
Juice & Cider	24.60	53.40	96.20	66.00
Frozen	47.80	67.60	157.00	125.00
Total Processed	39.00	59.60	133.00	98.30

- dollars per ton -

Source: Non-Citrus Fruits and Nuts, Statistical Reporting Service, USDA, Annual Summaries

Table 4: Grapes - Total Production

	Average 1965-69	1970	1971	1972	1973	1974	Average 1970-74	Indicated 8/1/75
					- thousand tons -			
New York	136.0	152.0	200.0	103.0	128.0	177.0	152.0	155.0
Pennsylvania	40.4	45.0	57.0	37.6	40.0	53.0	46.5	47.0
Ohio	15.1	11.0	19.0	12.0	13.0	15.5	14.1	18.0
Michigan	44.8	62.0	69.0	53.0	23.5	47.5	51.0	65.0
Washington	63.5	54.5	79.4	62.1	69.2	80.5	69.1	110.0
California								
All Varieties	3385.0	2763.0	3534.0	2266.0	3887.0	3789.0	3247.8	3850.0
Wine Varieties	694.0	537.0	769.0	630.0	1036.0	1214.0	837.2	1350.0
Table Varieties	556.0	336.0	448.0	274.0	475.0	617.0	430.0	500.0
Raisin Varieties	2135.0	1890.0	2317.0	1362.0	2376.0	1958.0	1980.6	2000.0
Other States	35.3	31.8	38.3	35.9	32.5	31.6	34.1	37.7
Total United States	3720.1	3119.3	3996.7	2569.6	4193.2	4194.1	3614.6	4282.7

Source: Non-Citrus Fruits and Nuts, Statistical Reporting Service, U.S. Department of Agricultural, Annual Summaries

Table 5: Wine Entering Distribution Channels in the U.S., by Origin

Calendar Year	Produced	Imported	All Wines
	-- million gallons --		
1965	173.4	16.3	189.7
1966	173.2	18.0	191.2
1967	184.0	19.4	203.4
1968	191.4	22.2	213.7
1969	210.9	24.7	235.6
1970	237.3	30.0	267.4
1971	269.1	36.2	305.2
1972	289.9	47.0	337.0
1973	292.0	55.2	347.2
1974	298.0	51.4	349.4

Source: Wines and Vines, San Francisco, California, April 1975.

Table 6: Grapes - Average Prices Paid New York Growers by Wineries and Processing Plants, Selected Varieties

Year Purchased	Concord	Catawba	French Hybrids
	- dollars per ton -		
1965	103	165	172
1966	106	175	173
1967	101	176	172
1968	123	181	182
1969	158	237	255
1970	156	239	227
1971	139	243	239
1972	170	245	240
1973	211	259	245
1974	213	300	309

Source: Survey of Wineries and Grape Processing Plants, New York Crop Reporting Service, January 1975 and earlier issues.

Table 7: Red Tart Cherries - Total Production

	Average 1965-69	1970	1971	1972	1973	1974	Average 1970-74	Indicated 6/23/74
- million pounds -								
Great Lakes Region								
Michigan	171.8	166.0	178.0	250.0	116.0	207.3	183.5	230.0
New York	33.2	39.6	42.0	34.0	21.2	16.3	30.6	33.0
Pa., Va., W.Va., Ohio	18.3	18.2	16.2	13.1	6.6	13.3	13.5	12.6
Wisconsin	12.3	8.8	17.0	10.5	4.8	10.8	10.4	14.0
Total	235.6	232.6	253.2	307.6	148.6	247.7	238.0	289.6
Western States								
Utah	10.0	9.8	13.4	1.3	17.0	11.6	10.6	14.0
Colorado	2.7	2.0	3.2	1.0	2.0	2.5	2.1	3.0
Oregon	8.3	4.0	10.0	1.8	7.6	5.0	5.7	8.0
Total	25.3 ^{1/}	18.4 ^{1/}	26.6	4.1	26.6	19.1	19.0 ^{1/}	25.0
Total United States	260.9	251.0	279.8	311.7	175.2	266.8	257.0	314.6

^{1/} Includes other western states.

Source: Ricks, Donald, and David Amon, Tart Cherry Market Information and Price Analysis, Report No. 291, Department of Agricultural Economics, Michigan State University, June 1975.

Table 8: Red Tart Cherries - Processors Canned and Frozen Stocks, Pack and Movement

Pack 1/ Season	Canned Pack			Frozen Pack		
	Carryin	Pack	Shipments	Carryin	Pack	Shipments
	- 1,000 24/2-1/2 case equivalent -					
1965	415	2,424	2,737	66.1	146.4	166.4
1966	102	992	1,053	46.1	87.4	119.3
1967	41	784	800	14.2	97.8	99.3
1968	25	1,132	1,057	12.7	141.5	120.7
1969	100	1,505	1,453	33.5	140.7	135.8
1970	152	987	1,028	38.4	121.3	139.1
1971	102	1,041	900	20.6	159.4 ^{2/}	140.3 ^{3/}
1972	243	1,299	1,533	39.7 ^{4/}	145.6 ^{2/}	158.2 ^{3/4/}
1973	9	579	584	27.1 ^{4/}	109.4	120.4 ^{4/}
1974	4	1,188	1,134	16.1	138.0	116.8
1975	58			37.3		

1/ Beginning June 1 for canned pack, July 1 for frozen pack.

2/ Includes 17.4 million pounds set aside in reserve pool.

3/ Includes 13.0 million pounds from reserve pool.

4/ Includes 4.4 million pounds in reserve pool.

Source: Ricks, Donald, and David Amon, Tart Cherry Market Information and Price Analysis, Report No. 291, Department of Agricultural Economics, Michigan State University, June 1975.

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