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ANCING a CENTRALIZED PEACH-PACKING FACILITY in SOUTHEASTERN MISSOURI

FCS Service Report-No. 145
Farmer Cooperative Service
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PREFACE

In early April 1974, the chairman of the Missouri Peach Merchandising Council, W. Carlton Stewart, asked the U.S. Department of Agriculture for help in determining the feasibility of establishing a cooperative fruit packing facility in southeastern Missouri.

To fill this request, FCS studied current needs and future growth to:

A. Determine the volume of peaches producers are willing to commit to a marketing cooperative in 1975 and 1980.

B. Determine the facility requirements and projected operating costs to handle the expected volume in 1975 and 1980.

C. Determine capital requirements and develop a financial structure, including producers' need to supply equity capital.

D. Develop the longrun financing plan based on the financial inputs of members, credit sources, debt service requirements, operating costs, and projected volume.

FCS staff met with peach growers individually and as a group, and viewed their facilities to assess interest and need for a marketing cooperative. Seventeen of 22 possible peach growers, representing an estimated 90 percent of the peach acreage in the area, provided information on their production potential. Growers, with help from equipment suppliers and engineers from the Richard B. Russell Agricultural Research Center, Agricultural Research Service, designed the proposed facility and obtained the cost estimates used in this report. Mention of equipment brand names is for identification only and does not constitute endorsement.

The authors gratefully acknowledge the assistance of Frank Hussey, senior cooperative development officer, in meeting with growers.

W.R. Forbus, Jr., Research Industrial Engineer, USDA, ARS, Richard B. Russell Agricultural Research Center, Athens, Georgia, prepared the proposed packinghouse layout presented in this report.

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HIGHLIGHTS

Seventeen peach growers in southeastern Missouri propose creating a packing and storage facility costing about $673,000. This study finds projected fees covering packing expenses and capital needs for the co-op compare favorably with costs growers incurred in their own separate facilities in 1974.

And statistics for their peach production in 1972-74 combined with projected production for 1975 and 1980 produce an equitable formula to set each grower's fair share of the equity capital.

The 17 growers have 1,643 acres in peach orchards with 55 percent of the trees not yet mature enough to bear fruit. Based on a harvest typical of 1970-72--about 82 percent of a full crop--projected peach production in 1975 would be 209,000 bushels and in 1980, 468,000 bushels. A full crop would be one-fifth more.

Grower-shippers, with their present packing facilities, will be unable to prepare these larger peach crops for commercial markets. A cooperative marketing facility is needed to handle about 60,000 bushels weekly in 1975 and 70,000 or more bushels weekly in 1980.

Growers have already indicated their interest in a cooperative facility by expressing willingness to sign a marketing agreement and to invest equity capital in a cooperative.

They propose to invest initially $100,000 in the project, followed by substantial investment from operations.

It was also found that growers have young peach tree varieties that mature earlier than traditional varieties. This helps capture the more lucrative early markets and spreads the shipping season. By 1980, growers will harvest a substantial volume of fruit over 11 weeks, beginning in mid-June. Heretofore the range has been up to 2 weeks.

One-half of the peach crop is currently marketed by commission merchants. One-fourth of the crop is sold on consignment, and the rest goes to independent jobbers or other outlets. Gross sales of peaches averaged $419,000 annually during 1970-74.

Regional or U.S. peach production levels and the wholesale price index can be used to explain most of the annual change in peach prices received by Missouri producers. Past trends for these factors suggest that future Missouri peach prices will not fall below 1972-73 levels.

FINANCING A CENTRALIZED PEACH-PACKING FACILITY IN SOUTHEASTERN MISSOURI

Phillip F. Brown
Agricultural Economist

Raymond Williams
Senior Cooperative Development Officer

PART I -- SOUTHEASTERN MISSOURI'S PEACH INDUSTRY

In recent years, about 20 growers produced up to 150,000 bushels of peaches annually for sale in commercial markets, primarily in Missouri and other markets west of the Mississippi River. Their production was 0.2 percent of U.S. peach production.

Their peach orchards are on Crowley Ridge near Campbell in Dunklin County in southeastern Missouri. Most orchards are concentrated in an area 6 to 8 miles long. This is the only commercial peach production area in Missouri.

Peach orchards have been maintained in the area for generations with proved commercial production over the past 30 years. New varieties have now replaced the traditional Elberta variety. These varieties extend what had been a 1- or 2-week harvest period to 11 weeks.

Yields over the years have been good and generally dependable. Following a total loss in 1955, yields were good through the 1972 crop. The 1973 and 1974 crops were much less than normal, due to spring frost and freeze damage following warm periods in the winter months.

Prices in most years meant good returns. Producers came to expect their peach crops to be a sure moneymaker. This experience stimulated gradual orchard expansion and then substantial new plantings following the 1972 crop. Production through new plantings will increase substantially by 1980.

Producers pack their own fruit or sell tree run--the way pickers deliver it. Only occasionally will one producer custom pack for other producers. Most sheds are inadequate, employing old sizing and grading equipment purchased secondhand from producers in major U.S. peach production areas. Packing line capacity is generally quite low; a normal range of sizes, grades, and containers cannot be obtained; fruit generally is not hydro-cooled nor accumulated in cold storages for shipment in truckload lots. No shed waxes peaches. Fruit from two to seven sheds must be combined to make up full truckloads.

Labor costs per box of fruit packed in these producer sheds is probably quite high, compared with the efficiency that could be gained in a central

facility. After performing additional functions of hydrocooling, waxing, cold storage, and packing in a greater variety of containers than most producers now pack, the cost per box may, however, equal or be higher than some producers presently pay for their inadequate packs; but the increased quality should return a better price and improve access to market outlets.

With the additional plantings, a substantial investment in packinghouse facilities will be needed. Producers want to build a central packing facility, so most of them have not improved their present sheds in anticipation of the forthcoming increases in production.

Production Situation

Total peach production of interested growers ranged from 59,514 bushels in 1973 to 141,692 bushels in 1972 (table 1). Growers considered their total production for the 5 years to be 51 percent of the production potential for the period.

Most growers believed their production levels in the 1970-72 seasons were typical or near normal. Their annual production, weighted by size of grower, varied from 71 to 90 percent of what they considered a full potential crop.

Growers estimated that they had a 25-percent crop in 1973 and a 33-percent crop in 1974. The estimated loss for these 2 years varied between 10 and 100 percent for various growers. Several growers with these extremes described exceptionally good or poor air drainage as the primary factor causing their orchards to be different from most.

Five growers who reported production each year realized 54 percent of their production potential.

Many growers did not appear to produce peaches in 1970. Several area farmers with peach experience as tenants or with relatives had trees of their own come into production for the first time during the 5-year period. Several other growers operating orchards on a share basis began these operations during the period or reported production only from orchards they now operate and intend to derive production for future cooperative marketing. Yet several of these growers operated other orchards in 1970 and prior years.

Yield

Average production per acre for the 5-year period varied considerably among growers, ranging from 74 to 245 boxes per acre. The weighted average yields for the 5 producers with production each year was 201 boxes per acre. For all producers, the weighted yields was 178 boxes per acre. Six producers contributed to the lower yield with two poor crops in 2 to 4 producing years, and three growers had young orchards that did not bear a full crop.

Table 1--Peach production comparisons and total and average production, southeastern Missouri, 1970-74

Year	Annual production	Percent of a normal crop 1/	Growers reporting production
	Bushels	Percent	Number
1970	67,691	90	5
1971	103,403	84	8
1972	141,692	71	13
1973	59,514	25	14
1974	79,600	33	14
Total, 5 yrs.	451,900	--	--
Average, 5 yrs.	90,380	51	--

1/ Weighted by producers' size.
-- = not applicable

Applying the concept of a 51 percent of normal crop in 1970-74 to the 178-box yield suggests 349 boxes per acre for a full crop. A 54 percent normal crop for the 5 growers averaging 201 boxes suggests a maximum yield of 372 boxes per acre. In group discussions, growers generally agreed that, on the average, mature orchards should produce 350 boxes of peaches per acre.

The Censuses of Agriculture for 1959, 1964, and 1969 provide a crude check on Dunklin County peach yields. The pounds of production per bearing age tree calculated from the census data, times 100 trees per acre and divided by 48 pounds--the average weight per bushel--suggests yields for the 3 years, respectively, of 397, 320, and 180 bushels per acre, or an average of 299 bushels per acre.

Acreage

The 17 producers have 1,643 acres in bearing and young peach trees (table 2). Most of the present bearing acreage will still be producing in 1980. The 714.2 acres in trees 5 through 15 years old in the spring of 1975 make up 43.5 percent of all orchards. Fourteen acres of trees 16 years and older constitute only 1 percent of all orchards.

One- to 4-year-old trees make up 36.6 percent of the acreage. Seven growers indicated intentions to plant 313 acres in new trees by spring 1975, which is the remaining 19 percent of total acreage. These trees are shown as having an age of zero in table 2.

Growers reporting production in each of the years 1970-74 have 56 percent of the trees 0 through 4 years of age and 55 percent of the trees 5 years old and older. Two growers reporting no production during 1970-74 have 70 acres, 4 percent of total acreage in 0- and 1-year-old trees.

Table 2--Peach tree acreage for 17 Missouri growers, by experience of growers and age of tree, spring 1975

Age of trees (years)	Growers with 5 years or more experience	Growers with 4 years or less reported experience	All producers
		Acres	
0 1/	162	151	313
1	107	81.5	188.5
2	143.5	99	242.5
3	54	40.8	94.8
4	46	30	76
5	78	29.7	107.7
6	115	36	151
7	7	43.5	50.5
8	24	37.2	61.2
9	16	47.5	63.5
10	48	65	113
11	18	0	18
12	89	32	121
13	0	22.3	22.3
14	0	0	0
15	1	5	6
16	0	10	10
20-21	4	0	4
Total	912.5	730.5	1,643

1/ Trees to be planted by spring 1975 or that were planted in the fall of 1974.

Potential

Estimates of production potential were derived for this report by two approaches. Growers indicated their expected production levels, and selected yields were applied to the acreage of existing trees. Also, the acreage in each variety was examined to estimate production by weekly time periods.

Grower Estimates--Sixteen growers expected to be able to produce 241,625 bushels of peaches in 1975 and 503,750 bushels in 1980 (table 3). The 1980 projection exceeds total 1970-74 production and is 5.6 times greater than average annual production for that period.

About 80 percent of peaches in 1980 will be picked in July and August, compared with 88 percent in 1975. Thus, growers are gradually spreading their shipping period with varieties maturing in June.

Table 3--Missouri growers' projected peach production in 1975, 1976, and 1980, and proportionate distribution by month of harvest, 1975 and 1980

Month of harvest	Expected production			Distribution	
	1975	1976	1980	1975	1980
	Bushels			Percent	
May	4,000	6,050	12,200	2	2
June	29,550	40,550	101,900	12	20
July	111,525	132,925	204,250	46	41
August	96,550	117,350	185,400	40	37
Season total	241,625	296,875	503,750	100	100

Yield Basis--Several yields have been suggested in this report for use in projecting production from acreage of bearing trees.

The average yield of 178 bushels per acre for all producers is heavily weighted by young trees and the poor production levels of 1973 and 1974. The higher 201 bushels per acre reflect 5 years of production experience, largely from trees well into their bearing years, and better represent a minimum level of production which could occur over a number of years. Based upon this 201-bushel yields, growers would produce 146,000 bushels of peaches in 1975 and 327,000 bushels in 1980 (table 4).

A second and higher yield can be found that more nearly represents production for years not experiencing spring freeze damage. The 5-year average yield of 178 bushels was associated with a 349-bushel maximum yield. This is the same as the 350-bushel average estimated by growers. Eighty-two

percent of a normal crop--the average for 1970-72 crop--of 350 bushels gives 287 bushels per acre. This yield suggests production at about 209,000 bushels in 1975 and 468,000 bushels in 1980.

The higher 350-bushel yield provides 255,000 bushels from growers in 1975 and 570,000 bushels in 1980.

Table 4--Peach yields and projected production for selected Missouri growers, 1975, 1976, and 1980

Year	Orchards 5 to 20 years old	Selected yields	Projected production
	Acres	Bu./acre	Bu.
1975	728	201	146,328
		287	208,936
		350	254,800
1976	800	201	160,800
		287	229,600
		350	280,000
1980	1,629	201	327,429
		287	467,523
		350	570,150

Weekly Volume--Growers provided information on their acreage of each variety by its age (app. table 1). With this information, estimates were made of peach production as the various varieties ripen. The ripening sequence in days before and after the Elberta variety, as published by Cumberland Valley Nurseries, was used, together with an August 10 ripening date for Elberta. The 287- and 350-bushel yields were used as representative of packing capacity requirements.

Peaches were harvested in 11 weeks from early June through the third week of August (table 5). Forty-three percent of the projected crop will be harvested in the 10th and 11th weeks in August. However, with earlier maturing varieties coming into production by 1980, only 28 percent of the crop matures in the last 2 weeks. In 1980, a heavy volume of fruit would be delivered to a packing shed in the third week of June, with a continuing heavy volume in most of the remaining 8 weeks.

Table 5--Projected weekly peach harvest, by selected Missouri growers, 1975, 1976, and 1980

Week	and month	Harvest assuming 287 bushels per acre			Harvest assuming 350 bushels per acre		
		1975	1976	1980	1975	1976	1980
		Bushels					
1	June	2,009	2,009	21,525	2,450	2,450	26,250
2	June	1,722	2,296	5,453	2,100	2,800	6,650
3	June	10,332	14,350	50,369	12,600	17,500	61,425
4	June	3,875	4,736	20,578	4,725	5,775	25,095
5	July	25,113	25,113	46,064	30,650	30,650	50,175
6	July	19,703	24,295	59,481	24,028	29,628	72,538
7	July	12,054	13,489	39,176	14,700	16,450	47,775
8	July	38,487	40,496	68,909	46,935	49,385	84,035
9	August	6,458	8,754	25,113	7,875	10,675	30,625
10	August	60,284	63,441	70,200	73,518	77,368	85,610
11	August	28,643	30,365	60,643	34,930	37,030	73,955
	Total	208,680	229,344	467,511	254,511	279,711	570,133

Packing and Marketing Situation

Facilities

Twelve of the 17 growers pack their own peaches. Those who do not pack dispose of orchard-run peaches at roadside stands and to truck buyers, or are growers whose trees have not yet produced peaches. One grower had a small portion of his 1974 crop custom packed.

Packing line capacity, in 38-pound boxes per hour, varied from 50 to 350, and averaged 200 boxes for the 12 grower-shippers.

Seven packing lines included hydrocoolers, but these were not generally used in 1974. One hydrocooler is serviced by mechanical cooling equipment. The others require ice, which is not readily available in the area.

Three packing sheds with cold-storage rooms have a combined capacity for 26,500 bushels in bin containers. In addition, five sheds have truck trailers capable of holding a total of 2,750 bushels of fruit in boxes.

Type of Pack

Growers estimated 76-percent of the crop graded No. 1 in 1970-74, with a 75-percent rate mentioned most frequently. Several growers considered this rate applied to their total crop, which included some fruit sold orchard run. Therefore, the packout of fruit that was brought into the packing shed might run higher for these growers.

The 1974 crop was not entirely well suited to packing, due to split seeds, a light pick on some varieties, and a strong local demand for orchard-run fruit from the small crop. Peaches packed in 20, 25, and 38-pound boxes by nine grower-shippers in 1974 composed 66 percent of their production, but composed 80 percent or more of the peaches delivered to the packing shed.

Three-fifths of the 1974 crop was packed in boxes for shipment (table 6). One-quarter of the crop was sold orchard run--just as it came from the orchard. Most grower-shippers sold some peaches orchard run.

Eleven growers used the 38-pound box for 82 percent of the No. 1 grade or equivalent fruit packed in boxes. Wooden boxes made up 87 percent of the 38-pound boxes growers purchased for packing in 1974. Three growers used the 20-pound tray box and six growers used the 25-pound box.

Six growers, with 79 percent of the 1974 crop, packed their peaches under USDA inspection.

Expenses

Containers are a major cost item in peach packing. Missouri growers used the wooden box most widely (table 7). Shed operators purchased nearly two-thirds of these wooden boxes in less than truckload lots.

They paid up to 12 percent more a box when buying in small lots, and as a result expended about $1,717 more in 1974 than would have been paid for boxes in full truckload lots.

While only three grower-shippers packed in the 38-pound carton, the difference in unit costs between purchasing the boxes in truckload lots, compared with small lots was greater--23 percent.

Ten grower-shippers estimated their packinghouse labor expense at $27,016 in 1974. The average labor cost per 38-pound box equivalent was $0.46. Shippers displayed a wide range of $.22 to $1.67 per 38-pound box equivalent for labor, indicating a great difference in labor efficiency between packing sheds.

Table 6--Type of peach pack prepared by selected Missouri growers, 1974

Container or method	Net weight	Containers packed	48-pound equivalent	
	Pounds	Number	Bushels	Percent
Trays	20	11,675	4,865	6
Box	25	6,450	3,360	4
Box	38	48,880	38,713	49
Orchard run	48	20,489	20,489	26
Other	48	12,005	12,005	15
Total	--	--	79,432	100

-- = Not applicable

Table 7--Cost of boxes used by Missouri peach grower-shippers, 1974

Type of box	Cost per box		Total expenditure
	Highest	Lowest	
	Dollars		
20-lb. carton	0.60	0.53	6,964
25-lb. carton	.70	.68	3,896
38-lb. carton	.74	.60	3,740
38 lb. wooden	.84	.75	34,462
All boxes	--	--	49,062

-- = Not applicable

Growers estimated that total packinghouse cost per 38-pound box equivalent in 1974 was $1.22 to $3.98. This included operating costs, depreciation, and the box. The weighted average cost for all grower-shippers was $2.00 per box. The modest and depreciated facilities of some small growers more than offset their higher box and labor costs, resulting in costs for them that were near or below the average for all grower-shippers.

Sales

The value of growers' peaches ranged from $270,923 in 1970 to $711,657 in 1972, (table 8). Sales averaged $418,704 annually. Higher price levels, compared with those of previous years, helped boost gross sales in the abnormally low production years of 1973 and 1974. Appendix C contains an analysis of peach prices, pages 45 - 49.

Method of Sales

Commission merchants (marketing agents) located market outlets for nearly half the peaches produced by Missouri growers in the past 5 years (table 9). Eight growers used this method of sale. One-quarter of production was shipped on consignment by three growers. Most growers, however, sold some peaches to independent jobbers, primarily to truck buyers who purchase both the No. 1 and No. 2 grades or orchard run fruit. Eight growers disposed of 5 percent of the peaches at roadside stands. Three percent of the fruit was sold as pick-your-own or by other methods.

Table 8--Sales and value of peaches by selected Missouri growers, 1970-74

Year	Gross sales	Value per bushel produced 1/
	Dollars	
1970	270,923	3.80
1971	381,640	3.77
1972	711,657	5.13
1973	343,077	5.90
1974	386,225	6.12

1/ Based only on those reporting both production and sales.

Table 9--Methods of selling peaches by selected Missouri growers, 1970-74

Method of sale	Growers reporting use of method	Estimated disposition of 1970-74 crops
	Number	Percent
Commission merchant	8	45
Consignment	3	23
Independent jobber	13	24
Roadside	8	5
Other	5	3

Orchard Chemicals

All growers expressed a desire to purchase chemicals through the same cooperative that would market their fruit. They purchased $53,316 worth of spray chemicals in 1974. Because the 1974 crop was small and some varieties did not bear fruit, three-fifths of the growers sprayed only 7 to 85 percent of their orchards, rather than the entire orchard. Had all orchards been sprayed, the cost of chemicals might have been $89,000 in 1974.

Conversations with several growers brought out opinions that, as a precaution, growers may be spraying more often than needed because they lacked enough time or ability to evaluate the need to spray. Available data suggest this may be true. After converting the 1974 chemical expenditure to the amount growers might have spent on all acreages of bearing age trees in a normal year, we estimated the expenditure for chemicals ranged from $37 to $222 per acre. A cooperative fieldman advising on spray practices and timing would help growers avoid the cost of unnecessary spraying and help any who may not be doing an adequate job.

Willingness to Cooperate

Sixteen out of 17 growers indicated willingness to sign an agreement for a cooperative to pack and market their peaches.

Fifteen out of 17 growers were willing to cooperate with an association manager in scheduling picking. They were hesitant, however, expressing concern that the proper time for picking and the labor supply leave little flexibility for scheduling. Generally, growers felt they could adjust if asked to change their picking schedule by no more than 1 day.

All growers agreed to purchase equity stock in a cooperative packing facility in proportion to their participation.

PART II -- PROPOSED PACKING FACILITY

A commercial peach-packing and storage facility is to be located within the peach production area on a site along the county WW Highway northeast of Campbell, Mo. The facility will be owned and operated by the Missouri Fruit Growers Exchange (MFGE), a stock corporation with stock held predominately or exclusively by peach producers. The corporation is now being formed.

Producers devoted several months to selecting the type of construction, kind and make of equipment, and obtaining cost estimates. Engineers at the Richard B. Russell Agricultural Research Center, Agricultural Research Service, USDA, assisted by preparing a floor plan of the proposed packinghouse and adjoining storage areas. 1/

The facility will handle the projected volume shown in table 5. Peaches will come from the orchard in bulk bins. The facility is designed to hydrocool the peaches and wash, wax, grade, size, and pack them into various sizes of containers for shipment. One cold-storage room will accumulate bins of a growers' peaches as they are delivered throughout the day, permitting the fruit to traverse the packing line as a single lot. Another cold-storage room will accumulate palletized boxes of packed fruit into truckload lots that are uniform in size and grade of fruit and size of container.

The expected cost of facilities and equipment and proposed loan package is shown in tables 10 and 11. Table 12 is the projected cash flow.

When allocating all expenses (table 13) and retains to grade No. 1 peaches, the packing charge per 38-pound equivalent (net) is $1.83 in 1975 and $2.00 in 1976 (table 14). This compares favorably with the $2.00 packing cost incurred by producers in 1974 (page 10).

Development of Cash Flow Data

Producers are accustomed to receiving their income from peaches within the calendar year. Therefore, the corporate fiscal year is shown as ending October 31. This facilitates distribution of net earnings and determination of producers' new capital contribution to MFGE within the calendar year.

1/ See floor plan description in appendix B, page 41.

The cash flow is not shown beyond two packing seasons because MFGE expects to operate under stable conditions with adequate net earnings each year.

In projecting the cash flow, the following assumptions were used:

Cash Received

Packing fees	Based upon spreading operating expenses, excluding containers, uniformly to all grade No. 1 and No. 2 fruit, then adding the container cost. With selling handled by Western Fruit Sales Co., receipt of packing fees is expected in the third week following packing of No. 1 peaches. Sales of No. 2 peaches are expected to be completed the week following grading. Packing output is shown in appendix tables 5 and 6, pages 36 and 37
Unclassified peaches	Sold to wineries for $50 a ton. Since sales at the projected level have not been experienced, unclassified peaches are shown separately.
Per unit retain	Funds retained for capital purposes sufficient to cover the principal portion of loan installments. From the 1975 crop proceeds, working capital is increased adequately to carry MFGE through the 1976 season without borrowing or drawing upon 1975 net earnings.
Proposed financing	Based upon a Farmers Home Administration guarantee of 90 percent on local bank loans as shown in table 11 and appendix table 8. Operating capital secured in June and July 1975 from a local bank at 8-percent interest, annual rate without a guarantee.

Disbursements for Operations

Manager	Salary of $18,000 for 12 months, then $19,200 plus employer's share of Social Security.
Bookkeeper	Required full time during the season and part-time off season.

Foreman	Annual rate of $9,600
Packing crew	See appendix table 7, page 38.
Packing material	Each type of box purchased in truckload lots, received within 1 week of projected need. Payment made within 10 days for 2-percent discount. Machine assembly for all boxes. Estimated cost per box before discount shown in table 14.
Inspection fee	$250 weekly for a 6-day week including mileage in 1975, raised 5 percent for 1976.
Forklift rental	Five LP gas lifts during most of the packing season and two the rest of the year. Rent or lease-purchase at $350 per month each.
Electric	Estimated.
Telephone	Excludes phone expense for peach marketing, which will be covered by the sales commission that is charged to producers.
Maintenance	Two percent of equipment cost. Includes maintenance man and any other related labor.
Insurance	Estimated.
Property tax	Property taxes of $4 per $100 of assessment which is based on 30 percent of market value.
Contingency	Ten percent of operating expenses, including depreciation, allocated to each month in the same proportion as expenses in that month are to the fiscal year expenses.
Bank loan payment	Based on appendix table 8. Annual principal and interest payments assumed due October 1. Interest at 8 percent per year.
Net earnings	1975 net earnings, table 13, shown as disbursed after the 1976 crop on a patronage basis.

Table 10--Estimated cost of land, building, and equipment, Missouri Fruit Growers Exchange

Item	Cost	
	Dollars	
Land		13,125
Building and fixed facilities		
Building	300,038	
Refrigeration	100,000	
Hydrocooler	30,000	
Sewer and water	3,000	
Electric hookup	38	
Site improvements	2,000	
Organizational and startup	5,000	
Contingency (5 percent)	22,004	
Building and facilities		462,080
Equipment		
Packing line	145,000	
Box assembly machine	13,000	
Pallets (300 grocery, 300 one way)	1,800	
Hand pallet jack	300	
Misc. tools and equipment	1,000	
Office furniture and equipment	2,500	
Bulk bins (1,000)	25,000	
Contingency (5 percent)	9,430	
Total equipment		198,030
Total land, building, and equipment costs		673,235

Table 11--Summary of bank-FHA loan guarantee

1.	Total real estate and equipment needs--$673,300:		
2.	Land, buildings, and facilities:		
	Total cost--$475,230 1/ :		
		Bank loan (90% FHA guarantee of loss)	$427,707
		Stockholder equity capital	47,523
		Total	475,230
3.	Equipment:		
	Total cost--$198,070 2/:		
		Bank loan (90% FHA guarantee of loss)	$178,263
		Stockholder equity capital	19,807
		Total	198,070
		Total equipment and facilities	$673,300
4.	Operating capital (stockholders)		32,670
		Total capital needs	$705,970

1/ Includes $5,000 organization and startup costs.
2/ Includes 5-percent contingency.

Table 12--Projected cash receipts and disbursements, Missouri Fruit Growers Exchange, first 2 fiscal years

Item	Feb-May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October
									Dollars									
Cash received																		
Packing fees	-	5,032	74,033	229,025	44,026	-	-	-	-	-	-	-	-	6,386	94,495	172,605	163,211	-
Sales of unclassified peaches	-	161	3,284	10,964	2,292	-	-	-	-	-	-	-	-	161	3,721	6,966	7,508	-
Per unit retains	-	1,251	14,857	46,340	8,347	-	-	-	-	-	-	-	-	744	8,736	16,692	14,289	-
Producer stock	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed financing at local bank	605,970	10,000	20,000	-	-	-	-	-	-	-	-	-	17,500	-	-	-	-	-
Total cash received	705,970	16,444	112,174	286,329	54,665	-	-	-	-	-	-	-	17,500	7,291	106,952	196,263	185,008	-
Capital outlay																		
Land	13,125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Building	462,080	-	-	-	-	-	-	-	-	-	-	-	5,000	-	-	-	-	-
Equipment	198,030	-	-	-	-	-	-	-	-	-	-	-	25,000	300	-	-	-	-
Cash disbursed for operations																		
Manager	1,588	1,588	1,588	1,588	1,588	1,588	1,588	1,588	1,588	1,588	1,588	1,588	1,588	1,694	1,694	1,694	1,694	1,694
Bookkeeper-secretary	847	847	847	847	847	847	463	-	212	-	463	463	463	932	932	932	932	932
Foreman	864	864	864	864	-	-	-	-	-	-	-	-	479	958	958	958	-	-
Packing crew	-	2,506	12,420	12,347	-	-	-	-	-	-	-	-	-	2,676	15,299	14,500	-	-
Packing materials	-	18,596	77,544	69,385	-	-	-	-	-	-	-	-	-	26,150	63,174	12,876	-	-
Inspection fee	-	1,000	1,000	750	-	-	-	-	-	-	-	-	-	1,050	1,050	788	-	-
Wax and chemicals	-	3,000	-	-	-	-	-	-	-	-	-	-	-	3,000	-	-	-	-
Forklift rental	350	1,750	1,750	1,750	700	700	700	700	700	700	700	700	700	1,750	1,750	1,750	700	700
Electric	200	900	1,650	1,650	100	100	100	100	100	100	100	100	150	900	1,700	1,700	100	100
Water	30	30	30	30	10	10	10	10	10	10	10	10	15	30	30	30	10	10
Telephone	150	150	150	150	100	75	75	75	75	75	75	75	100	150	150	150	100	75
Office supplies	200	50	25	15	15	15	50	-	-	-	-	-	200	50	25	20	20	20
Maintenance	-	1,800	1,800	1,400	1,000	-	-	-	-	-	-	-	1,500	800	1,800	1,400	500	-
Insurance	3,000	-	-	-	-	-	-	-	-	-	-	-	3,000	-	-	-	-	-
Property tax	-	-	-	-	-	2,917	-	-	-	-	-	-	-	-	-	-	-	7,000
Audit	-	-	-	-	-	-	2,500	-	-	-	-	-	-	-	-	-	-	-
Contingency	782	3,574	10,763	9,804	470	675	631	286	310	286	338	338	945	4,629	9,663	15,775	467	1,216
Bank loan payment																		
Building principal	-	-	-	-	-	15,753	-	-	-	-	-	-	-	-	-	-	-	17,014
Building interest	-	-	-	-	-	19,959	-	-	-	-	-	-	-	-	-	-	-	32,955
Equipment principal	-	-	-	-	-	18,656	-	-	-	-	-	-	-	-	-	-	-	22,156
Equipment interest	-	-	-	-	-	8,317	-	-	-	-	-	-	-	-	-	-	-	13,348
Operating principal	-	-	-	30,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating interest	-	-	-	467	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disbursement of net earnings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83,757
Total outlay	681,246	36,655	110,431	131,047	4,830	69,612	6,117	2,759	2,995	2,759	3,274	3,274	39,140	45,069	98,225	152,573	4,523	180,977
Cash inflow (outflow) for month	24,724	(20,211)	1,743	155,282	49,835	(69,612)	(6,117)	(2,759)	(2,995)	(2,759)	(3,274)	(3,274)	(21,640)	(37,778)	8,727	43,690	180,485	(180,977)
Accumulated cash flow	24,724	4,513	6,256	161,538	211,373	141,761	135,644	132,885	129,890	127,131	123,857	120,583	98,943	61,165	69,892	113,582	294,067	113,090

Table 13--Pro forma statement of operations for Missouri Fruit Growers Exchange, fiscal years ending October 31, 1975 and 1976

Item	1975	1976
	Dollars	
Income:		
Packing fees	352,116	436,697
Unclassified fruit sales	16,701	18,356
Total income from operations	368,817	455,053
Expenses:		
Salaries	14,610	26,310
Packing crew and foreman	30,729	35,828
Packing materials	162,161	195,256
Inspection	2,750	2,888
Wax	3,000	3,000
Forklift rental	7,000	11,550
Electric	4,600	5,250
Water	140	185
Telephone	775	1,175
Office supplies	320	385
Maintenance	6,000	6,000
Insurance	3,000	3,000
Property tax	2,917	7,000
Audit	---	2,500
Interest	28,743	46,303
Misc. and contingency	26,068	34,884
Total expenses	292,813	381,514
Gross earnings	76,004	73,539
Depreciation 1/	19,349	46,437
Net earnings	56,655	27,102

1/ See appendix table 9 for depreciation schedule. Allowance for 5 months only in 1975.

Table 14--Peach-packing charges and costs, Missouri Fruit Growers Exchange, 1975 and 1976

Year and container net weight	Grade	Packing fee	Container charge	Capital retain	Total charge or cost
			Dollars		
1975:					
20 lbs.	No. 1	0.40	0.53	0.15	1.08
25 lbs.	No. 1	.50	.55	.19	1.24
38 lbs.	No. 1	.76	.65	.29	1.70
38-lb. equiv: 1/					
Gross	No. 1	.98	.78	.34	2.10
Net	No. 1	.71	.78	.34	1.83
48 lbs.	No. 2	.96	2/	.36	1.32
38-lb. equiv.:					
Gross	No. 1 & 2	.84	.67	.29	1.80
Net	No. 1 & 2	.61	.67	.29	1.57
1976:					
20 lbs.	No. 1	.46	.58	.08	1.12
25 lbs.	No. 1	.58	.61	.10	1.29
38 lbs.	No. 1	.88	.71	.15	1.74
38-lb. equiv: 1/					
Gross	No. 1	1.10	.86	.17	2.13
Net	No. 1	.97	.86	.17	2.00
48 lbs.	No. 2	1.11	2/	.18	1.29
38-lb. equiv:					
Gross	No. 1 & 2	.96	.74	.15	1.85
Net	No. 1 & 2	.86	.74	.15	1.75

1/ Total income and retains charged to grade No. 1 peaches. "Gross" includes net earnings, "net" excludes net earnings shown in table 13.
2/ Buyer provides his own container.

Grower Capital--Setting a Fair Share

The peach packing and storage facility will be paid for by a combination of growers' and borrowed funds. For this discussion, the money supplied by growers can be called base capital. This capital base could continue for as long as the packing business exists, and it would change in amount as growers add to or take from funds each year.

Cooperative practice calls for each grower to invest in the base capital in proportion to his use of the business. A practical and equitable way to measure each grower's use of the packing facility and to discuss how a base capital plan operates are the key topics of this section.

A base capital plan uses a moving average of money invested by each grower-patron. Ideally, each growers' investment in the cooperative is the same amount for each bushel of peaches he delivered to the packing shed over some time period. Let's assume all growers delivered 500,000 bushels of peaches to the cooperative this year and at the end of the season their base capital is $100,000. The average investment for each bushel is 20 cents. The grower who delivered 10,000 bushels should have an investment of $2,000, and a grower who delivered 100,000 bushels should have $20,000 in the cooperative. Each growers' investment is in proportion to his use of the facility.

To adjust each grower's share in the capital base each year may bring a financial burden to the grower with a steady production level while all others drop, due to uncontrollable factors, or to the grower with a big increase in production from new trees. Therefore, it is practical to average these fluctuations in deliveries over a period of 5, 8, or 10 years. A longer period of 20 or 30 years is too long for current patrons to really carry the current financial needs of the cooperative. Also, the number of years in the average is the length of time needed to automatically revolve out of the capital base all the money an inactive patron placed in it.

A 5-year moving average of participation, for example, is easy to understand and follow once the cooperative has been in operation 5 or more years. But for Missouri growers starting a new cooperative, an equitable plan or average needs to be found to determine each grower's share of the startup capital and for annual additions to the capital base until 5 years' experience is realized.

An equitable 5-year plan, acceptable to all growers, may be difficult to find because of their diverse positions. A few growers expect a steady level of peach production. Most growers expect increases in production with the increase to occur either immediately or gradually over a 5-year period, or to come 3 to 5 years from now. Because the packing and storage facility is designed to handle the higher production levels expected in 1975-80, it seems equitable to ask growers with young trees to carry more financial responsibility than would be called for from their current or past production levels. Information is available on which to suggest several alternatives.

Most peach growers reported peach production for the 3 years, 1972-74. They also projected their volume for 1975 and 1980. A period of 5 years is constructed by combining these figures. The percent share of the start-up money that each grower would provide under this combined period is shown in column (2), table 15. Years without production by some growers were treated as zero.

Other alternatives appear in columns (3), (4), and (5). Based upon their production estimates and reported peach acreage by age of tree, growers' opinions of their expected yields in 1980 ranged from 110 bushels an acre to 481 bushels, with an average of 309 bushels an acre. To the extent these differing yields more accurately reflect performance, growers' projections (column 3) provide a more equitable method than a uniform yield applied to the acreage (column 4) for these future years.

Another alternative is to start with year 1 and build history from then on. Production projected by growers for 1975 could be the basis for determining the amount of startup capital for each grower (column 5, table 15). An average of grower patronage would begin by adding 1975 actual deliveries to this estimate. Deliveries each year would be added to all previous years until a 5-year period of actual use could be maintained, following the 1979 crop.

Maintaining a Capital Fund

Annual operation of a simple base capital plan with a moving average of capital contributed by growers can be illustrated with hypothetical data on peach-packing operations from the preceding section.

As a first step, the association manager and board must determine the capital requirements for the year. Funds during the fiscal year may be required for capital purchases (equipment, etc.), long-term loan installments, additional working capital, and for other purposes. 2/ Funds for these annual needs are provided by depreciation allowances, retained net earnings, or capital retains based on bushels handled.

To secure capital funds from current association operations, use of the per unit retain may be preferable to retaining some of the net earnings. The latter approach is inadequate when the association's net earnings are not as big as planned. The per-unit retain would be deducted from sales payments made to growers in the same manner as would packing and storage charges.

2/ Attention should be given to long-range plans that will require a financial capability beyond that amount which growers can provide during the year such plans are to be implemented. Special assessments may be needed in preparation for these future investments.

Table 15--Proportionate share of growers equity, based upon four alternatives

Grower number (1)	1972-74 production and 1975 and 1980 estimates (2)	Grower production estimates for 1975 and 1980 (3)	Bearing acreage in 1975 and 1980 (4)	Projected 1975 production (5)
		Percent		
1	5.4	5.5	5.6	6.2
2	6.6	6.8	5.8	7.3
3	2.8	3.0	2.0	4.0
4	.4	.4	.7	.4
5	1.2	.8	2.5	.8
6	2.1	2.9	2.0	4.5
7	.7	.7	1.5	.8
8	10.6	10.4	10.5	12.1
9	1.1	1.6	1.3	0
10	9.2	9.3	11.4	4.4
11	2.6	2.5	2.1	3.3
12	24.4	20.4	23.6	21.9
13	21.1	23.7	19.2	24.1
14	4.6	4.9	4.4	4.2
15	2.3	2.3	2.8	3.2
16	1.5	2.1	1.7	0
17	1/ 3.4	1/ 2.7	2.9	1/ 2.8
	100.0	100.0	100.0	100.0

1/ Production for 1975 and 1980 estimated by the author.

The example discussed here uses a per unit retain sufficient to pay the principal portion of loan installments due in the same year. An estimated amount of new capital to be raised each year by this method is shown in table 16 as the current year addition to grower capital. Although amounts are shown for 6 years, in practice the amount for each current year might not be set by the manager and board until shortly before the packing season begins, and might be revised during the packing season.

To illustrate how the 5 years' experience was derived and how to apply a per unit charge to deliveries of each grower, five growers with different production patterns were selected (table 17). Grower No. 1 has substantial blocks of 3- and 4-year old trees that will increase his production primarily in the next 3 years. Grower No. 2 will begin operating an established orchard in 1975, and anticipates a steady production level through 1980. He has no history for 1972-74 and prefers this situation for the purpose of this computation. Grower No. 3 has young trees of all ages coming into bearing in the next 6 years. Grower No. 4 is a new producer with recently planted trees. Grower No. 5 ceases peach production following the 1975 crop.

A moving average of capital required of growers is based on 5 years of patronage. To organize the cooperative, 5 years of "patronage" was based on bushels sold in 1972-74 and projected sales for 1975 and 1980 (table 15 and 17). Assuming $100,000 in grower equity is required for startup capital and a total of 1,024,806 bushels makes up the 5 years of "experience," growers invest $0.097579 for each bushel (table 16). The amount invested by the five growers is shown in the first line of tables 18 and 19.

Let us now look at 1975, the first operating year for the cooperative. The board approved a $70,795 addition to grower capital in 1975 (table 16), thereby raising total grower investment on the books of the association to $170,795. A new 5-year use period is calculated by dropping 1972, the oldest year, and adding the actual 1975 experience (table 17).

Using a new average of $0.158455 per bushel from table 16, we calculate the position of each grower at the close of the season--September 1975 (line 2 of table 19). To achieve their share of total capital, each grower must contribute to the fund as shown on line 3. The capital retain for each bushel delivered to the facility in 1975 appears on line 4, and is different for most growers.

Calculations for the equitable share of capital and the required retain for each year through 1980 are shown in tables 16 through 19. Notice that money is returned to grower No. 2 in 1980 (table 18), reflecting his decreasing share of total deliveries from his steady production level. Growers 1, 3, and 4 make substantial additions to the fund as their production and 5-year base increase. All of the money contributed by grower No. 5 is gradually revolved out of the cooperative and returned to the former grower by 1980.

For day-to-day operations, different retain rates for each grower may become a recordkeeping bottleneck. Two retain rates, reflecting average and high rates, assessed to all growers, would be easier to apply. Excess contributions could be refunded soon after the close of the operating year.

The base capital plan and a moving average of capital for patrons is a concept probably not well known in Missouri and nearby States. It is more widely used by cooperatives marketing fruits or vegetables in the Pacific Coast States. A more traditional approach for raising patron capital is to assess all growers a uniform rate in any one year. The result of this practice is shown in table 20. In 1980, the amount contributed for each bushel delivered in the previous 5-year period varies from $0.16 to $0.27 rather than the uniform $0.24 achieved by the base capital plan.

The automatic revolving out of capital to former growers does not occur with this approach. In the 1980's, a capital revolving plan might be desired to help place equity capital in the hands of current users by redeeming the oldest capital. In the case of grower No. 5, who ceased production, we assume that he is refunded all of his paid-in capital in 1976. We assume that remaining growers, through an accelerated retain in 1976, raise funds to refund to grower No. 5. The decision to take this generous approach would be for the board to make.

Table 16--Grower's equity capital with a 5-year moving average of use, Missouri Fruit Growers Exchange

Crop year	Patronage past 5 years	Grower capital		Capital per bushel required for 5-year cycle
		Current year addition	Total	
	Bushels	Dollars		
Startup	1,024,806	--	100,000	0.097579
1975	1,077,875	70,795	170,795	.158455
1976	1,232,361	40,461	211,256	.171424
1977	1,402,761	40,550	251,806	.179507
1978	1,467,761	42,000	293,806	.200173
1979	1,328,761	43,600	337,406	.253925
1980	1,570,328	43,650	381,056	.242660

-- = Not applicable

Table 17--Potential volume required for setting initial equity and operating a base capital plan on a 5-year cycle, Missouri Fruit Growers Exchange, 1972-80

Year	Grower No. 1		Grower No. 2		Grower No. 3		Grower No. 4		Grower No. 5		Other growers		All growers	
	Current year	5-year balance	Current year	5-year balance	Current year	5-year balance	Current year	5-year balance	Current year	5-year balance	Current year	5-year balance	Current year	5-year balance
						Bushels sold and projected								
1972	13,415		--		44,160		--		9,400		74,717		141,692	
1973	2,779		--		25,013		--		900		30,822		59,514	
1974	1,300		--		30,000		--		4,900		43,400		79,600	
1975	18,000		11,200		54,000		--		6,900		149,900		240,000	
1980	34,000	69,494	11,200	22,400	102,000	255,173	12,000	12,000	13,500	35,600	331,300	630,139	504,000	1,024,806
						Bushels packed 1/								
1975	14,600	70,679	9,100	31,500	44,000	255,013	--	12,000	5,600	31,800	121,461	676,883	194,761	1,077,875
1976	18,000	85,900	9,100	40,600	49,000	279,000	--	12,000	--	30,900	137,900	783,961	214,000	1,232,361
1977	24,200	108,800	9,100	49,700	56,500	305,500	800	12,800	--	26,000	159,400	899,961	250,000	1,402,761
1978	26,700	117,500	9,100	47,600	68,000	319,500	4,300	17,100	--	19,100	196,900	946,961	305,000	1,467,761
1979	28,700	112,200	9,100	45,500	78,200	295,700	8,700	13,800	--	5,600	240,300	855,961	365,000	1,328,761
1980	29,500	127,100	9,100	45,500	88,300	340,000	10,400	24,200	--	--	299,028	1,033,528	436,328	1,570,328

1/ Grade No. 1 and No. 2 peaches, assumed to make up 93.3 percent of the crop, as shown in app. tables 5 and 6.

-- = Not applicable.

Table 18--Projected annual capital fund contributions by peach producers under a base capital plan, and capital per bushel in 1980, Missouri Fruit Growers Exchange

Year	Grower					Others	All growers
	No. 1	No. 2	No. 3	No. 4	No.5		
	Dollars						
Startup	6,600	2,100	24,400	1,100	3,400	62,400	100,000
1975	4,599	2,891	16,008	802	1,639	44,856	70,795
1976	3,526	1,969	7,419	155	--	27,392	40,461
1977	4,805	1,961	7,012	241	(372)	26,903	40,550
1978	3,990	608	9,116	1,125	(844)	28,005	42,000
1979	4,970	2,025	11,131	81	(2,401)	27,794	43,600
1980	2,352	(513)	7,418	2,368	(1,422)	33,447	43,650
Total	30,842	11,041	82,504	5,872	0	250,797	381,056
Capital/bu. in 1980 with 5-yr. use cycle	.24	.24	.24	.24	.00	.24	.24

Table 19--Grower's 5-year share of the capital base with a moving average of capital, Missouri Fruit Growers Exchange

Item	Grower					Other	All growers
	No. 1	No. 2	No. 3	No. 4	No. 5		
			Dollars				
Startup cap. Jan. '75	6,600	2,100	24,400	1,100	3,400	62,400	100,000
Cap. required Sept.'75	11,199	4,991	40,408	1,902	5,039	107,256	170,795
Add'l cap. required	4,599	2,891	16,008	802	1,639	44,856	70,795
1975 retain/bu.	.32	.32	.36	--	.29	.37	.36
Cap. required Sept. '76	14,725	6,960	47,827	2,057	5,039	134,648	211,256
Add'l cap. required	3,526	1,969	7,419	155	--	27,392	40,461
1976 retain/bu.	.20	.22	.15	--	--	.20	.19
Cap. required Sept. '77	19,530	8,921	54,839	2,298	4,667	161,551	251,806
Add'l cap. required	4,805	1,961	7,012	241	(372)	26,903	40,550
1977 retain/bu.	.20	.22	.12	.30	--	.17	.16
Cap. required Sept. '78	23,520	9,529	63,955	3,423	3,823	189,556	293,806
Add'l cap required	3,990	608	9,116	1,125	(844)	28,005	42,000
1978 retain/bu.	.15	.07	.13	.26	--	.14	.14
Cap. required Sept. '79	28,490	11,554	75,086	3,504	1,422	217,350	337,406
Add'l cap. required	4,970	2,025	11,131	81	(2,401)	27,794	43,600
1979 retain/bu.	.17	.22	.14	.01	--	.12	.12
Cap. required Sept. '80	30,842	11,041	82,504	5,872	--	250,797	381,056
Add'l cap. required	2,352	(513)	7,418	2,368	(1,422)	33,447	43,650
1980 retain/bu.	.08	--	.08	.23	--	.11	.10

Table 20--Projected annual capital fund contributions with a uniform annual per unit retain, 1975-80, and capital per bushel in 1980, Missouri Fruit Growers Exchange

Year	Grower					Other	All growers
	No. 1	No. 2	No. 3	No. 4	No. 5		
	Dollars						
Startup	6,600	2,100	24,400	1,100	3,400	62,400	100,000
1975	5,307	3,308	15,994	--	2,036	44,150	70,795
1976	3,860	1,952	10,509	--	(5,436)	29,576	40,461
1977	3,925	1,476	9,154	130	--	25,855	40,550
1978	3,677	1,253	9,364	592	--	27,114	42,000
1979	3,428	1,087	9,341	1,039	--	28,705	43,600
1980	2,951	910	8,833	1,040	--	29,916	43,650
Total	29,748	12,086	87,605	3,901	0	247,716	381,056
Capital/bu. in 1980 with 5-yr. use cycle	.23	.27	.26	.16	0	.24	.24

Bylaw Provisions

The cooperative's bylaws should authorize establishing and operating a base capital plan. Language similar to the following could be included under the bylaw article dealing with patrons' capital.

Section Capital Fund Establishment. A "capital fund" shall be established and maintained for the purpose of providing permanent capital for the cooperative's corporate purposes. The fund shall consist of the initial equity capital contributed by members to establish the cooperative and annual additions thereto derived from per unit retains, allocated net earnings, or other capital contribution as determined by the board.

Section Capital Fund Maintenance. The fund shall be equitably maintained through capital contributions by members and patrons in proportion to their respective use of the facilities and services furnished by the association. The total amount of capital required in the fund shall be determined by the board annually or more often as is necessary to effectively maintain the fund. The proportionate share of the fund to be contributed by each member or patron shall be based on the volume of peaches and other commodities delivered for marketing through the cooperative during a representative period of years, all as determined by the board.

A patron's share of the fund shall be estimated prior to commencing a packing season for the purpose of establishing a per unit retain reflecting the amount owned to the fund in that year. As soon after the close of each operating year as the board deems advisable, a recalculation shall be made of the proportionate share of the fund required to be contributed by each member. The method, manner, and time of assessment for additional contribution to the fund or refund for overpayment to the fund shall be fixed and determined by the board.

If a patron is entitled to a refund, the board may, in lieu of paying such refund in cash, issue to the patron a promissory note in the amount of such refund payable in not more than 3 years from date and bearing such rate of interest as the board finds area producers pay for production loans at time of issuance of the note.

Appendix table 1--Acreage of peach varieties held by southeastern Missouri growers, by age of trees, spring 1975

Variety	Trees of --				
	0-3 years	4 years	5-15 years	16-21 years	all ages
	Acres				
Moore Early Red	5	-	7	-	12
Sungold	5	-	-	-	5
Camden	58	-	-	-	58
Springold	11	2	6	-	19
Springcrest	12	2	-	-	14
Earlired	6	2	23	-	31
Candor	100.5	10	-	-	110.5
Cardinal	7	-	13	-	21
Harbelle	6	3	-	-	9
Dixired	14.2	-	13.5	-	27.7
Surecrop	35	-	-	-	35
La Gem	6	-	-	-	6
Rubired	9	-	-	-	9
Jerseyland	28	-	87.5	-	115.5
Pekin	30	-	-	-	30
Red Haven	24.6	-	62.65	-	87.25
Harbrite	44.5	-	-	-	44.5
Harken	50.5	12	-	-	62.5
Ranger	3	-	6	-	9
Garnet Beauty	-	4	-	-	4
Richaven	-	5	19	-	24
Harvester	55	-	-	-	55
Triogem	-	-	4	-	4
Washington	24	-	14	-	38
Velvet	10.5	-	5	-	15.5
Glohaven	-	-	4	-	4
Red Globe	2.5	-	-	-	2.5
Southland	-	-	4	-	4
Nectarine	-	-	5	-	5
Sun High	2	3	32.75	-	37.75

continued

Appendix table 1--Acreage of peach varieties held by southeastern Missouri growers, by age of trees, spring 1975--continued

Variety	Trees of --				
	0-3 years	4 years	5-15 years	16-21 years	all ages
			Acres		
Sullivan Elberta	-	-	2	1	3
Early Elberta	-	-	2	-	2
Cream Elberta	-	-	12	-	12
Hale Haven	-	-	1	-	1
Loring	94.5	5	70.35	-	169.85
Madison	-	-	10	-	10
Biscoe	52	-	-	-	52
Blake	3	-	10.5	-	13.5
Crest Haven	2	8	-	-	10
Dixie Land	-	-	2	-	2
Redskin	7.5	-	45.35	-	52.85
Uneeda Cling	-	-	0.5	-	0.5
Snider Elberta	-	-	4	-	4
Elberta	-	-	11.5	13	24.5
Jersey Queen	14	14	74.7	-	102.7
Jefferson	9	-	61	-	70
Rio-Oso-Gem	104	-	77.8	-	181.8
Monroe	1.5	6	22	-	29.5
Marsum	2	-	-	-	2
Total	838.8	76	713.1	14	1,642.9

Appendix table 2--Season average price for peaches received by producers in Missouri and the United States, and the St. Louis wholesale price for Missouri peaches, 1964-74

Year	Missouri	United States	St. Louis	
	Cents/pound			Dollars/box
1964	5.21	6.34	7.87	2.99
1965	5.74	5.56	8.00	3.04
1966	6.27	7.35	9.00	3.42
1967	6.56	8.97	12.03	4.57
1968	6.88	6.75	9.66	3.67
1969	6.56	6.70	10.10	3.84
1970	6.77	8.40	12.16	4.62
1971	10.00	8.43	12.16	4.62
1972	16.00	10.50	16.97	6.45
1973	16.7	12.3	20.47	7.78
1974	23.6	13.1	24.05	9.14

Appendix table 3--Peach production utilized, Missouri, nearby regions, and U.S., 1964-74

Crop year	Missouri	S. Atlantic, N. and S. Central regions	United States
		Million pounds	
1964	26.4	615.3	3,276.3
1965	19.2	971.7	3,152.3
1966	20.4	902.2	3,194.4
1967	15.4	714.0	2,525.3
1968	18.0	1,040.5	3,395.4
1969	21.6	1,020.5	3,414.0
1970	20.1	854.6	2,791.8
1971	20.1	816.3	2,740.9
1972	20.1	660.2	2,288.5
1973	8.0	603.5	2,442.9
1974	3.0	520.5	2,728.4

Appendix table 4--U.S. wholesale price index for all commodities (1967 = 100), 1964-74

Year	
1964	94.7
1965	96.6
1966	99.8
1967	100.0
1968	102.5
1969	106.5
1970	110.4
1971	113.9
1972	119.1
1973	134.7
1974 (8 months)	155.0

Appendix table 5--Projected packing shed output of Missouri Fruit Growers Exchange, 1975 1/

Week	Grade No. 1, net weight			Grade No. 2	Unclassified	Total
	20 lbs.	25 lbs.	38 lbs.			
	Number of boxes			Bushels		
1	1,205	1,543	380	268	134	2,009
2	1,033	1,322	327	230	115	1,722
3	6,199	7,935	1,957	1,377	689	10,332
4	2,325	2,976	734	516	258	3,875
5	15,067	13,568	8,521	3,348	1,675	25,113
6	11,821	1,513	12,693	2,626	1,314	19,703
7	7,232	926	7,766	1,607	804	12,054
8	23,091	2,956	24,795	5,130	2,567	38,487
9	3,875	496	4,160	861	431	6,458
10	36,169	4,630	38,837	8,036	4,021	60,284
11	17,185	2,200	18,453	3,818	1,910	28,643
Total	125,202	40,065	118,623	27,817	13,918	208,680

1/ The total crop is assumed to be distributed as follows: 25 percent to 20-lb. boxes, 10 percent to 25-lb. boxes, 45 percent to 38-lb. boxes 13.33 percent as grade No. 2, and 6.67 percent as unclassified. The weight of packed fruit is as follows:

Grade	Pounds
No. 1	8,013,360
No. 2	1,335,216
No. 1 & 2	9,348,576

Appendix table 6--Projected packing shed output of Missouri Fruit Growers Exchange, 1976 1/

Week	Grade No. 1, net weight			Grade No. 2	Unclassified	Total
	20 lbs.	25 lbs.	38 lbs.			
	Number of boxes			Bushels		
1	1,205	1,543	380	268	134	2,009
2	1,378	1,762	436	245	153	2,296
3	8,610	11,021	2,718	1,913	957	14,350
4	2,842	3,636	898	631	316	4,736
5	15,068	12,215	9,410	3,348	1,675	25,113
6	14,577	1,866	15,656	3,239	1,620	24,295
7	8,093	1,037	8,690	1,793	900	13,489
8	24,298	3,110	26,098	5,398	2,701	40,496
9	5,252	672	5,640	1,167	584	8,754
10	38,065	4,873	40,880	8,457	4,232	63,441
11	18,219	2,331	19,562	4,048	2,025	30,365
Total	137,606	44,066	130,368	30,512	15,297	229,344

1/ The total crop is assumed to be distributed 25 percent to 20-lb. boxes, 10 percent to 25 lb. boxes, 45 percent to 38-lb. boxes, 13.33 percent as grade No. 2, and 6.67 percent as unclassified. The weight of packed fruit is as follows:

Grade	Pounds
No. 1	8,809,680
No. 2	1,464,576
No. 1 & 2	10,274,256

Appendix table 7--Estimated number of workers and employment costs in packing peaches, Missouri Fruit Growers Exchange, 1975 and 1976

Job operation	Number of workers
Forklift transport	5
Dumping	1
Sorting	28
Utility and cull handling	5
Place packing	8
Master carton filling	4
Tray carton filling	5
Sealer, closing, labeling	4
Checking	1
Carton makeup and supply	4
Warehouseman	1
Total	66

Estimation procedure:

Assume basic hourly wage at 20 cents above the minimum wage--$2.00 in 1975 and $2.20 in 1976. Forklift operators are paid 50 cents an hour more than other workers.

Assume 8-percent fringe benefits (5.85 percent FICA and 2.15 percent workmen's compensation).

Job	Number	1975		1976	
		Rate	Cost/hr.	Rate	Cost/hr.
		---------- Dollars ----------			
Lift operators	5	2.70	13.50	2.92	14.60
Other workers	61	2.16	131.76	2.38	145.18
All workers	66	--	145.26	--	159.78

Month	Hours of operation 1/		Crew cost	
	1975	1976	1975	1976
			--------- Dollars ---------	
June	17.25	16.75	2,506	2,676
July	85.5	95.75	12,420	15,299
August	85.0	90.75	12,347	14,500

1/ Based on dumping (removing peaches from bin) 1,260 bushels/hour, 10-percent downtime for operational and mechanical delays, and 80-percent packout for 907 bushel-equivalents packed hourly.

-- = Not applicable.

Appendix table 8--Estimated principal payments on loans made to the Missouri Fruit Growers Exchange

Loan purpose	Length of loan	Loan amount	Principal payment	
			1975	1976
	Years		Dollars	
Land, buildings & facilities 1/	15	427,707	15,753	17,014
Equipment	10	169,890	16,989	16,989
Bins	5	8,337	1,667	1,667
Bins in 1976 2/	5	17,500	--	3,500
Total	-	--	34,409	39,170

1/ Loan amortized with a combined principal and interest payment of $49,969. A lower payment assumed for 1975, reflecting interest for 7 months.

2/ Projected bank loan for 70 percent of a $25,000 expenditure for 1,000 bins. The growers' 30-percent share provided by the increase in working capital and capital retain from the 1975 crop.

-- = Not applicable .

Appendix table 9--Proposed straight-line depreciation schedule, Missouri Fruit Growers Exchange

Asset	Cost	Life	Percent depreciation annually	Annual depreciation allowance
	Dollars	Years	Percent	Dollars
Land	13,125	--	--	--
Building & facilities	462,080	20	5	23,104
Equipment	169,890	10	10	16,980
Bulk bins (1,000)	26,250	5	20	5,250
Pallets (grocery)	1,575	2	50	788
Pallets (one-way)	315	1	100	315
Total	673,235	--	--	46,437

-- = Not applicable.

APPENDIX B--PROPOSED LAYOUT DESCRIPTION

A possible layout for the proposed facility is shown in figure 1. The facility is 203 feet long and 167 feet wide. The refrigerated storage areas are located along one side of the building and the packingline occupies the other. An 84 foot wide mezzanine extends from the end of the building above the general office 120 feet toward the opposite end of the building. Ceiling heights are 20 feet, except in the area underneath the mezzanine. Approximately 10 foot ceiling heights are available above and below the mezzanine.

Producer trucks hauling bulk bins of peaches to the packinghouse are unloaded at the end of the building adjacent to the hydrocooler (1) 3/ by forklift and stacked in the covered temporary holding area. Trucks are reloaded with empty bulk bins from the storage area at the same end of the building. Pallet loads of packed fruit are loaded onto tractor-trailers for shipment at the covered shipping dock at the other end of the building. Thus, traffic congestion between producer trucks and tractor-trailers is eliminated. Packing materials are received at the end of the building adjacent to the shipping dock and moved to the mezzanine by an elevated power conveyor.

This proposed layout was developed to handle 500 bushels of peaches per hour initially, with provisions for doubling the capacity in the future. The pallet box dumper (2) has the capacity to handle the maximum expected volume of 1000 bushels per hour. A temporary guide partition in the dump tank routes all fruit onto the 48-inch grading line that would be installed initially. The guide partition would be removed when the second 48-inch grading line (shown in broken lines) is installed and the fruit would be routed onto both lines simultaneously. Equipment items (3)-(9) for the two grading lines are identical.

Peaches are hydrocooled as soon as possible after they are received in a 30 foot long bulk bin hydrocooler (1) that has a capacity of approximately 30,000 pounds, or 600 bushels, of peaches per hour. Bins are run through the hydrocooler stacked 2 high. Bulk bins are loaded onto the entrance conveyor of the hydrocooler and unloaded from the exit conveyor by forklift truck. Space is available for adding a 30 foot extension to the hydrocooler to double its capacity when expansion takes place. Fruit is transported from the hydrocooler to the refrigerated storage for fruit in bulk bins. When needed for packing bulk bins of fruit are moved from refrigerated storage to the dumper. Peaches can be transported directly from the hydrocooler to the dumper.

Bulk bins of fruit are loaded onto the dumper by forklift truck. After the peaches are automatically dumped into the tank, the empty bulk bins are transported by forklift truck to the storage area outside the building and stacked.

3/ Numbers in parentheses refer to key numbers in figure 1.

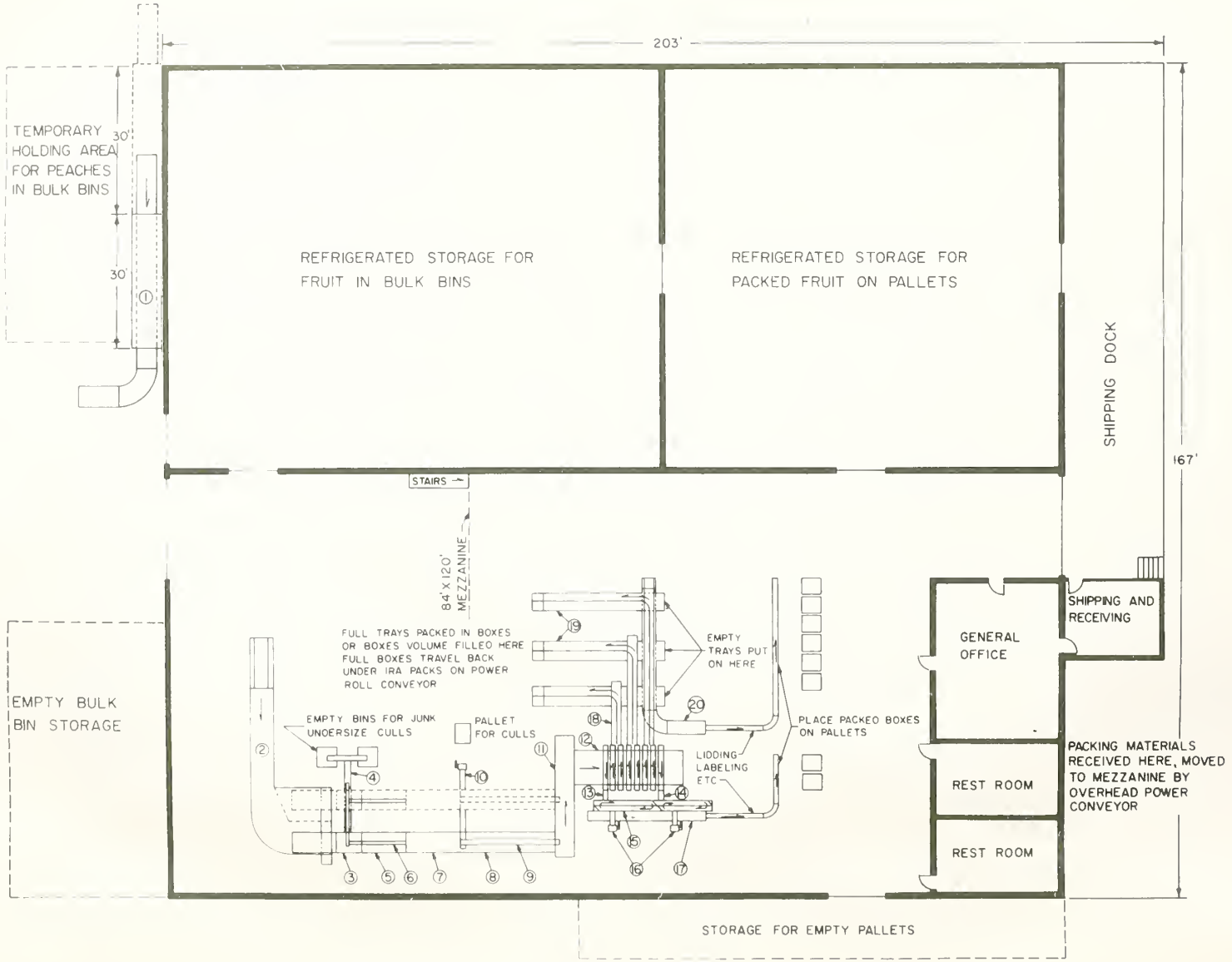

Figure 1. Proposed layout for a peach-packing facility near Campbell, Missouri

The peaches move through the water to the end of the dump tank and are elevated onto the grading line (s). Undersize fruit is ejected by the small fruit eliminator(s) (3) onto the belt(s) for junk and undersize culls (4). Fruit with obvious defects is removed by workers stationed along each side of the pregrader(s) (5) and placed on the belt(s) (6) above the pregrader(s). This fruit is transferred to belt (4), and it and the undersize fruit are automatically collected in bulk bins as shown. When the bins are filled they are transported by forklift from the packing area and replaced with empty ones.

The fruit moves through the automatic washer-waxer(s) (7) and onto the roller-grader(s) (8). Workers positioned along both sides of the roller-grader(s) examine the fruit and transfer culls to the cull belt(s) (9) above the grader(s). Culls are conveyed to the manual filler (10) and transferred into one-bushel field boxes. Boxes are stacked on pallets as they are filled.

Fruit is transferred from the roller-grader(s) to a powered feed belt (11) that runs perpendicular to the end of the roller-grader(s). It is transferred from the feed belt to an automatic dimension sizer (12) which sizes the fruit into 8 size groups, and has the capacity to handle the maximum expected plant volume. Fruit of each size is transferred to a separate run-out belt for delivery to their respective packing stations.

Fruit of the largest size is moved on belt (13) and fruit of the smallest on belt (14) to a return flow table (15). Fruit of the largest size is packed into 35-pound boxes at the manual filler (16) on the left and the smallest fruit is packed into 35-pound boxes at the manual filler on the right. Packed boxes are moved by conveyor (17) through the lidding, labeling and palletizing area.

Fruit of the remaining six sizes is moved by belts (18) to three combination tray packer/volume fillers (19). Fruit of two sizes is delivered to each tray packer/volume filler unit. Fruit of each size is kept separated and each size can be tray packed or volume filled simultaneously.

When packing in trays the empty trays are placed on the end of the tray packer units at the position shown on the layout drawing. The trays advance automatically toward the opposite end of the unit and the fruit drops from the delivery belt from the sizer into the trays. Workers stationed alongside the units ensure that the fruit is positioned correctly in the trays. At the end of the unit the filled trays are placed in master containers.

When fruit is to be volume filled the empty trays are not placed on the units and the fruit drops off the delivery belts (18) from the sizer directly onto the conveyors of the tray pack units. The fruit moves on the belt to the end of the unit and is transferred to boxes at a manual filling station.

Boxes of packed fruit are placed on powered conveyors underneath the tray pack/volume units that transfer them to conveyor (20). Boxes are

lidded and labeled by workers stationed along each side of the conveyor as they are conveyed to the palletizing area. Packing materials are moved from the mezzanine to their point of use by gravity chutes.

Boxes of packed fruit are transferred from conveyor (20) and stacked on pallets. Pallet loads of packed fruit are transported to the refrigerated storage for packed fruit on pallets or directly to the shipping dock.

Space is provided for a general office, a shipping and receiving office and rest rooms. If additional space for employee facilities is needed, space is available on the mezzanine.

APPENDIX C--PEACH PRICE LEVELS

Since 1970, prices received by Missouri peach producers rose sharply in relation to prices of U.S. fresh-use peaches and to prices of all farm products (fig. 2).

Prices received by peach producers in Missouri and the United States are trending upward (app. table 2). However, with changes in opposite directions in some years, Missouri peach prices may seem to bear little relation to the U.S. average price for peaches used in fresh form. Variation in the Missouri peach price with the U.S. price is wide in some years--2.4 cents a pound below in 1967 and 4.6 cents above in 1972. For the 10-year period ending in 1973, Missouri producers averaged 0.3 cents a pound above the average U.S. price for peaches used fresh.

The St. Louis wholesale market is an important market outlet for peaches from southeastern Missouri. Prices reported in this market are more sensitive to annual fluctuations in peach supplies from other States than is the average price received by all Missouri producers. For this report, annual prices of Missouri-produced peaches sold at the St. Louis Wholesale Produce Market were determined from average monthly Missouri prices for 3/4-bushel boxes. These monthly prices were weighted by monthly truck unloads of Missouri peaches as reported by the Market News Service, USDA.

Regression analysis was used to study the relationship between season average prices and peach production volume. To determine the additional influence rising prices have on season average peach prices, the wholesale price index for all commodities was included as a second independent variable.

It appears from Market News report that in 1964 Missouri producers replaced most of their bushel basket and field crates with 3/4-bushel containers for deliveries to the St. Louis wholesale market. Therefore, the 11 years, 1964-74, were chosen for price analysis of Missouri peaches sold at St. Louis.

Because the 1974 return to Missouri peach growers as reported by Statistical Reporting Service (SRS), was not available at the time this analysis was made, the 10-year period, 1964-73, was used to study the average prices received by growers. The reader should remember that neither the price series reported by SRS nor that developed from Market News data apply exclusively to southeastern Missouri growers.

St. Louis Peach Price

St. Louis prices showed a closer relationship than Missouri season average prices did to the joint influence of production volume and wholesale price index. For the St. Louis price, 93 percent (table C-1, column 5) of its variation could be associated with variation in Missouri production and the price index. Keeping in mind the joint influence of production and the price index, it can be said that an increase of 1 million pounds

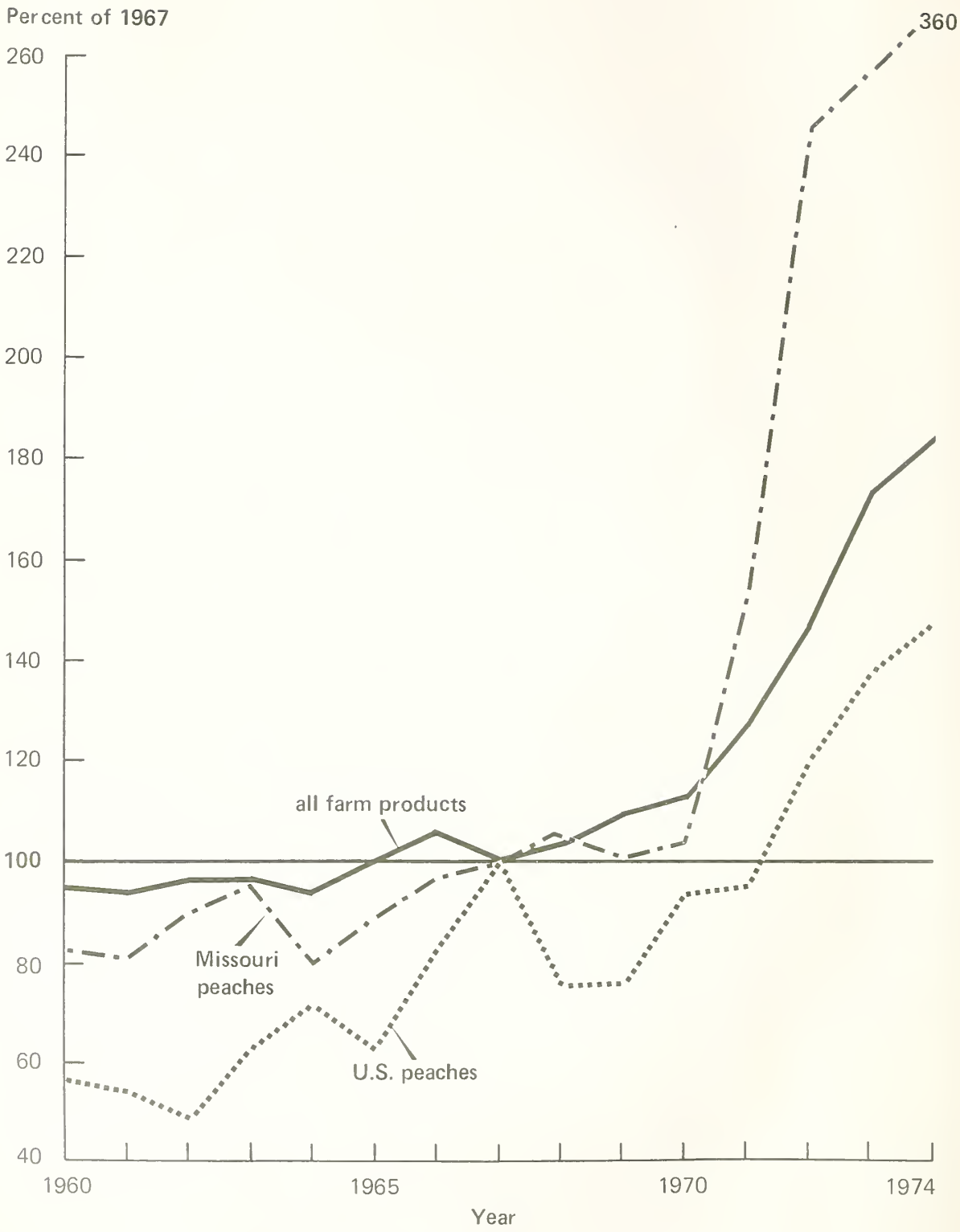

Figure 2. Relative change in Missouri and U.S. prices of fresh peaches and all farm products, 1960-74, 1967 = 100

Table C-1--Multiple regression analysis of season average price of Missouri peaches at St. Louis, and U.S. fresh-use price with various production or use levels and the wholesale price index, 1964-74 1/

Price series and peach production area (1)	Constant a (2)	Coefficient b for production or fresh use (3)	Coefficient c for wholesale price index (4)	Multiple correlation coefficient 2/ (5)	Standard error of estimate (6)
St. Louis price					
Missouri production	-13.378	-0.0992	0.2503	0.93	1.414
3-region production 3/	-10.841	-0.0052	.2494	.95	1.207
U.S. production	- 6.124	-0.0032	.2538	.97	0.901
Missouri price					
3-region production 3/	-17.4436	-0.0043	.2781	.81	1.779
U.S. production	-12.1952	-0.0024	.2599	.82	1.768
3-region fresh use 3/	-14.8916	-0.0079	.2697	.83	1.675
U.S. fresh use	-10.5331	-0.0071	.2543	.86	1.549
U.S. fresh-use price					
U.S. production	3.2519	-0.0027	.1198	.90	0.7350
U.S. fresh use	2.9978	-0.0067	.1213	.98	0.3261

1/ The equation for the regression line is of the form $Y = a + b X_1 + c X_2$ where Y = peach season average price in cents per pound, X_1 = peach production volume (farm sales) or fresh use in million pounds, and X_2 = wholesale price index for all commodities.

2/ Coefficient is squared and adjusted for degrees of freedom.

3/ Includes 21 States in the South Atlantic, North Central, and South Central producing regions as reported by SRS, USDA.

(20,833 bushels) in Missouri peach production was associated with a 0.0992 cent per pound (3.8 cents per 38-pound box) reduction in price. Each percent point increase in the wholesale price index was associated with an increase of 0.2503 cent a pound in the St. Louis price.

Since Missouri production is less than 1 percent of total U.S. peach production, we would expect other production areas to exert a greater influence on the price Missouri producers received than fluctuations in their own production levels do. Variations in the St. Louis price for Missouri peaches is better explained by production in the 21 States making up the South Atlantic, North Central, and South Central producing regions (95 percent compared with 93 percent with Missouri production only), or better yet by total U.S. peach production (97 percent).

Missouri Peach Price

When regressing the Missouri season average price received by all growers with Missouri production, only one-quarter of the variation in the average price was associated with changes in production. Use of the wholesale price index did not give an acceptable improvement.

Missouri peach prices are better understood when considering a larger production area. By including the influence of peach production in the three regions together with the price index, 81 percent of the variation in the Missouri price is explained. Extending this to all U.S. peach production provides about the same explanation--82 percent of the Missouri price variation.

When the influence of canning peaches is removed, the Missouri price variations are explained a little better by the joint influence of the price index and peaches used in fresh form from three regions (83 percent) and from the United States (86 percent).

U.S. Peach Price

For all of the United States, 90 percent of the variation in the season average price for peaches used fresh could be associated with variation in total production utilized and the price index. An even closer association--98 percent--exists between the fresh-use price and the joint influence of the quantity of peaches used in fresh form and the price index.

Comment

In all cases there was a negative relationship between production volume and season average price. Thus, in years of short peach crop, the reduced supply induces a higher market price for peaches. An increase in supply due to favorable weather conditions, greater bearing surface, or improved production techniques have the effect of reducing price.

Growers indicated informally that most of their peaches have been sold in Missouri markets. This price analysis indicates that the St. Louis wholesale price--and to a much lesser extent, the statewide season average price--is sensitive to change in levels of Missouri peach production. Therefore, Missouri growers should look to out-of-State markets as outlets for much of their increasing production to minimize the downward pressure on Missouri peach prices.

An illustration will indicate how the data in table C-1 can be used to predict the direction of prices for a coming year. Let us assume high utilized production of 3.4 billion pounds (70.8 million bushels) for the United States in 1975 and continuing inflation resulting in a wholesale price index (WPI) of 175. A likely St. Louis wholesale price is calculated by combining -6.124 + (-.0032) (3,400) + (0.2538) (175) which equals 27.41 cents a pound ($10.42 a 38-pound box). We know the actual price will not very likely turn out to be this amount. But since the WPI is virtually exploding beyond our experience, it is statistically unsound to suggest the probable range for this projected price. Had the 1975 WPI been nearly within recent experience (as shown in app. table 4), then with good confidence we could say that 9 chances out of 10, the actual average price would be within 2 cents a pound of the projected average price. In any event, based on this analysis, it is not likely that future Missouri peach prices will fall below 1972-73 price levels.

OTHER PUBLICATIONS

Economic Development Through Cooperatives. Raymond Williams. June 1974. U.S. Department of Agriculture Program Aid 1088. 19 pp.

Effective Fruit and Vegetable Marketing: Seven Profiles--Guidelines. Richard S. Berberich. June 1974. U.S. Department of Agriculture Marketing Research Report 1024. 37 pp.

Farmer Cooperative Publications. March 1974. FCS Information 4. 48 pp.

What are Cooperatives? C.H. Kirkman, Jr. Revised 1973. FCS Information 67. 12 pp.

Members Make Co-ops Go. C.H. Kirkman, Jr. Revised 1973. FCS Information 72. 12 pp.

Sample Legal Documents--Legal Phases of Farmer Cooperatives. Morrison Neely. Revised 1972. FCS Information 66. 45 pp.

What Co-op Directors Do. C.H. Kirkman, Jr. Revised 1972. FCS Information 71. 12 pp.

Manager Holds an Important Key to Co-op Success. C.H. Kirkman, Jr. 1970. FCS Information 74. 12 pp.

How to Start a Cooperative. 1965. FCS Educational Circular 18. 18 pp.

For copies, write Farmer Cooperative Information, U.S. Department of Agriculture, Washington, D.C. 20250

FARMER COOPERATIVE SERVICE
U.S. DEPARTMENT OF AGRICULTURE

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