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COORDINATION AND EXCHANGE IN AGRICULTURAL SUBSECTORS

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SECTION ONE

Producer-First Handler Exchange Arrangements in Selected Agricultural Commodities

PRODUCER-FIRST HANDLER EXCHANGE ARRANGEMENTS FOR SELECTED CALIFORNIA PROCESSED FRUITS, VEGETABLES, AND NUTS

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Market coordination, vertical coordination, contracting and transaction systems are terms often used interchangeably to describe institutional arrangements for influencing and/or controlling decisions within the food and fiber industries. While conventional wisdom finds this acceptable, such imprecision creates misunderstanding between the processes of coordination, and the devices by which the coordinating processes are carried out.

This paper identifies some of the processes of coordination used mainly in the processed fruit, vegetable and nut subsectors of California's agriculture, and the coordinating devices available and commonly used. Specifically, this paper (1) describes the structure of the selected horticultural industries, (2) describes various processes of coordination used in the horticultural subsectors, (3) describes the coordinating devices that are employed or are available, (4) discusses the use of coordinating processes and devices in grower-handler exchange arrangements and (5) discusses the roles of cooperatives in price making.

With over 200 commodities produced commercially, complex diversity is a valid description of coordination and producer-handler exchange arrangements in California. Complexity arises from the structures of the industries, with operating cooperatives and very large corporations interfacing in some instances at both the procurement and final product marketing level, and in some instances with organized bargaining cooperatives which influence price and terms of trade only at the first handler level. Each type of organization seeks to implement programs which enhance its long-run economic well-being. These include use of institutional factors, such as marketing orders and agreements which determine product specifications at the first exchange level, and in some cases, finished product allocation to alternative markets or uses.

In some cases operating cooperatives have a major economic role, and therefore influence product procurement behavior of general corporations. Although California now has about 10 percent of national population, for most horticultural products it is a major producer. Thus, California producers have had to look eastward and to international markets for their products. Distance from consuming regions was instrumental in the pioneering efforts for cooperative marketing organizations, and encouraged the use of institutional devices for coordination.

Such diverse economic and structural environments have emphasized processes and methods for coordination of first handler transactions rather than at the finished product level. While changes and improvements in the former will continue to dominate the activities of the bulk of the industry spokesmen, a few creative and imaginative leaders have begun to seek ways to improve market functions for finished products. Much uncertainty can be reduced through improved coordination

and transfer pricing schemes at product distribution levels, and when brought about by a cooperative, benefits are believed more apt to result for producers.

STRUCTURAL CHARACTERISTICS OF THE HORTICULTURAL INDUSTRIES

Producers and Processors

A general decline in numbers of producers of tree fruits and other horticultural crops has occurred over the years 1960-1973. Similarly a reduction in numbers of processors or handlers has occurred (Table 1). Important differences in structural interface exist among commodities. For example, in 1973 there were 1,832 producers of cling peaches and 15 processors. By contrast, there were 1,004 producers of peaches for fresh markets in 1973 and 654 handlers. Also, there were 1,150 producers of Bartlett pears for canning and 17 processors in 1973. There also were 63 fresh pear handlers.

The number of handlers or processors does not imply that an individual grower has a large number of alternatives. Because production of most crops is geographically dispersed, spatial isolation occurs which restricts a grower to nearby processors or handlers. Transportation of perishables for processing over long distances during hot summer weather tends to affect product quality.

Effects of differences in producer-processor interface are manifested in the nature of grower response to differences in market structures. Cooperative bargaining activity has focused on the processing sector of the industries. The fresh market cooperatives are small relative to the total industry. But in the more concentrated processing sector the operating cooperatives, which were organized to overcome some of the problems of market concentration, are substantially more important.

Barriers to Entry

Barriers to entry into production of most horticultural crops are low. One entry barrier is the uncertainty of future prospects because a time lag exists between planting and production. Walnuts occupy the land for 7 to 9 years before producing an economic crop, and other tree fruits range from 4 to 6 years. Finding market outlets poses another barrier to entry, since contracting in advance of plantings is a common practice. This is the main barrier to entry for annual crops such as tomatoes for processing.

Little product differentiation exists at the grower level, but quality and size differences often exist among production of different regions or growers within a region. Some commodities, such as pears and freestone peaches are consumed in fresh and processed forms, and thus have dual outlets. Cling peaches are grown only for processing and growers face no alternative market uses. Some grape varieties have multiple uses (raisins, fresh and wine) some can be used for wine or fresh markets and the premium varieties can be used only for wine.

Theoretically, commodities with multiple uses provide growers with flexibility in selecting optimal outlets to maximize returns. As a practical matter, it is believed growers exercise such substitution only on a limited basis in the short run, because of rigidities imposed by contracts, access to market outlets, problems of training employees for harvesting for different market requirements and specialized equipment needs.

TABLE 1. Changes in Number of Producers and Handlers of Selected Commodities Operating Under California Marketing Orders

	No. Producers					No. Handlers or Processors				
Commodity	1960	1965	1970	1973	% Change 1960-73[a]	1960	1965	1970	1973	% Change 1960-73[a]
Asparagus	277		245	T[c]	-12	229		69	T[c]	-70
Lima Beans	616		404	T[c]	-34	24		31	T[c]	+29
Br. Sprouts	68	68	55	39	-43	21	14	13	10	-49
Bush Berries		180		67	-63		26		13	-50
Dried Figs	273	280	139	123	-65	10	13	8	8	-20
Desert Grapefruit	227	262	292	247	+ 9	40	32	21	21	-47
Extracted Honey	460	384	1,004	827	+80	69	60	56	69	0
Dry Pack Lettuce	112		73	T[c]	-35	35		22	T[c]	-37
Cling Peaches	3,565	2,968	2,526	1,832	-49	37		19	15	-59
Fresh Peaches	1,765	1,321	937	1,004[b]	-43	524	574	744	654[b]	+25
Canning Bartlett Pears	2,261	1,622	1,106	1,150	-49	26		20	17	-35
Dried Prunes	5,313	4,406	4,339	2,428	-54	24	19	15	16	-33
Raisins	4,571	4,571	6,166	3,909	-14	21	23	22	18	-14
Wine	N.R.	N.R.	N.R.	N.R.		235	191	213	185	-21

[a] Percent change is for the first and last dates listed when data for the period 1960-73 is not reported.
[b] 1974 data.
[c] T indicates the market order was terminated prior to 1973.

Source: Summary of Marketing Programs, Bureau of Marketing, Calif. Department of Food and Agriculture, various years.

COORDINATION PROCESS

Coordination is viewed in this paper as the process of bringing order into a system through identifying interrelations among and between subsystems, and then developing cohesive and interdependent performance from each subsystem unit to achieve optimal performance expectations.

Historically, agriculture has been viewed more in terms of independence of decision making and of relationships between sectors rather than as a system. And early attempts to develop a systems concept through vertical integration schemes were viewed with suspicion. Even today much resistance exists for vertically coordinated relationships. But the concern over the method of coordination has detracted from its importance.

Classical microeconomic theory assigns coordination to the market system, where prices provide signals for producer and consumer responses. In practice this market function has worked imperfectly, with surpluses and shortages resulting from a buffeting of the market mechanism by institutional, political and non-competitive economic forces. Uncertainties abound regarding factors affecting supply and demand variables, causing firms to minimize the amount and effect of uncertainties through tighter linkage within the accessible portions of the system.

The amount of coordination within the food system varies, but the tendency appears to be toward more rather than less coordination.[1] In addition, the degree of coordination varies; very few firms have total coordination, with raw product, production inputs, processing supplies and market outlets all linked prior to making operational decisions. Some processing firms, including cooperatives, do have such coordinated operations for a portion of their output, however, and interest exists for increasing the proportions of output under such arrangements. But for the most part, coordination is incomplete and partial, existing primarily at the producer-first handler level. In addition, growers of some commodities have approved institutional arrangements such as market orders as a coordinating device. These perform a narrow, partial-system coordinating function, due to limitation of coverage. They do not extend beyond producer-first handler levels, except for advertising and promotion activities directed to consumers.

Thus a completely coordinated system does not exist for fruit and nut crops grown in California, and such total systems may be long in developing. The few systems which do exist represent only a portion of final output, but many examples of coordination of vertically adjacent activities could be cited.

METHODS OF COORDINATION

Ownership, contracts, joint ventures, and marketing orders represent the methods used to bring increased coordination to the fruit and nut industries. In addition, bargaining cooperatives are important for some commodities, and in most cases operating cooperatives are important because they often represent large shares of product supplies.

Ownership

Ownership of orchards and vegetable land by handlers or processors in California is not extensive. For example, it is estimated that handlers own less than one percent of California's walnut acreage. There have been strong incentives to disintegrate from production where processors have faced competitive sources of supplies from growers, or where surplus production has persisted. Except for the years 1972-74 in the recent period, processors have been able to purchase raw product requirements at prices below their own costs of farm production. Economies to scale in cannery operations are substantially larger than economies to scale in fruit production. No firm has been able to coordinate its total processing supplies through ownership of its own farm production units. Likewise, substantial differences exist in efficiency of capital use. For example, it is estimated that an orchardist's capital investment, on a per case of finished product basis, is three times that of the canner.

No studies are known which provide information on how extensively processors have integrated toward the distribution and consumer side of the system. Although it is known that some such integration exists, the extent is probably minimal.

Contracts

California's fruit industry was first based on fresh market outlets, with processors receiving low grade fruit and fresh market surpluses. As processors' investments in plant capacity increased, larger, more consistent volumes of dependable supply became necessary. Contracts with growers became the main device by which raw product supplies are coordinated with estimated needs of individual processors to meet their market needs.

Contract terms vary considerably. For some crops "open" contracts often merely establish a buyer-seller relationship just prior to product delivery, with price determined at some future period, perhaps even after delivery. Such contracts provide minimal coordination, since the necessary commitments for long-run coordination are not present. Other contracts may extend for 15 years, with provisions for annual price determination. Their main advantage over "open" contracts is the long-term stability in providing a home for production. This has become considered of limited value to growers, since in recent years most production of quality has found ready market outlets. However, large surplus production looms for many horticultural crops, and contracts may become valuable. In previous years contracts have been valued highly, with contract history with a cooperative capitalized into land values. However, some cooperatives now require board of director approval, implying in essence that contracts (except for the current year's production) are not transferable with sale of land.

Most contracts between general corporations and growers contain the usual terms—dates at which title transfers occur; acres or quantities covered; risk assumptions; delivery points, etc. Price may or may not be specified, depending on established price making procedures, such as the existence of bargaining cooperatives.

Typical contracts perform the following functions:

1. They are legal instruments specifying a seller-buyer arrangement, and are presumed to establish a binding agreement.
2. They provide an annual basis for predicting quantities available for each contracting buyer's needs.
3. They provide a basis for planning and financing farm production.
4. They serve as a basis for clarifying responsibilities of growers and buyers.
5. They establish terms of trade and sometimes, price.

Even if contracts do perform these functions in a legal sense, they may still be defective in an economic sense. The question of equity of contract terms for major California horticultural crops is influenced strongly by cooperative bargaining associations. The role of these associations in price making is described in a later section.

Joint Ventures

Joint ventures other than producer partnerships are of minor importance in the production of fruits and nuts in California. When joint ventures do exist, they appear mainly between investment agencies such as insurance companies and product handlers, rather than between producers and processors. But some joint ventures in processing and marketing do exist.

Marketing Orders

There were 40 state and 16 federal marketing orders and programs in effect on December 31, 1974, in California. California market orders provide for programs associated with both the supply and the demand of a commodity. Supply-oriented programs include financing of production-related research; grade and quality restrictions; supply diversion, allocation and product flow regulations. Demand-oriented programs include advertising and promotion, market research, post-harvest quality and elimination of unfair trade practices.

California

The extent to which market coordination occurs depends on the specific terms of market order programs. In general, provisions associated with supply are considered to provide more coordination of production with market requirements than do demand-oriented programs. Table 2 gives a summary of California state orders and their major provisions. Although nearly all programs authorize production research, the bulk of the provisions relate to demand-oriented programs. This observation is supported by expenditures under California marketing orders for the fiscal year ending June 30, 1974. Research expenditures totaled $2.1 million, or 9 percent of total program expenditures, while market development, education and promotion expenditures amounted to $18.5 million, or 76 percent. One is cautioned not to infer from expenditures only that most marketing orders place little emphasis on market coordination, since supply management programs can be initiated and carried out at less expense than are market development activities. Further analysis is needed on this question.

Federal

Table 3 gives regulatory provisions of the 16 federal marketing orders in effect in California. Supply oriented authority includes research and development, market allocations, grade, size, producer allotments, flow to markets and reserve pool. Thirteen commodities employed size regulations, with one additional commodity authorized but not employing size regulations in 1974. Twelve employed grade regulations. But only four orders authorized market allocations, of which only two were in effect in the current year. The citrus industry used regulations for the flow of product to market, mainly weekly prorates.

Demand oriented provisions include research and development, advertising, and pack and container regulations. Research and development is considered to influence supply as well as demand. Sixteen programs are authorized, of which five were not implemented in the current year.

Interestingly, California growers of eligible crops have emphasized state orders for demand oriented programs, and federal orders for supply oriented programs. This occurred because for many years advertising and promotion programs were not permitted under federal marketing orders, but were made possible under California laws. A second observation is that eight of the federal orders include other western states.

ROLE OF COOPERATIVES IN COMMODITY PRICE-MAKING

Cooperatives are important in the marketing of California fruit and nut crops. In some instances operating cooperatives account for more than 50 percent of the state's marketings of a commodity. Despite this, operating cooperatives play a passive and almost inactive role in direct industry–grower price making, but their influence through historic returns to growers is thought to have a strong bearing when industry price leaders do establish a grower price. In a few cases, cooperatives are reported to be instrumental in establishing prices at the industrial user or consumer level. Thus, for some commodities, the operating cooperative may be the barometric price leader for finished product sales prices, while a general corporation may be the price leader for establishing grower prices, albeit influenced strongly by past and expected cooperative returns to growers. For example, Diamond Walnut Growers may establish wholesale prices to the trade, without the necessity of establishing a grower price per se, since all returns less costs are allocated or paid to growers. A proprietary firm thus has a constraint at the wholesale level, but is unable to directly anticipate the cooperative's returns to growers, and therefore must establish its own grower or field price.

Both bargaining and operating cooperatives exist in many of the same industries, and operating independently of one another, have been involved in price making at either the wholesale or grower levels. Their individual roles are considered separately below.

TABLE 2. Summary of Authorized Programs Under Various California Legislation Authorizing Marketing Agreements and Orders, in Effect January 1975

Commodity	Production Research	Advertising and Promotion	Processing Research	Market Research	Grades, Size and Maturity	Mandatory Inspection	Surplus Removal	Trade Practices	Stabilization Pool	Container Regulations
Alfalfa Seed	x									
Calif. Apples	x	x	x	x						
Apricots		x	x							
Artichokes	x	x	x							
Avocados	x	x		x						
Dry Beans	x	x	x		x	x				
Brandy		x	x	x						
Bush Berries	x	x	x	x						
Citrus	x									
Eggs		x			x	x	x			
Dried Figs	x	x	x	x	x	x			x	
Desert Grapefruit	x	x	x	x	x	x				x
Desert Grapes					x	x	x			x
Honey	x	x	x	x				x		
Iceberg Lettuce	x		x							
Melon	x		x							
Manufacturing Milk		x	x	x						
Milk Producers	x	x	x	x						
Cling Peaches	x	x		x	x					
Fresh Peaches	x	x		x	x	x[a]				

Fresh Bartlett Pears					x	x[a]				
Fresh Bartlett Promotion	x	x	x							
Potatoes	x		x	x[b]						
Poultry Improvement	x					x				
Dried Prunes	x	x	x	x						
Raisins	x	x	x	x						
Rice	x		x	x						
Strawberries	x	x	x	x						
Processing Strawberries		x			x	x		x		
Fresh Tomatoes	x		x							
Turkeys	x	x	x	x						
Wine	x	x	x	x						
Processing Pears	x	x	x		x	x				
Beef Council	x	x		x[b]						
Dairy Council				x[b]						

[a] Applies only to fruit sold within California.

[b] Mainly nutrition oriented.

Source: Complied from "Tabular Outlining Active Marketing Orders, Marketing Programs and Marketing Agreements," Bureau of Marketing, California Department of Food and Agriculture.

TABLE 3. Summary of Federal Marketing Order Programs Authorized for California Fruits and Nut Crops, 1974.

	Demand Oriented			Supply Oriented					
Commodity	Research and Development	Advertising	Pack and Container	Market Allocation	Grade	Size	Reserve Pool	Producer Allotments	Flow to Market
Calif.-Arizona Navel Oranges	X					X[a]			X
Calif.-Arizona Valencia Oranges	X					X			X
Calif.-Arizona Grapefruit	X[a]				X	X			
Calif.-Arizona Lemons	X					X			X
Nectarines	X	X	X		X	X			
Pears, Plums, and Peaches	X	X[b]			X	X			
Tokay Grapes	X	X	X		X	X			X[a]
Winter Pears[c]	X				X	X			
Olives	X	X			X	X			
Oregon-Calif. Potatoes	X[a]		Pack		X	X			
Almonds	X	X		X[a]					
Walnuts[c]	X		Pack	X	X	X			
Dates	X[a]	X[a]	Container	X[a]	X	X			
Raisins	X[a]			X	X	X	X		
Hops[d]	X				X		X	X	
Prunes	X[a]	—	Pack	—	X	X	X	—	—
Total Authorized Provisions	16	6	6	4	12	14	3	1	4

[a] Authority not implemented in current or most recent season.

[b] Plums only.

[c] Includes Oregon and Washington.

[d] Includes Washington, Oregon, and Idaho.

Bargaining Cooperatives

First handler transfers are negotiated by bargaining cooperatives for at least ten horticultural crops in California. Bargaining cooperatives were organized to enable producers to cope more effectively with the greater market concentration and power of processors.

Bargaining associations rely on a variety of economic information for price determination. These often include results of multiple regression analyses, by which price relationships are determined. As industry concentration continues, and administered prices encroach on market-determined prices, the relationships resulting from regression analysis become obscure. Hoos and Kuznets use regressional analysis based on f.o.b. price relationships for finished fruit products, and tend to overcome many criticisms of traditional regression analysis of farm level prices.[2] The California Tomato Growers Association, and the Monterey County Growers Association rely on farm cost of production studies, consumption trends, inventories and other economic outlook statistics for establishing a price for negotiation. Table 4 shows a comparison of contract provisions and other related factors for the main bargaining cooperatives.

The Canning Peach Association and the Canning Pear Association both take title to members' fruit, while the other associations do not. Since none of the associations physically handle their members' production, taking title to their fruit enhances the control the Association has of the products contracted. To further implement their control, the three associations dealing with fruits are authorized to allocate any members' fruit to any processor, in order to meet the association's contract obligations.

Marketing or Operating Cooperatives

Marketing cooperatives are significant factors for nearly all fruit and nut crops grown in California. Most marketing cooperatives function on the basis of providing harvest advances, pooling of products received, and returning growers with a net reflecting the difference in the cooperative's costs and the gross returns realized. In some instances an industry price is determined or agreed to by the respective boards of directors, which serves only as a comparison with prices paid by cash buyers. In a sense, however, anticipated cooperative returns to growers may serve as a basis for price making by other firms.

The management and board of directors of Tri-Valley Growers, a fruit and vegetable processing cooperative, has established a policy to take an active part in influencing field prices for products handled by their cooperative. For many commodities, annual buy-and-sell transactions between proprietary processors and growers no longer reflect a true index of value for the crops handled by the cooperative in their single pool operation. This is because of the expanding involvement of cooperatives and the increasing practice of longterm contracts between growers and canners.[3] The cooperative believes it can exert its influence through providing economic information gained from the market place as interpreted through its own profit or loss experience or by its forecasts.

d Includes Washington, Oregon, and Idaho.

b Plums only.

TABLE 4. Comparison of Membership Agreement Provisions of Selected California Bargaining Associations, 1974

Terms	Canning Peach Assoc.	Freestone Peach Assoc.	Canning Pear Assoc.	Monterey County Growers[a]	California Tomato Growers
Exclusive Sales Agent for Growers	yes	yes	yes	yes	yes
Takes Title to Product	yes	no	yes	no	no
Contract Length	15 yrs.	annual[b]	annual	3 yrs.	2 yrs.
Self Renewing	yes	yes	yes	yes	yes
Pooling of Returns	yes	yes[c]	yes	no	no
Liquidated Damages	25% of market value	50% of market value	25% of market value	25% of gross value	25% of gross value
Assoc. has Allocation Rights to Canners	yes	yes[d]	yes	no	no
Contract Transferable	current crop only	current crop only	current crop only	current crop only	current crop only
Minimum Tonnage Required Prior to Bargaining	none	none	50,000 excluding cooperative tonnage	specified by crops	65% of state acreage
Calif. Estimated Share of U.S. Production	100%	50%	85%	86-98%	85%
Share of California Production Represented by Bargaining Coop.	55%	65%	65%	50-75%	65%
Coop. Assume Responsibility for Meeting Pesticide Standards	yes	no[e]	not specified	not specified	yes
Contracts Guarantee Uniform Prices to Processors	yes	yes	not specified	not specified	yes
Who Determines Varieties	standardized for industry	processor	standardized for industry	processor	processor

a Crops include garlic and chili peppers for dehydration, and broccoli for freezing.
b Annual, except where term contracts exist between a grower and a processor, then contract duration is equal to that term.
c Pooling may be by varieties and market use.
d Grower's first two choices for processor allocation are honored when possible, after which the association can allocate supplies to individual processors.
e Except for arrangements with one processor.

Difficulties are arising for some cooperatives which base their returns to growers on a prevailing industry price, or which must announce a price to growers in advance of planting of annual crops. For example, Pacific Coast Producers, a cooperative, is the only California canner of snap beans; thus a "competitive field price" does not prevail. The California crop is planted in late winter and early spring. The beans may be harvested prior to snap beans planted in the competing states of Oregon, Washington, Wisconsin and New York. Therefore, the cooperative faces the difficult problem of determining a field price based on industry product movement of the preceding year's pack during the winter months. Previous season's inventory movements and anticipated production from the remaining states establish parameters for pricing the finished product.

In one California region three cooperatives account for about 96 percent of the apricot crop for processing, with the remainder being handled by a national canner. The cooperatives' "fair market value" for apricots in this area is determined by a very thin market based on the purchase of a small volume by a national canner which can be manipulated considerably because the canner also buys apricots from other regions.

TRANSFER PRICE SCHEMES

Some cooperatives have long-term supply contracts with food manufacturers. In a typical case a cooperative may contract with its members for raw product supply on an annual basis, while having a long-term contract for sale of the processed commodity to a food manufacturer. A problem of transfer pricing results from this two-level structure of contracts. When vertical arrangements, either as joint ventures or by contract, represent a small share of total transactions for a commodity in a given market, the "market" farm price represents a reasonable basis for pricing. As vertically-coordinated structures increase their market shares, or where other situations result in a "thin" market, it becomes unclear at some point in what sense the "market" price is a true opportunity price.[4] A quoted market price loses its reliability as a pricing guide as soon as a vertical structure cannot obtain all of the commodity or product it wants at this price.

The "market" price may also be inadequate in such vertically structured situations for other reasons. Presumably one function of price is to compensate for risks and uncertainties associated with a transaction or general transactions and exchange patterns. One purpose of contracting is to reduce uncertainties, in which case market prices would not reflect the specific price entitled to result from lowered uncertainty situations. Likewise, there may be efficiencies of transfer between units in an integrated structure which are not compensated for equitably by existing market prices. Market prices may have worked fairly well in the long run for some purposes, but their shortcomings have also been fairly well identified in the economic literature. The convenience in gathering and comparing published market prices is overshadowed, however, by the problems of reflecting actual and representative prices and of equitable distribution of returns among participants. The bargaining process remains an important variable.

Under given structural conditions for most western fruit and vegetables, pricing systems centering around group negotiations have been effective in representing the interests of producers against those of the more concentrated buying side for processed crops. Attempts by growers of crops not previously organized for price negotiations are to a large extent being met with resistance from processors. The wine grape growers who attempted to negotiate for prices for the first time in 1974 were effectively rebuffed by proprietary wineries.

SUMMARY OF COORDINATING DEVICES

Table 5 presents a summary of methods of coordination used for the important fruit and nut crops, and for some vegetables. Operating or marketing cooperatives are used almost without exception as an important institutional approach to market coordination. In turn, marketing cooperatives have supported use of state and federal marketing orders, which are the most common method of coordination used. However, one can question how effectively market orders actually have been used for production coordination. Bargaining associations exist for the most important canning fruits, and canning tomatoes, but have not been organized much beyond those. Where they do exist, they have had strong influence on prices and contract terms. Probably the most effective device for coordination in use by all processing firms, regardless of organizational form, is the production or purchasing contract. Bargaining associations are believed to have been effective in gaining more equitable terms in contracts between processors and growers.

ISSUES AND CONCERNS

Market coordination programs used by growers of fruits for processing in California have been only partially effective. Production in excess of profitable levels of market demand has traditionally been a problem. Growers have relied on cooperatives and marketing orders, both of which are being criticized. Consumer advocates would have market order programs modified or restricted. The Justice Department has questioned some joint ventures between cooperatives and general corporations. The role of bargaining associations is likewise being investigated. If such attacks succeed in restricting the use of such institutional arrangements, the potential beneficiaries could easily be the large processors, at the expense of growers. Many critics of existing programs fail to understand the magnitude of the food industry, and have simplistic or no alternatives to recommend in place of programs they wish to terminate. Growers will be hard pressed to develop market coordination programs as substitutes.

Although contracts are an important and major device for coordination, there remain problems of equity between processors and growers. Since most contracts are for annual terms, their market coordination is restricted to the relatively short-run. One area of needed research is to identify and test alternative forms of long-run coordination devices, in terms of equity, performance, and competitive impact.

Other research is needed on alternative market structures, to test the performance results from deconcentrating major sectors of the food industry.

There are general questions of market performance. Is performance improved when first handler transactions are more rather than less coordinated? How would industry performance improve if coordination were more extensive between processors and manufacturers, or retailers?

To what extent are long-term private treaty transactions anti-competitive? How representative are the values established in private treaty transactions and under "thin" markets to true market value?

TABLE 5. Summary of Coordinating Devices Used With Major Horticultural Crops in California, 1974

	Coordinating Device					
Commodity	*Marketing or Operating Coop.*	*Bargaining Assoc.*	*State Market Order*	*Federal Market Order*	*Farm Ownership*	*Contracts*
Apples	X		X			
Apricots	I	X	X			X
Avocados	X		X			X
Dry Beans	X		X			X
Citrus	X		X			X
Lettuce	X		X			X
Cling Peaches	X	X	X		M	X
Fresh Peaches	I		X			
Canning Freestone Peaches	I	X				X
Canning Pears	I	X	X	X		X
Walnuts	X			X	M	X
Almonds	X			X	S	X
Dried Prunes	X			X		X
Raisins	X	X	X	X		X
Rice	X		X			X
Processed Strawberries			X			X
Processed Tomatoes	I	X	X			X
Wines	I		X		S	X

I = Processing cooperatives are an important part of this industry, but none is dominant.

M = Minor importance.

S = Some ownership beyond minor importance by processor or users, but production is mainly by independent farmers.

What are the trade-offs in developing coordinated systems? What systems might be developed which achieve high economic efficiency, yet provide for independent ownership at major stages of the system?

Footnotes

1 Mighell, R. L. and W. S. Hoofnagle, *Contract Production and Vertical Integration in Farming, 1960 and 1970,* U.S.D.A., ERS-479, April 1972.

2 Hoos, Sidney and George M. Kuznets, *Pacific Coast Canned Fruits F.O.B. Price Relationships,* Giannini Foundation of Agricultural Economics, University of California, Berkeley. Annual issues.

3 Allewelt, William F., Jr., President, Tri-Valley Growers. In *American Cooperation, 1973-74,* American Institute of Cooperatives, Washington, D.C., pp. 220-224.

4 Alternative pricing procedures for such situations, using tomatoes as a case analysis, are the focus of research by Steve Buccola, Agricultural Economics Department, University of California, Davis.