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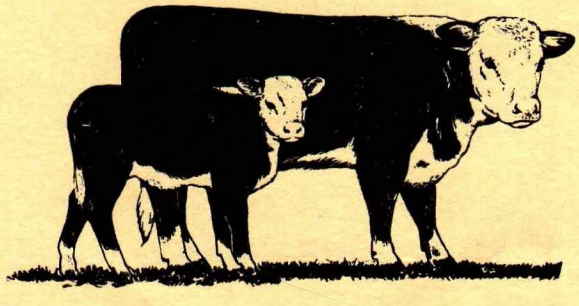

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ALTERNATIVE MARKETING STRUCTURES FOR THE HAWAII BEEF CATTLE INDUSTRY

by

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INTRODUCTION

An efficient marketing system is essential to the well-being of particular business firms and to the well-being of entire industries. If a business firm is to remain a profitable venture over time, it must be as proficient at selling its products as it is at producing them. A smoothly functioning market system should be able to identify the different opportunities for product sales available to a firm at various points in time and be structured to enable the firm to take advantage of the best opportunities available; essentially, it should yield the producer the highest price attainable for the offered product, net of marketing costs. Any marketing study must begin with the premise that the exchange of the final product is at least as important as the product's production. To ignore the marketing of the final product is to ignore profitability.

Since marketing arrangements are often quite complex and costly to organize, they are usually imbedded in various institutional structures. As marketing methods and techniques are constantly evolving, the institutions which serve to implement these techniques either evolve to incorporate the new developments or they are slowly replaced by new institutions which effectively utilize the new methods. Whenever such institutional change is observed, it is useful to be able to identify the factors causing the changes and to reflect on the effects they will have on the future organization of the industry and its firms.

This phase of the study of the Hawaii beef cattle industry has two major parts. The first is a survey of beef cattle marketing arrangements currently in use on the Mainland and in several foreign countries. These arrangements have been changing quite rapidly in recent years. The factors behind the rise and fall of various marketing arrangements will be discussed in light of the applicability of such marketing arrangements to the Hawaii beef cattle industry. The second is an analysis identifying alternative marketing arrangements which could be used in the marketing of Hawaii beef cattle. Their limitations and advantages are discussed; their efficiency relative to existing organizations is evaluated; and possible modifications of the existing marketing system are presented and evaluated.

GENERAL COMMENTS ON MARKET STRUCTURE

Before commencing with the study, it is helpful to briefly note some of the limitations and advantages inherent in this type of endeavor. First, it would be quite presumptuous for the authors to assume that the current marketing arrangement is an inefficient arrangement. This statement implies that an alternative marketing arrangement would not result in net gains to the buyers and sellers of the product

in the current period. If an alternative arrangement could leave both parties (buyers and sellers) better off, then they would already be in the process of adopting and utilizing the new, more efficient arrangements. Clearly, the participants in the sales and purchases of a product have more information about their product than outside observers. Recommendations that a business firm adopt new procedures or a new marketing system are often made without the knowledge of specific problems of time, place, and circumstances that may only be known to the product's buyers and sellers. Thus analysts must be extremely cautious when evaluating long-established ventures' ways of doing business.

Second, although it is useful to assume that industry participants are operating efficiently given the current constraints on their behavior, one can ask whether the constraints serve to encourage efficient behavior. If an industry is operating under the shadow of an onerous law, it may be worthwhile to ask whether there would be gains to buyers and sellers (in total) if the law were to be repealed or amended. Similarly, marketing arrangements which are efficient given the existing consumer preferences, feed price structure, and technology may be dominated by other marketing systems if one of these parameters should change. If there are indications that one of these factors is changing or will be changing (such as a change in consumer preferences for a different form or grade of beef), then this type of study can provide useful information to evaluate a new marketing arrangement.

Third, this type of study can identify trends in the evolution of marketing systems in other countries and in the various cattle-producing regions of the United States. Such information can be quite useful to the Hawaii beef cattle industry since it competes with beef imported from the Mainland, New Zealand, and Australia. Further, many of the changing conditions in these producing regions which have resulted in new marketing arrangements may be relevant to the current or future situation in Hawaii.

Finally, this type of study can provide new information about alternative marketing systems. It is always possible, although quite unlikely, for market participants to be unaware of the advantages an alternative marketing structure could provide. This type of report can provide new information to interested parties and encourage them to consider marketing arrangements previously thought to be infeasible. This report is structured with this intent. We provide information and analysis to enable market participants to make better decisions when they consider fundamental questions concerning the structure of the product market.

MARKETING ARRANGEMENTS IN FOREIGN COUNTRIES[1]

The worldwide marketing of beef cattle is a process characterized by a tremendous variety of institutional structures which serve an equally large variety of production and slaughtering organizations. This variety does not disappear when the focus is narrowed to just one country. A large number of marketing arrangements coexist in the United States, Australia, New Zealand, and most Western European countries. It is quite common to observe beef cattle being simultaneously sold in auction markets, being directly delivered to the slaughterhouse by the producer as the result of a direct contractual sale, or being sold to "assemblymen" who will pool a large number of cattle for sale at auction. Further, the beef may be marketed by individual producers, by producer cooperatives, or be produced and marketed within the confines of a vertically integrated producer and slaughter operation.

That such a large number of diverse market participants and marketing institutions are able to coexist over time in a large variety of economic environments leads us immediately to both an important conclusion and a cautionary note: It is unlikely that we will be able to identify a system of marketing finished or unfinished beef cattle which is unambiguously more efficient than other systems. Moreover it is unlikely that such a system exists; if a particular institutional arrangement were unambiguously more efficient than other arrangements, we would be observing a worldwide convergence to such a system. With some products (such as national monies, stocks, automobiles, and hard grains) we have seen a convergence to a dominant marketing system. The existence of a wide variety of marketing systems for beef cattle between particular countries and within different countries is, however, evidence that particular marketing systems may be efficient at servicing particular types of buyer and seller. If some buyers and some sellers of beef cattle can reap gains from participating in a peculiar variety of marketing system, then the economy and the beef industry can gain only from the proliferation of various marketing systems.

On the other hand, although various marketing arrangements coexist with one another, over the last thirty-five years some arrangements have become increasingly prevalent while others have declined markedly in importance. Prior to World War II, the live cattle market was the dominant form of marketing for all types of finished and unfinished cattle. Many governments (including the governments of Ireland, the United States, and the United Kingdom) explicitly encouraged the formation of such markets through the passage of legislative measures which either streamlined auction market sales

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[1] Unless otherwise specified, all the data reported in this section are taken from the two OECD publications.

or taxed alternative modes of transaction. In spite of active governmental support of auction markets, since World War II live cattle auctions have been increasingly replaced by direct sales either to private slaughterhouses and/or to abattoirs (public slaughterhouses). The following table provides clear evidence that direct sales to slaughterhouses have become the dominant form of marketing beef cattle in most Organization of Economic Cooperation and Development (OECD) countries:

Table 1
Sales of livestock via different marketing channels in some OECD countries during the mid-1970's
(Approx. percent of total sales)

Country	Direct Sales to Slaughterhouses and/or Packers	Sales via Livestock Markets
Norway	100	0
Sweden	95	5
Germany	78	22
U.S.A., fed cattle	85	15
cows	50	50
Republic of Ireland	65	35
France	60	40
Canada	55	45
United Kingdom	50	50
Denmark	47	53

Given the above evidence, it seems worthwhile to examine the marketing of beef cattle in a variety of situations. In Sweden the use of auctions to market cattle has been completely replaced by cooperative arrangements while, in West Germany a substantial portion of beef cattle is still sold in auction markets. New Zealand's beef cattle are marketed using a wide variety of techniques. The following discussion focuses on these three countries as they will provide us an overview of the marketing techniques currently in use around the world and many features of their marketing systems may be relevant to the current situation in Hawaii.

Sweden

It is immediately clear from Table 1 that the auction market has virtually disappeared in Norway and Sweden as a mechanism for marketing beef cattle. This development is due to the organization of Scandinavian farmers into cooperative organizations during the 1930's. The beef cattle producers' cooperatives operate cooperative slaughterhouses which process all members' cattle. Auction markets disappeared for two reasons. First, nearly all cattle producers decided to join farmer cooperative associations which slaughter members' finished stock. Second, the rules of the Swedish meat marketing cooperatives stipulate that the members of a cooperative must deliver all of their cattle which they wish to sell to the cooperative. The cooperative must accept all of the cattle the members wish to deliver to the slaughterhouse. These two developments were sufficient to foreclose other marketing channels.

One of the main reasons for the success of the new marketing arrangements in Sweden is that the price of slaughtered beef in Sweden is jointly determined by world markets and by the legislative actions taken by the Swedish Parliament. Legislative action influences the Swedish price of beef in two ways. First, the Parliament sets an import levy on foreign beef. Such a tariff encourages the domestic production of beef, but does not change the linkage of the Swedish market to the world price. Fluctuations in the world price are still reflected in Swedish meat prices. Second, the Parliament sets minimum and maximum prices beyond which the carcass price of beef cannot vary. This action reduces the risk that an individual farmer faces due to world price fluctuations. By insulating individual farmers from risk in the world market, this legislation reduces the complexity of the required marketing structure. Further, we are less likely to see marketing institutions evolve which attempt to share or reduce risk, as the amount of risk present in the market declines.

The tie of the Swedish beef price to the world beef price reduces the gains which would result from an auction marketing arrangement. Auctions have two basic functions. First, they adjust prices such that the market for the product clears. Second, an auction produces information about the value of the asset; this information can be used to determine future production levels. Since the price of beef cattle in Sweden is determined by the world (European) price and Swedish tariffs on beef, an auction market would produce redundant information. Additionally, since Sweden is a small producer of beef cattle (relative to the total supply), Swedish farmers should be able to sell as much as they would like at the world price without affecting the market price of beef significantly.

Since the value of a slaughtered carcass is already determined, the producer and the slaughterhouse agree, in effect, to skip the costs of selling the animals at a live auction. Instead, they are directly delivered to the slaughterhouse on consignment. The slaughterhouse is operated by the Swedish Meat Marketing Organization (MMO), which is owned by the producer cooperatives. MMO attends to the slaughtering and sale of the members' livestock. The producer is paid according to carcass deadweight and grade. The sale price reflects the price of beef in world markets, adjusted for slaughtering costs. Since members will receive the residual from the operation of the slaughterhouse, major disputes over the slaughterhouse charges are unlikely.

Within Sweden, each meat marketing cooperative has its own marketing area for which it is the sole supplier of domestic beef. It must, nonetheless, compete with foreign beef in this marketing area. Thus any market power possessed by the cooperative stems from the tariff on imported beef, not from particular marketing arrangements.

Settlement prices, the prices paid to the cattle producer, are published weekly in the cooperative's journal, Land. The producer also has the option to sign a delivery contract with the cooperative to specify the future date of delivery of a specified number of cattle to the slaughterhouse. These contracts usually contain provisions which allow the cooperative to request delivery of the cattle any time during a three-week period. This provision helps the cooperative to smooth the flow of cattle entering the slaughterhouse.

The Swedish Meat Marketing Organization has four fundamental structural characteristics common to cooperative organizations of agricultural producers in most Western countries. First, the cooperative's members must contribute to the capital stock of the cooperative. The contributions are usually directly related to the weight or value of the livestock delivered for slaughter.

Second, any residual funds accumulated by the cooperative at the end of the accounting period are distributed to the members according to their share of the capital stock. This rule may reduce conflict over the percentage of the price which is retained by the cooperative to cover slaughtering costs. Of course, the actions of the cooperative's manager must still be monitored by the cooperative's members to assure that they do not exaggerate the level of slaughtering costs. Such monitoring is facilitated by requiring the manager to own shares in the cooperative. Any benefits taken by management in the form of higher costs (e.g., a larger office for the manager) would come partially from their own pockets; although they would have more nonpecuniary benefits at work, they would also have smaller earnings on their shares in the cooperative.

Third, the decisions of the cooperative are made according to democratic principles. Each member has one vote at the cooperative's general meeting and all decisions are usually made by majority rule. This power is somewhat attenuated by the provisions in the Swedish Incorporated Associations Act which place some restrictions on the matters which a cooperative's members can consider at such meetings. Without some restrictions on the decision-making powers of the members, it would be possible for the small producers to form a coalition to pass rules and regulations which would favor smaller producers at the expense of larger producers. The result of such an action would be that large producers would withdraw from the cooperative and, perhaps, even establish a competing cooperative which would be more representative of their interests.

Fourth, the cooperative must allow all producers to join the cooperative with full membership privileges and responsibilities. This provision is implicitly qualified by the rule which requires cooperative members to deliver all output to the cooperative. Some farmers will choose not to join the cooperative if the benefits from the occasional use of alternative marketing channels are sufficiently high.

The Swedish marketing channels are relevant to the situation in Hawaii for two reasons. First, Sweden, like Hawaii, is a small producer of beef cattle which possesses virtually no power over fluctuations in the beef cattle market price. Although tariffs influence the level of the market price in Sweden, fluctuations in the Swedish price of beef are closely tied to fluctuations in the world price of beef. Second, the auction market in Sweden is relatively unimportant; it does not play a substantial role in the determination of the prices beef cattle producers receive for their cattle. This particular point is also indicative of the situation in Hawaii. Finally, cooperative marketing structures have come to dominate the market in Sweden; this should give Hawaii producers cause to seriously consider a producers' cooperative as an alternative to the current marketing arrangements.

West Germany

The marketing of beef cattle in West Germany is substantially different from the marketing process observed in Sweden. Until the mid-1960's the auction market was the dominant form of beef cattle marketing in the Federal Republic. Over the last fifteen years the percentage of beef cattle marketed in the main and local auction markets has fallen dramatically. In 1955 sales of cattle on livestock markets constituted 48 percent of all sales in West Germany; by 1965 this figure had shrunk to 38 percent and by 1974 it had declined further to 23 percent. In spite of their declining share of the beef cattle market, livestock markets

are nonetheless still important in the price determination process. Prices in direct sale transactions are usually closely linked to the prices prevailing on the auction markets. If the livestock markets were to disappear completely, it is quite likely that the direct sales market would operate less efficiently; the direct sales market tends to "free-ride" on the indicators of value (cattle prices) generated by the auction markets. In the absence of these markets, costs of concluding direct sales would rise, as the participants would have to devote resources to the task of determining the value of beef.

Why have producers and slaughterhouses increasingly chosen other methods of exchanging cattle besides the auction sale? One reason is that private slaughterhouses frequently pay farmers by the weight and grade of the slaughtered carcass. It must be remembered that the final demand is for the beef in the cattle, not for the beef cattle itself. Payment by deadweight (and by the grade of the beef) has the advantage that the buyer and the seller of the beef exchange a quantity of beef which is accurately measured at the time of the sale. Although this method of payment entails certain costs (the carcasses must be labeled to be able to identify the owner), it saves both parties the transaction costs usually associated with an auction sale. Payment by liveweight has further disadvantages. When the cattle are sold prior to slaughter, both beef cattle producers and slaughterers will expend resources to attempt to measure the amount of beef contained in the animal. To minimize such resource expenditures, one party (usually the producer) has incentives to hire specialists ("assemblymen") who are skilled in grouping ("assembling") cattle into homogeneous lots prior to the auction. Although measurement mistakes can average out over time (this may explain why some auctions restrict the amount of information on each beef animal available to buyers), each party to the transaction could gain if he could devise relatively cheap measurement techniques to infer more accurately the true amount of beef in each animal.

Auction markets are particularly useful and efficient in determining the value of beef cattle. However, as long as auction markets are generating accurate evaluations of the value of beef cattle, some producers and slaughterers will have incentives to avoid the measurement costs inherent in the auction process, while continuing to use the price information it generates.

One of the most important changes in the West German beef industry since World War II is the movement of privately owned slaughterhouses to the production areas. The general implication is that it is cheaper to slaughter the beef at the production area and ship the beef in refrigerated transportation facilities to consumption areas rather than to ship the cattle to the slaughterhouses in the consumption areas. Virtually the only slaughterhouses which remain in the con-

sumption areas are the public abattoirs, and their movement has probably been restrained by political considerations. If they are owned by city or municipal governments, these authorities may not permit the abattoir to move to the rural production areas.

This issue is particularly significant for the marketing of beef cattle in Hawaii, as a sizeable proportion of the state's beef cattle is currently transported by barge from the production areas on Hawaii, Maui, and Molokai to the slaughterhouses on Oahu. Some ranchers seem to believe that it would be economical to locate the facilities on the producer islands due to the relative costs of shipping beef cattle and shipping refrigerated carcasses. It is not clear, however, that producers would save substantially on transportation costs if the slaughterhouses were all located on the island of Hawaii. A producer on Maui would then have to ship his cattle to Hawaii, and the slaughterhouse would then ship the beef to Oahu. Presently, the producer on Maui just ships the beef cattle to Oahu. Given the fact that producers who are not located on the island of Hawaii contribute nearly 40 percent of the production of the Hawaii beef cattle industry, it should be obvious that a change in the location of the slaughterhouses would not lead to an unambiguously more efficient beef cattle industry. Although the decision concerning plant locations must take into account factors besides transportation costs (such as relative rents, wages, legal restrictions, and environmental considerations), the German example should prompt the slaughterhouses in Hawaii to consider carefully the gains from relocation.

It should also be noted that slaughtering and packing facilities are quite durable and may have few alternative uses. Even if cost conditions have changed to favor the building of any <u>new</u> capacity in this industry on the island of Hawaii, it may nonetheless be profitable to continue to operate the Oahu facilities until they need to be replaced. Thus, unless demand or supply conditions in the slaughtering and packing industry change dramatically and thereby make the operation of the Oahu facilities unprofitable, we should not expect to see these facilities relocated on the Big Island in the near future.

Finally, another distinctive feature of the marketing of livestock in Germany is the growth of farmers' cooperatives. The cooperatives were originally formed to facilitate the assembly and sale of the animals in the auction market. In the last fifteen years, however, the cooperatives have become increasingly involved in the slaughtering of cattle. In 1966 producer cooperatives slaughtered 203,000 head of cattle; by 1975 this figure had increased to 796,000 head, or 18 percent of all slaughterings. Further, 33 percent of all cattle are sold by cooperatives. Although cooperatives formerly required that their members deliver all of their animals to the cooperative for marketing, this restriction has been

dropped by most cooperatives. This action was the result of competition from other enterprises and from the alternative marketing channel of direct sales; to use these alternative marketing channels, it was necessary for an individual farmer to remain outside of the cooperative. As more farmers chose not to use the cooperative system, the cooperatives began to drop the delivery restriction; without the restriction, cooperative membership began, once again, to increase.

Although cooperatives are owned by the farmers, most cooperatives are not directly managed by the farmers. They are usually run as independent business enterprises. As noted above, as long as the cooperative members own the cooperative's stock, they will be assured of getting their profits from the joint actions of raising and slaughtering the beef. They will not be concerned with the division of the profits; whether they receive the profits as dividend payments from the cooperative or as payment for the beef cattle is inconsequential. The primary advantage of the cooperative system is that it ensures that the farmer will receive a "competitive" price for his beef.

The situations in Denmark, France, and Austria are quite similar to the one encountered in Germany. In each of these countries, three important changes in the marketing of beef cattle are occurring. First, liveweight sales at auctions are increasingly being replaced by direct sales to slaughterhouses, and compensation is determined by the weight and grade of the carcass. Second, the slaughterhouses are choosing to relocate in the production areas; previously they were concentrated in the urban consumption areas. Third, the importance of producer cooperatives in the slaughtering and sale of beef cattle is increasing.

New Zealand

Finally, it would be helpful to consider the marketing of beef cattle in a country which exports large quantities of beef to Hawaii, such as New Zealand. Since 65 percent of the red meat supplies produced in New Zealand are exported, and since New Zealand produces a small percentage of the world supply of beef, it is apparent that the price of beef in New Zealand is determined by the world market for beef. Ranchers do, however, have numerous marketing channels through which they can market their beef. The following three are the most important:

1. The dominant marketing approach is for the producer to make a direct sale to a livestock exporting company. Each week these companies post a schedule of prices which they will pay farmers for the various grades of meat delivered during that week. The schedule is closely tied to fluctuations in the price of beef in the United States, which is New Zealand's principal export market.

2. Ranchers can sell their stock to one of two producer cooperatives (which do not own or operate slaughter/packing facilities). These organizations pay a percentage of the price quoted by the livestock exporting companies. At the end of the year, the residual is distributed to the members according to the value of beef delivered to the cooperative. The residual depends on the success the cooperative has had in marketing its beef over the course of the year. The rancher is likely to use this marketing channel if he believes that the prices posted by exporters, the "schedule" prices, are not reflective of the world market price adjusted for slaughtering costs. This marketing technique essentially transfers the risk of changes in the price of beef from the slaughterhouse to the producer. The existence of an alternative marketing channel for export beef does, however, tend to ensure that the price "schedules" posted by exporters are competitive prices.

3. The third channel a rancher can use to market his stock is to hire an exporter to sell it on a commission basis. The rancher arranges to have the stock privately slaughtered by a dealer licensed for the export trade. The rancher has a statutory right to be able to deliver his beef cattle to a slaughterhouse and receive service when available. Farmers often "pool" their cattle together when they market beef through this channel.

In 1976 approximately 5 percent of all export beef was marketed through producer cooperatives, 25 percent through producer "pool" arrangements, and 70 percent through direct sales to exporters. Only a small fraction of export beef is sold in a liveweight auction market.

Auction sales of beef cattle are still important in New Zealand. The cattle are, however, usually intended for the domestic market. Many of the animals traded on the livestock exchanges are breeder or stocker cattle. Although fatstock are also sold at auction, it would appear that the auction sale is a relatively inefficient method of marketing most fatstock. Since the price of beef is determined in world markets, one of the main advantages of an auction market, the accurate determination of a good's value given the information currently available to buyers and sellers, would be lost. As would be expected, the auction price of fatstock is closely related to the world price of beef.

On the other hand, the auction market may be a relatively efficient method for determining the price of stockers and breeders. Stocker and breeder prices are based on the expected future price of beef in world markets. Since world <u>spot</u> markets are more highly developed than world <u>future</u> markets, it is to be expected that the New Zealand auction market would be able to generate valuable information about the prices of these types of cattle. The auction format

serves to compile the information available to buyers and sellers into an estimate of the future price of beef cattle, adjusted for the costs of raising and finishing the calves and the stockers.

The beef cattle market in New Zealand is also influenced by the operations of the New Zealand Meat Producers' Board. This government agency monitors the prices export dealers offer to producers. Occasionally, the Board suggests to producers that they utilize alternative marketing channels (instead of the export dealers) to obtain better prices for their beef. Under certain circumstances, the Board is empowered to buy beef directly from the producers and market the beef itself. The marketing is usually done by hiring an export firm on a commission basis. The Board has, outside of this marketing power, no authority to set prices (the price "schedules") offered to producers by slaughterouses.

Under the provisions of the Meat Export Prices Act of 1976 the Board operates a meat export price-smoothing system. A three-year moving average of beef prices is calculated, and a ten percent band around this figure is then set. The upper bound of this band is the maximum price producers can receive for export beef; the lower bound of the band is the minimum price. When the price of beef falls below minimum levels, the Board can either intervene in the market, or it can make subsidy payments to producers. When the price rises above the maximum permitted level, a buffer levy of 50 percent is charged on the revenue earned from the higher price. The Board's operations in this area are intended to be self-liquidating; a net subsidy or tax on beef sales is not the intent of this price-smoothing operation.

The marketing situation in New Zealand is relevant to beef marketing in Hawaii for two reasons. First, the price of beef is determined in world markets. Any marketing operation for beef in Hawaii must be designed with this fact in mind. Second, the producer has alternative marketing channels which he can use to sell his beef. The existence of alternative marketing channels, such as producer pools, producer cooperatives, and sales to the Meat Producers' Board, serves to insure that the direct sales market remains competitive. Presently in Hawaii, producers have no other option but to deliver their cattle to slaughterhouses for direct sale or consignment slaughter.

MARKETING ARRANGEMENTS IN THE UNITED STATES

Marketing arrangements in many foreign countries are characterized by the sale of beef cattle by private producers to public slaughterhouses (abattoirs). In the United States, slaughterhouses are exclusively operated by private business firms. They tend to be independent business firms which are not integrated with the producer of the cattle. However,

slaughtering and wholesaling operations are typically combined in a particular variety of firm--the packer. At a national level the packer industry is relatively unconcentrated; the four largest firms had only 21 percent of the market in 1970. Of course, national concentration levels may mask significant levels of concentration in local markets.

On the Mainland packer feeding of cattle remains a relatively unimportant activity. In 1974 only 6.8 percent of fed-cattle marketings were done through packer stockyards. Packer feeding tends to be concentrated in the Western and Plains states, particularly in those states that are not major producers of feed grains. It is virtually nonexistent in Corn Belt states. Most cattle in Hawaii are fed by the packer in a specialized feedlot, Only about 40 percent of the cattle slaughtered by the packer are his property. The other 60 percent are owned by the rancher. Furthermore, virtually all feeder calves in Hawaii are owned by the ranch while they are being custom-fed by the packer.

The major development in the packing industry since World War II is the movement of the packers from the urban consumption centers to the rural production centers. Note that a similar trend was also observed in Western Europe. The relocation was due to the development of commercial cattle feedlots which were located in the grain-producing areas of the country; to lower labor costs in rural areas; to technological advances in the transportation industry which made it relatively advantageous to ship carcasses and finished products to retailers rather than shipping live cattle to slaughterhouses; and to decreased costs of assembling the desired group of livestock. As was previously noted, in Hawaii many live cattle are shipped via barge to slaughtering plants located near the consumption areas on Oahu.

The term "beef cattle producer" encompasses a wide range of heterogeneous enterprises in the United States. A "producer" may be a small cow-calf farmer, a huge corporation specializing in the feeding of cattle, or a rancher who breeds and finishes his entire stock. The market is characterized both by tremendously specialized firms and by vertically integrated firms. The two types of operations appear to coexist in a stable industry structure.

Cooperatives play a relatively minor role in the marketing of beef cattle in the United States. Their share of the fed-cattle marketings has declined from 16 percent in 1951 to 10 percent in 1972. In Western Europe the cooperatives are usually vertically integrated with the packing operations. In the United States such vertical integration is extremely rare; only one percent of the total number of cattle and calves slaughtered in the U.S. are slaughtered in cooperative slaughterhouses. The cooperatives have concen-

trated on the sale of cattle in liveweight markets. Some cooperatives have established credit corporations to finance member purchases of feeder stock. No cooperatives exist on the Mainland for the purpose of purchasing supplies exclusively for livestock producers. Finally, the cooperatives that do exist are relatively small. In 1970, four-fifths of all cooperatives had gross revenues under one million dollars.

Transactions between producers and packers occur in three different types of institutional settings: direct sales from producers to packers, sales at auction, and sales at terminal markets. During the 1970's, approximately 70 to 75 percent of all sales were direct sales from producer to packer, 15 percent werw in auction markets, and 10 to 15 percent occurred in terminal markets. How are prices formed in these different types of settings? Terminal markets are usually operated by stockyard companies. Rather than purchase and resell livestock, they derive their income from fees on the use of the facilities, the sale of feed and other services. Buying and selling of livestock is open to the public. The sale of livestock is, however, managed almost universally by representatives of commission firms. Terminal markets are distinguished from auction markets by their practice of arriving at exchange prices by "treaty." The buyer and the seller bargain in private and the outcome is not publicly revealed. Most cattle markets in the U.S. (for example, the Denver market) have both auction and terminal markets coexisting in the same physical facilities.

To sell cattle in a terminal market, the producer usually delivers his cattle to a commission man several days before the opening of the market. The cattle are sorted by the commission mand into lots according to their distinguishing characteristicsto facilitate the process of evaluating the cattle at the point of sale. Fixed-fee commissions are charged by the terminal market per head of cattle regardless of the worth of the cattle. The importance of the terminal market has rapidly declined in recent years. In 1960, 46 percent of all cattle were marketed through terminal markets. By 1969, the figure had shrunk to 21 percent, and had declined to between 10 and 15 percent of the market in the late '70s.

The auction market has been more stable over time than the terminal market. The percentage of finished cattle marketed through auctions has stayed relatively constant, between 15 and 20 percent of the market, since 1960. The auction market has, however, become more important in the marketing of calves, increasing its share of the calf market from 32 percent in 1960 to 50 percent in 1969. This increase in business has occurred mainly at the expense of the terminal markets.

Auction markets are distinguished from terminal markets by the price formation mechanism used to transact the sale. Bids are publicly announced by buyers and are relayed to other potential buyers by an auctioneer; the bidder offering the highest price receives the animal. The ring manager often offers a starting bid to economize on the number of bids which must be offered to sell the animal. Sales occur either by weight or by head. In some markets the animals are weighed before they enter the auction ring, but in others they are weighed only after they leave the ring. Commission fees are either per head or a percentage of the proceeds of the sale or a combination of the two. The auctions are public markets; by law they are open to all bidders. The auctions are under the jurisdiction of the Packers and Stockyard Act. The Act specifies three major restrictions on the operations of the stockyards. First, they must post a bond equal to two days of sales to insure that producers are compensated for the sale of their stock. Second, they must transmit annually records of all transactions and payments to the United States Department of Agriculture. Third, they must refrain from trade practices which restrict competition.

Direct sale to packers is now the dominant form of marketing fed cattle on the Mainland. The sale may be on live weight and grade of the finished cattle or on the deadweight and grade of the carcass. The following passage summarizes a set of regulations the USDA promulgated in 1968 to standardize trade practices when a sale is made on the basis of the deadweight and grade of the carcass:[2]

> (1) packers must divulge to sellers, either orally or in writing, terms of the purchase contract prior to sale; (2) identity of each carcass must be maintained; (3) sufficient records must be maintained to verify settlement with producers; (4) purchase and payment must be made on the basis of carcass prices; (5) weight must be established on the hot carcass (not chilled); (6) all hooks, rollers, gambels, and other equipment must be uniform in weight for each species and only this weight deducted as tare; (7) payment may be made on USDA grades or other grades, but if the latter, the seller must furnish written specifications; and (8) carcasses must be graded no later than the close of the second business day following slaughter.

Direct sales have several advantages to most producers of fed cattle. First, the conditions of the sale can be negotiated before the cattle are delivered. If the cattle are to be sold in an auction market or a terminal market,

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[2]McCoy, Livestock and Meat Marketing.

they must be transported to the market site. Given the extra transportation costs involved if the cattle are not sold (the costs of transporting the cattle back to the ranch and at a future date transporting them back to the market), the rancher does not usually have an effective option of withdrawing the cattle from the market. If, instead, they are directly sold to the packer, the offers from various packers can be solicited and examined before the cattle are committed to market.

Second, if packers usually purchase from a particular group of producers, and producers usually sell to a particular group of buyers, then the transaction costs associated with finding "acceptable" buyers and sellers are reduced, and both parties to the direct sale must gain. By "acceptable," we mean that the two parties exchange at the "competitive" price; i.e., at the price that would be determined if both parties were participants in an auction market. The transaction costs associated with "finding acceptable buyers and sellers" are the costs the two parties incur from participating in an auction or in a terminal market. These costs include the losses the two parties incur from buying goods measured by liveweight rather than by deadweight, market fees, commission fees, and transportation costs.

Third, if price information from an auction market is readily and speedily available to the two parties, then it becomes more likely that they will transact by direct contract sales. Essentially the two parties "free-ride" on the information generated by these markets. In some countries (West Germany) these direct contractual transactions are taxed; the tax may be looked at as compensation for the price information generated by the auction market. If, however, low-cost information about the prevailing prices for the type of cattle being exchanged is unavailable, then it becomes less likely that the two parties will exchange via direct sale contracts. A more intensive search over the entire set of sellers and/or buyers could yield a better price for one of the parties (which would more than compensate them for their search costs--in this case, the costs of participating in an auction).

Is price information in the United States readily available and is it reflective of the transactions that occur in the direct sales market? The availability question is easily answered; the daily prices recorded on the West Coast auction markets are compiled in a weekly publication of the USDA entitled Livestock, Meat and Wool Market News. Although prices would tend to reach farmers in Hawaii with a week's lag time, given the weekly variability in prices in the beef cattle market, the time lag is unlikely to cause severe problems to transacting parties.

Whether the prices that are observed in the auction markets are reflective of conditions in the direct sales

market is a more difficult question to answer. The types of cattle which are offered on these markets are likely to have a relatively uncertain value, and they are bought by a clientele of packers or other firms which highly varies from week to week or period to period. Even if the cattle prices which are determined at auction are good indicators of the value of a specified type of cattle, they may be useless as an indicator of the value of the cattle being exchanged in direct sales markets. As the auction market become smaller, this phenomenon is more likely to occur. The prices observed on organized exchanges will then be only loosely correlated with the prices observed in direct sales markets. One consequence of the increasing size of errors in the measurement of market value is that the two parties will have increasing incentives to invest in accurate information about the goods' value. Such investment, however, tends to dissipate the gains from transacting by direct contractual sales rather than in an auction or terminal market.

As an alternative to the mechanism described above, firms may decide to pool information about the prices and quantities of the goods being exchanged. The information could be compiled by a trade association or private firm and be issued (or sold) periodically to all concerned parties; Cattle Fox of Denver, Colorado, is already doing this. The availability of such information should help the direct sales market to produce contracts which specify prices and quantities similar to those which would be observed in an auction market. The costs of an auction market would have to be weighed against the costs of operating the newsletter, the costs to individual firms of disclosing certain sensitive information about transaction prices and quantities, and the costs of using "old" information.

It should be noted that the compilation and publication of transaction prices may have significant costs <u>if</u> the information is used to enforce a cartel agreement among cattle producers. Accurate information about transaction quantities and prices is vital to the enforcement of any cartel agreement. Given the extensive nature and the number of firms entering and exiting the beef cattle industry, a cartel is unlikely to be profitable over time, and, therefore, exchange of price information should lead to gains in producer efficiency and profitability. With the decline in the use of auction markets, and the high costs of forming a cattle producers' cartel, the marketing of beef cattle in the United States has been subject to some of the same types of trends which were observed in Europe. First, deadweight sales have become the dominant form of exchange between producer and packer. Since the auction market still exchanges a significant number of finished cattle, stockers, and calves, the parties to a direct sales contract can free-ride on the price information generated in the auction markets.

Second, unlike the situation in Europe, livestock cooperatives are relatively unimportant in the United States. They engage in virtually no slaughtering activities, and are a relatively unimportant part of the market structure.

Third, packers have gradually relocated from the consumption areas to the production areas.

Finally, the market is characterized by a wide variety of vertically integrated firms and extremely specialized firms. Specific trends concerning vertical integration or vertical disintegration have not been observed. The producer-packer market appears to be capable of sustaining a wide variety of institutional arrangements over time.

ALTERNATIVE MARKETING ARRANGEMENTS

In this section we discuss alternative possibilities for the marketing of beef cattle in Hawaii. Any alternative marketing arrangement must take into account several characteristics of the Hawaii beef cattle industry. The characteristics are presented below. It must also be noted immediately that no alternative marketing structure is likely to be vastly superior to the present structure. Should a superior system exist, the involved parties would have already devised institutions and contractual arrangements to appropriate the gains from such a system. One of the salient points which characterizes all economic systems is that the prevailing institutional arrangements are likely to be the most efficient possible given the constraints the institutions face. Although three alternative marketing arrangements are presented in this section, we cannot presume that any system would be more efficient than the present system, given the existing technological and institutional situation.

What are the characteristics of the Hawaii beef cattle industry with which any marketing arrangement must be consistent? First, the Hawaii beef industry has little influence on the market price of beef at the wholesale level. The supply of beef from Australia, New Zealand, and the Mainland United States is perfectly elastic at the prevailing world (United States) price, adjusted to reflect transportation costs.

Second, production takes place on all islands in the Hawaiian chain (although primarily on the Big Island) while consumption is concentrated on Oahu. Currently, 60 percent of the packing capacity is also located on Oahu. Forty-four percent of the cattle slaughtered in the State are slaughtered in one plant on Oahu; 12 percent are slaughtered in a second plant on Oahu; 17 percent are slaughtered in a large plant on the island of Hawaii. Thus three large plants handle 73 percent of the cattle slaughterings in Hawaii. The

two largest packers engage in considerable wholesaling of carcasses, while also selling primals and processed beef.

Third, the largest packer is essentially vertically integrated with the largest ranch and the largest feedlot; although all three corporations are legally separate, their common ownership requires us to treat them as a single economic entity. Although there is a single large firm in the packing industry, it should be noted that entrance to this industry is relatively easy compared to most food processing industries. If this firm attempted to exercise its "market power," we would expect the small packers to expand capacity, and new entrants to start production. Size does not necessarily imply market power.

Three alternative marketing systems are examined in this part of the report: (1) the formation of a cooperative association to control the marketing of beef; (2) the establishment of auction or terminal markets in Hawaii; and (3) the establishment of some form of producers' cooperative. Some of the legal ramifications of cooperatives are also discussed. Although there are many more than three possible arrangements, some marketing structures are clearly inefficient given the characteristics of the Hawaii beef market, and these three alternatives encompass the major marketing arrangements existing worldwide in the beef industry.

Marketing Cooperatives

The first alternative structure considered is a marketing cooperative. This type of cooperative has been extremely successful in other fields of agriculture in the United States. Examples are the C&H Sugar Cooperative, Sunsweet, the Lindsay Ripe Olive Co., Welch's Grape Juice, and Sun Maid Raisins. Each of these cooperatives attempts to regulate the amount of the product placed on the market at any point in time. Such action is likely to achieve higher prices and higher profits for the producers of these products.

Such a cooperative venture would be doomed to failure in the beef cattle industry in Hawaii. A cooperative which acts to restrict market quantities can only be successful if a large percentage of the major producers of the commodity join the cooperative. In Hawaii a major portion of the meat sold in the stores and served at restaurants is imported from the Mainland, New Zealand, or Australia. Any restrictions on the output of Hawaii beef producers would be ineffective in changing the market price of beef carcasses. Producers on the Mainland and in the foreign countries cited would begin to ship more beef to Hawaii at the slightest indication of an increased price of beef. If a livestock cooperative is to be successful, it must function to reduce marketing costs rather than to exercise market power to achieve higher prices.

Auction Markets

The second alternative structure we considered was the establishment of either auction or terminal markets in Hawaii.

Auction markets are important mechanisms of exchange when the prospective parties to the exchange are unsure of the price (value) of the good. Auction markets serve to integrate information about the relative supplies and demands for beef into an auction price, an indicator of the value of the beef. The market price provides all parties with signals that can be used to plan future production and future purchases of beef. Under certain conditions, it assures buyers and sellers that they are receiving and paying the "competitive" price of the beef. Auction markets have the central disadvantage of being costly to operate. The costs associated with gathering the market participants and the cattle in one place are significant.

The main advantage of an auction market-- price determination -- would not accrue to the beef industry in Hawaii since the price of beef is determined by world markets and Mainland markets. An auction market for beef cattle in Hawaii would be likely to generate prices which closely correspond to the prices prevailing on the Mainland. Its operation would be redundent.

Auction markets are not cheap to operate. They usually require an initial fixed expenditure to buy or rent physical facilities and equipment. Daily operating expenses must also be covered. Therefore the auction must charge fees for the use of the auctioneering facilities. Given the relatively small volume of beef produced in Hawaii (compared to many other countries and states), it is unlikely that the market would be able to operate at a profit.

Finally, it is impossible to compel producers and packers to use the auction market. Most producers would wish to save the market commission fees by negotiating sales directly through one of the Islands' three large packers. It should also be noted that the two large producers would have no incentives to participate in an auction sale. Without the participation of these firms, the auction market would be even less likely to cover its costs.

It could be argued that an auction market would be useful to exchange feeder calves, stockers, or breeders. If the generated prices were sufficiently different from Mainland prices, the auction would generate important information to all parties in the Hawaii beef cattle industry. Unless local production conditions relevant to the production of fed cattle are highly variable and unrelated to changes in Mainland conditions, the auction price would be redundant. It is quite likely, that the auction price would

be systematically related to the Mainland price. Unless it can be demonstrated that production conditions of Hawaii vary substantially and are unrelated to Mainland variations, then an adjustment to the relevant Mainland price would appear to be an efficient method of setting local prices. This is the current practice in the State for most sales of intermediate cattle (feeders, stockers, breeders).

Terminal Markets

Similar objections would seem to apply to terminal markets. It is quite unlikely that they would improve market efficiency in Hawaii. Both the auction and the terminal market have a tremendous disadvantage: the sale is on the basis of live weight rather than yield grade. The sale of beef by its "deadweight" and grade has two advantages over live weight sales. First, it gives signals to producers to produce "beef" not "beef cattle." The packer and the consumer are interested in the transaction of a pound of beef. The beef cattle producer must be given incentives to produce beef cattle which are appropriate to the final consumer demands. Second, live weight sale involves measurement errors. A live animal that a buyer thought had X amount of beef, may only have 90 percent of the estimate. Alternatively it may have 110 percent of the estimate. Although these errors may tend to average out over time, this will only occur if buyers and sellers do not expend resources to try to identify the cattle which have 110 percent of the estimate. Both parties have incentives to devote resources to measuring the beef in the cattle more accurately. The buyer will sort the cattle into homogeneous lots; the sellers will try to identify cattle characteristics which imply a better yield of beef than the average. These costly activities could be eliminated if the exchange were to be conducted in terms of deadweight and grade.

It should be noted that these types of exchanges also use costly resources. Exchange is never costless. Scales of the desired accuracy must be purchased; the cattle must be identified when they arrive at the slaughterhouse to insure that the owner of the cattle is paid; similar considerations apply to the carcass. Finally, payment to the cattle producer is delayed until the slaughtering is complete. With live weight transactions, payment is received prior to slaughtering. The timing of the payments will be reflected in the transaction price of the beef cattle.

Thus auction and terminal markets are unlikely to be efficient given the situation of the beef cattle industry in Hawaii. The main objection to such markets is that the price of the beef cattle has essentially been established in Mainland markets, and that, given an established product price, the deadweight method of exchange appears to be more efficient than the liveweight method.

Producer's Cooperatives

A third alternative marketing arrangement is for a producers' cooperative to handle the slaughter and perhaps the marketing of the cattle. This type of arrangement is likely to be favored by the smaller producers in the State. Many of them have complained that the prices they receive for their beef cattle are not competitive prices. This type of marketing arrangement could be implemented in two ways: either all of the producers could organize to form a cooperative; or, the fringe producers (all of the producers in the State except the two largest producers) could organize a competing feeding-packing arrangement.

The first arrangement is likely to succeed only if the two largest producers in the State would gain from such an arrangement. Both producers already have vested interests in slaughter facilities and the largest producer ownes the largest feedlot in the State. That is, some degree of vertical integration already exists in the industry and the two largest firms have made investments and are already operating in a fashion that should maximize their returns from the entire beef production and marketing system (production, feeding, slaughtering and packing). The two large firms would only benefit if significant economies could be obtained in feeding, slaughtering, and/or marketing of beef by the majority of the industry acting as a single business entity.

If the two largest firms are now able to exert some market power over the smaller producers, then the cooperative arrangement would not be advantageous to the two large firms. Cooperatives return the residual after paying production and operation expenses; therefore, the returns from the market power over the smaller firms would be dispersed to the smaller firms. Since the two large firms pocket any gains from (any potential) market power under the current marketing arrangements, they are unlikely to participate in a cooperative venture requiring the dispersion of some of their present earnings to the smaller producers.

The only rationale for a producers' cooperative at present would be if significant economies of scale could be achieved by operating larger feedlot and slaughtering plants. If such economies of scale did exist, then we would have expected the existing firms to be already taking advantage of them. However, the existing system where feeding is done on a custom basis, where the custom fees are determined by the costs, may lessen the potential benefits of larger operations to the larger firms. We would expect to observe that the two large firms have merged or that they have proposed a cooperative producers' organization. The industry support given to this study may be an indication that the firms are considering such an action. It should be noted that although

economies of scale in production are often present, they may be negated by transportation costs, by rising management costs, or by increased market power possessed by the larger firm. To achieve economies of scale in production is no guarantee of lower costs in total.

Another possible obstacle in the way of a producers' cooperative which encompasses all producers is that cooperatives are generally governed by majority rule on a "one-member, one-vote" basis. This is part of both the Federal and the Hawaii Law on Agricultural Cooperative Associations. (As is explained below, the Hawaii statutes permits the cooperative to change this rule in its charter. However, no such provision could be found in the Federal statutes.) Since the two firms which produce a significant proportion of the beef cattle in Hawaii would have only two votes in such an organization, it is unlikely that they would participate. The possibility that the smaller firms would band together to extract some of the larger firms' wealth would be significant in this context.

It is therefore not obvious that a producers' cooperative association would succeed in the Hawaii beef cattle industry. The presence of two large firms may place too many stumbling blocks in the way of this new institution's formation.

A cooperative arrangement among the fringe producers of beef cattle is another possible market organization alternative. Such a cooperative would avoid many of the problems caused by the presence of the two large firms. It could take two possible forms. Either it could market its members' cattle to the existing slaughterhouses or it could establish its own slaughterhouse. These types of arrangements are only likely to be viable if the two large firms are exercising significant market power over the group of small producers or if the two large firms are making business decisions which are not appropriate to the market situation in Hawaii. The second assertion will be ignored; we will assume that the existing slaughterhouses are competent analysts of the current and future market conditions. The first assertion is also questionable. Twenty-five to thirty percent of the beef cattle sold in Hawaii is sold to small slaughterhouses. If the two large slaughterhouses actually possessed monopsony power in this market, then we should observe that the market shares of the small slaughterhouses would increase over time. Presently no data are available to support this contention.

Let us assume, however, that the formation of some form of a producers' cooperative is a feasible venture. The Hawaii Law on Agricultural Cooperative Associations specifies several conditions that an agricultural cooperative must satisfy. First, 75 percent of the products marketed by the cooperative must be of Hawaii origin. This restriction would limit any cooperative from marketing significant amounts of

beef imported from the Mainland or from New Zealand or Australia. Such a limitation may make the cooperative a less viable venture than it otherwise would be. Quite often it is impossible to meet a marketing order with supplies which come only from Hawaii producers. Other cooperative ventures in Hawaii have managed, however, to evade this restriction by setting up subsidiaries not subject to these restrictions.

Second, unless otherwise provided in the cooperative's charter, decisions within the cooperative are to be made on a "one-man, one-vote" basis. The charter can be amended by a two-thirds vote of the members. The provisions concerning preferential stock rights may only be amended, however, by the written consent of the holders of two-thirds of the outstanding preferred shares.

Third, the cooperative cannot bind members to arrangements which last longer than ten years. This provision is a significant improvement over the restriction which formerly applied. Under the original Hawaii Cooperative Law (5421-18, amended by Act 103, SL 1972) the cooperative could not bind members to agreements lasting longer than four years. This provision placed severe restrictions on the type of facilities in which a cooperative could invest. Many observers of cooperatives in Hawaii believe that it led to cooperatives being undercapitalized[3].

Fourth, cooperative stock must be fully paid for at issuance; and, stock may not yield dividends worth more than 8 percent of the stock's value annually. This type of restriction on the financial structure of the cooperative is unlikely to increase the prospects that it will be viable. If tax laws change, say, to favor the taxation of dividends over capital gains, the cooperative will not have the needed flexibility to adjust to such changes, due to the limitations on dividends.

Fifth, the Hawaii Agricultural Associations Law specifically states that "associations are not in restraint of trade[4]." Further, an "association may acquire, exchange, interpret, and disseminate to its members, to other cooperative associations, and otherwise, past, present, and prospective crop, market, statistical, economic, and other similar information relating to the business of the association, either directly or through an agent created or selected by it or by the other associations acting in conjunction with it[5]." This provision is important, as a cooperative formed by the fringe producers would be mainly concerned with compiling price information and disseminating it to its members.

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[3]Spielmann and Barmettler, Financing Farmer Cooperatives.
[4]Hawaii Revised Statutes (1976), Sec. 421-20.
[5]Ibid.

The statement that agricultural associations are "not in restraint of trade" is qualified by a second provision which allows the cooperative to advise members about their "current and prospective production" and to set up "orderly marketing arrangements." These activities are only allowed as long as they "assure adequate supplies without undue enhancement of prices or the accumulation of any undue surplus[6]." It is difficult to imagine how a firm could be in restraint of trade if it did not unduly enhance prices. Although the law contains contradictions on this issue, it should be noted that the State has never prosecuted a cooperative for restraint of trade under this law. In any case, given the elastic supply of Mainland beef, it appears impossible for producers to unduly enhance price. Restraint of trade could not be an issue in the formation of a cooperative in this industry.

Sixth, "an association may admit as members only bona fide producers of agricultural products, including tenants and landlords receiving a share of the crop, and cooperative associations of the producers[7]." This provision is especially important given the current structure of the packing industry in Hawaii. The two large packing firms which presently have 85 percent of the market would have to be reorganized as a branch of the producers' cooperaative. They would not be allowed to join the cooperative as full voting members. Numerous cases in the Federal Courts have established that cooperative ventures must be restricted to primary producers[8].

Seventh, the cooperative "may require members to execute contracts with the association in which the members agree to patronize the facilities created by the association, and to sell all or a specified part of their products to or through it..."[9]. The contract may specify sums to be paid by the members in case of breach of contract[10]. This provision is also vital to the successful operation of a beef cattle cooperative in Hawaii. If the cooperative is to invest in slaughtering facilities, it may only be profitable to undertake such an action if the cooperative can be assured that members will patronize the facility. Although it will usually be in the interest of all cooperative members to patronize the cooperative as a group, at any particular point in time, an individual member may decide that he has better opportun ities. If an individual perceives that he can gain by patronizing other services, he is acting on the realization

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[6] Ibid.
[7] Hawaii Revisied Statutes (1976), Sec 421-10.
[8] The latest and most important decision by the U.S. Supreme Court is National Broiler Marketing Association v. United States, 436 .S. 816 (1977).
[9] Hawaii Revised Statutes (1976), Sec. 421-18.
[10] Ibid.

that his actions are likely to have little effect on the cooperative. If, however, several members act in this way, then the aggregate effect can be quite large. Thus many cooperatives with investments in highly specific and highly valued capital equipment are likely to utilize a rule requiring members to patronize the cooperative.

Eighth, the cooperative has some tax advantages over other forms of organizations. Cooperatives pay "an annual license fee of 10 dollars to the director of regulatory agencies (and which shall be a general realization of the State) which shall be in lieu of all other corporation, franchise, and income taxes, and taxes and charges upon reserves held by the association for distribution to members, including without limitation upon the generality of the foregoing any taxes imposed under Chapter 23[11]."

Federal Cooperative Law

Given that the Hawaii Agricultural Associations Law is structured to encourage the formation of cooperatives in the agricultural sector, it is worthwhile to note that the Federal Laws on Agricultural Cooperatives are also structured to encourage the formation of cooperatives which can potentially exercise market power. The two relevant laws are Section 6 of the Clayton Act and the Capper-Volstead Act.

Section 6 of the Clayton Act provides that the anti-trust laws were not to be "construed to forbid the existence and operation of labor, agricultural, or horticultural organizations, instituted for the purposes of mutual help, and not having capital stock or conducted for profit," i.e., such organizations are not to be deemed "illegal combinations or conspiracies in restraint of trade[12]..."

The Capper-Volstead Act was passed in 1922 to clarify the provisions in Section 6 of the Clayton Act and to specifically include cooperatives with capital stock in the scope of the law[13].

The main section of the Capper-Volstead Act gives a description of the powers granted to cooperative associations:

> Persons engaged in the production of agricultural products as farmers, planters, ranchmen, dairymen, nut or fruit growers may act together in associations, corporate or otherwise, with or without capital stock, in collectively processing,

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[11]Hawaii Revised Statutes (1976), Sec. 421-23.
[12]38 U.S. Stat. 731, Sec. 6.
[13]42 U.S. Stat. 388.

preparing for market, handling, and marketing in interstate and foreign commerce, such products of persons so engaged. Such associations may have marketing agencies in common; and such associations and their members may make the necessary contracts and agreements to effect such purposes: Provided, however, that such associations are operated for the mutual benefit of the members thereof, as such producers, and conform to one or both of the following requirements:

First, that no member of the association is allowed more than one vote because of the amount of stock or membership capital he may own therein, or,

Second, that the association does not pay dividends on stock or membership capital in excess of 8 per centum per annum.

And in any case to the following:

Third, that the association shall not deal in the products of nonmembers to an amount greater in value than such as are handled by it for members.

A second section of the Capper-Volstead Act specifies that the Secretary of Agriculture may act to stop certain actions of the cooperative if he believes they are in restraint of trade. Conditions of remedy and procedure are also included in this section of the Act.

Several cases before the U.S. Supreme Court have clarified the provisions of this Act. First, the Court has ruled that the cooperative members must be producers of the good if the cooperative is to be exempt from the anti-trust Laws[14]. A packer, a feeding firm, or a wholesaler could not belong to a cooperative unless it was integrated backward to the breeding stage[15].

Second, the Capper-Volstead Act does not exclude all prosecutions under the Sherman Act. The Supreme Court has stated that neither Section 6 of the Clayton Act nor Section 1 of the Capper-Volstead Act leaves agricultural cooperatives free to engage in practices against others which are designed to monopolize trade or to restrain or suppress competition[16]. One of the results of this conclusion is that it is difficult for cooperatives to acquire competitors after

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[14]See National Broiler, op. cite.
[15]Ibid.
[16]United States v. Borden Company et al., 308 U.S. 188, 199-200.

they have begun their operations. Cooperatives should be especially careful to make all acquisitions at the time the cooperative is organized[17].

Third, "To give validity to marketing agreements the Secretary (of Agriculture) must be an actual party to the agreement[18]." The U.S.D.A. has, however, not objected to marketing agreements which cooperatives have entered into during the last twenty-five years.

It must be concluded that there are virtually no legal obstacles to the formation of a producers' cooperative in the Hawaii beef cattle industry. It has been observed that the two largest firms might not find it advantageous to form a producers' cooperative. Thus a cooperative may only include the fringe producers of beef cattle. It could not, by law, include the small slaughterhouses since they are not producers of beef cattle, unless the slaugherhouses are owned by the cooperative.

Possible Cooperative Operation

How would this type of cooperative operate? One possible arrangement would be to assure that its members received the best prices available from the currently existing slaughterhouses. Since the slaughterhouses generally assemble and sort the beef cattle they receive, it is unlikely that the cooperative would serve any useful purpose by taking over this function.

Essentially, the cooperative would serve as a marketing agency for the fringe producers. As a marketing agent it could operate in either of two ways. First, it could record the prices offered by the various slaughterhouses at various points in time. These prices could be compared, and cattle could be directed to slaughterhouses which offer consistently better prices than other slaughterhouses over time. Second, the marketing association could attempt to market the cattle directly to the slaughterhouse. Prices could be negotiated which are tied to the Los Angeles price of beef. This is the current practice for all but cow beef. This type of marketing arrangement would only be efficient if the two larger slaughterhouses are able to exert some degree of market power over the small producers. If the market is already generating competitive prices for the fringe producers, then the resources spent on the cooperative will be wasted.

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[17]Maryland and Virginia Milk Producers Association, Inc. v. United States, 362 U.S. 478.
[18]United States v. Borden, op. cite.

A cooperative formed by the fringe producers could also pool the members' cattle into uniform lots in order to reduce feeding and slaughter costs. However, given the existing custom feeding and slaughter arrangements, it is not obvious that the gains from such a venture would accrue entirely to the cooperative.

The type of cooperative activity described above has several advantages over more extensive cooperative activities. First, it is unlikely that its activities would require significant capital expenditures. It would not be necessary for the cooperative to invest in fixed facilities specific to the cooperative. Second, the capital that would be needed (office space, office equipment) could be readily resold on the market if the cooperative venture failed. Third, its activities may produce gains for the fringe producers even if the market for slaughtering and wholesaling of beef cattle is quite competitive. It would place added barriers in the way of an operation of a successful packers' or buyers' cartel. Fourth, there may be economies achieved by having a central agency collect market data rather than having each individual producer collect the data.

One final advantage of this type of cooperative is that it would not require the participation of all fringe producers. Just a few fringe producers could reap large gains from the central price negotiation and record-keeping processes <u>if</u> prices in this market do deviate significantly from "competitive" levels.

One of the most powerful barriers to the operation of a competitive market is the absence of good information on market conditions. By making uniform quotes from each buyer available to all fringe producers and by carefully monitoring the Los Angeles price of beef, the marketing agency could improve market performance. Without accurate information on the prices being offered to all participants in the market, individual producers may accept prices which are below the market level.

A cooperative could also be organized to include slaughter and wholesale activities. The advantage of such an arrangement would be that fringe producers would be assured of reaping all of the gains from selling the beef at the competitive wholesale price. The disadvantages of this type of livestock cooperative are (1) it would require large amounts of capital to operate; (2) it would require risky investments in relatively specific feeding and slaughtering facilities; and (3) it would be difficult to determine where to locate the facilities. For the cooperative's investment to be an economically viable undertaking, the cooperative would have to compel its members to use its facilities. This agreement would have to be concluded prior to the facility's construction.

Finally, such a cooperative would have to include a large percentage of the ranchers and farmers if it is to operate successfully. Without the membership of nearly all the fringe producers, the cooperative's slaughterhouse would be unable to take advantage of significant economies of scale in feeding and slaughtering. Since the two largest ranches and slaughterhouses are already able to take advantage of some existing economies of scale, the cooperative would have to be able to achieve a minimum size if it is to compete effectively with the two large firms. Since the fringe producers usually sell about 25,000 to 30,000 head per year, it is clear that unanimous participation in the cooperative would be required for it to operate at production levels which come close to taking advantage of all scale economies. Since only 55,000 to 60,000 head of cattle are marketed by all cattle producers in a single year, it is also clear that if a cooperative of the nature described above were to be formed, one of the existing slaughtering firms would become redundant.

This leads us to a central conclusion. It is unlikely that a cooperative slaughtering-wholesale venture would be successful unless the two largest slaughtering firms cooperated in the venture. Given the nature of the laws on cooperatives, these two firms would have to be completely reorganized and integrated into the cooperative, since only producers can join an agricultural cooperative. The threat of such a venture would probably be enough to ensure that the two largest firms changed any "objectionable" practices.

On the other hand, it should be noted that ranchers already own significant shares in the three major slaughterhouses in Hawaii. If the slaughterhouses were engaging in "objectionable" practices, then they would be making profits for the same ranchers they were "exploiting." This leads us to another conclusion: it is unlikely that small ranchers will gain from a reorganization of the slaughtering firms due to the elimination of practices designed to "exploit" the small ranchers.

If there are gains to be squeezed out of a cooperative arrangement, they will likely accrue from the better utilization of economies of scale in production. If a large slaughtering facility were to be built which could utilize existing economies of scale, it is likely that a similarly efficient feedlot facility would also be built nearby to take advantage of similar economies of scale. If such a facility enabled cattlemen to place weaned calves directly into the feedlots, more pastureland could be used to produce feeder calves and to increase the size of the brood herd. However, the percentage of the cattle which are penfed has dropped from 61.1 percent in 1974 to 48.7 percent in 1980.

This drop could signify one of three possibilities. First, it could mean that pen-fed cattle are becoming more

expensive to raise than range-fed cattle, and cattlemen are, therefore, shifting their production to range-fed cattle. Second, the demand for pen-fed cattle relative to the demand for range-fed cattle could be declining. Third, the limited feeding facilities on the Islands could be forcing the shift to range-fed cattle. The larger feeding facility will only be economical if the reason for the shift to range-fed cattle is the third reason given. Before hasty conclusions are drawn about the inefficiency of the feeding and slaughtering facilities on the Islands, all constraints on large scale production must be taken into account. It is not clear that the production economies achieved in Mainland plants can be profitably achieved in Hawaii.

CONCLUSION

Numerous marketing arrangements in other countries and on the Mainland have been examined. It appears, however, that most of these arrangements are not efficient for the marketing of Hawaii beef cattle. The present arrangement appears to be the best possible given the constraints the industry faces. The only possible objection to the current arrangement is that the two largest packing firms are able to exercise some degree of market power over the fringe firms. Given, however, that the cattle are usually slaughtered on consignment for fixed slaughtering fees, it is unlikely that significant market power exists. Further, since the slaughtering-wholesaling firms are partially owned by the ranchers, they have no incentives to "exploit" themselves. It is possible that significant economies of scale in feeding, wholesaling, and slaughtering could be achieved if production were organized in a single plant. It is also possible, however, that increased transportation and organization costs would outweigh any savings from decreased production costs. If fringe producers are receiving a wide array of prices for their carcasses, then a cooperative which included a large percentage of the fringe producers could improve the prices individual buyers pay by gathering, analyzing, and distributing information about the market at particular points in time. Any cooperative venture is unlikely to be viable unless the two largest producers participate.

SOURCES

Most of the data on the Hawaii beef cattle industry are taken from the first part of this report:

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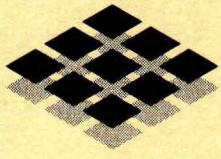

NOTE: As part of a structural reorganization, the Hawaii Agricultural Experiment Station and the Hawaii Cooperative Extension Service have been merged administratively under the name HAWAII INSTITUTE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES, College of Tropical Agriculture and Human Resources, University of Hawaii.

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