

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

SOME PROBLEMS AND PROSPECTS

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FOREWORD

During the 1974 Regular Session of the Hawaii State Legislature the House of Representatives adopted House Resolution No. 315, House Draft 1, the text of which is set out in the Appendix as *Appendix A*. The Resolution requested the Office of the Legislative Reference Bureau to conduct a study of the various problems confronting livestock producers in Hawaii. The Resolution expressed special concern over the high and rising cost of feeds. This report has been prepared in compliance with that request.

During the study period, unprecedented national and international events having broad and far-reaching global ramifications for the whole of world agriculture unfolded, creating a setting of great uncertainty.

At the national level, and even locally, livestock producers have experienced severe financial and operating problems stemming from the consequences and effects of supply and demand economics. The U.S. cattle industry during 1974 sustained staggering losses totalling close to \$2.5 billion. This major disaster appears to be the result of two major factors--oversupply of cattle, and high feed prices. Cattle feedlot operations have been particularly hard hit. Some feedlot operators are already bankrupt and others are on the edge of total financial collapse. Major grain crop failures in the Corn Belt states in 1974 due to inclement weather coupled with the virtual depletion of the once large American grain surpluses are expected to keep grain-based livestock feed costs at a high level. Since the cost of feed is one of the major costs of livestock production, the consequences of high feed costs and its constraining effects upon the livestock industry become quite apparent.

On the international scene, the predicted mass world food shortages in the years ahead prompted the convening of the international foodstuffs summit meeting in Rome in late 1974. Economists and other informed observers have predicted that the meshing of international politics and humanitarian concerns over world food problems will mean one thing for certain--the increasing shift in emphasis of grain production from feed grains to food grains.

What all this portends for Hawaii's livestock industry eludes clear discernment at this time. One likely conclusion, however, is that the State's livestock industry will face a great challenge in the months and years ahead, and its

survival will require the careful and deliberate support of all of us in Hawaii.

This study of problems faced by Hawaii's livestock producers would not have been possible without the cooperation and assistance of many individuals and organizations who gave so freely of their time and talents. A list of persons who furnished information by way of face-to-face interviews is shown in the Appendix under *Appendix B*. In addition, the cooperation and assistance of the several hundred livestock producers, the four major feed dealers, and the various livestock and agricultural cooperatives who participated in the study by completing and returning a mail questionnaire are also gratefully acknowledged.

Special recognition must be given to Dr. Richard W. Stanley, Assistant to the Dean, College of Tropical Agriculture, University of Hawaii; to Dr. Paul P. Wallrabenstein, Agricultural Statistician in Charge, Hawaii State Department of Agriculture; and to Dr. Alexander M. Dollar, Irradiator Superintendent, Hawaii State Department of Agriculture; for giving so freely of their time and talents during the study period.

The gathering, analysis and assemblage of data was a tedious, time consuming, and at times, complex undertaking. The work of Mazie Hirono and Sharon Narimatsu, researchers, who respectively assisted in this responsibility is gratefully acknowledged.

Finally, the patient and efficient performance of Shirley Kakuda, administrative secretary, and Sally Hayashi, supervising secretary, who supervised a skillful secretarial staff and Carol Lynn Kim and Maizie Yamada, secretaries, who shared responsibility for typing the final draft of this report, cannot be overlooked without a sincere word of appreciation.

The reader who may wish to obtain a quick overview of the major findings and recommendations of the study should refer to Chapter 3.

Samuel B. K. Chang
Director

March 1975

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Part I
INTRODUCTION AND SUMMARY

Chapter 1

INTRODUCTION

This is a report of an examination of selected problems confronting Hawaii's livestock producers. It was conducted in response to legislative concern over mounting representations made by livestock producers that problems of high and rising costs of livestock feeds and related problems of feed supply and feed storage were threatening the viability and survival of Hawaii's livestock industry.

Objectives of the Study

The objectives of the study were:

1. To evaluate the factors causing or contributing to the rising cost of livestock feed.
2. To evaluate the current structure and system through and by which livestock feeds are acquired and marketed in Hawaii and to ascertain therefrom, whether the present system permits the setting of feed prices at a reasonable and fair level.
3. To evaluate current research findings relating to the technological and economic feasibility of growing feed grains in Hawaii on a large scale basis and if such development appears feasible, to assess the impact it may have upon enhancing the competitive position of Hawaii's livestock industry.
4. To evaluate current research findings relating to the utilization of various agricultural by-products and other locally available materials for use as a feedstuff and to ascertain the effects of such utilization as a means of reducing feed costs.
5. To evaluate other feed-related problems.
6. To suggest measures to bring relief to the problems identified.

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Scope of the Study

The study is primarily concerned with and focuses upon the problems of feed costs, feed supplies, and closely allied elements affecting livestock production in Hawaii. Within this context the State's four major categories of livestock--beef cattle, dairy cattle, swine, and poultry--came under examination. The remaining category of livestock, the apiary industry (bee industry) was excluded from the study inasmuch as it is not a user of livestock feed and because the total value of beeswax and honey produced by the apiary industry during 1973 represents only a miniscule percentage of the total value of livestock production in Hawaii.

Study Methodology

The approach to the study is structured around a framework designed to (1) identify, document, and evaluate the key issues stemming from the problems of feed and, where possible, to determine the true locus of the problem, i.e., whether local, national, or international; (2) assess the degree of control that can be exerted by and through local initiative, such initiative to include actions by the livestock producers and the livestock industry, county government and state government; and (3) evaluate the potential impact of such local initiatives upon the objective of enhancing the viability of Hawaii's livestock industry.

The study was conducted in four general phases: preliminary survey and orientation; data gathering; data analysis; and development of recommendations.

Data for purposes of the study were obtained largely in three ways--direct face-to-face interviews with more than 100 livestock producers and resource people both in government and in the private sector, search and survey of the literature, and the use of three mail-out questionnaires.

The three questionnaires used were sent respectively to all livestock producers in the State for whom a mailing address was available, to the four major feed dealers in the State, and to the various livestock and agricultural cooperatives. Copies of each of the three questionnaires are shown in the Appendix as *Appendices C, D, and E*. The questionnaire entitled "Livestock Feed Study Questionnaire" was mailed to 1,103 livestock producers in the State as follows: 189 mailings to Kauai; 322 mailings to Oahu; 207 mailings

INTRODUCTION

to Maui; 29 mailings to Molokai and 356 mailings to Hawaii. Two mail-outs yielded 477 returned questionnaires.

Organization of the Report

The report is presented in four parts.

Part I includes an introduction to the study, some background on the livestock industry in Hawaii, and major findings and recommendations.

Part II presents the Bureau's findings and recommendations relating to feed requirements of the livestock industry.

Part III presents the Bureau's compilation of the three questionnaires mailed to Hawaii's livestock producers, four major feed dealers, and the various agricultural cooperatives.

Part IV contains the Appendices.

Chapter 2

HAWAII'S LIVESTOCK INDUSTRY — SOME FACTS AND PROBLEMS IDENTIFIED

Present Situation

The livestock industry continues to be the major contributor to Hawaii's diversified agriculture. Refer to *Figure 2.1*. As of December 31, 1974, the most recent period for which firm data are available, the value of livestock sales amounted to \$55,267,000.¹ This amount represents 66.5 percent of diversified agricultural marketing, or 20.9 percent of the total value of agricultural marketing (including sugar and pineapple). Refer to *Figure 2.2*. Oahu continues to be the largest producer of livestock and livestock products with a total farm sales value of \$29,636,000 followed by the islands of Hawaii, Maui/Molokai, and Kauai with \$17,487,000, \$5,441,000, and \$2,703,000, respectively.

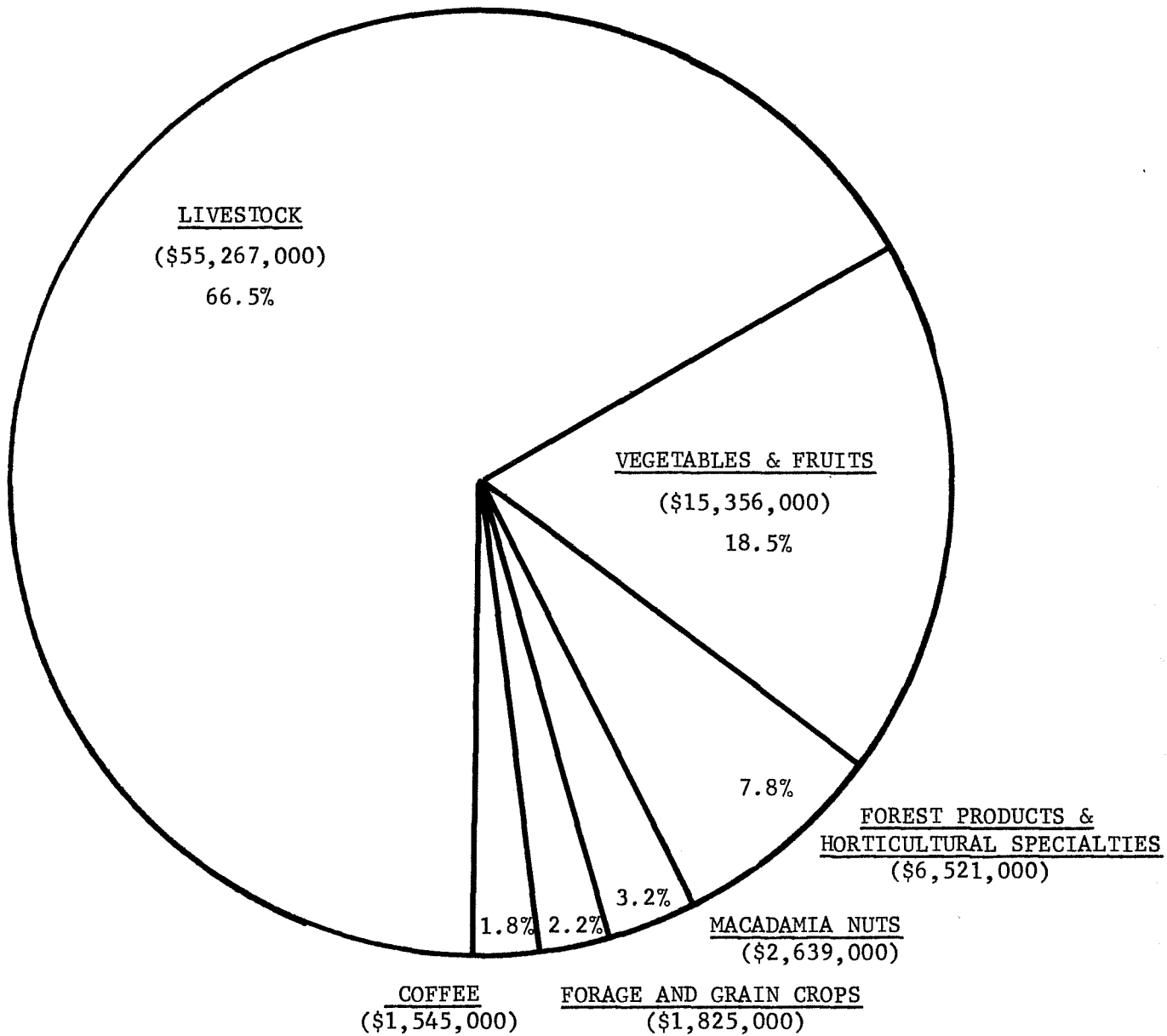
Cattle ranked first in 1973 in the value of livestock sales with \$19,831,000, followed by milk with \$16,472,000. Eggs, pork, and broiler meat followed in order with \$11,267,000, \$4,737,000, and \$2,856,000, respectively.² Oahu is the leading producer of milk, eggs, pork, and broiler meats. The Island of Hawaii leads in beef cattle production. Refer to *Figure 2.3* for a graphic display relating to the relative value and proportion of livestock production represented by the four major categories of livestock.

Hawaii produces all of the fresh milk and most of the fresh eggs it uses but slightly less than half the beef, about one-third of the pork, and about one-fourth of the poultry meat it consumes. Except for some grazing for beef cattle, practically all livestock feed must be imported, although efforts to produce a larger part of livestock feed and forage in the State are progressing.

Beef animals outnumber dairy animals by 11 to 1. Of the approximately 220,000 beef animals in Hawaii at the end of 1973, over three-fifths were located on the Island of Hawaii and one-fifth on Maui, principally because these two islands have more land suitable for pasture and grazing than do the other islands. The only large feedlot operation is on Oahu. Since little feed grain is grown in Hawaii, most of it is shipped in. Practically all beef produced in the

Figure 2.1

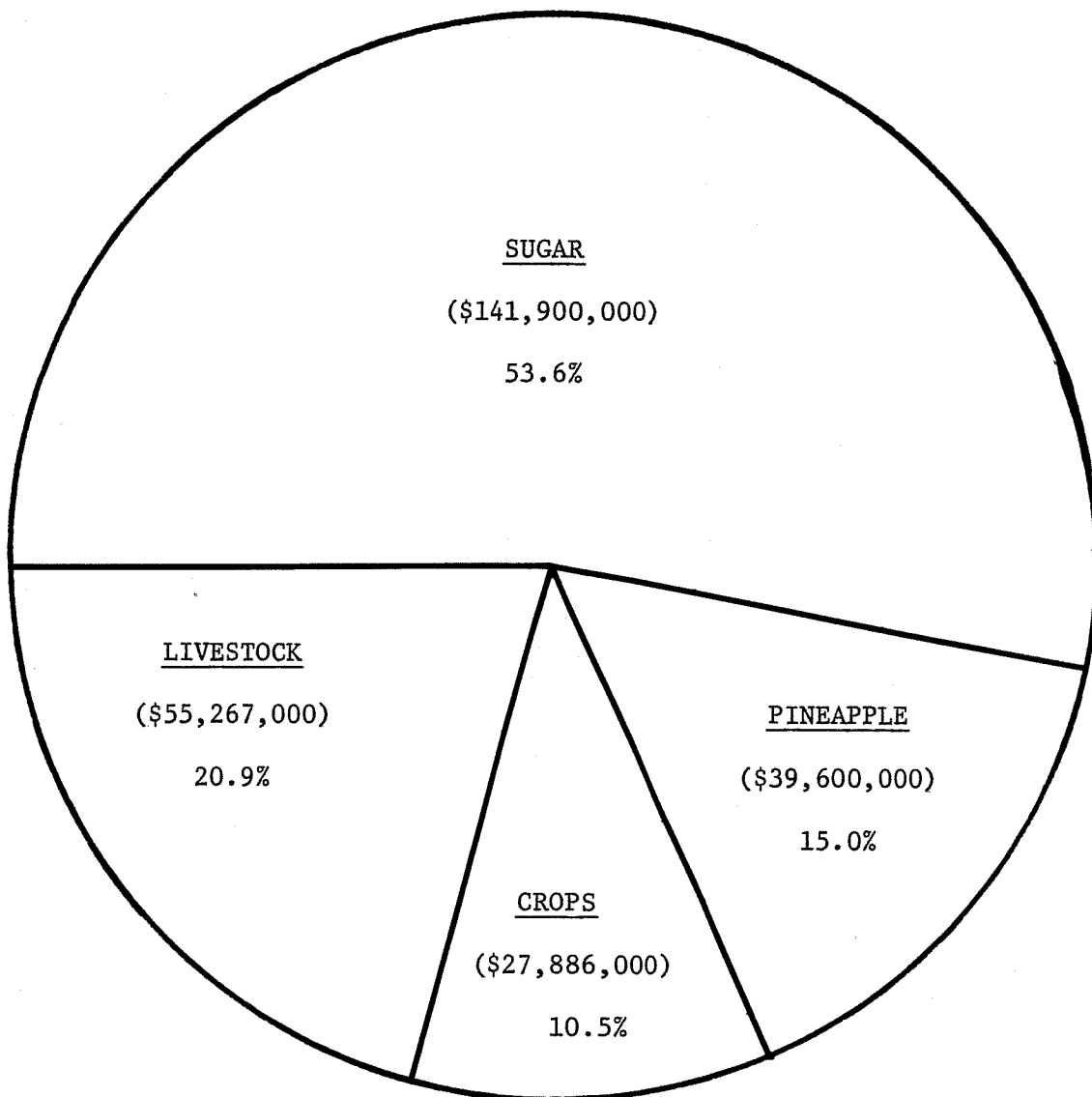
TOTAL VALUE OF DIVERSIFIED AGRICULTURAL SALES 1973



SOURCE: Actual figures of sales taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Statistics of Hawaiian Agriculture, 1973

Figure 2.2

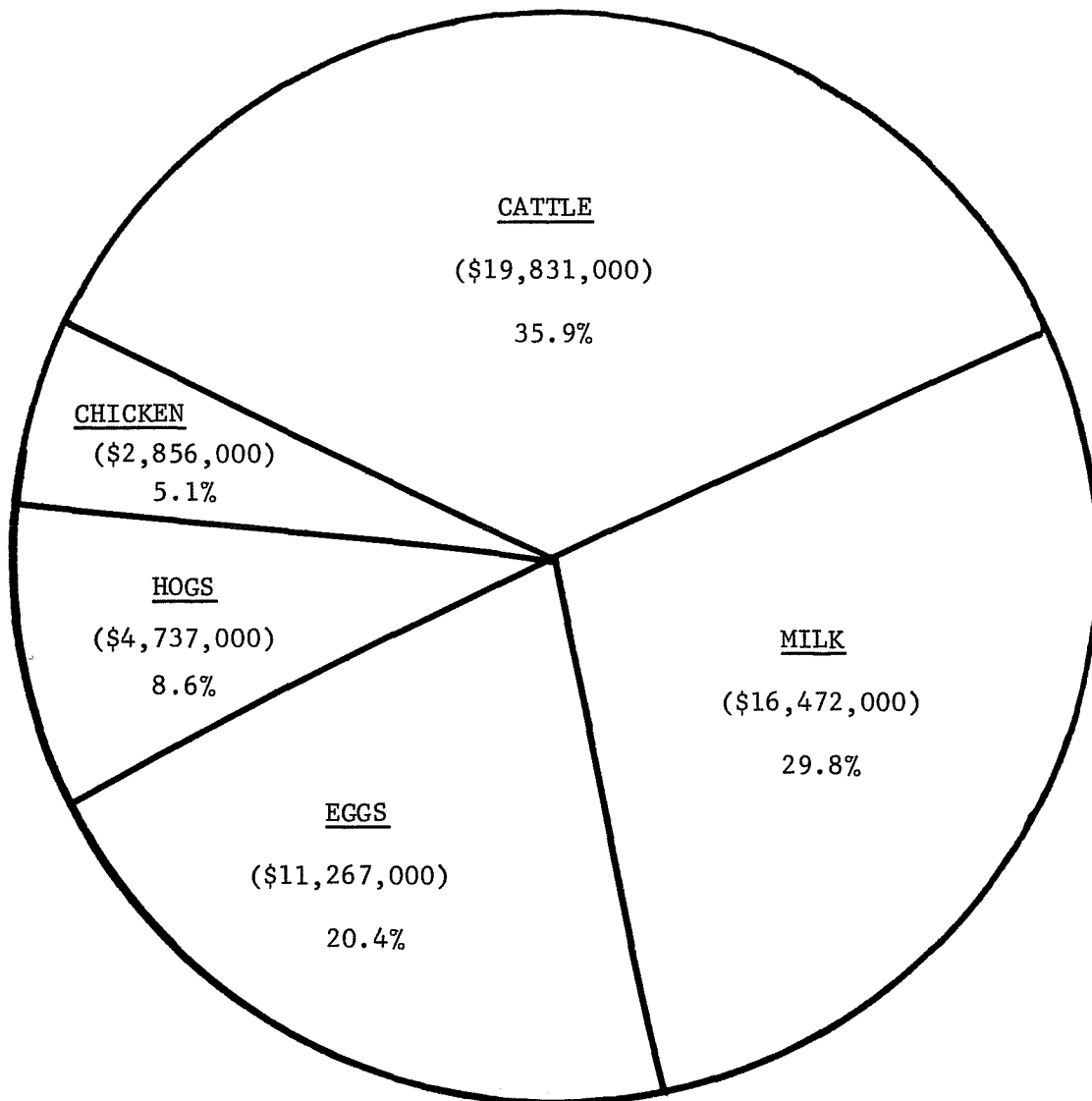
TOTAL VALUE OF CROP & LIVESTOCK SALES 1973



SOURCE: Actual figures of sales taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Statistics of Hawaiian Agriculture, 1973.

Figure 2.3

TOTAL VALUE OF LIVESTOCK SALES 1973



SOURCE: Actual figures of sales taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Statistics of Hawaiian Agriculture, 1973.

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State is consumed here and of the total beef consumed in the Islands, slightly more than half of the total consumed is imported.³

Most dairy animals are located on Oahu. Twenty-three of the State's total of twenty-nine dairies are on Oahu.⁴ Milk cows can be easily confined on Oahu and the proximity to Honolulu, the major market, is an advantage. Oahu is also the main location for hogs and pigs, although Hawaii and Maui have significant numbers. However, the State's production of pork is supplemented by almost twice as much shipped in from the Mainland.

Most egg-laying and broiler flocks are also located on Oahu near the Honolulu market, thus avoiding the expense of shipping broilers and eggs from other islands.

Beef Cattle Industry — Some Background and Present Situation

Of the State's total land area of 4,044,000 acres,⁵ the beef cattle industry in Hawaii utilizes 1,160,000 acres⁶ for cattle grazing. This represents approximately one-fourth of the total acreage within the State. In 1973, there were 470 commercial beef cattle enterprises in the State. The Island of Hawaii continues to maintain its rank as the most important beef cattle production area with about 47 percent of the total state production. The other islands in order of rank are Maui, Oahu, Kauai, and Molokai.

While the number of commercial ranches in Hawaii has declined from 580 in 1960 to 490 in 1970 and to 470 as of December 31, 1973, the number of cattle has increased. In 1960, there were approximately 181,000 beef animals in the State, of which Hawaii had 107,000 head; Maui 37,100; Kauai, 17,100; Oahu, 11,900; and Molokai/Lanai, 7,500. In 1973, beef animals in the State numbered 218,000 head.

Cattle Pen (Feedlot) Feeding — Some Background and Present Situation

At the present time, pen feeding of beef cattle is occurring on the islands of Oahu, Maui, and Hawaii.⁷ The largest operation is the Hawaiian Milling Corporation feedlot at the Campbell Industrial Park on Oahu. The remaining feedlot operations consist of two or three operations on cattle ranches on Oahu, three operations on Maui, and one on Hawaii. Best estimates are that the Hawaiian Milling

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Corporation feedlot currently represents about 80 percent of the State's total feedlot activity with the remaining feedlots handling the remaining 20 percent.

The feedlot at the Campbell Industrial Park was established in 1965, having moved there from a site closer to central Honolulu. In 1968, a feed mixing and storage unit was established with a storage capacity of 5,000 tons of bulk materials and 2,000 tons of grains. The storage has since been increased to a total storage capacity of 10,000 tons. The feedlot has a holding capacity for some 17,000 animals, although in recent years, the actual number of animals on feeding at one time has been estimated at approximately 14,000 animals. Based on the standard feeding period of 150 days, the feedlot has been able to average slightly in excess of two turnovers per year, thereby feeding somewhere in the vicinity of 28,000 to 30,000 beef cattle per year.

Animals continue to be received at the feedlot from all islands although in recent months, it is reported that high feed prices have forced certain ranches to curtail or reduce shipment of their animals to the feedlot in favor of pasture feeding. The feeding program is handled on a consignment basis whereby the ranchers own the cattle sent to the feedlot throughout the fattening period. Title passes upon slaughter. As noted in the Foreword of this report, feedlot operations on the Mainland have sustained severe losses in excess of \$2 billion in 1974. The price levels of grain-based feeds and other commercial feeds used at the feedlot will probably be the determining factor as to the number of animals so consigned.

Because of the high levels of almost all commercial feed, longer pasture feeding and a concomitant reduction from the standard 150-day feeding period to 90 to 120 days is seen as a developing trend which may continue for an indefinite period. The high price of feeds coupled with the recent announcement⁸ by the United States Department of Agriculture that it has established a new beef grading system which in effect means that the choice grade will be expanded to cover a substantial percentage of the graded beef which under the previous standard would have graded below the choice grade is expected to result in an overall reduction in the number of beef cattle sent to feedlots. The primary purpose of feedlot feeding has been to produce well-marbled choice grade beef.

The Implications of Pasture Land and Fertilizer

Based on the expected national and local trend toward longer pasture feeding, the importance of pasture feeding acquires special significance. In the opinion of several animal scientists at the University of Hawaii, the future viability of Hawaii's beef cattle industry will be significantly affected by the ability of Hawaii's rangelands to meet the challenge of heavier feeding requirements in the months and years ahead. This observation is supported by the National Livestock and Meat Board whose prediction is that in the coming months as much as 30 percent of beef will be grass-fed, compared with about 18 percent in recent years.⁹

While the acreage devoted to rangeland is quite substantial (approximately 1,160,000 acres), the anticipated trend toward longer pasture feeding suggests the need for either additional rangelands or improvements of existing acreages. The State's rangelands need improvement in two areas--better fertilization programs and better weed and brush control. There is great variation within the State and within a given pasture as to animal carrying capacity. The carrying capacity varies from the capacity of our better pasture lands to support one animal unit (a 1,000 pound beef animal) per year on one acre to upwards of 30 acres for one animal unit on poorer pasture lands.¹⁰

A mature range animal (generally 18 months or older) consumes about 100 pounds of grass per day. This is equivalent to a requirement of 3,000 pounds a month per animal. Because approximately one-half of edible grass becomes inedible due to animal trappings and spoilage as a result of manure droppings, the total amount of grass required to adequately sustain one animal unit per month is approximately 6,000 pounds.

Most of the current rangelands depend upon rainfall and as such do not require irrigation. Kikuyugrass and Pangolagrass, two of the best pasture grasses in terms of suitability to Hawaiian soil, climate and nutritional value, do well in most areas of the State and particularly well in moderate rainfall areas. A new strain of Pangolagrass which has been tested at the Mealani Experimental Station, University of Hawaii in Kamuela, Hawaii is about to be released to the cattle industry for planting.¹¹ This new variety is especially well-suited for lands at higher and cooler elevations and areas with short daylight periods.

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Another element of pasture management that bears note is that of forage conservation. The stocking of range cattle is based on the lowest production of forage. In other words, a rancher can only stock as many animals as his lowest forage capacity will allow. When forage growth is at high levels, the animals are unable to consume all the grass and as a result, waste results. Excess grasses can be cut and baled and made into hay, and stored for future use as feed. However, harvesting and haymaking among other things require expertise and capital, before haymaking can become a standard practice.

Fertilizer Requirements, Costs, and Some Facts

Fertilizer is a major factor in pasture improvement. The cost of urea, a petroleum derivative, has increased by more than 300 percent over the past several years. Its cost in 1972 was approximately \$80 per ton. Today, its cost is approximately \$300 per ton. Animal manure contains urea and has been considered as a source of fertilizer for pasture lands, but it is of low nitrogen content. For example, a hundred pound bag of animal manure contains only about 1 percent nitrogen as compared to 42 percent in a similar amount of urea.

While an increased need for fertilizer is foreseen, the high cost of fertilizer and predicted shortages in supply may impede the efforts of local cattlemen from undertaking a rangeland fertilization program that will adequately meet forage production needs over the next several years. The world nitrogen fertilizer supply and demand projection prepared by an agronomist at the Tennessee Valley Authority shows that total demand will exceed supply until late 1977.¹² Refer to *Figure 2.4*.

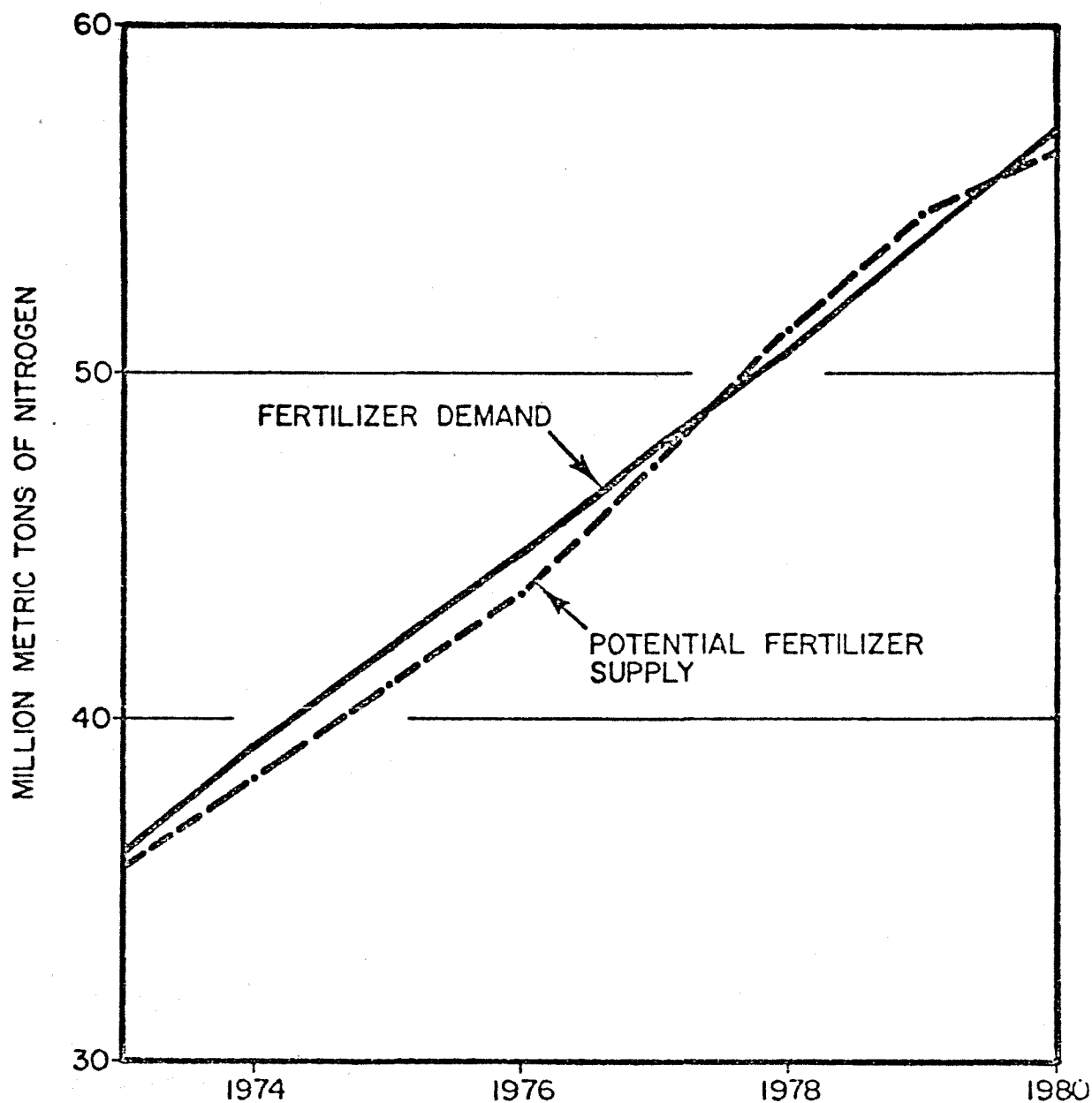
Dairy Industry — Some Background and Present Situation

At the present time there are 29 dairies in the State. Twenty-three are on Oahu, four on Hawaii and one each on Kauai and Maui. All of Hawaii's dairies are Class A dairies, i.e., processing primarily fluid milk with small amounts of cottage cheese and ice cream products.¹³

Hawaii's dairy production has become highly specialized and efficient in recent years with the introduction of modern techniques. Over 90 percent of Hawaii's dairy cows

Figure 2.4

WORLD NITROGEN FERTILIZER
SUPPLY-DEMAND SITUATION
1973-1980



SOURCE: The World Fertilizer Situation - A View of the Present and a Look to the Future, by John T. Shields, Tennessee Valley Authority, Muscle Shoals, Alabama, paper presented at Planning and Organization Meeting of the INPUTS Project, Honolulu, Hawaii, October 21-25, 1974.

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are bred artificially as compared to the United States average of 48.6 percent. Hawaii also leads the nation in the percentage of its cows participating in the Dairy Herd Improvement Association program (DHIA), a national program designed to improve the performance of dairy animals. Of Hawaii's 13,000 dairy cows, 79 percent are in the program as compared to the national average of some 30 percent. In brief, the program in Hawaii operates as follows: the State (Hawaii) Dairy Herd Improvement Association, a private organization, with the cooperative assistance of the University of Hawaii, College of Tropical Agriculture, Cooperative Extension Service, assists the dairy industry in collecting various information relating to the volume and quality of milk production, breeding performance, etc. Data so collected are sent to the DHIA in Provo, Utah, for computer processing. In turn, information is sent back to Hawaii by the DHIA for the ultimate use of the dairy industry.

Feeds and Feed Ingredients Used in the Dairy Industry

The typical ration for dairy cows consists of concentrates, roughages, and minerals. Concentrates are feeds that are relatively high in energy and low in fiber. Concentrate feeds also include high protein supplements such as cottonseed oil meal and soybean oil meal. Roughage feeds are feeds that are high in fiber and low in energy. Roughage is needed to produce the levels of butterfat needed for high quality milk. While the standard roughage feed is alfalfa, pineapple by-products such as pineapple bran and pineapple greenchop have been used as substitutes. In addition, "Sudax", a hybrid of sorghum and Sudan grass, has been grown at Kahuku, Oahu, on former sugarcane lands and its use as a roughage has shown good results.

Dairy Cow Feed Costs

Up to about two years ago, feed represented about 48 to 50 percent of the cost of producing milk. Feed now represents between 50 to 60 percent of milk production.¹⁴ Grain-based dairy feed prices have shown a slight downward trend beginning in late 1974 but the current instability of the grain market makes any meaningful prediction of price levels a difficult, if not impossible, task.

Alternative Feed Resources for Dairy Animals

Nationally and locally, it is predicted that more and more reliance will be placed upon pasture and other roughage sources for feeding dairy animals. While on a per pound basis, more roughage will be needed than grain-based feed in milk production, the quality of milk is not reduced by larger amounts of roughage intake.¹⁵

Need for Feed Storage Facilities

As a rule, Hawaii's dairymen are progressive and highly efficient, and Hawaii's dairy operations rank among the very top in the nation.¹⁶ Viable and progressive as it is, there are some problems confronting the industry which must be solved to maintain the industry's stability. A common concern cited by a number of dairymen participating in this study was the need for adequate supplies of low cost roughage feed. Various pineapple by-products such as pineapple bran and pineapple greenchop are desired by local dairymen, even though their feed value is below that of alfalfa because local by-products are less expensive than alfalfa and because of the opinion of many dairymen that imported alfalfa marketed in Hawaii is of inferior quality.¹⁷

Some good news for the dairymen on Oahu is the recent decision of the Del Monte Corporation¹⁸ to allow dairymen members of the Oahu Dairy Co-op and the 50th State Dairy Co-op to harvest pineapple greenchop on 150 acres of its 1,500 available acres on Oahu. An agreement has been worked out whereby for a 60-day trial period, the Oahu dairymen, at a charge of \$65.00 per acre, will be allowed to harvest the pineapple plant for use as greenchop feed. Reportedly, the milk producers have purchased \$45,000 in harvesting equipment and began harvesting in February 1975. Both parties will evaluate their costs after the 60-day trial period to determine the feasibility of continuing the agreement. Prior to this agreement, only Dole Company has been providing greenchop to the dairy industry.

Presently, because of the lack of adequate storage facilities for roughage materials, usable locally grown roughages, including pineapple by-products and other grain products such as "Sudax", are not being used to their fullest potential. The availability of adequate storage facilities should be of material and significant importance toward the goal of aiding not only the dairy industry but other segments of the livestock industry as well.

Poultry Industry — Some Background and Present Situation

The poultry industry in Hawaii, like that in many other states, is presently comprised of the chicken egg and chicken meat segments. Although large duck and small turkey farms were in existence in Hawaii prior to and immediately after World War II, none exists today largely because of the high cost involved in their production and/or lack of adequate markets for these two products.¹⁹

Except for a few feed ingredients, such as tuna fish meal and meat and bone meal, the industry in Hawaii is totally dependent on imports of feed grains and other feed-stuffs, as well as mixed feeds, although some grain sorghum produced on Kauai several years ago has been used as feed.

Similar to the situation in feeds, the local industry until relatively recently, has been almost entirely dependent on acquiring hatching eggs or chicks from the Mainland. With the advent of pullet farms in Hawaii, the poultry producers are now able to negotiate contracts with the operators of these farms for the purchase of replacement pullets at 16 to 18 weeks of age. These farms are presently capable of supplying between 70 and 80 percent of the pullet replacements required by the egg industry in Hawaii.²⁰

During the past 10 years, there has been a marked reduction in the number of both egg and broiler farms in Hawaii. In 1964 there were 660 and 39 egg and broiler farms respectively in the State. By 1973, the numbers had dropped to 80 and 15 respectively.²¹ During this same period, however, the total volume of both egg and chicken meat production increased. In 1963, 188,000,000 eggs were produced as compared to 208,000,000 in 1973--an increase of 10.6 percent in production. Similarly, in the case of chicken meat production, there was an increase from 1,958,000 birds marketed in 1963 to 2,315,000 in 1973--an increase of 18.2 percent. A closer look at the two types of chicken meat products reveals that broiler production increased in marketings from 1,412,000 birds in 1963 to 1,915,000 birds in 1973 whereas, other chicken meat (primarily spent hens) decreased from 546,000 birds in 1963 to 410,000 birds in 1973.

Presently, Oahu is the major producer of poultry products in the State. Data reported in *Statistics of Hawaiian Agriculture, 1973*, show that of the 208,000,000 eggs produced in Hawaii in 1973, Oahu production accounted for 167,500,000 or 80.5 percent of the State's total. The other islands in

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

order of volume of egg production are Hawaii with 23,500,000; Maui/Molokai with 9,500,000; and Kauai with 7,600,000.

Oahu is also the leader in chicken meat production in the State. Of the State's total of 2,325,000 birds marketed in 1973, Oahu's share of the marketings was 2,112,000 birds or 90.8 percent of the total.²²

Alleged Monopoly in Egg and Poultry Production in Hawaii

During interviews conducted throughout the course of this study, the names of several business entities recurred with respect to the egg and poultry industry. The information furnished centered on the allegation that several major feed firms in the State were directly involved in egg and broiler production and as such enjoyed an unfair and possibly illegal competitive advantage. The term "monopoly" was frequently used by the interviewees in describing the consequence of the involvement of the feed firms in the poultry industry. The interviewees offered the further opinion that while many people in the poultry and feed industry have been aware of the "problem" for a number of years, no formal complaints have been made for fear of reprisal.

Because of the serious nature of the allegation, a check of the named firms was made into official exhibits on file with the Department of Regulatory Agencies. The following was disclosed by our investigation.

The Carnation Company is incorporated in Delaware, with main offices in Los Angeles, and is registered to do business in Hawaii. Its local office is listed as 701 North Nimitz Highway, Honolulu, Hawaii. The articles of incorporation of Carnation Company state that its principal business is to produce, manufacture, process and buy and sell food products for human and animal consumption as well as to engage in activities incidental thereto. At the time of registration in Hawaii on December 28, 1960, Carnation Company declared assets in the State of a value of \$847,859, composed of real estate and improvements, fixtures, and inventory. The legal representative of the company in Hawaii is a trust company.

The Albers Milling Company withdrew from doing business as a separate entity in this State in 1961, soon after Carnation entered into doing business. It is noted, however, that both Albers and Carnation list the same corporate Mainland address, 5045 Wilshire Boulevard, Los Angeles, California, and the same local address, 701 North Nimitz Highway.

HAWAII'S LIVESTOCK INDUSTRY

Although Albers officially withdrew from doing business, it is still listed as such in the telephone directory. A reasonable inference is that Carnation is operating under the name of Albers.

Various local products marketed under the "Hawaiian Maid" label are pursuant to a trade name registration by Carnation made on May 17, 1965. The trade name "Eggs Hawaii" is also a Carnation registration as of May 12, 1969.

A third entity, Hawaiian Grain Corporation, with an address at 701 North Nimitz Highway, was incorporated in Hawaii on August 22, 1958. Its original officers and directors were members of a local law firm which drafted the legal documents for incorporation. The articles state in very general terms that the corporate purpose is to engage in the business of "receiving and storing bulk materials". The original stock of the corporation was valued at \$200,000, divided into 200 common shares at a par value of \$1,000 a share. Initially there were only two shareholders: Albers Company, 120 shares, and Oahu Railway and Land Company, Limited, 80 shares. Presently, as disclosed by the latest corporate exhibit on file as of December 31, 1973, there is only one shareholder whose identity is unknown since Hawaii law does not require disclosure in this instance. However, a comparison of the names of the officers and directors of Hawaiian Grain Corporation and Carnation Company discloses three officials who are either officers or directors of both firms.

A fourth business entity is Pacific Poultry Company, Ltd., a Hawaii corporation incorporated on April 29, 1955, for the purpose of owning, renting, leasing, operating, and furnishing services pertinent to the maintenance and operation of poultry processing plants and to engage in the general business of processing and distributing all types of poultry and livestock products. Pacific Poultry markets chicken under the "Ewa Brand" label.

Originally capitalized at \$20,000, although authorized capitalization is \$150,000, the company has increased its issued stock to \$50,000 and \$100,000 on July 17, 1956, and May 9, 1968, respectively. The 10,000 shares, \$10 par, presently outstanding are owned by twelve shareholders.

Comparison of the names of officers and directors of Pacific Poultry Company, Ltd. discloses that one major shareholder, who is also an officer and director of the company, is an officer and director of Hawaiian Grain Corporation.

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

Conclusion and Recommendation

The nature and recurrence of the complaints of interviewees together with the management structure of the business as disclosed by the official records suggest that there may be some basis to the complaint of possible violations with reference to Section 480-8, Interlocking Directorates, Hawaii Revised Statutes, and other provisions of Chapter 480, Hawaii Revised Statutes.

Accordingly, the Bureau recommends that the Attorney General of the State of Hawaii be requested to further investigate the "complaint" at hand to determine whether the provisions of Chapter 480, Hawaii Revised Statutes, or other applicable laws have been violated. Irrespective of whether violations can in fact be established, a major purpose which will have been achieved by such an investigation will be a "clearing of the air" on this matter.

Swine Industry — Some Background and Present Situation

Swine operations in Hawaii are basically specialized, intensive, confinement in nature, family owned and operated. Generally, they fall into three types of enterprises: (1) sow herd (raising pigs to market weight); (2) sow herd (raising and selling feeder pigs at 80-pound weights); (3) non-sow herd (purchasing and raising 80-pound feeder pigs to market weight).²³

A trend in the State's swine industry in recent years has been toward a reduction in the number of swine producers, hog numbers, and total production of local pork. During the ten-year period, 1963 to 1973, there was a 48.1 percent decrease in the total number of hog farms from 1,040 farms in 1963 to 540 in 1973.²⁴ During the same period, there was a reduction in total dressed weight production from 8,624,000 pounds in 1964 to 7,433,000 pounds in 1973--a decrease of 13.8 percent.

Approximately 70 percent of the pork production in the State occurs on Oahu. The level of market production on the neighbor islands is basically geared for local consumption on the specific island, with the exception of one relatively large pork producer on Maui whose products are marketed on Oahu. There is some sporadic movement of feeder pigs from Hawaii and Maui to Kauai subject to fluctuations in the supply of this type of animal.

HAWAII'S LIVESTOCK INDUSTRY

Generally speaking, the pork produced locally is marketed at a liveweight of about 185 pounds and is sold "hot" without chilling. The animals are slaughtered in the early morning and delivered to the retail outlets the same morning. Cutting procedures tend to vary from Mainland standards. Much of the pork is cut "Hawaiian style", and practically all is sold fresh, except for some that is processed and sold as kalua pig, Chinese roast pork, sweet pork, etc.

Feeds and Ingredients Used in Local Swine Production

Three basic types of feed rations are used for swine production: (1) all grain; (2) all garbage; and (3) combination garbage and grain. Swine rations contain energy ingredients (grain or grain by-products such as corn, sorghum, barley and middling and molasses); protein ingredients (soybean oil meal, cotton seed meal, fish meal, meat and bone meal, etc.); and minerals and vitamins. Producers who use a lot of garbage must use protein supplements.

Contrary to popular belief, garbage feeding is not necessarily less expensive than grain-based feeding. Wet garbage used in the moderate-to-large sized operations, depending on source, may have to be purchased. In addition, there are additional costs of labor, capital investment in trucks, garbage processing equipment, etc., on the part of producers using garbage.

Regardless of the type of feed used, the manager rather than the system often determines the success of the swine enterprise. A high level of performance or efficiency can partially offset the cost disadvantages of any particular type of feeding system. In addition, advantages from the use of new technology in hog production tend to be associated with the larger size operations, and the operator must possess a high level of ability to benefit from these advantages.

Major Problem Confronting the Swine Industry

A large percentage of the locally produced pork is sold as hot (unchilled) pork, and there appears to be a set demand for this product. The principal consumers of hot pork are older persons of Oriental ancestry and certain other ethnic groups from the Pacific area. Knowledgeable local experts have predicted that once the demand level for hot pork is reached in the near future, if not already, expansion of the swine industry will be effectively constrained

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

by what will be an increasingly smaller percentage of the State's total populace consuming hot pork.

Retention of its current share of the total pork market in Hawaii or potential for expansion of the market share can probably only occur with innovative and attractive specialty products of premium quality for which a stable market can be developed.

Supply and Demand Projections for Livestock Products

Projections for the demand of livestock products in Hawaii through 1985 recently prepared by the Hawaii State Department of Agriculture²⁵ show that total demand for beef, veal, and chicken meat will continue to increase. These increases in demand will be partly due to the increase in per capita consumption of animal proteins and to the increase in population. Refer to *Figures 2.5, 2.6, 2.7, 2.8, and 2.9* for charted displays of market projections through 1985. The aforementioned projections are based upon the State Department of Agriculture's projected statewide population of 938,000 persons by 1980 and 1,093,000 persons by 1985. Refer to *Figure 2.10*.

While Hawaii's producers are expected to expand their production due to the rise in demand, the current need for imports from the Mainland will not be reduced. As a general rule, imports will continue to supply a major share of total demand.

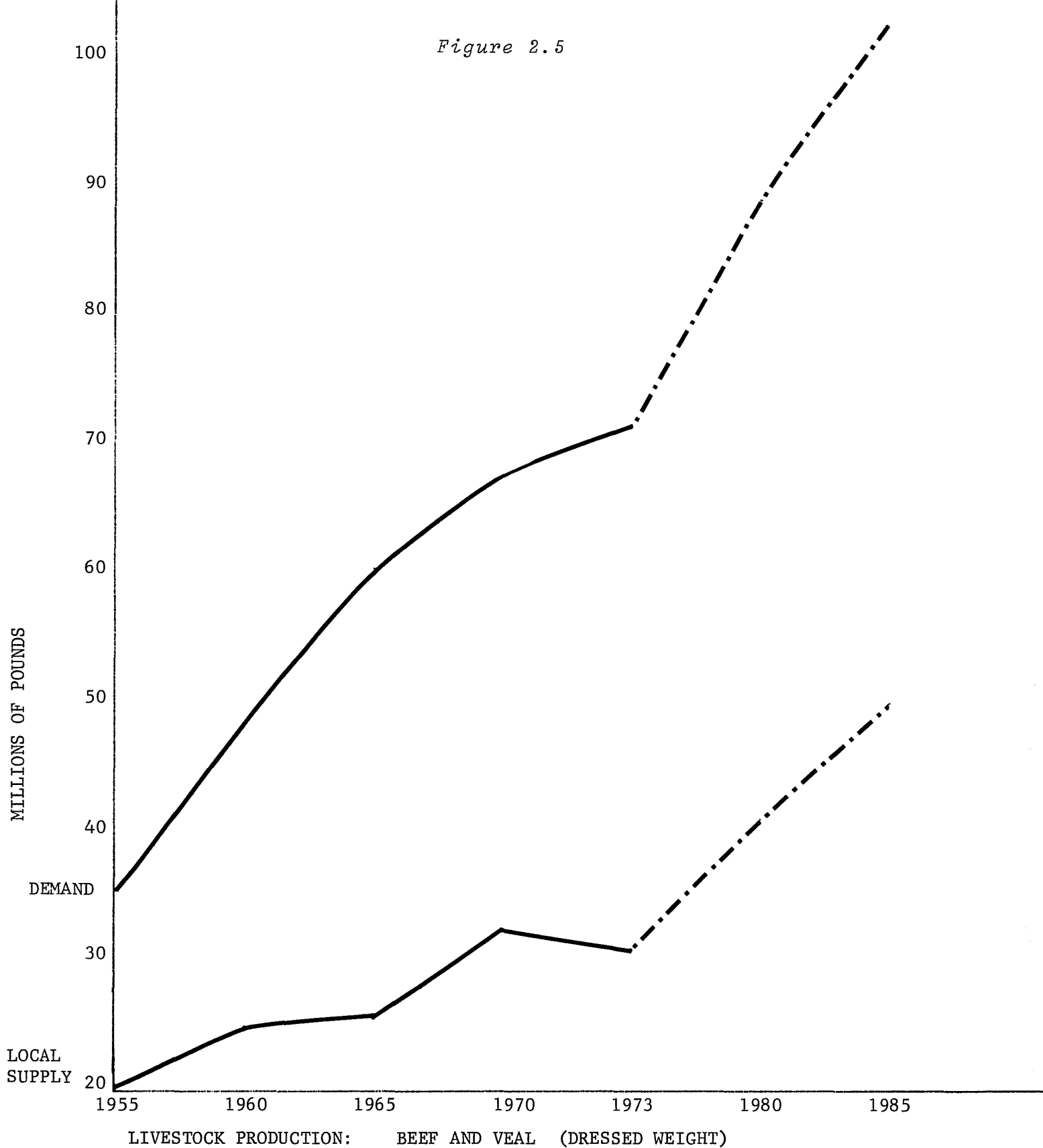
The demand for eggs and milk will not increase significantly with increasing population. Therefore, Hawaii's production is expected to remain generally constant for these two products.

The demand for pork will continue upward but imports are expected to increasingly satisfy the demand for chilled and frozen pork.

Conclusions Relating to Market Supply and Demand Projections

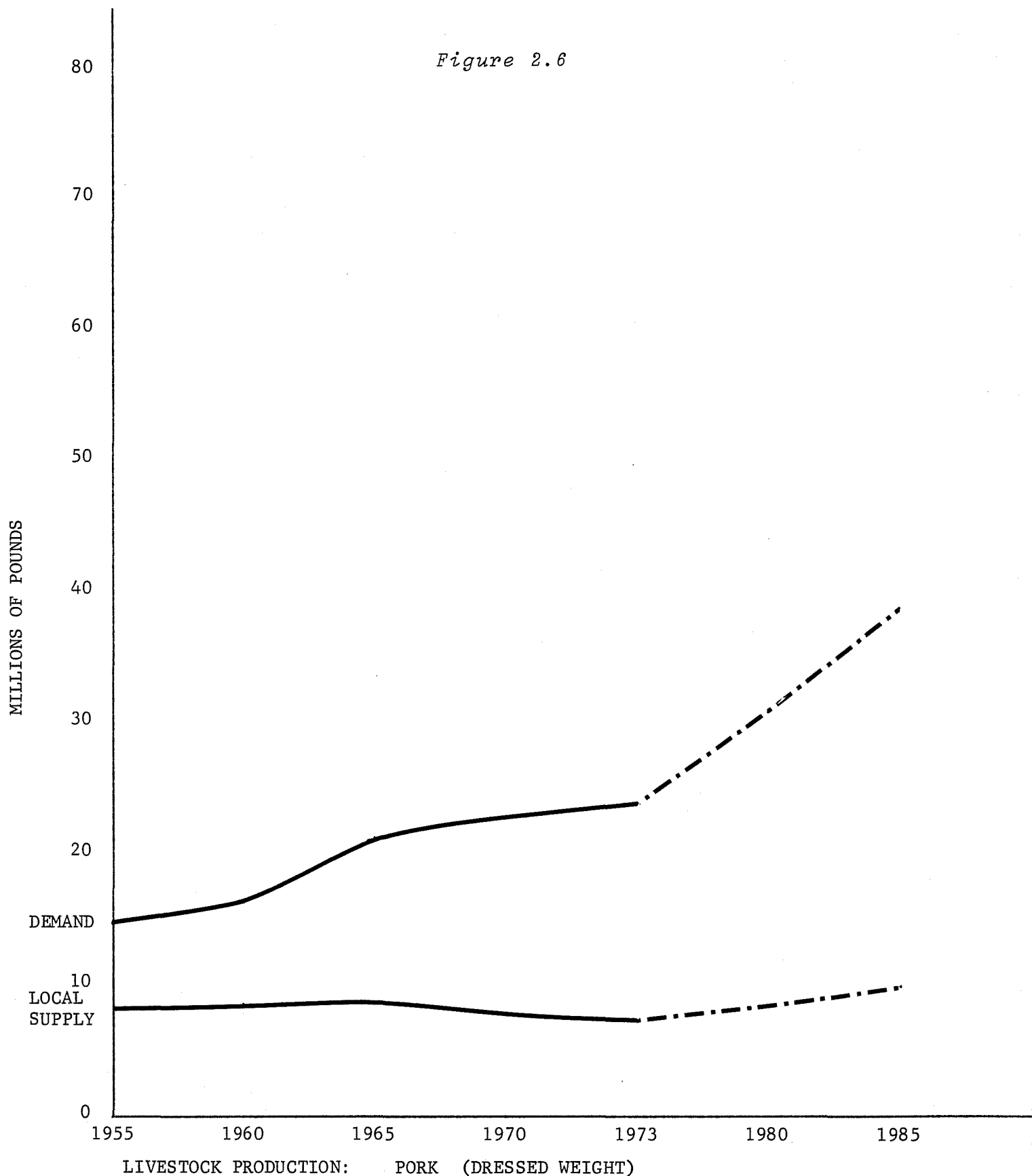
Assuming future growth in local supply reflects historic trends, then the relative share of the total demand projected to be met by local production for the livestock commodities in 1985 will be as follows: (1) for beef and veal, 50 percent; (2) for chicken meat, 9 percent; (3) for eggs, 95 percent; (4) for milk, 95+ percent; and (5) for pork, 26 percent.

Figure 2.5



SOURCE: Actual figures of market supply and demand taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Statistics of Hawaiian Agriculture (1955-1973). Projected figures for 1980 and 1985 adapted from the Hawaii State Department of Agriculture Budget Presentation before the Senate Committee on Ways and Means, January 23, 1975. Projected demand based on a growth rate of 3.0% compounded annually. Projected supply based on a growth rate of 4.0% compounded annually.

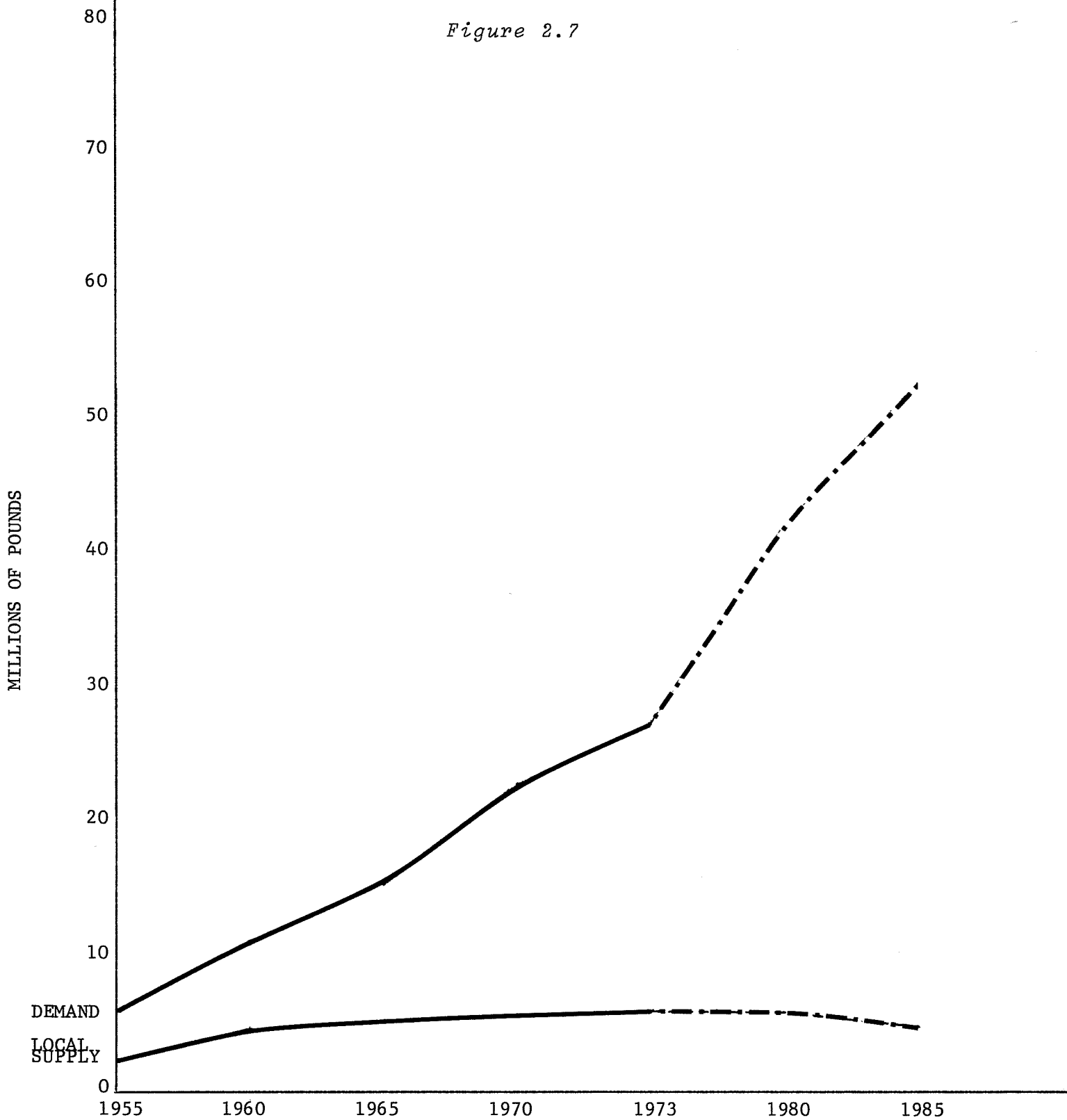
Figure 2.6



LIVESTOCK PRODUCTION: PORK (DRESSED WEIGHT)

SOURCE: Actual figures of market supply and demand taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Statistics of Hawaiian Agriculture (1955-1973). Projected figures for 1980 and 1985 adapted from the Hawaii State Department of Agriculture Budget Presentation before the Senate Committee on Ways and Means, January 23, 1975. Projected demand based on a growth rate of 4.1% compounded annually. Projected supply based on a growth rate of 3.0% compounded annually.

Figure 2.7

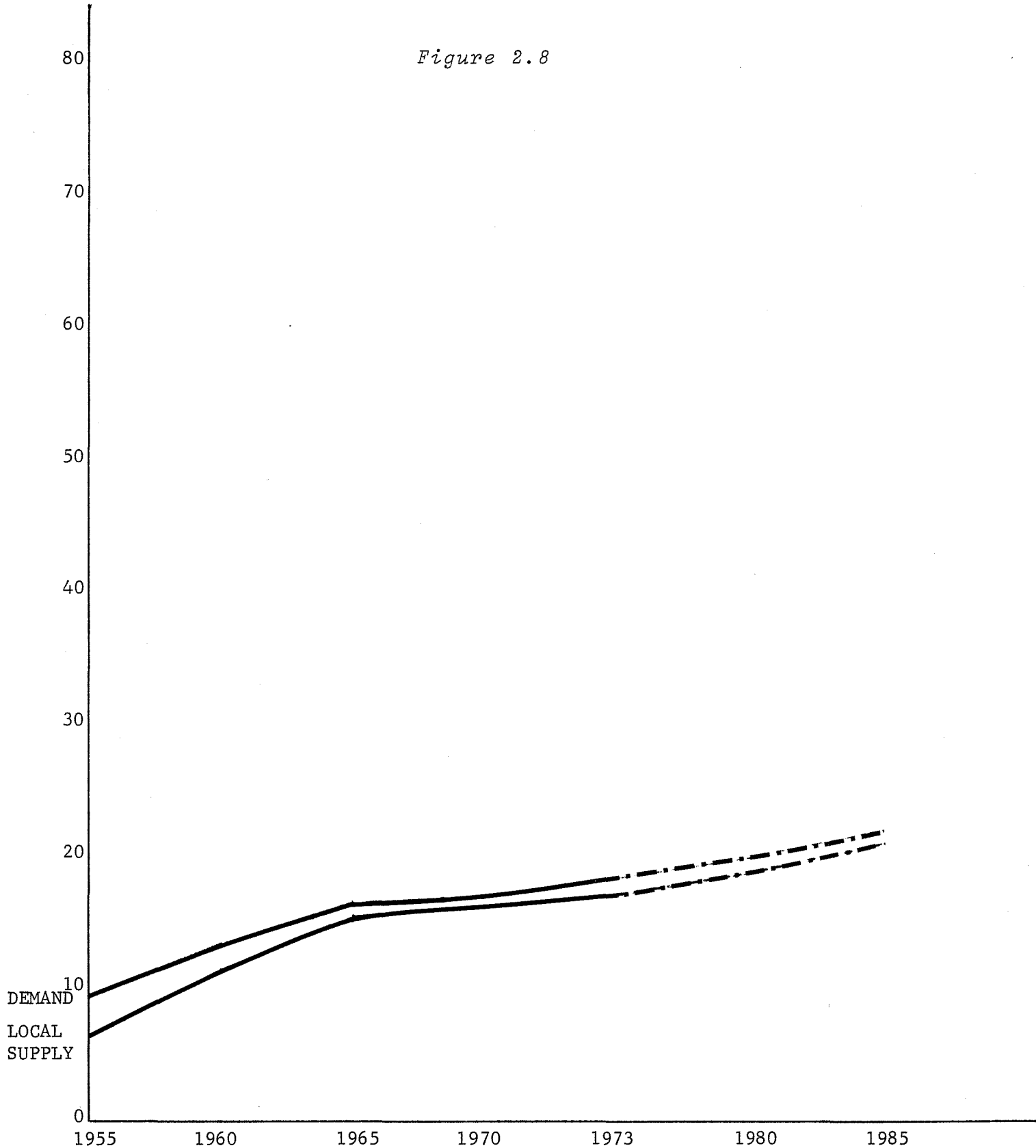


LIVESTOCK PRODUCTION: CHICKEN (DRESSED WEIGHT)

SOURCE: Actual figures of market supply and demand taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Statistics of Hawaiian Agriculture (1955-1973). Projected figures for 1980 and 1985 taken from the Hawaii State Department of Agriculture Budget Presentation before the Senate Committee on Ways and Means, January 23, 1975.

Projected demand based on a growth rate of 5.5% compounded annually.
Projected supply based on a growth rate of 0.0% compounded annually.

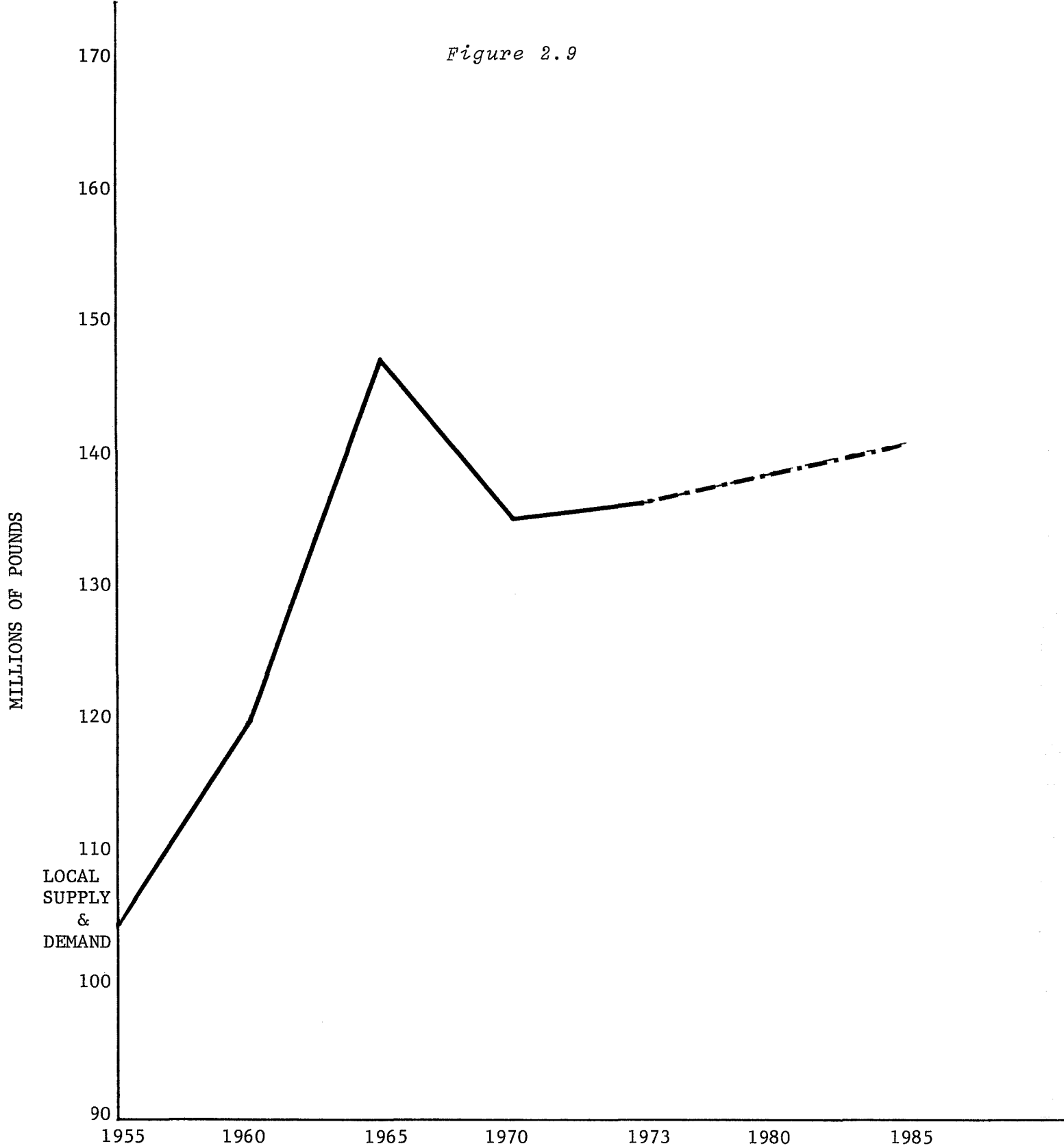
Figure 2.8



LIVESTOCK PRODUCTION: EGGS

SOURCE: Actual figures of market supply and demand taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Statistics of Hawaiian Agriculture (1955-1973). Projected figures for 1980 and 1985 taken from the Hawaii State Department of Agriculture Budget Presentation before the Senate Committee on Ways and Means, January 23, 1975. Projected demand based on a growth rate of 1.2% compounded annually. Projected supply based on a growth rate of 1.8% compounded annually.

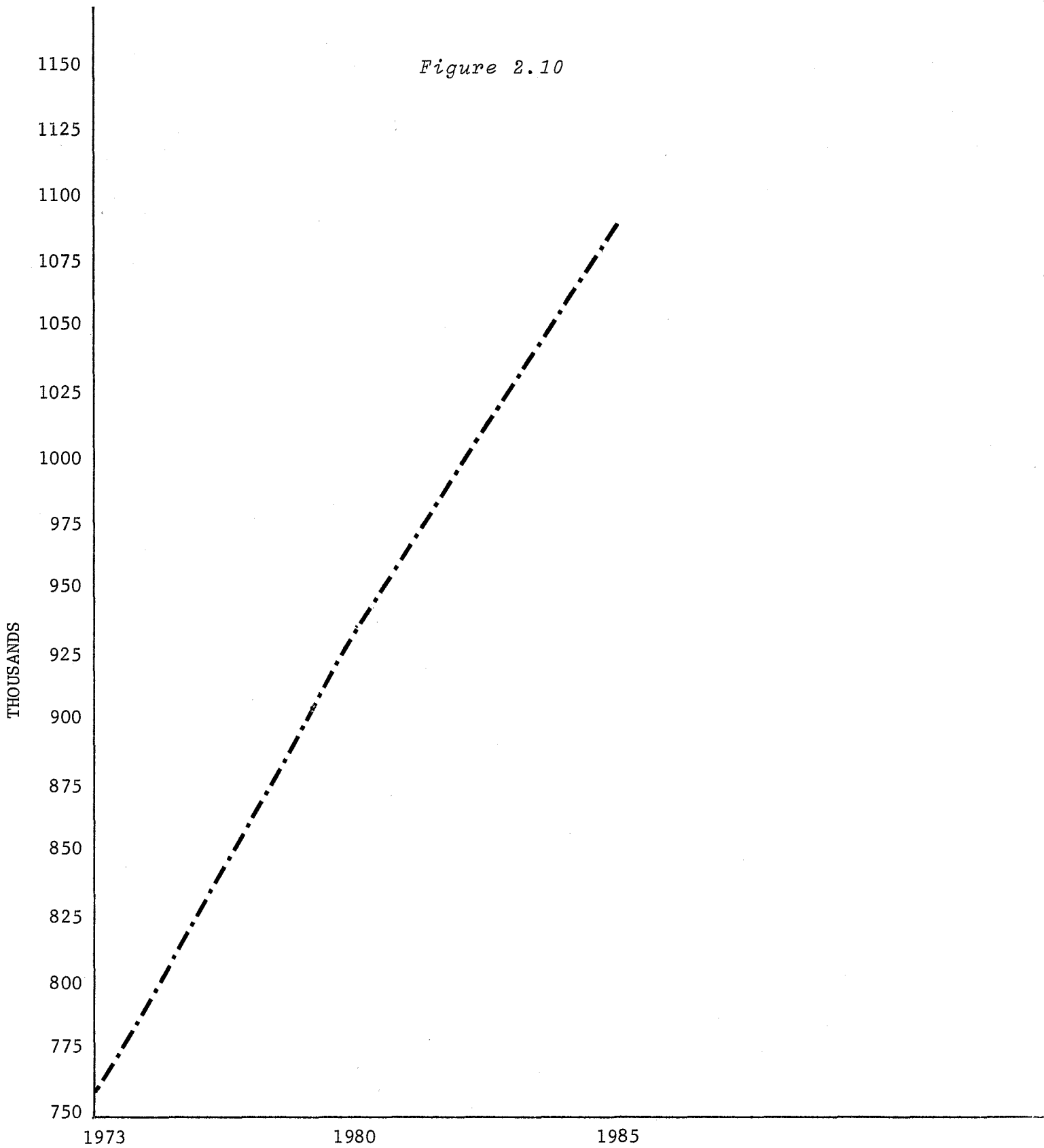
Figure 2.9



LIVESTOCK PRODUCTION: MILK

SOURCE: Actual figures of market supply and demand taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Statistics of Hawaiian Agriculture (1955-1973). Projected figures for 1980 and 1985 taken from the Hawaii State Department of Agriculture Budget Presentation before the Senate Committee on Ways and Means, January 23, 1975. Projected supply and demand based on a growth rate of 0.3% compounded annually.

Figure 2.10



POPULATION PROJECTION FOR THE STATE OF HAWAII

SOURCE: Actual figures taken from the Hawaii State Department of Agriculture Budget Presentation before the Senate Committee on Ways and Means, January 23, 1975.
Projections based on a growth rate of 3.1% compounded annually.

HAWAII'S LIVESTOCK INDUSTRY

Summary

The livestock industry in Hawaii consisting of the beef cattle, dairy, swine, poultry, and apiary (bee) industries represents the major segment of Hawaii's diversified agricultural industry. As of December 31, 1973, of the total value of diversified agricultural sales in the State of \$83,209,000, livestock sales represented \$55,323,000 or 66.5 percent.

The value of each category by dollar value of sales is as follows: (1) beef - \$19,831,000; (2) fluid milk - \$16,472,000, (3) shell eggs - \$11,267,000, (4) pork - \$4,737,000, (5) broiler meat - \$2,856,000, and (6) beeswax and honey - \$56,000.

Oahu is the leading producer of all livestock products, except for beef cattle in which Hawaii is the leader.

Trends over the past decade show a steady decline in the number of livestock farms. However, production has generally showed an upward trend. Feed costs are the major cost items in all livestock categories representing between 50 to 75 percent of the total cost of animal production.

Market projections show that imports are expected to increasingly satisfy demand. The greatest potential for growth appears to be in the local beef cattle industry.

Chapter 3

SUMMARY OF MAJOR FINDINGS AND RECOMMENDATIONS

Principal Finding

The principal finding of the study is that problems confronting Hawaii's livestock producers are the result of or relate to four basic factors: (1) national and international factors over which Hawaii's livestock producers have little or no control; (2) problems which are unique to livestock producers in the State over which they have little or no control; (3) problems which are amenable to solution by local initiative but which will require both short-term and long-range support from the state and local governments; and (4) problems which are amenable to solution by concerted and affirmative action by the producers themselves.

National and International Factors Affecting Livestock Production

The forces of supply and demand at play in the feed grain industry is now one of an international nature. In addition, the growing international concern over the predicted mass worldwide food shortages in the foreseeable future has given rise to the major issue of whether the focus of grain production should be shifted from feed grains to food grains. World demand for food because of rising world population and marginal improvements of living standards in certain countries is increasing by 30 million tons per year. The world's population is growing at a rate of 2 percent a year while at the same time there is a rising demand for richer animal protein diets in the more developed countries. In a recent special report prepared by the Subcommittee on Department Operations of the Committee on Agriculture, House of Representatives, United States Congress, several major conclusions having worldwide impact were reached. The Subcommittee concluded that "...unless present trends in population growth and food production are significantly altered, a food crisis that will have the potential to affect everyone from every walk of life will hit with more impact than the energy crisis of 1973-1974. Unfortunately, most of the citizens of this and every country of the world are yet unaware of the phenomenal problem that looms on the horizon, and if the hearings held by the Subcommittee and this follow-up report can serve to make people

SUMMARY OF MAJOR FINDINGS AND RECOMMENDATIONS

at least aware of what the statistics show we are headed for, our goal will have been achieved...."¹

One conclusion which can be reached is that there will very likely be increased international pressures placed upon the major grain exporting countries--the United States, Canada, and Australia--to increase the production of food grain crops. Should such an eventuality in fact materialize, the key question that emerges is the ability of the grain producing countries to produce sufficient quantities of feed grains required by the livestock industry.

Because of the potential anticipated shortage of feed grains and the high levels of grain-based feeds, coupled with other developments such as the recent changes in beef grading announced by the United States Department of Agriculture, informed observers have predicted that U.S. cattle will be fed longer on pasture with a concomitant reduction in grain-based feeding.

The implications of pasture lands thus begin to acquire extraordinary importance for the State's beef cattle industry. Hawaii's pasture lands are generally in need of substantial upgrading in terms of needed improvements in animal carrying capacity. Fertilization of our pasture lands is seen as the basic mechanism for the improvement of forage growth, and hence, improved pasture capacity. However, the cost of commercial fertilizer, in particular urea, has risen by more than 300 percent over the past few years, and its high cost may effectively limit the extent of pasture improvement that can be realistically achieved. This problem of pasture improvement is no doubt one of the great challenges that lie ahead for the cattle industry in the State. Perhaps state financial assistance may need to be considered in light of the fact that the beef cattle industry appears to possess the greatest potential for growth based upon recent market and supply projections developed by the Hawaii State Department of Agriculture.

Recommendations

1. *The Bureau recommends that an appropriate legislative committee conduct studies following adjournment of the 1975 Regular Session of the Legislature to determine what actions can be taken toward the objective of improving the State's pasture lands.*

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

2. *In the interim, the Bureau recommends that the interests representing the Beef Cattle Industry in Hawaii initiate contact with the United States Soil Conservation Service to determine whether federal financial assistance is available for pasture improvement programs through their "Cost Sharing Program".*
3. *The Bureau recommends that full support of the Legislature be given to efforts of the University of Hawaii's College of Tropical Agriculture in its attempt to secure federal financial support for the establishment of a "Tropical Dairy and Forage Institute" in Hawaii.*

Problems Unique to Livestock Producers in Hawaii

Because of Hawaii's insular position and its heavy dependence upon imported feed items, the importance of developing greater self-sufficiency in local feed production becomes readily apparent. In light of this fact, the Bureau presents the following recommendations.

Recommendations

1. *The Bureau recommends that the State authorize the initiation of the construction of state-financed feed storage and handling facilities, based upon the conclusions reached by the Bureau's assessment of this need and as discussed in Chapter 7 of this report.*
2. *The Bureau recommends that the research budget for the University of Hawaii's College of Tropical Agriculture be reviewed with a view towards providing funding at levels sufficient to promote needed research in the development of local feed materials.*

Need for an Efficient and Low-Cost System for the Intra-State Shipment of Agricultural Freight

During the course of this study, a common concern expressed by livestock producers on the Neighbor Islands was the need for a reliable, low-cost transportation system for the movement of livestock and livestock commodities within the

SUMMARY OF MAJOR FINDINGS AND RECOMMENDATIONS

State. Contact with Young Brothers, Ltd., the State's major interisland surface vessel shipper, has brought forth the finding that their plans for expansion of capital stock and related growth have been constrained by publicly announced proposals by both public and private sources to develop ferry systems and other ocean transport systems. While complaints of inadequate service voiced against Young Brothers, Ltd., appear to have merit, the dilemma confronting Young Brothers, Ltd., should be considered in order that the complaint can be viewed in a balanced and fair perspective.

Recommendation

The Bureau recommends that an appropriate legislative committee conduct studies following adjournment of the 1975 Regular Session of the Legislature to determine the feasibility of providing capital facilities and related support necessary for the transport of agricultural freight between the various ports in the State and the contracting out under specifications designed by the State of the operation of such service.

Alleged Monopoly in Poultry Production in Hawaii

In response to complaints voiced by various poultry producers during the course of the Bureau's field interviews of an alleged monopoly by certain major feed dealerships in the State, an investigation was conducted by the Bureau. The Bureau's findings as discussed under Chapter 2 of this report suggest that there are grounds to ascertain whether provisions of Chapter 480 of the *Hawaii Revised Statutes* and other applicable laws are being complied with. We accordingly present the following recommendation.

Recommendation

That the Attorney General of the State of Hawaii be requested to further investigate the complaint of an alleged monopoly of the poultry industry and report its findings and recommendations to the Governor of the State of Hawaii and the Legislature not later than twenty days prior to the convening of the 1976 Regular Session of the Legislature.

Suggested Actions by the Livestock Industry

Based upon the general findings of this study, the Bureau recommends the following.

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

Recommendations

1. *That the industry consider the formation of a Hawaii Livestock Association with appropriate representation so that mutual problems and goals can be prioritized and coordinated.*
2. *That appropriate representatives of the various livestock associations encourage their membership to participate in increased group purchases of feed toward the objective of realizing cost savings through volume purchases.*

Part II

**HAWAII'S FEED REQUIREMENTS — SOME FACTS
AND PROBLEMS IDENTIFIED**

Chapter 4

INTRODUCTION

In the production of commercial livestock, the largest single cost item is feed.¹ While the cost of feed in relation to the other costs of production, i.e. labor costs, capital investments, tax burdens, farm supplies, etc. varies among producers and between the various segments of the overall livestock industry, the available data consisting of published research studies² and cost figures furnished by producers³ show that feed costs currently account for between 50 and 75 percent of the total cost of producing an animal for market.

Because of the large percentage of the production cost represented by feed costs, the significance of feed is clearly evident. Almost without exception, the producers who participated in this study and virtually all other persons furnishing information acquired during the study period expressed the firm consensus that the high cost of feed was the most critical problem directly confronting the livestock industry in Hawaii. In the past two years, a steady climb in feed prices beginning in late 1972 escalated rapidly in 1973 and 1974. During the course of the field interviews six livestock farmers located on the various islands reported that high feed costs had "driven them out of business". A number of other producers stated that if prices of feed remain high or further escalate, they too, would be forced out of business. While a leveling out is expected, feed prices, especially those which are grain based, are expected to remain at levels higher than in recent years.

Feed Defined and Classified

Livestock feed utilized in commercial livestock production in Hawaii includes many different feedstuffs ranging from commercial feeds; unmixed or unprocessed whole seeds which are not unadulterated; hay, greenchop, silage, cobs, husks, and hulls; wet garbage; and pasture grasses.

The sustenance of animal life requires basic nutrients, which may be defined as any feed constituent, or group of feed constituents of the same general chemical composition, that aids in the support of animal life.⁴ In brief, the basic nutrients are: (1) water; (2) carbohydrates; (3) fats-lipids; (4) protein; (5) minerals; and (6) vitamins.

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

Feeds used in commercial livestock production fall into five classifications⁵ as follows: (1) carbonaceous concentrates (low protein); (2) carbonaceous roughages (low protein); (3) protenaceous concentrates (supplements of vegetable or animal origin); (4) protenaceous roughages; and (5) additive materials (nutrient vitamins and minerals and nonnutrient materials such as antibiotics, hormones, and medicants).

Feeds of the same origin (and of the same species, variety, or kind, if one of these is stated) have been grouped into eight classes by the U.S. National Research Council.⁶ The numbers and the classes designated are as follows: (1) dry forages or dry roughages; (2) pasture, range plants, and greenchop feeds; (3) silages; (4) energy feeds; (5) protein supplements; (6) minerals, (7) vitamins; and (8) additives.

The Hawaii Feed Law — A Digest of Its Provisions

Feeding stuffs are governed under the provisions of Chapter 144, *Hawaii Revised Statutes*, which by law is administered by the Department of Agriculture.

Commercial feed is defined as "all materials which are designed for use as feed, or for mixing in feed for animals other than dogs, cats, or other domestic pets and which are distributed or imported except:

- (A) Unmixed or unprocessed whole seeds which are not adulterated within the meaning of Section 144-7.
- (B) Hay, straw, stover, silage, cobs, husks, and hulls
 - (i) when underground; or
 - (ii) when unmixed with other materials.
- (C) Wet garbage.
- (D) Individual chemical compounds when not mixed with other materials.
- (E) Unmixed feeding cane molasses, unmixed pineapple pulp, unmixed pineapple hay, and unmixed sugar cane hay",

are required to be registered before being distributed in or imported into the State. Custom-mixed feed and toll-milled feed are exempt from registration. Each brand of commercial

INTRODUCTION

feed need be registered only once, regardless of the number of distributors handling the particular kind of feeding stuff.

Chapter 144 sets standards of labeling for commercial feedstuffs, requiring in addition to net weight and product or brand name, a statement of guaranteed analysis of the feedstuff, except where a product is sold solely as mineral and vitamin supplements, which are required to have use directions. The guaranteed feedstuffs are subject to inspection and analysis by the Department of Agriculture, pursuant to rules adopted by the Board of Agriculture. The common or official names of the ingredients, and the name and address of the distributor are required.

In contrast, Chapter 144 provides separate labeling requirements for any custom-mixed feedstuffs, which must include a numbered invoice bearing the ingredients, names and addresses of mixer and purchaser, date of sale and identification of the product as "custom-mixed feed".

In 1973, the section of the statutes setting fees for the inspection of commercial feed was repealed, leaving the matter to be determined by departmental rules adopted pursuant to the Administrative Procedure Act of the State. The duty of the Department to inspect feed, however, continues and is absolute. See *Exhibit 4.1*.

Adulteration of feeding stuffs is governed by the chapter, as well as misbranding and other acts affecting distribution and sale of feed, and violation of the standards set by the statutes may lead to fines or injunctions against the person or persons violating the standards. In addition, the chapter provides that written warnings may be issued by the Department of Agriculture, when in the discretion of the Department such a warning would be sufficient to protect the public interest. "Stop-distribution" orders may be made and enforced by the Department, where reasonable cause exists for suspicion of violation or other contravention of the feeding stuffs law is occurring, and may lead, ultimately, to a condemnation of the feed involved.

The Department of Agriculture is required to publish, at least annually, information concerning the distribution of feeds, data on production as deemed appropriate, and a report of results of feed analyses made. The Department, however, is precluded from disclosing the operations of any person in publishing production data.

MONTHLY FEED ANALYSIS REPORT

DIVISION OF MARKETING AND CONSUMER SERVICES
COMMODITIES BRANCH



JANUARY
1975

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE

1428 SOUTH KING STREET
P. O. BOX 5425
HONOLULU, HAWAII 96814

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
Division of Marketing and Consumer Services
Commodities Branch
Honolulu, Hawaii

FEEDING STUFFS
PRODUCTS IN VIOLATION, JANUARY 1975

Of 56 samples examined, 3 listed below were deficient or excessive in guarantees. Number of samples examined and the source of sample in violation are shown below.

Distributor/Brand	Sample				Violation		Remarks
	Lot No.	Lot Exm'd	Passed	Failed	Place	Guaranteed Found	
STOCKTON HAY AND GRAIN CO. Rain Brook Island Cage 18% Pullet Peaker	11657	16	14	2	Oahu	Nicarbazin 0.0042	Drug contamination. Penalty assessed - \$295.68
Rain Brook Cage 16% High Energy Complete Feed for Laying Hens	11658				Oahu	Nicarbazin 0.0086	Drug contamination. Penalty assessed - \$237.64
TRIANGLE MILLING CO. Triangle Beef Fattener 15	4455	2	1	1	Lihue	Fiber 9.0 10.6	Excessive- 1.6 units Fiber percentage not shown on label. Penalty assessed \$25.00

CORRECTIVE ACTION TAKEN
CURRENT MONTH

<u>Distributor/Brand</u>	<u>Lot No.</u>	<u>Deficient/Excessive</u>	<u>Action Taken</u>
Stockton Hay & Grain Co. Rain Brook Island Cage 18% Pullet Peaker	11657	Nicarbazin	To be reanalyzed
Rain Brook Cage 16% High Energy Complete Feed for Laying Hens	11658	Nicarbazin	To be reanalyzed
TRIANGLE MILLING CO. Triangle Beef Fattener 15	4455	+106% Fiber	Discrepancy notice sent

CORRECTIVE ACTIONS TAKEN
PREVIOUS MONTH

<u>Distributor/Brand</u>	<u>Lot No.</u>	<u>Date Sampled</u>	<u>Deficient Excessive</u>	<u>Action Taken</u>
<u>RALSTON PURINA CO.</u> Purina Catfish Growena	11641	12/13/74	+3.5 units Ash	Received Penalty Payment
<u>RANCHER'S FEED & SUPPLY</u> High Energy Chick Starter All Mash	11627	12/11/74	+3.5 units Fiber	Importer Notified
Lay Mash With 2% Grit Added	11628	12/11/74	+7.2 units Fiber	Importer Notified
Alfalfa Pellets	11629	12/11/74	+2.2 units Ash	Importer Notified

OTHER DISCREPANCIES

<u>Brand</u>	<u>Lot No.</u>	<u>Remark</u>
<u>STOCKTON HAY & GRAIN CO.</u> Rain Brook Pig & Sow Pellets	11690	Label differs from registered label.
Rain Brook Beef Supplement H	11688	Label differs from registered label.
<u>TRIANGLE MILLING CO.</u> Triangle Cracked Corn	4456	Label differs from registered label.
<u>PENDLETON GRAIN GROWERS, INC.</u> Alfalfa Pellets	11706	No ash shown on label.
<u>WESTERN FARMERS ASS'N.</u> Suncured Alfalfa Pellets	11705	No ash percentage shown on label.
<u>FRED L. WALDRON, LTD.</u> Waldron's Dual Purpose Grow Lay Food	11693	Label differs from registered label.

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

Administration of Feed Law

Pursuant to Chapter 144, *Hawaii Revised Statutes*, the Department of Agriculture has promulgated rules consistent with the requirements of the Administrative Procedure Act, to govern the administration and implementation of Chapter 144. The rules so promulgated have the force and effect of law, and violation thereof subjects persons guilty of violation to the penalties provided in the rules or as prescribed in the statute.

Under the rules, brand names must reasonably represent the nature of the feed sold under the name in that the brand name cannot be misleading, or otherwise impliedly representing that the product sold is of a nature different from its actual contents.

Guaranteed contents of feed expressed on a sliding-scale description, e.g., "protein 15 to 18%" are generally prohibited. Standards for the statement of drugs, vitamin, or mineral elements are prescribed.

Forms, fees and application procedures for registering of commercial feed, as required by Chapter 144, are included in the rules, in addition to procedures for changing label format or contents of any previously registered feed. No feed may be marketed under a revised label without the prior approval of the Department of Agriculture, and subsequent to an approved label change, no feed may be sold under the old label, except that the Department may allow reasonable time for use or disposal of old labels.

Distributors and importers of commercial feeds are required to submit to the Department, quarterly reports of the tonnage of feed imported or distributed for use or for sale during the quarter. Failure to file tonnage reports may result in cancellation of the registration of the feed of the nonreporting distributor or importer.

Rules regarding labeling include restrictions on the location of the label, and provide that information may be printed on one side of the label only, or on one side of the container only, and shall not be obscured by other statements or designs. Specific labeling requirements are prescribed by the rules, based upon the quantity of feed packaged. There are separate requirements for prepackaged feeds sold in quantities of less than twenty-five pounds and twenty-five pounds or more. The rules specifically state that the labeling requirements do not preclude the observance of, and

INTRODUCTION

adherence to, the provisions of the Federal Food, Drug and Cosmetic Act, Fair Packaging Labeling Act, or any applicable state law or other legal requirements.

Ingredients statements may use collective terms; however, the rules specify that collective terms are designed to refer to a general classification of ingredient origin, not to imply equivalent nutritional value. The names of ingredients used are controlled by the Department, and must be included in the *Official Definitions of Feed Ingredients* of the Association of American Feed Control Officials, common or usual name, or one approved by the Department. Collective terms must be similarly listed by the AAFCO, and use of a collective term is limited to that term alone, and does not extend to the individual ingredients which may be in the appropriate group. Collective terms may be used only in the ingredient statement. Upon the registration of a feedstuff with the Department, the registrant is required to provide a list of actual individual ingredients within the defined group which are involved in the feed sought to be registered. Also, in the case of mixed feeds, ingredients are required to be listed in substantially the order of their predominance by weight in the feed. Format and content requirements of ingredients statements are included in the rules.

Warning statements are required where feed contains more than 8.75 percent of equivalent crude protein from the added nonprotein nitrogen or if the equivalent crude protein from the added nonprotein nitrogen exceeds one-third of the total crude protein.

The use of artificial coloring is restricted to those colors shown harmless and approved by the Federal Food and Drug Administration, and the use of coloring to conceal inferiority of feed is prohibited.

In addition, commercial feeds containing drugs, food additives, or other ingredients potentially detrimental to consuming animals are monitored by the Department through disclosure statements, and documenting of the nondetrimental character or quantity of the feed when used in accordance with specific directions.

A statement of net weight must be shown on the package, or on a tag or other marker attached to the package. Net weight of bulk distribution may be given instead on an invoice or other tag which accompanies the feed.

Materially damaged feed must be so marked, and can be distributed only directly to feeders.

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

The use of metal fasteners, hooks, snaps, or other metal devices on any feed bag is prohibited.

The Department may certify feeds, for a fee determined in the rules, but is not required to do so.

Commercial fees are subject to inspection by the Department, to determine compliance with Chapter 144. In addition, the Department may issue stop-sale orders to halt sale of feeds.

The latest changes to the rules were made in May, 1974, and took effect July 1, 1974. The changes were primarily in response to legislative amendment of Chapter 144, *Hawaii Revised Statutes*.

Act 46 of 1973 required the Department to promulgate and implement rules setting penalties for mislabeled feeds. Penalties are based on statistical tolerance tables developed by the State and Federal Departments of Agriculture, compiled from studies conducted in Hawaii. Official feed samples are tested and variance from stated standards result in imposition of penalties. The preliminary indications of the implementation of such penalty provisions suggest that the industry has responded to the burden of penalty, in that significantly lower levels of variance occur in comparison to variance levels prior to institution of the penalty provisions. See *Table 4.1*, assessed for each deficiency, to the total selling price of an inspected lot of feed.

Penalties do not apply to commercial simple feeds and commercial feeds manufactured or processed by a final user for his exclusive use.

Penalty assessments are determined on the basis of lot size, the maximum lot inspected being considered to be twenty-five tons, regardless of actual tonnage exceeding that figure. A minimum penalty is prescribed.

Serious ingredient statement violations may be subject to penalties.

Other 1974 rules changes include a change of the rates of inspection fees, and the placement of the responsibility for payment of registration fees, inspection fees, and penalty assessments upon the local manufacturer, importer, or distributor.

Table 4.1

FEEDING STUFFS GUARANTEE ANALYSIS AND MISLABELING VARIANCE,
COMPARISON OF PRE- AND POST-IMPOSITION OF VARIANCE PENALTIES

1973 Test Period	No. of Samples	No. Failed	Percentage Failure
July	49	12	24.5
August	47	18	38.3
September	50	15	30.0
October	48	12	25.0
November	48	10	20.8

1974 Test Period	No. of Samples	No. Failed	Percentage Failure
July	48	5	10.4
August	48	4	8.3
September	48	9	18.8
October	54	4	7.4
November	52	3	5.8

1973 July - November Average Failure = 27.7%

1974 July - November Average Failure = 10.0%

Net Reduction of Variance = 17.7%

SOURCE: Actual data furnished by the Hawaii State Department of Agriculture, March 1975.

Chapter 5

IMPORTED FEEDS AND TRADE CHANNELS IN HAWAII

Imported Feeds — Some Background and Present Situation

Hawaii has traditionally supported its livestock industries by importing its feeding materials, with the bulk of this material being shipped in from the U.S. Mainland with sporadic shipments from Australia, New Zealand, and other foreign countries. These imports have included basic grains, finished feeds, miscellaneous feedstuffs, and feed ingredients. The passage of time has not altered Hawaii's traditional dependence on imported feed items. With the exception of relatively small amounts of locally produced roughage feedstuffs, such as pineapple bran and pineapple greenchop, molasses, tallow, and fishmeal, almost all other feeds and feed ingredients are imported. Refer to *Table 5.1* for a charted summary of imported materials by type of material and tonnage for the period 1964-1973. Total imports during 1973 amounted to 177,522 tons as compared with 136,687 tons in 1964, an increase of 29.9 percent. Refer to *Table 5.2* for a summary of current grain importation costs.

Up to 1959, all feed materials imported to Hawaii were in sacks or small containers. In 1959, the first bulk handling storage facility was constructed and became operational at Honolulu Harbor. A second bulk grain handling facility was constructed in 1962 at Kawaihae Harbor on the Island of Hawaii. This latter facility was equipped with a mixing mill and thus gave the Kawaihae facility the capability to mill and manufacture various feedstuffs. Inquiries made during the study period indicate that the Kawaihae facility terminated operations about two years after it had started operations. The mixing equipment has since been removed from the facility and what remains on the site today are two storage tanks with a storage capacity of 10,000 tons and an inoperative grain handling elevator. Reportedly, a feed dealership doing business on the Island of Hawaii currently owns the existing facility having acquired it at a purchase price of approximately \$50,000 several years ago.

Initiation of Container Service to Hawaii

In 1959, Matson Navigation Company initiated a container service for their ships calling in Hawaii. Since that time

Table 5.1
FEED: INSHIPMENTS FROM ALL SOURCES, STATE, 1964-73

COMMODITY	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
TONS										
FEED GRAIN										
BARLEY (ROLLED, GROUND, WHOLE)	22,045	24,399	14,164	32,220	25,192	34,103	48,761	48,454	54,046	31,676
CORN (CRACKED, GROUND, WHOLE)	26,152	15,169	17,625	13,896	26,328	14,540	14,779	9,314	11,152	25,303
OATS.....	174	225	104	262	449	3,314	166	1,242	222	246
WHEAT.....	1,535	4,227	13,469	140	6,721	1,000	343	349	814	485
SORGHUMS.....	23,657	16,967	22,278	22,428	20,769	17,692	18,489	14,635	11,356	11,394
OTHER FEED GRAINS.....	--	--	69	46	2	--	36	18,279	19,942	23,614
TOTAL FEED GRAINS.....	73,563	60,987	67,709	68,992	79,461	70,649	82,574	92,273	97,532	92,918
MIXED FEEDS										
DAIRY.....	5,888	6,393	8,149	6,692	6,041	3,629	5,920	7,328	5,524	9,554
HOG (INCLUDES PELLETS).....	4,663	3,529	3,344	1,725	2,315	1,698	1,715	2,303	794	980
POULTRY (INCLUDES PELLETS)....	11,836	10,702	12,609	15,174	20,006	20,233	21,094	16,564	11,107	12,102
POULTRY SCRATCH.....	419	305	188	215	198	227	433	220	243	154
PIGEON.....	641	679	539	542	491	508	580	594	383	158
RABBIT (INCLUDES PELLETS).....	208	111	37	59	58	70	48	34	36	64
CATTLE.....	INCLUDED WITH OTHER MIXED FEEDS PRIOR TO 1972								1,522	5,148
OTHER MIXED FEEDS.....	1,735	1,172	1,564	1,984	1,740	2,309	2,668	7,058	1,580	759
TOTAL MIXED FEEDS.....	25,390	22,891	26,430	26,391	30,849	28,674	32,458	34,101	21,189	28,919
FEEDSTUFFS										
BRAN.....	--	90	67	1	3	--	--	--	--	--
MIDDLINGS.....	1,380	895	753	569	622	583	522	542	384	331
MILLRUN.....	810	341	140	96	365	192	144	227	317	337
MISCELLANEOUS MILL FEEDS.....	65	105	276	195	3	--	--	2,633	142	28
COPRA MEAL.....	3,687	2,201	454	990	1,060	865	405	425	--	--
COTTONSEED MEAL.....	13,021	12,143	15,690	8,481	12,616	14,423	13,870	14,227	12,225	17,285
LINSEED MEAL.....	--	5	5	5	8	8	5	19	10	11
SOYBEAN MEAL.....	3,388	4,549	3,349	6,801	3,370	3,911	4,579	5,820	4,687	4,535
FISH MEAL.....	--	251	399	784	640	678	496	353	743	534
MEAT AND BONE MEAL.....	1,088	1,482	1,905	1,680	1,299	1,174	1,839	2,483	2,896	1,306
WHEY.....	75	102	91	126	198	136	173	238	135	157
ALFALFA PRODUCTS.....	14,193	20,714	20,696	19,886	24,189	16,994	24,715	21,484	21,120	29,464
MISCELLANEOUS PROTEIN FEEDS...	27	--	1,165	1,406	1,177	1,075	1,012	183	121	756
MISCELLANEOUS FEEDSTUFFS.....	--	--	--	276	5,622	1,045	2,819	1,560	812	907
UNSPECIFIED FEEDSTUFFS.....	INCLUDED WITH MISCELLANEOUS FEEDSTUFFS PRIOR TO 1972									44
TOTAL FEEDSTUFFS.....	37,734	42,878	44,990	41,296	51,172	41,084	50,579	50,194	43,592	55,695
TOTAL ALL FEEDS.....	136,687	126,756	139,129	136,679	161,482	140,407	165,611	176,568	162,313	177,532

-- = RECEIPTS NOT SPECIFICALLY IDENTIFIED.

SOURCE: Market News Service, Hawaii State Department of Agriculture,
Statistics of Hawaiian Agriculture, 1973.

Table 5.2

SUMMARY OF GRAIN IMPORTATION COSTS

		Per Ton	
		<u>Minimum</u>	<u>Maximum</u>
1.	Procuring grain	\$ 1.00	\$ 1.50
2.	Coordinating delivery to carrier	.70	1.00
3.	Land freight from midwest ports	17.90	41.40
4.	Mainland elevator in, out, & wharfage	1.70	3.05
5.	Loading charges	1.27	1.96
6.	Interest on investment in grain from date of purchase to loading	1.10	2.00
7.	Ocean freight	12.12	24.91
8.	Unloading charges	2.26	4.40
9.	Wharfage - Honolulu	.45	.45
10.	Loss by shrinkage	1.50	2.50
11.	Marine insurance	.90	1.30
12.	Interest on investment in commodity while in transit	<u>.70</u>	<u>1.00</u>
		\$41.60	\$85.47
13.	Costs of handling at destination	3.15	4.35

IMPORTED FEEDS AND TRADE CHANNELS

approximately one-half of the feed imported is handled as either bulk in container or sacks and bags in container. According to information furnished by Matson Navigation Company in January 1975, a total of 90,000 tons of all categories of feeds and feedstuffs were delivered by Matson ships to Hawaii in 1974. This tonnage represents 4 percent of the total revenue tons handled by Matson on their Mainland to Hawaii run in 1975. While data as to the total tonnage of all feeds and feedstuffs delivered to Hawaii in 1974 by way of imports from all outside sources are not available, examination of other data suggest that Matson's shipment of 90,000 tons represents approximately one-half of the total feed and feedstuffs inshipment to Hawaii. This conclusion is based in part on other information which show that the Hawaiian Grain Corporation, Hawaii's major grain importer, inships approximately 100,000 tons of grain and feed ingredients annually. While the bulk of Hawaiian Grain's products are shipped to Hawaii by barge, it is reported that on occasion, some of Hawaiian Grain's commodities are carried on Matson ships and other carriers calling at Hawaii.

Procurement, Handling, and Distribution of Feed Grains and Feed Items in Hawaii

As noted earlier, the Hawaiian Grain Corporation is the principal Hawaii importer of feed grains and feed items. Available data suggest that Hawaiian Grain imports more than one-half of all the ingredients used by the livestock industry in the State. Refer to *Figure 5.1* for a charted display of the process through and by which grains and feed items are acquired and distributed in the State. *Figure 5.2* depicts the general flow of grains and feeds from grain farms on the U.S. Mainland to the ultimate users in Hawaii.

The principal users of the materials imported by Hawaiian Grain are the two largest feed manufacturers in Hawaii, Albers Milling Company and Fred L. Waldron, Inc. Feed-Well, Incorporated, a feed dealership and feed manufacturer on the Island of Hawaii, generally imports its grains and feed ingredients directly from Mainland sources. The remaining major feed dealer, Pacific Feeds, Incorporated, engages primarily in the sale of finished (manufactured) feed imported from the U.S. Mainland. It has been estimated that these four major feed dealers, Albers Milling Company, Fred L. Waldron, Inc., Pacific Feeds, Inc., and Feed-Well, Inc., handle between 75 to 80 percent of all feeds and feed items distributed in the State. The remaining 20 to 25 percent of feeds and feed items are accounted for either by direct sales of feed items by Hawaiian Grain Corporation to farmer cooperatives

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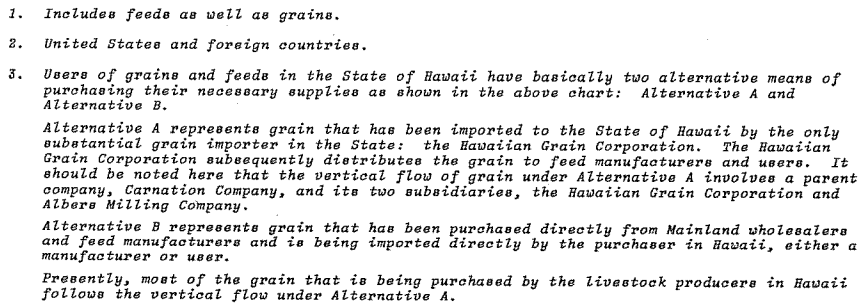
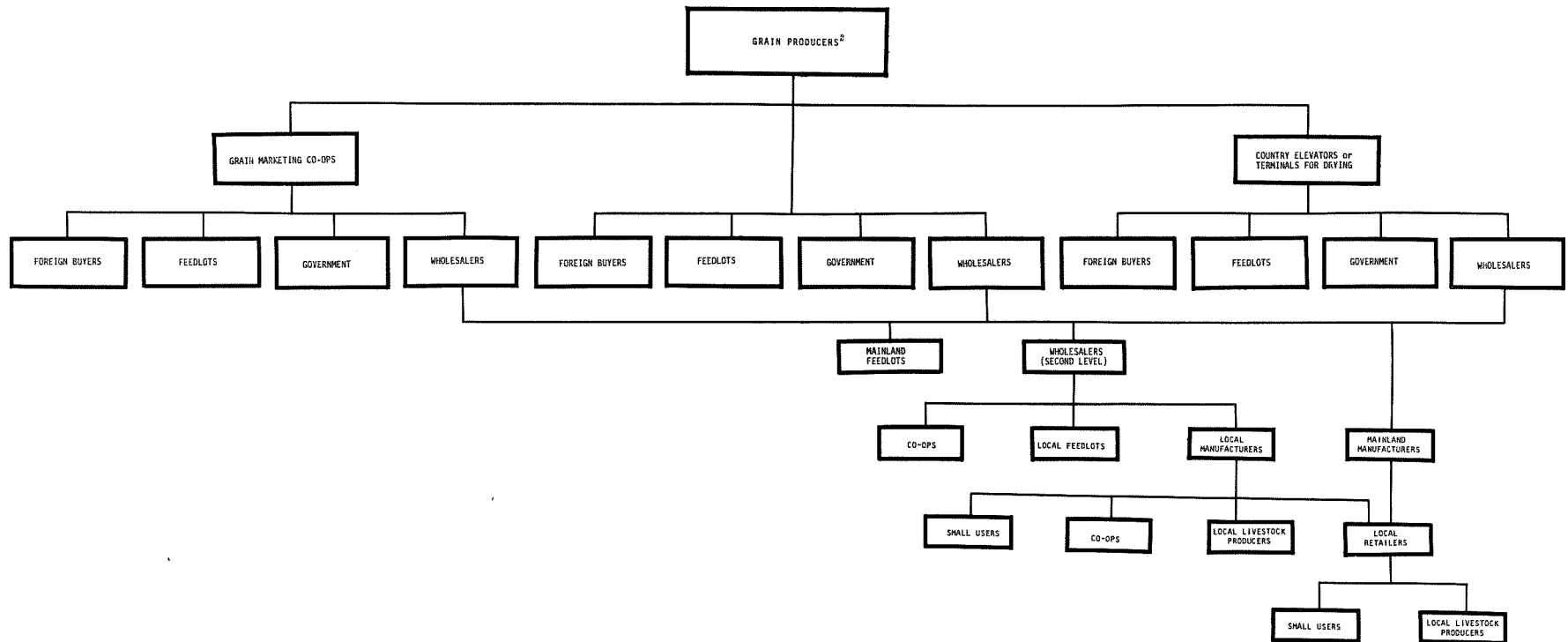


Figure 5.2

GENERAL GRAIN SALES FLOW CHART¹



1. Includes feeds as well as grains.
2. United States and foreign countries.

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and to individual producers, or by imports of feed items, primarily from the U.S. Mainland, by dealers, farmer cooperatives, and individual producers. For the most part, imports originate from the Pacific Coast ports and are shipped to Hawaii via Matson container service or in the case of Hawaiian Grain Corporation, primarily by barge.

Price Structure of Feed Grains and Feeds in Hawaii

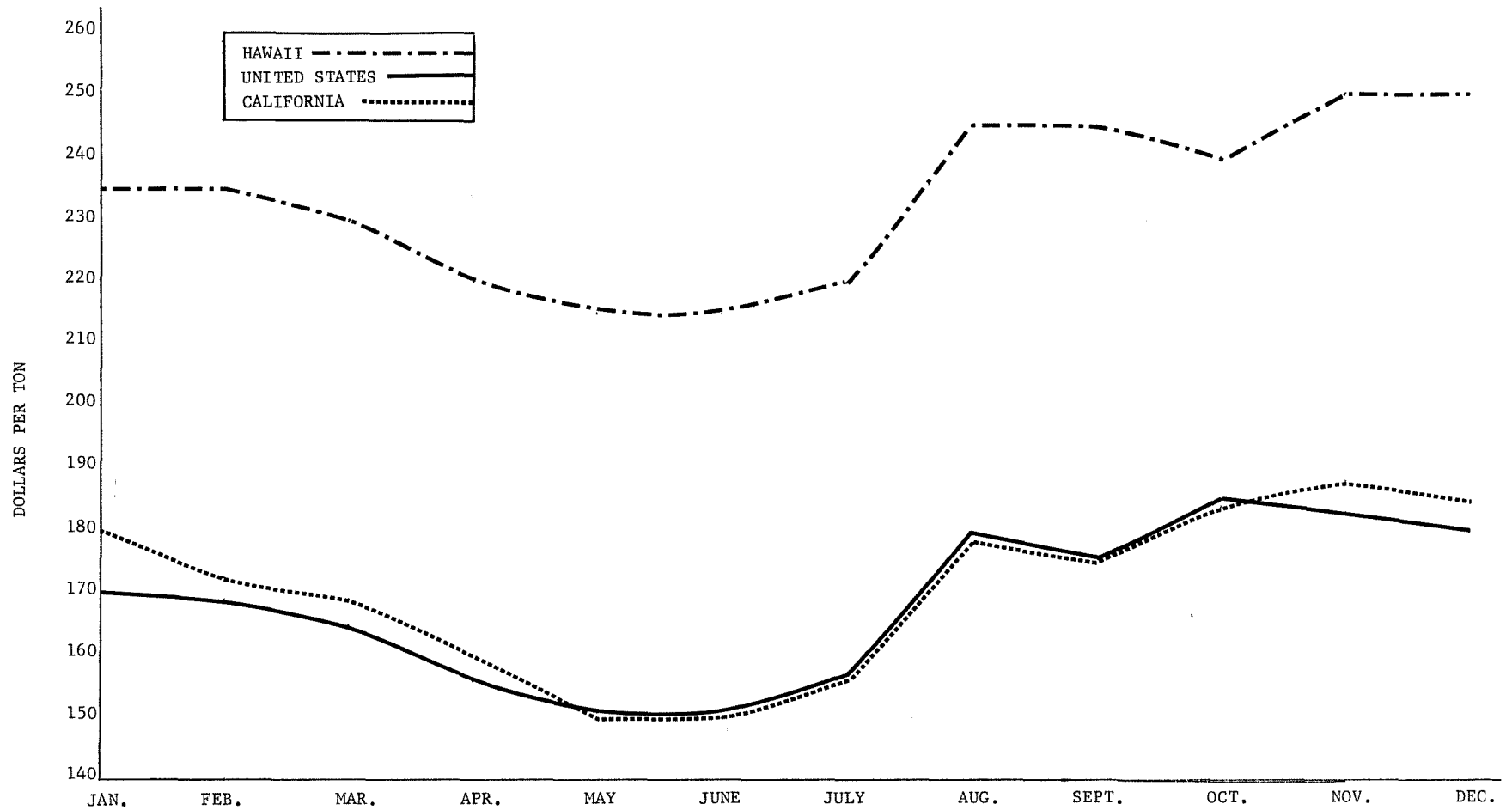
An examination of the price lists of the four major feed dealers shows that prices for similar feed items are generally competitive. However, based on the field interviews conducted with livestock producers and other resource persons, it appears that a number of factors interacting within the feed trade industry leads to a complex marketing system which one livestock producer aptly describes as a "network of bargain hunters on the constant lookout for a better deal".

A comparison of Hawaii, California, and U.S. Mainland average prices for four basic feeds (broiler grower, laying feed, chick starter, and dairy feed) shows that with the exception of broiler grower feed, Hawaii's prices appear to be in line with the California and U.S. prices, if the cost of ocean freight to Hawaii is considered.

Inquiry made as to the reason for the considerably higher Hawaii price for broiler grower feed has brought forth the following explanation. In general, broiler grower feed requires additional handling at the feed manufacturing plant. Whereas, many feeds require only one or two basic processing steps, in the case of broiler grower feed, three distinct steps are involved. First, the ingredient, i.e. corn, must be ground. Secondly, the ground material is pelletized and finally, the pelletized material must be crumbled. Still another apparent reason for the higher cost of this item is that its total production volume is considerably less than other categories of feeds manufactured in the State. Refer to *Figures 5.3, 5.4, 5.5, and 5.6* for a charted display of comparative prices paid in 1974. Refer to *Figures 5.7, 5.8, 5.9, and 5.10* for a display of comparative prices for the period 1969-1974.

Currently, there are a number of competing brands of feed on the market, some of which are manufactured locally, and others which are shipped in as finished feeds. The ultimate price depends also on the trade channels in which the finished feed, feed grain, or feed ingredient is obtained by the ultimate user. In some cases, the user is the importer who can then minimize the costs of transport, warehousing,

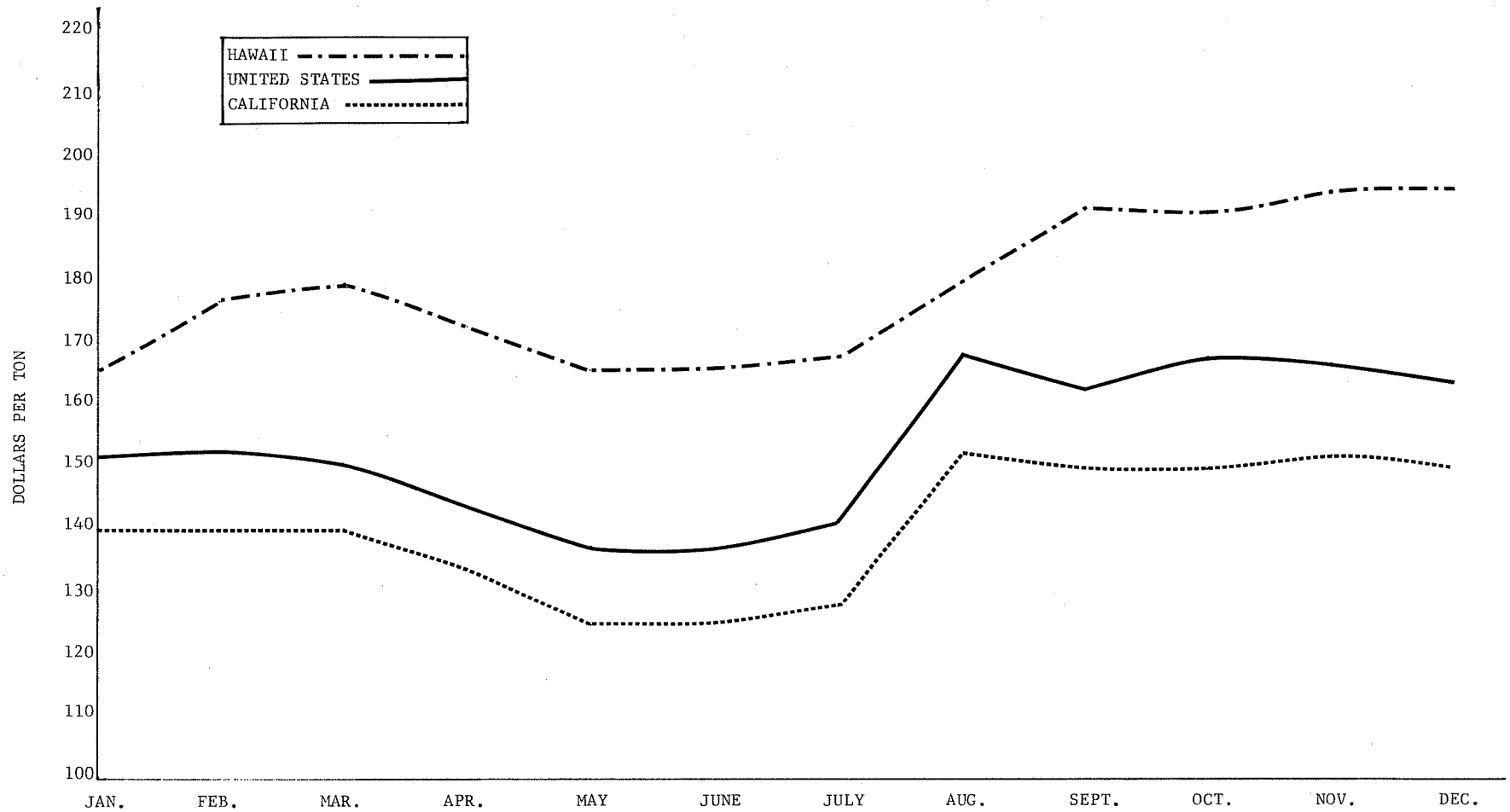
Figure 5.3



AVERAGE PRICE PAID BY FARMER FOR: BROILER GROWER JANUARY 1974 - DECEMBER 1974

SOURCE: Actual figures of prices taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Hawaii Prices, Prices Paid by Farmers, Jan. - Dec. 1974.

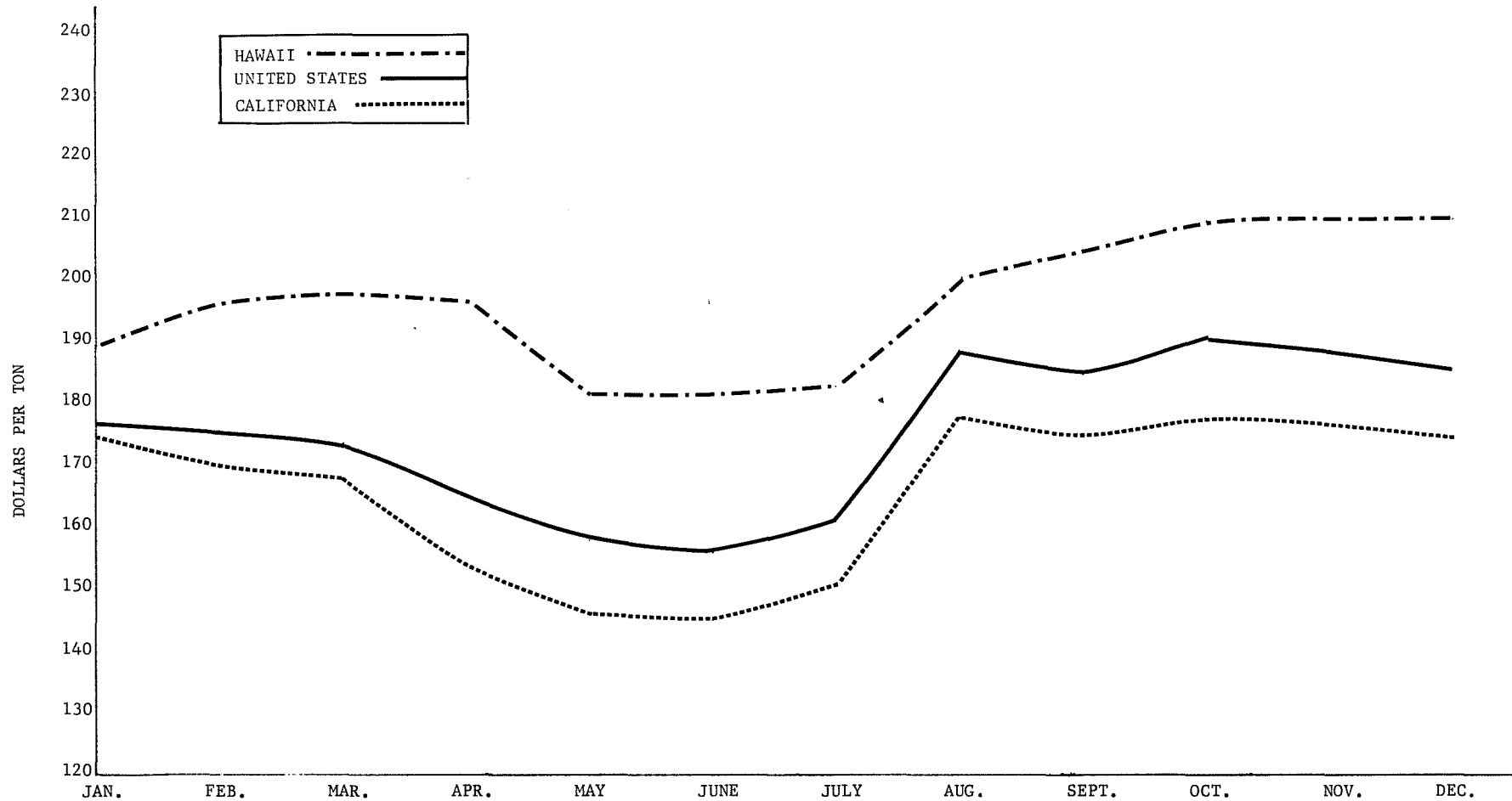
Figure 5.4



AVERAGE PRICE PAID BY FARMER FOR: LAYING FEED JANUARY 1974 - DECEMBER 1974

SOURCE: Actual figures of prices taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Hawaii Prices, Prices Paid by Farmers, Jan. - Dec. 1974.

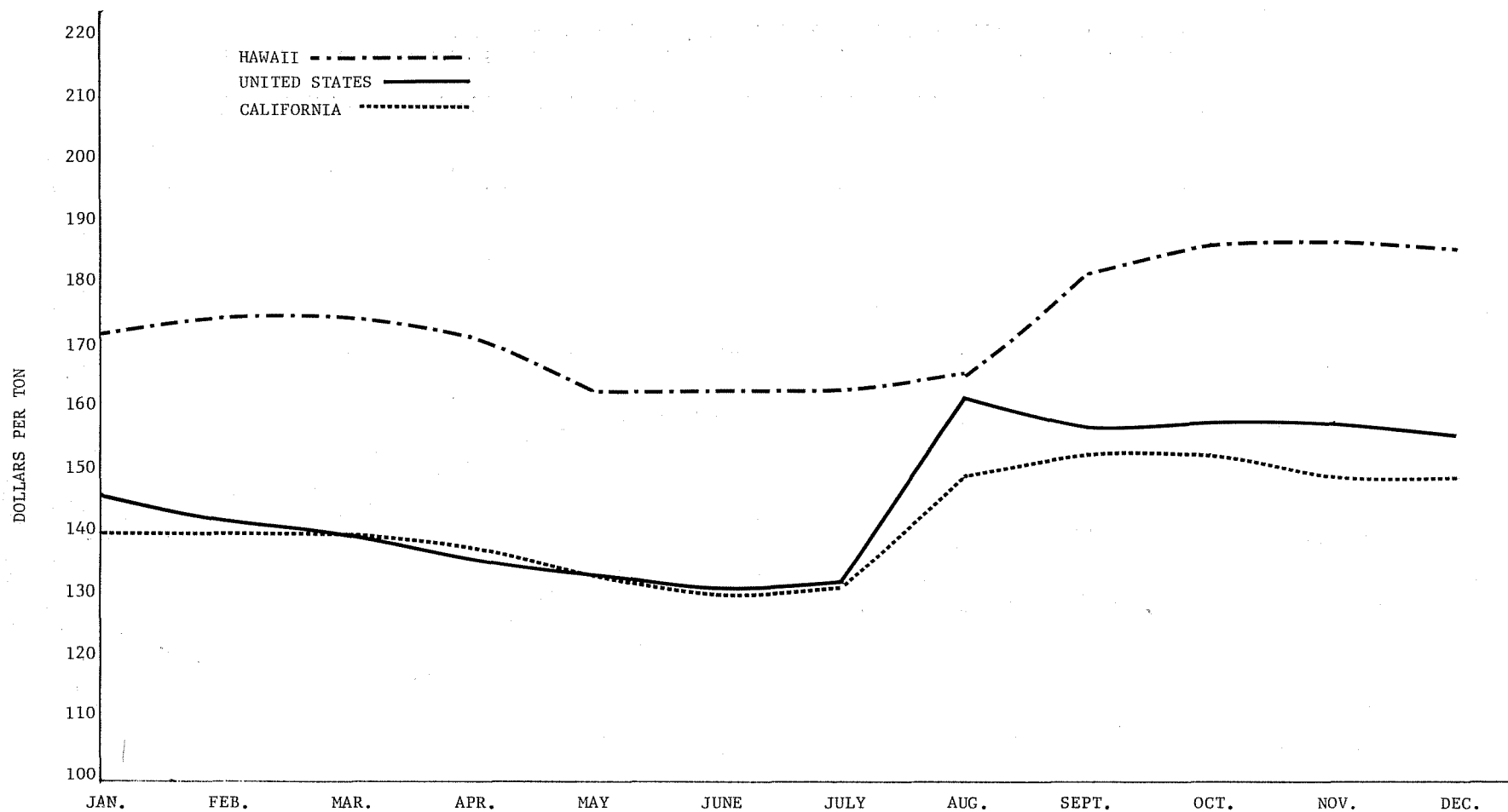
Figure 5.5



AVERAGE PRICE PAID BY FARMER FOR: CHICK STARTER JANUARY 1974 - DECEMBER 1974

SOURCE: Actual figures of prices taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Hawaii Prices, Prices Paid by Farmers, Jan. - Dec. 1974.

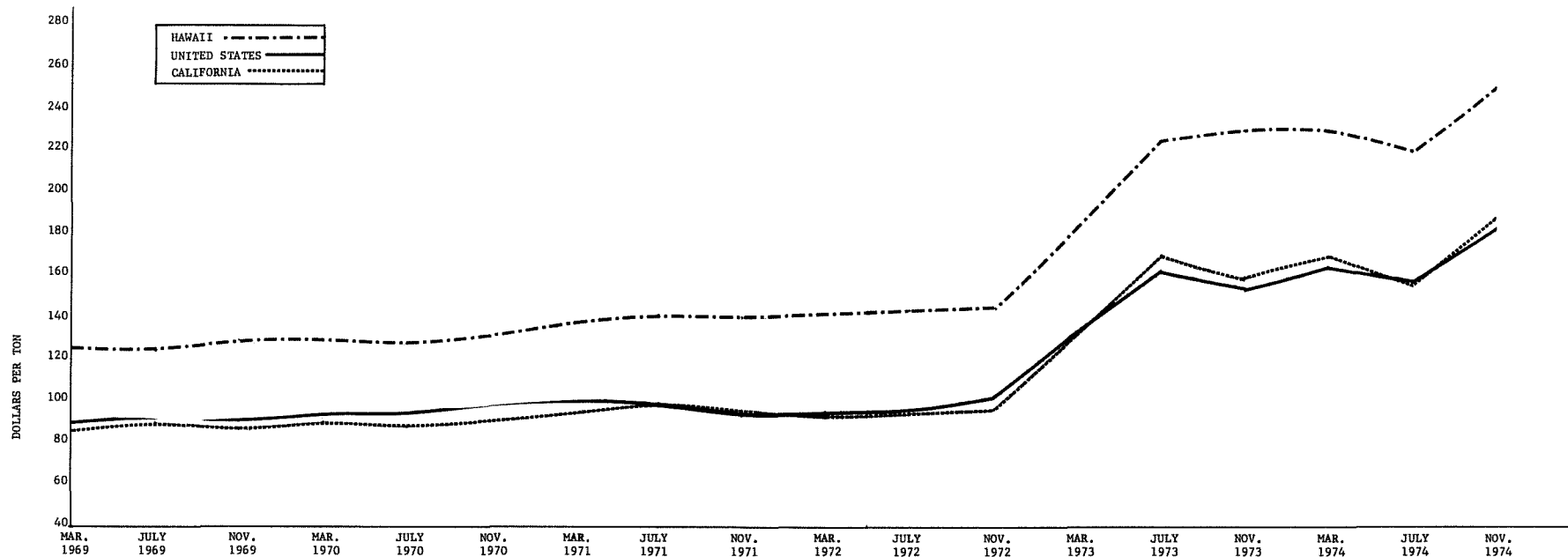
Figure 5.6



AVERAGE PRICE PAID BY FARMER FOR: DAIRY FEED - 20% PROTEIN JANUARY 1974 - DECEMBER 1974

SOURCE: Actual figures of prices taken from Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Hawaii Prices, Prices Paid by Farmers, Jan. - Dec. 1974.

Figure 5.7



AVERAGE PRICE PAID BY FARMER FOR: BROILER GROWER MARCH 1969 - NOVEMBER 1973

SOURCE: Actual figures of prices taken from the United States Department of Agriculture Crop Reporting Board, Annual Price Summary 1969 - 1973; and the Hawaii State Department of Agriculture, Crop and Livestock Reporting Service, Hawaii Prices, Prices Paid by Farmers 1974.

Figure 5.8

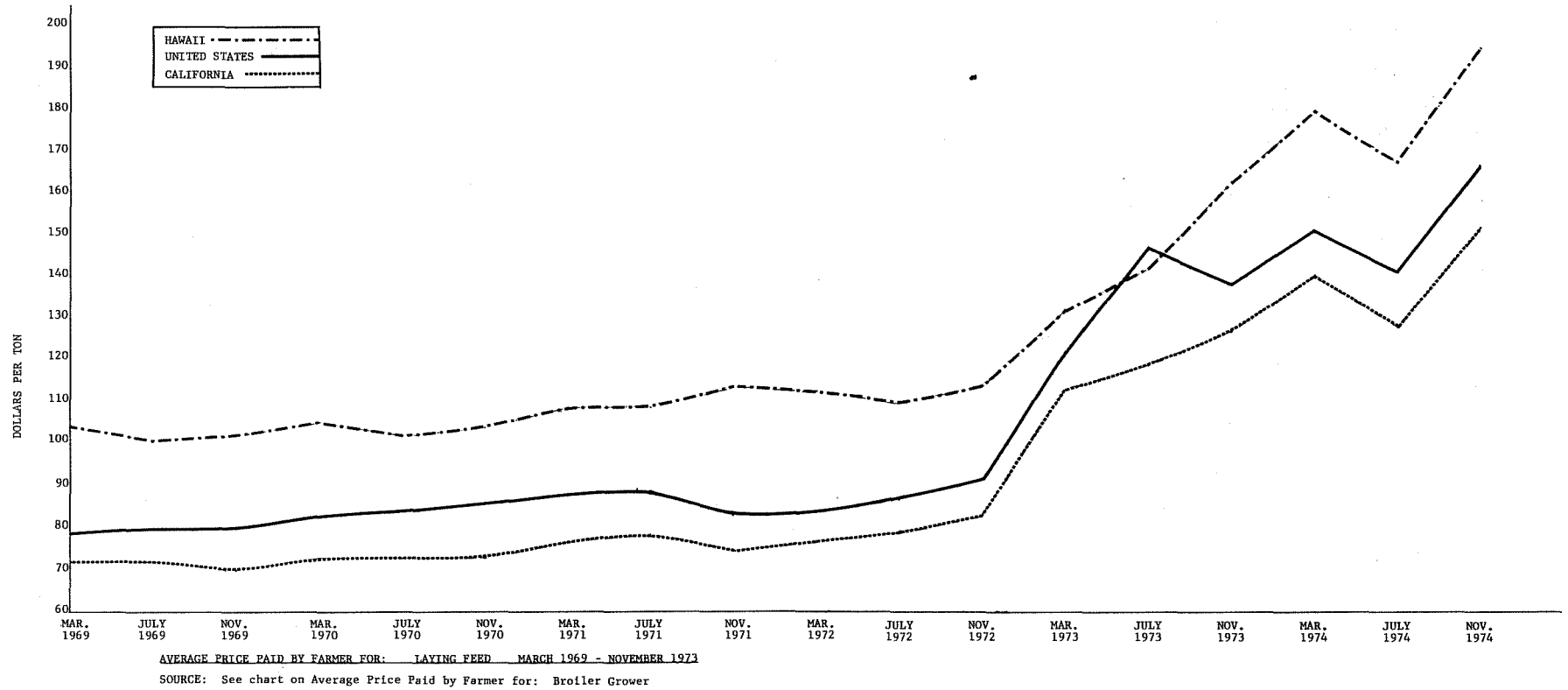
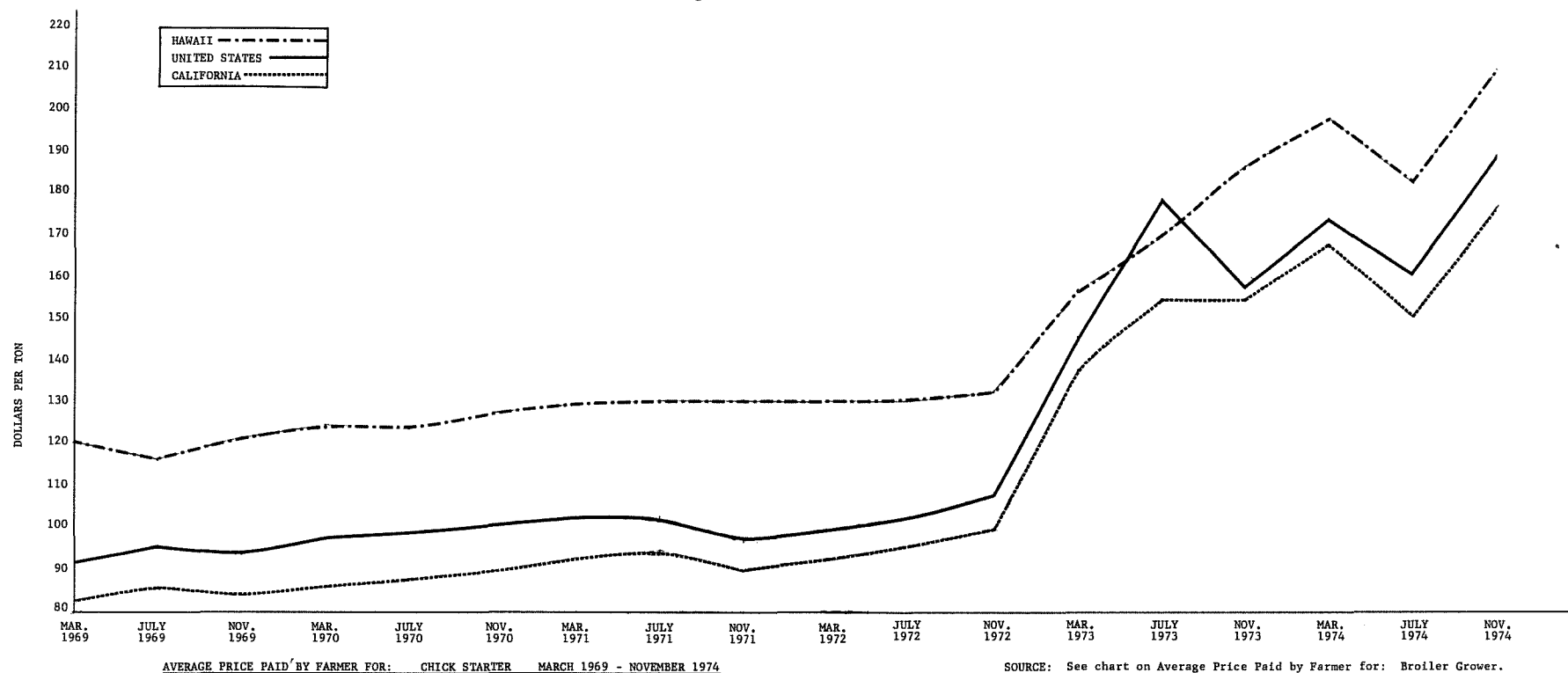


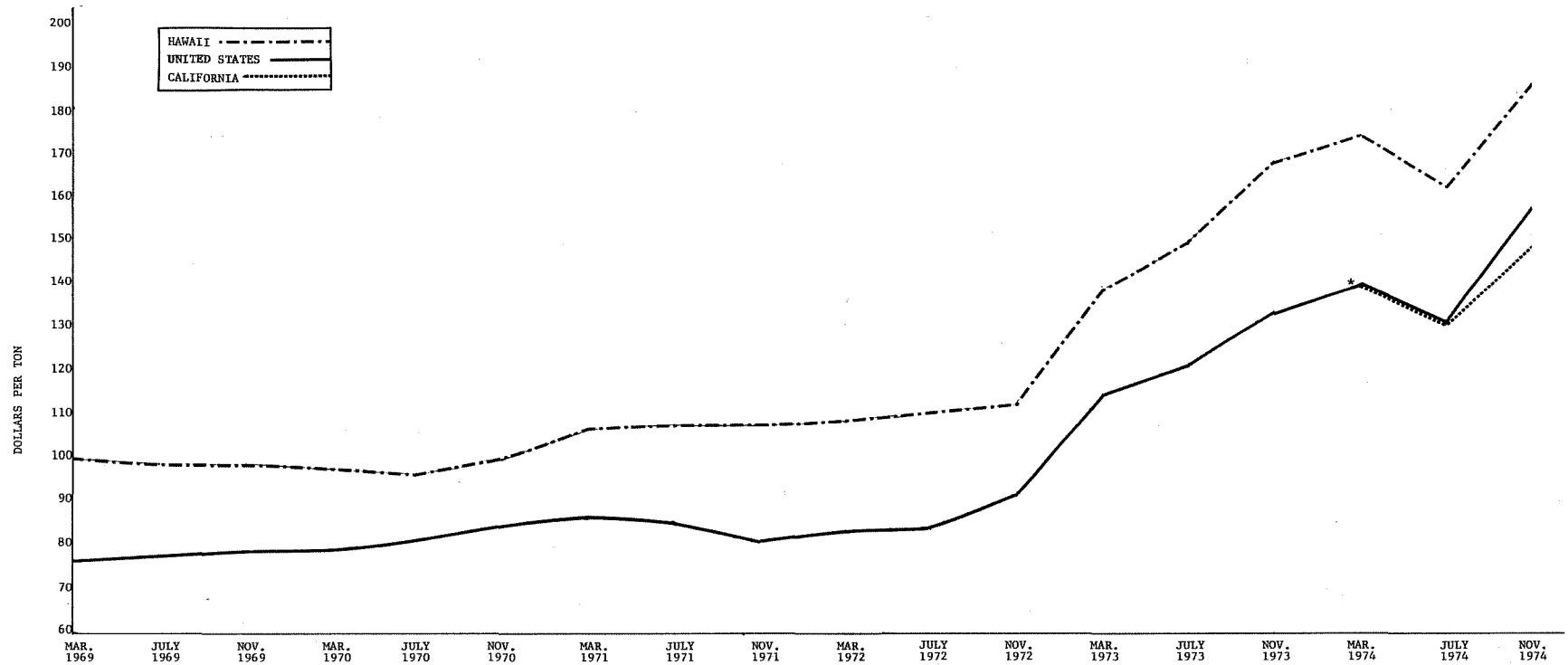
Figure 5.9



AVERAGE PRICE PAID BY FARMER FOR: CHICK STARTER MARCH 1969 - NOVEMBER 1974

SOURCE: See chart on Average Price Paid by Farmer for: Broiler Grower.

Figure 5.10



AVERAGE PRICE PAID BY FARMER FOR: DAIRY FEED - 20% PROTEIN MARCH 1969 - NOVEMBER 1973

SOURCE: See chart on Average Price Paid by Farmer for: Broiler Grower

* No data for California available before 1974.

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and handling. Other users purchase from a wholesale importer or wholesale manufacturer, and some operators purchase from retail outlets. In each case, accumulative costs of haulage, warehousing, handling, and overhead are added to the net price of the product. Finished feeds can be delivered directly from the manufacturer in bulk to the user's operation, or the user can purchase in bags. In each case, the cost pattern will change.

Chapter 6

LOCAL PRODUCTION OF FEEDS — SOME BACKGROUND AND OUTLOOK FOR THE FUTURE

Grain Crops Grown in Hawaii

A review of the literature indicates that the attempt to develop greater self-sufficiency in local production of feed grains has been a long standing concern in the historical development of Hawaii's livestock industry. A major turning point in the State's attempt to translate this concern to an operating reality occurred in the early 1970's following the announced termination of sugar operations at three major sugar plantations in the State--Kahuku on Oahu, Kilauea on Kauai, and Kohala on Hawaii, and the concomitant availability of sufficiently large acreages of land suitable for cultivation. In conjunction with a substantial outlay of state appropriations and the subsequent formation of the Kohala and Kauai Task Forces respectively in June, 1971 and June, 1972, experimental projects to test the feasibility of large-scale production of grain sorghum, an excellent feedstuff for finishing beef cattle, were initiated at Kohala and Kilauea. This development was received with widespread approval; the results of the trials as of this writing, however, have been disappointing. Damage from insects and birds compared to the margin of profit under a commercial operation make production of this crop questionable in Hawaii. Utilizing the whole sorghum plant as silage, however, appears to be a possible alternative to overcoming the insect and bird problem.¹ The current consensus of University of Hawaii scientists and the various growers of sorghum is that further sorghum production should not be continued at this time.

"Sudax", a hybrid between a sorghum variety and Sudan grass, has been grown with partial success at Kahuku, Hawaii, on former sugarcane lands. While it has suffered from insect and bird damage as has sorghum, Sudax appears to have greater resistance than sorghum, and it appears that Sudax production should be continued with continued technical research support. Local dairymen have reported good results in the use of "Sudax" as a roughage feed. Sudax production is currently suspended in favor of seed corn, which is commanding unusually high prices at this time because of the major international shortage of this commodity.

Alfalfa and Field Corn — Two Promising Crops

At the present time, an alfalfa project on Molokai by the Na Hua Ai firm has generated considerable optimism for the growers and cattlemen. The yields have been of high quality and of sufficiently large volumes that commercial development of this crop seems a distinct possibility. It may be premature, however, to draw any firm conclusions until further results are evaluated. Alfalfa production has one of the highest water requirements for optimum growth of any field crop. Accordingly, the availability and the cost of water will be a major determinant in the success or failure of this crop should large-scale commercial production be contemplated.

Another promising development is the corn silage feed project being conducted by Hawaii Biogenics at Kohala, Hawaii. The thrust of the corn silage project revolves around the harvesting of the entire corn plant after seeding has developed. The entire plant is then processed through a chopping machine and, in turn, stored in airtight, oxygen free silos for ensiling. After about three weeks, the ensiled material is usable as cattle feed. As in the case of the alfalfa project on Molokai, however, more time is needed to evaluate the corn silage project before any meaningful conclusions can be drawn.

Agricultural By-Products and Other Local Materials Usable as Feed

A review of the literature indicates that considerable research has been undertaken over the years at the University of Hawaii College of Tropical Agriculture with respect to the use of various locally available materials as feedstuffs by our livestock industry. Of the many materials considered and tested as feed, pineapple and sugarcane residues appear to have shown the greatest potential based upon actual usage of these by-products as feed items. Pineapple bran made from the dried hull, core, and trimmings of the pineapple is in great demand by the dairy industry. Available data suggest that the current annual production of pineapple bran is about 30,000 tons. The three producers of bran are the Dole Company, Del Monte Corporation, and the Maui Land and Pineapple Company.

Another popular pineapple by-product is pineapple green-chop. Up until a few months ago, only Dole Company was making its lands available for the harvesting of greenchop. However, Del Monte Corporation has recently announced that it will offer some of its pineapple lands on Oahu for a trial harvest by Oahu-based dairy interests.

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

Sugarcane "strippings", the unburned green tops (called "strippings") of sugarcane, a product of wet and dry sugarcane washing plants, has recently gained serious consideration for use as a livestock feed. Hopefully, the use of "strippings" can be developed as a readily available feedstuff for our local cattle.

Various other materials such as coffee bean husks, and macadamia nut husks have been experimentally used as feed. The results have shown that further research is needed to remove or reduce the toxic effects of certain properties of these two materials before commercial use can be safely considered.

Two recent promising developments relating to the use of culled papayas and the stem of the pineapple plant are being watched closely by University of Hawaii scientists. As of this writing, a report on "Pineapple Stem Meal" has been submitted for publication and distribution.

Pasture Grasses — Implications for the Future

As noted elsewhere in this report, the beef cattle industry is expected to increase reliance upon pasture grass feeding in light of expected high levels of grain-based feeds, and the recently announced changes in beef grading by the United States Department of Agriculture.

While Hawaii is blessed with substantial amounts of grazing lands, the current carrying capacity of our pasture lands is in need of upgrading in order to fulfill the anticipated heavier reliance upon pasture feeding in growing our beef cattle. The price level of commercial fertilizer will probably be the major determinant influencing the extent of pasture improvement that beef cattle producers will attempt. It has been suggested that funding support for pasture improvement may be available through the United States Soil Conservation's "Cost Sharing Program". According to informed local sources, several states have received financial assistance from this federal agency, and the local industry may wish to consider pursuing this possibility.

Chapter 7

FEED STORAGE FACILITIES — SOME FACTS AND PROBLEMS IDENTIFIED

Introduction and Some Background

A review of selected legislative documents indicates that legislative interest on the subject of feed storage facilities dates back more than 25 years. Territorial Act 248, Session Laws of Hawaii, 1953, for example, authorized the then Board of Harbor Commissioners, now the Harbors Division of the Hawaii State Department of Transportation, to issue revenue bonds in an amount not to exceed \$1,250,000 for the construction of bulk warehouses and facilities for the storage of feedstuffs and foodstuffs. Under the provisions of Territorial Act 248, the Stanford Research Institute was commissioned to conduct a feasibility study and released a report entitled, "A Study of the Economic and Engineering Feasibility of A Bulk Storage Facility for the Feedstuffs and Foodstuffs in Honolulu, T.H.", in March 1955. The principal conclusion of that study was that the construction and operation of a bulk feed storage facility in Honolulu did not appear to be practical or economically feasible at that time. The conclusion was based on the following reasons:

1. None of the many experienced feed or grain companies interviewed both on the Mainland and in the Territory indicated an interest in leasing or licensing a bulk facility.
2. Solutions to the many buying, shipping, handling, and selling problems inherent in the operation of a relatively small facility--maximum potential of 42,000 tons of simple feeds--were not readily apparent.
3. It appeared inevitable that competitive feed importers and dealers then serving the Territory would take actions that would reduce the utilization of the facility.

The question of feed storage facilities subsequently resurfaced in 1962 with the adoption of House Resolution No. 92 which requested the State Department of Agriculture with the assistance of an advisory committee of representatives of the livestock industry, the University of Hawaii Department of

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Agricultural Economics, and the University of Hawaii Economic Research Center to evaluate the provisions of several bills pending before the 1962 Legislature relating to the construction of bulk grain and feed storage handling facilities. A report entitled, "Report of the Feed Grain Study Committee", submitted to the State Legislature by the State Board of Agriculture, on January 16, 1964, concluded and so recommended that the construction of a competitive bulk facility would not be economically feasible at that time. That recommendation was adopted.

Other legislative documents examined indicate that the subject of feed storage and handling facilities continued to surface periodically thereafter; however, in each instance, no conclusive findings or actions appear to have resulted therefrom.

During the 1975 Regular Session of the Hawaii State Legislature, two companion bills, Senate Bill No. 279 and House Bill No. 947, relating to appropriations for the planning and construction of statewide feed and grain storage facilities have been introduced. The evaluation which follows attempts to identify and evaluate the salient factors inherent in this long standing issue.

Ramifications of State Establishment of Feed Storage Facilities

The establishment of feed storage and handling facilities by the State necessarily involves a careful consideration of various factors, including the primary questions of propriety of government participation, need, desirability, and alternatives. The discussion which follows focuses on these four areas.

A. Propriety of Government Participation

The Constitution of the State of Hawaii provides in essence that public funds shall not be used for private purposes; hence, with regard to state participation in any activity tied to any private entity of usage of public facilities, the question of propriety of such participation must be examined. The establishment of feed storage and handling facilities must, therefore, be reviewed in the context of the total well-being of the State and its economy, before judgment relating to state participation can be made.

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The State is dependent upon relatively few major industries. Thus, in order to maintain a favorable economic balance, the State should strive toward greater self-sufficiency within a framework of established priorities. Under the Hawaii State Constitutional mandate to "...promote the conservation, development and utilization of agricultural resources...", the clear intent of the Legislature during the past several years in promoting the development of agriculture to its fullest potential is evident in the actions of that body as measured in part by the several millions of dollars which it has appropriated for agriculture and agricultural-related programs. In a paper presented at the Third Annual Feed Industry and Nutrition Conference at the Ala Moana Hotel during November 28 and 29, 1972, the then Chairman of the Senate Committee on Economic Development predicted that "...the future legislation affecting agriculture will reflect the Legislature's concern to keep Hawaii a semi-agrarian State...." The volume and intensity of agricultural measures introduced and adopted by the State Legislature during the past several years appear to be manifest evidence of legislative intent to promote agricultural development in Hawaii.

Reducing agricultural dependence on external sources is a matter of compelling state interest in that extreme vulnerability of the State to shipping disruptions requires that the State take unusual measures to counteract the various results of the geographic isolation of the islands from the mainland United States.

These measures, while unusual in terms of normal state participation, are by no means outside of the power or right of the State, for the primary consideration governing any governmental action should be the well-being of the people, and the adequate protection of the people from external influences and occurrences. The establishment of feed storage and handling facilities by the State is, because it is integrally related to the State's efforts to gain greater self-sufficiency in agricultural products, wholly within the purview of the State, particularly in view of the fact that the storage facilities should eventually pay for themselves in the form of rental assessments to be made by ultimate users of the facilities.

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As will be seen below, the need for the facilities exists, and the desirability of establishing the facilities to enhance the general development of agriculture in a state containing much good agricultural lands and a supportive climate, and the duty of the State to provide for the best interests of the State's residents, would appear to counter any claim of improper expenditure of public funds. Similarly, the establishment of the facilities will contribute to filling a need by providing adequate facilities for feed storage. This development will result in the use of otherwise discarded pineapple and sugarcane residue materials and increase the efficiency of local agriculture by using locally produced and available by-products not devoted to any other use. There is no facility, public or private, to handle agricultural by-products despite the availability of such by-products which are favorable for use as roughage in livestock diets. The heavily seasonal availability of pineapple and sugarcane discards would seem to suggest the necessity for establishment of facilities for storage of the locally available material, as a favorable substitute for more expensive, less accessible livestock roughage, which is otherwise an expensive import item.

The interest of the State in, and its duty to pursue programs supportive and in furtherance of, the development of local industries is a foregone conclusion; where public facilities would fill a need by providing heretofore nonexistent facilities, and which would supplement and not replace private commercial facilities, no significant harm will be recorded by existing industries, while other industries will be greatly benefitted thereby, in addition to eventual recovery of monies expended for construction, etc., through lease rentals. The State would retain ownership rights and interests in the facilities established, and thus some measure of accountability of operation thereof by users will ensue. Thus the propriety of government participation is not problematic to the establishment of feed storage and silage facilities with public funds.

B. Need

Any assessment of need of additional feed storage facilities in the State is speculative in nature, regardless of the determination of existence or non-existence of such need. This situation is based upon

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a condition not common to other states, in that there is only one practical source of transportation for importing feedstuffs into Hawaii that being by ocean vessel. History has recorded the periodic recurrence of shipping disruptions of various intensities, and of various durations, and the future success of the State in providing adequate inventories of any imported products or materials to outlast possible disruptions can never be fully determined, because of the unpredictability of terms of disruptions. Hindsight is not necessarily an accurate measure of future needs but barring other judgmental parameters, past experience must be partially relied upon in determining need in this instance.

The last shipping tie-up experienced by the State involved a seven-month disruption of normal shipping. Relying upon the feed industry's approximations of use and capacity inventories, the industry can maintain an inventory of up to nearly four months' feed supply in existing facilities. It appears, therefore, that even assuming that individual farmers have the capacity to store a one-month supply of feed at their farms, there is insufficient storage capacity for a seven-month shipping stoppage. The State saw fit, during the seven-month strike, to bring in an emergency shipment of feed, indicating insufficiency of provisions for shipping disruption by the local feed industry. An argument relating to the availability of storage space at the state piers can be advanced, but there is no absolute certainty of availability of the space for storage, nor is there any guarantee of suitability of the area specified for storage of feedstuffs.

Resolving the question of need further requires predication of other variables, in addition to a quantified assessment of need. There are qualitative variables involved, in terms of the existence of inventories of materials customarily used for livestock and poultry feedstuffs. The limitation of storage facilities may result, as occurred during the last shipping tie-up, in the fact of availability of feed in quantity, by the available feedstuffs being of natures not normally used were less suited for normal industry needs. Additional storage facilities suitable for the storage of feedstuffs will assist in preventing this qualitative aspect of feed availability during shipping disruptions.

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There is unquestioned need for silage facilities, and as above noted, the establishment of such needed facilities will enhance the productivity and inter-relationships between various sectors of Hawaii's agricultural industry. This possibility of increased efficiency and attention to local efforts justifies government assistance so that viability of agriculture, and continued development of diversified agriculture in the total framework of the State's economy may proceed.

C. Desirability

The desirability of the establishment by the State of feed storage facilities is closely related to the discussion of need for the facilities. Desirability, as envisioned here, is a natural extension of need in that establishment of the facilities will prompt various effects, which will be beneficial to the people of the State. Need, as discussed above, deals primarily with quantitative and qualitative aspects and effects of establishment of the facilities in terms of the status quo.

There are several desirable results which are foreseen as beneficial to the State, considered in contemplation of state-established facilities. Some of the benefits were mentioned above, namely, minimization or possible elimination of substitution of less suitable feedstuffs in lieu of availability of customarily used materials, and the beneficial use of seasonal or periodic agricultural by-products not reserved for other uses.

In addition, there is a possibility of seeking storage of federal government grain in Hawaii in the facility, with infusion of federal funds to bear the costs of such storage. Accordingly, state recovery of capital outlay will be hastened with income from federal storage. Hawaii appears to be one of two states not storing federal grain, and the apparent reason for nonstorage is the lack of facilities to store such materials.

Future major cultivation of feedstuffs in the State may be encouraged by the availability of existing storage facilities for such feedstuffs, requiring no major capital outlay by the producer for storage of feed. This may add significantly to the diversification of agriculture in Hawaii, as well as

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increasing the self-sufficiency of the State, resulting in an economy and a government more insulated from external pressures and influences which otherwise may prove detrimental to the orderly governance of state affairs. Development of further agricultural pursuits such as feedstuff cultivation will add to the job market in Hawaii, thus easing in addition, socio-economic difficulties of some residents of the State.

The cost of feed may be beneficially affected by the establishment of state feed storage and silage facilities. Currently, some individuals prefer to order feedstuffs directly from Mainland suppliers, who do not maintain adequate local inventories of feedstuffs to aid the State in times of shipping disruption. The cost of the feed so ordered appears less expensive to the farmers, during times of normal shipping. The local feed importers-distributors maintain storage facilities for feedstuffs, with a capacity as hereinbefore mentioned, or nearly a four-month feed supply. However, during times of shipping disruption, and for the duration of the shipping stoppage, the farmers who generally order feed from the Mainland distributors must rely and in actuality do turn to the local dealers for feed supplies in the interim, once the minimal inventories maintained locally by the Mainland concerns are exhausted. The result is a more severe pressure on the local feed industry, which then must rely upon its stores of feedstuffs for the entire State, since the farmers are cut-off from other sources of feed.

The feed industry maintains that it is able to withstand the rigors of a shipping stoppage, and keep the State supplied with feedstuffs for the duration of a strike. However, as seen above, the inability to predict the length of a given strike indicates that the storage capacity may, in event of a lengthy strike, prove significantly insufficient for the needs of the State. Additional facilities may forestall exhaustion of feed supplies. With regard to costs, the importers-distributors include the cost of local storage in feed prices, for the industry fulfills a dual function, that of supplying demand needs as well as maintaining stock for emergency shipping stoppages, and like occurrences. It remains a debatable point whether the price difference is compensated for by the dual purpose served by the feed importers-distributors; nevertheless, the

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fragility of agricultural activities may hinge upon the nature of relatively small differences in feed prices. The feed prices, which account for over 50 per cent of the total cost of livestock production, are definitely and irrevocably related to ultimate consumer costs.

There is a possible line of objection to establishment of state-developed feed storage and silage facilities based on the rationale that increased storage facilities will not hold back or reduce feed prices, but instead will increase feed prices, resulting in general detriment to the State. However, a more reasoned view will take into account the possibility of purchasing feed at low prices and storing the feed for use during times of high feed price periods, minimizing purchases of feed at high rates. In addition, other cost benefits may be achieved through purchasing feedstuffs in greater bulk, sufficient to qualify the purchases for volume discounts heretofore unavailable for individual purchasers of feed. Currently, the purchasing practices of local feed importers-distributors take advantage of bulk purchase and accompanying discounted rates, and these savings are passed along to feed purchasers, relative to the rate of discount, but subject to the other costs of the importers-distributors. But these cost benefits may be available on a more widespread basis with the availability of feedstuff storing facilities, and there appears no reason to assume that costs will rise with a state-established facility available for use.

Views on the desirable or undesirable nature of state-established facilities are many and varying, and this discussion encompasses but a few of the imaginable arguments on the subject. The hard fact remains that the benefits which may accrue to the State appear to far outweigh any supposed or presumed or otherwise possible detrimental results. The viability of the feed industry will not be threatened, and in fact, introduction of healthy competition in the feed industry may stimulate greater efficiency within the industry, as well as contribute to cutting production costs of feed-consuming agricultural pursuits in the long run.

D. Alternatives

Since the inception of the idea of state-established feed storage facilities, various alternatives have been proposed for state consideration.

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One of the suggested alternatives is extending tax breaks for feed costs, or establishment of related tax benefits for the feed or agricultural industries. While direct financial benefits will accrue to the industries, there is no reasonable likelihood that any long-term benefit to the consumers will result. The alternative does not approach the problem, but merely seeks to camouflage the reality of presenting no constructive approach.

Another alternative is more attractive and reasonable than the aforementioned alternative. It involves state action in making available lands suitable for the construction of feed storage facilities, on which private industry, assisted by private financing, could construct the facilities. Although in theory it is similar to the establishment of state facilities, it would remain to be seen, however, whether the facilities would be established, developed, and used consistent with the intent of the State. The State would not own the facilities and no accountability would exist for the use of the land. Revenue could, of course, be channeled to the State by means of lease rent, but there would be no ability in the State to ensure the use of the facilities for those persons needing the facilities most. State participation in any venture requires substantial achievement of goal; when the target group is not able to fully benefit from the resultant facility, the activity must be deemed of doubtful merit.

A further alternative, and perhaps the most feasible appearing of the alternatives, is the authorizing of state loans to private industry for use in construction of the needed facilities. There would be definite accountability for expenditure of state funds, in that the loan would be repaid in due time. Thus, particularly with the silage facilities, interested private individuals may borrow state funds to develop such facilities, and to enter into the business of silage. On the surface this alternative appears workable and reasonable; however, the existence of loans for business development has been noted in recent years, and no individual appears to have come forward publicly to propose the undertaking. While this use of state funds to establish a private facility may fulfill industrial needs, it also would effectively eliminate competition, thus apparently resulting in overt and extensive detriment to the feed-consuming industries rather than benefitting them.

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Thus, it is unlikely that any available alternative independently can assist the farmers in a more direct and equitable fashion than state-established feed storage and handling facilities. The feed industry will not unduly gain or lose from the establishment of such facilities, competition healthy for the economy of the State may result, and a stronger system of diversified agriculture in the State may emerge.

Conclusion and Recommendation

The Bureau's conclusion is that state involvement in the financing and construction of feed storage and handling facilities is consistent with the State's goal of promoting agricultural development to its fullest potential. Accordingly, the Bureau recommends that the Legislature request the State Department of Agriculture to proceed with the development of plans for the selection of a site or sites for the construction of feed facilities of the type best suited to the needs of the livestock industry.

Part II

Summary

Feed represents the largest cost item in livestock production representing between 50 to 75 percent of the total cost of production. The past several years have witnessed the highest prices ever for grain-based feeds and as a result, the profit margins realized by livestock producers have been greatly reduced. Reportedly, many local producers have sustained heavy financial losses in recent years, and a number of producers have gone bankrupt as a result of the "cost-price squeeze".

Commercial feeds used in Hawaii's livestock industry are regulated by state law and its administration is delegated to the State Department of Agriculture. The Department's responsibility includes the monitoring of 399 feeds and feed ingredients which are officially certified and registered for marketing in Hawaii. These 399 feed items are handled by 49 different firms duly registered to conduct business in Hawaii. Of the 49 firms, 13 are Hawaii based and the remaining are U.S. Mainland based.

Hawaii's livestock industry continues to be heavily dependent upon imported feeds and feed items. While local feed manufacturers account for an estimated 75 to 80 percent of the retail sales in the State, a substantial percentage of the required feed ingredients are imported.

There is one major feed importer and four major feed dealers in the State. The total share of the feed market enjoyed by these five entities has been estimated to be in excess of 80 percent of the total Hawaii market.

The marketing system of feeds and feed items is a complex process and the price paid by the ultimate consumer is dependent upon a number of variables.

As of this writing two grain crops, alfalfa and feed corn, appear to be showing the greatest potential and their successful cultivation should be a significant benefit to the local livestock industry.

Of the various agricultural by-products used as feeds, pineapple and sugar cane residues appear to have demonstrated the greatest practical value. Other products are usable and continued research and development are under way.

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In assessing the long standing issue of state-financed and constructed feed storage facilities, the Bureau's conclusion is that state involvement is a proper and necessary one and recommends that active planning for the implementation of such facilities be initiated.

Part III

**COMPILATION OF MISCELLANEOUS
QUESTIONNAIRES**

Compilation of the Livestock Feed Study

Questionnaire

Questionnaires were sent out to 1,103 livestock producers in the State of Hawaii who raise dairy cattle, beef cattle, chicken, and swine either on a full-time or part-time basis. Of this total number, 477 questionnaires, or 43.4 percent of the total, were returned to the Legislative Reference Bureau.

The following are selected questions taken from the questionnaire and a compilation of the answers given by the 477 livestock producers. However, to be able to better understand and assess the answers given by the 477 livestock producers, the following profile was developed. Briefly, the profile of the typical livestock producer in the State of Hawaii as ascertained by the questionnaire shows that he manages a family-run operation on a part-time basis and grosses under \$5,000 a year. The following gives a more complete breakdown of this profile.

(a) Type of operation:

73.4 percent are family-run operations
9.4 percent are corporations
5.9 percent are partnerships
11.3 percent did not indicate

(b) Gross income from operation:

58.3 percent are grossing under \$5,000 a year
41.7 percent are grossing over \$5,000 a year

(c) Scale of operation:

60.4 percent are part-time operations
28.5 percent are full-time operations
11.1 percent did not indicate

(d) Type of livestock produced:

53.3 percent are in beef cattle production
28.3 percent are in swine production
7.1 percent are in multi-livestock production
6.7 percent are in poultry or egg production
4.6 percent are in dairy cattle production

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Questions

Because feed is the major cost factor in livestock production, the questionnaire attempted to determine how many producers used roughage materials to supplement their animal feed ration.

1. Do you use any of the following roughage materials?
(Check all applicable)

	<u>Yes</u>	<u>No</u>
Alfalfa products	10.3%	45.3%
Cane strippings	2.3%	48.2%
Dry hay	4.2%	46.3%
Pineapple bran	14.9%	43.2%
Pineapple greenchop	3.8%	46.5%
Other greenchop (sorghum-sudan)	4.6%	47.0%
Other roughage	17.6%	31.8%
Pasture grass		
Haole koa		
Garbage		
and other roughage		

The results show that few of the 477 livestock producers use the kinds of roughage materials listed in the questionnaire. The reason lies in the fact that 73.4 percent of the livestock producers operate family-type farms and may not have access to the kinds of roughage listed above, such as greenchop and cane strippings. Most of the producers, 17.6 percent as indicated in the results, use whatever roughage materials they can forage off the land.

2. If you believe commercial feed is "too high" what do you think are some reasons?

Two reasons were given as the most commonly believed explanation for the high cost of feed here in Hawaii. Most of the producers, 49.7 percent, attributed the high cost to "Mainland to Hawaii and interisland shipping costs". The second reason given by 49.1 percent of the producers was "general inflation".

The third reason, "excess profits by feed dealers", was given by 29.8 percent, while 27.0 percent believed that there was "not enough dealer competition locally".

Another group, 23.3 percent, believed that the "shortage of feed supplies locally" caused the demand to be higher than the supply, resulting in higher costs.

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Other reasons such as "too many different types and weights of feed", and "inadequate warehousing and shipping schedule" were given by 13.6 percent of the producers.

The interesting conclusion here is that most of the producers themselves do not believe that they are being charged high prices for feed because of an excess profit motive.

3. Have you done any of the following to cut down on offset your feed costs?

A majority of the producers, 41.9 percent, now use "less commercial feed and more forage" than they had done before to help offset feed costs. Cattle are now left to pasture for a longer period.

Another 35.4 percent have "cut down on the number of animals they now raise", while only 15.3 percent have resorted to using "cheaper materials in the ration", for they run the risk of losing production. And 12.4 percent of the producers have decided to "raise their prices" to help absorb the cost of feed.

4. Have you ever had trouble getting commercial feed from your usual supplier?

About one-third, 31.2 percent, of the producers indicated that they have had trouble getting feed from their suppliers, while the majority, 39.8 percent, indicated no trouble at all.

The reason for the trouble was a "shortage of feed not resulting from shipping strike" as believed by 21.2 percent of the producers. Another 20.3 percent did believe that "shipping strikes" were a major reason for shortages.

Other reasons given were "trouble getting same consistent ration in mixed dairy feed"; "erratic shipping schedule with Matson sometimes being off in delivery for one month"; "feed company not always having the type of feed needed in bags and requiring the producer to come back another day"; and "spoiled feed".

5. State government help is needed in what areas? (Check all applicable)

A majority of the producers, 47.4 percent, believed that the State government should "support increased local production of feed grains".

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Another 41.7 percent believed that "reducing land taxes" would be of great help to the farmers.

A third group of producers, 34.4 percent want more "support of the State farm loan program" here in Hawaii.

Approximately one-third of those who returned the questionnaire believed that the State could help the producers by "financing and building a bulk grain storage and handling facility" although few indicated where they would like the facility built.

State support of "scientific research" was recommended by 18.7 percent, while 12.8 percent had other ideas for State help such as "putting more government land out to lease"; "giving more technical advice and marketing assistance to the livestock industry"; "reducing inter-island freight rates for agricultural products locally produced either through subsidy or reduction and/or elimination of State taxes and wharfage on transportation"; "increasing local production of roughage materials"; "having better communication of research findings to the farmers"; and "developing a good water supply system at economically feasible rates". One final recommendation was for the State to protect the agricultural lands from being rezoned into urban use.

Compilation of the Feed Trade Industry Questionnaire

Questionnaires to ascertain the nature of Hawaii's feed trade industry were sent to the four major feed dealers in the State of Hawaii. These four feed dealers provide 75 percent to 80 percent of all the feeds used by livestock producers in the State. They are (1) Albers Milling Company; (2) Fred L. Waldron, Ltd.; (3) Pacific Feeds, Inc.; and (4) Feed-well, Inc. All four feed dealers cooperated by filling out the questionnaires and returning them to the Legislative Reference Bureau. The following is a list of the questions asked on the questionnaire and a compilation of the answers given by all four feed dealers.

1. Which of the following costs involved with the shipping and handling of feed items are directly or indirectly charged to you?

Feed dealers are indirectly charged for grain transported to the coastal ports from inland grain producing areas.

Feed dealers are directly charged for shipment of grain from the coastal ports to Hawaii, and are directly charged for any costs derived from the time of arrival until the date of sale.

Any interisland reshipment of the grain is directly charged.

2. Do you import grain or feed into Hawaii directly from the U.S. Mainland or elsewhere (i.e. Canada) and in what proportion?

Between 90 percent and 100 percent of the grain purchased by the feed dealers is imported from the U.S. Mainland. None of the four grain dealers specified what other source provided for the remaining 10 per cent of the grain.

3. If you import your feed commodity direct from the Mainland or elsewhere, by what mode of transportation and in what proportion?

Between 80 percent and 100 percent of these direct purchases are made on the West Coast; 15 percent from the Midwest; and about 5 percent from foreign ports.

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All four feed dealers receive grain weekly with an average tonnage of 100 tons to 450 tons.

4. How do you pay for your inventory?

All four pay for their inventory either by (a) cash and carry; or (b) credit.

5. How are your feed purchase needs determined?

All four determine their feed purchase needs by (a) customer's orders; (b) inventory needs; (c) projection of quarterly livestock feed requirements; and (d) projection of yearly livestock feed requirements.

6. Do you do projection studies to determine future feed use requirements? If yes, what do your most recent projections show about the livestock industry's feed requirement for the next, say, five years?

Three of the four feed dealers indicated that they did projection studies.

Two of the four dealers anticipate a need for more feed for all four categories of beef, dairy, poultry, and swine.

One of the four dealers anticipates a need for the same volume for all four categories.

One dealer anticipates a need for the same volume for all except dairy cattle, which is anticipated to be less than it is now.

7. How many tons of the following items (grain, mixed feeds, feedstuffs, and other feeds) do you normally have on hand at any given time?

The inventory of all four feed dealers ranges from 300 tons to 10,000 tons, and represents a 21 to 60 day supply of grains and feeds.

8. Are you currently using all the feed storage space you have?

Only one of the four grain dealers is currently utilizing all available storage space. The other three feed dealers indicate that they have room for 300 to 1,500 tons more of grain.

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9. What services do you provide your customers?

All four provide (a) storage; (b) maintenance of inventory; (c) delivery of feed to customer; and (d) extension of credit.

10. What kinds of discounts do you offer your customers?

Two of the four feed dealers give trucking discounts of approximately 50 cents to \$1.00 a ton, depending on the volume.

Three of the four give volume discounts from \$1.00 to \$4.00 a ton, again depending on the volume purchased. For example, one company gives a discount of \$1.00 a ton for the purchase of 25 tons or more, and up to \$4.00 a ton for the purchase of 200 tons or more.

All indicate that they give cash payments, either 1 percent or 1-1/2 percent of the purchase price for early payment, usually within 10 days of purchase.

11. What kinds of credit arrangements do you provide your customers?

All four extend credit for 30 to 45 days after receipt of feed. One company extends credit for 105 days for broiler grower feed.

12. Once the feed user buys feed from you, is he responsible for trucking it to his farm or operation?

All four answered "no". They provide transportation. The cost for the delivery service varies between \$2.00 to \$7.00 a ton, depending on the distance of the farm from the mill.

13. What percentage of your total feed sales are to the following?

Livestock producers: Between 64 percent and 90 percent of total sales.

Retail outlets: Up to 20 percent of total sales.

Feed manufacturers: None sell to feed manufacturers.

Feedlots: Only two of the four dealers sell to feedlots; the volume sold to feedlots ranges between 5 percent and 25 percent of total sales.

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14. Your sale of feed by the bag represents what percentage of your total feed sales per year? By bulk?

The feed dealers indicate that they sell from 5 percent to 30 percent of their feed by bags.

The remaining 70 percent to 95 percent of the feed is sold by bulk.

15. Is your markup based on:

Percentage: Two of the four feed dealers use this method for determining their markup.

Flat amount: Two of the four feed dealers use this method for determining their markup.

16. Your feed markup goes toward?

No answer furnished.

17. Do you have different price rates on the same type of feed depending on the age of the feed, the price when it was obtained, or some other factor, or is there one set price for each particular type of feed at any given time?

All four indicated that there was one set price for each type of feed at a given time.

18. Regarding local production of feed items, do you believe the following are feasible or unfeasible?

Three of the four feed dealers thought that local production of feed grains was unfeasible.

All four thought the local production of roughage was feasible.

Only one feed dealer thought the local production of other feed items was feasible.

19. What are some of the problems with regard to local production of feed items?

- (a) Water available at an economically feasible rate.*
- (b) Land suitable for production*
- (c) Varieties of grains adapted for the tropics.*
- (d) Poor interisland transportation.*
- (e) Unpredictability of the weather.*
- (f) Availability of a stable market for the feed items.*

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20. Would you buy locally produced feed items?

All four replied that they would purchase locally produced feed items provided that the source was reliable and there was quality control similar to imported grains.

21. In your opinion, what are the major problems facing the feed trade industry in Hawaii?

- (a) Small volume of business.*
- (b) Poor interisland transportation.*
- (c) Supply shortage due to truck, rail, dock, or shipping strikes.*
- (d) Inventory costs.*

22. Is there anything the feed trade industry can do to offset the high cost of feed?

All four feed dealers believed that they were doing all they could.

23. Is there anything the feed user (or livestock producer) can do to offset the high cost of feed?

- (a) Better management practices.*
- (b) Control of production.*
- (c) Having locally stored whole grain in adequate quantities.*

24. Is there anything the State government can do to offset the high cost of feed?

- (a) Exempt all agricultural products from all State taxes as is done in California.*
- (b) Support more agricultural parks at reasonable rates.*
- (c) Promote research of locally produced grain and protein.*
- (d) Assist in lowering freight cost.*
- (e) Give a subsidy on feed grains.*
- (f) Help finance a grain elevator and grain inventory for the benefit of the livestock producers. There would be several areas of savings:*
 - (1) Savings in purchase price due to large volume.*
 - (2) Savings in having train rate over car rate.*
 - (3) Savings in export rail rate over domestic rail rate.*
 - (4) Savings in bulk barge or ship rate over container rate.*
 - (5) Savings in bulk handling over container.*
 - (6) Savings of brokerage charge.*

Compilation of the Agricultural Cooperative Questionnaire

Questionnaires were sent out to twenty-three agricultural cooperatives whose addresses were known in the State of Hawaii. Of the twenty-three questionnaires sent out, seventeen were returned to the Legislative Reference Bureau. Of the seventeen cooperatives that did return a questionnaire, only four cooperatives indicated that they did engage in the practice of purchasing feed for their members. Because the questionnaire was aimed primarily at finding out what the role of the cooperatives was in the feed purchasing practice, only the results of these four cooperatives were tabulated. The following is a list of some of the questions asked on the questionnaire and a compilation of the answers given by the four agricultural cooperatives.

1. What types of feed are purchased by the cooperative and in what volume per year?

Only one of the four cooperatives purchased whole grain for its members, on the average of two tons per year.

Three of the four cooperatives purchased mixed feed for their members, from a low of only eight tons a year to a high of three thousand tons per year.

One of the four purchased other feed for its members. These feedstuffs were 24,000 tons of greenchop, 5,000 tons of cubed alfalfa hay, and 4,500 tons of cottonseed.

2. Where does the cooperative buy its feed?

Three of the four are located on Oahu and buy their feed on Oahu. One is located on the Island of Hawaii and purchases its feed there.

3. Does the cooperative buy its feed in bulk, bags, or some other unit and what percentage of the yearly purchase does each represent?

Three of the four purchase from 95 percent to 100 percent of their feed in bulk form.

The other cooperative purchases 100 percent of its feed in bags.

COMPILATION OF MISCELLANEOUS QUESTIONNAIRES

4. Is there a cost savings to members in buying feed through the cooperative?

Three of the four answered yes. The other cooperative answered in the negative.

5. Is the feed bill on feed bought by the cooperative paid by the cooperative?

All four cooperatives paid the feed bill for their members. Two of the four paid through cash arrangements; the other two paid through credit arrangements.

The members later paid the cooperatives either upon receipt of a statement, or were subsequently assessed for the cost of the feed from their market income.

6. Does the cooperative levy a service charge or fee to the member user for providing the feed purchase service?

Three of the four do charge a service charge or fee. The fee ranges from 1 percent to 4 percent of the total purchase price.

7. Does the cooperative provide any of the following feed-related services to its members?

One cooperative did not answer the question. Of the three that did answer the question, all three extended credit to the farmer to pay for the feed. Only one cooperative provided for the storage of feed. Two provided for the paying of the feed bill through the use of cooperative funds. None of the cooperatives provided for feed delivery.

8. Has the question of feed, feed prices, feed storage, etc. ever been discussed by your cooperative?

All four indicated that questions of feed-related problems have come up before their cooperative memberships.

9. Has your cooperative taken a vote or stand on any question regarding feed?

Three of the four have taken a vote or stand.

- a. *Want to have the State assist in putting up a grain holding facility on the Island of Hawaii. The operational entity should be a cooperative of Hawaii Island grain users. This would allow farmers the*

FEED FOR HAWAII'S LIVESTOCK INDUSTRY

opportunity of taking advantage of large bulk purchases, and to protect them from shipping strikes.

- b. Purchase feed in bulk form.*
- c. Supplement the imported and expensive feed grain by having the farmers grow some of their own feed and by having them collect forage off the land to feed to their animals.*

10. What can your cooperative or other cooperatives do to ease the prices farmers have to pay for feed?

Three of the four replied that they could do nothing.

One had the following answers:

- a. Buy feed in bulk.*
- b. Show farmers how to grow grain.*
- c. Form cooperatives that are nonprofit in nature, owned and operated without gratuity by the members.*

FOOTNOTES

CHAPTER 2

1. Statistics of Hawaiian Agriculture, 1973, p. 12.
2. Ibid.
3. U.S., Department of Agriculture, Economic Research Service, Balance Sheet of the Farming Sector 1974, Agriculture Information Bulletin No. 376 (Washington: U.S. Government Printing Office, 1974), p. 49.
4. Information furnished by Dr. James Koshi, State and Area Dairy Specialist, Department of Animal Sciences, College of Tropical Agriculture, University of Hawaii, December 1974.
5. Hawaii, Governor's Agriculture Coordinating Committee, Opportunities for Hawaiian Agriculture; Agricultural Development Plan, State of Hawaii (Honolulu: Department of Planning and Economic Development, 1970), p. 19.
6. Ibid.
7. Information furnished by Dr. James Nolan, Specialist in Animal Husbandry, Department of Animal Sciences, College of Tropical Agriculture, University of Hawaii, March 1975.
8. Honolulu Star-Bulletin, March 7, 1975, front page.
9. Honolulu Star-Bulletin, December 7, 1974, editorial appearing on p. A-12.
10. Information furnished by Dr. Richard Stanley, Assistant to the Dean, College of Tropical Agriculture, University of Hawaii, March 1975.
11. Information by Dr. Richard Stanley, March 1975.
12. John T. Shields, "The World Fertilizer Situation - A View of the Present and a Look to the Future," Paper presented at Planning and Organization Meeting of the INPUTS Project, Honolulu, Hawaii, October 21-25, 1974.
13. Information furnished by Dr. Steven Olbrich, Acting State and Area Dairy Specialist, Department of Animal Sciences, College of Tropical Agriculture, University of Hawaii, March 1975.
14. Information furnished by Dr. James Koshi, December 1974.
15. Information furnished by Dr. Steven Olbrich, March 1975.
16. Information furnished by Dr. James Koshi, December 1974.
17. Information furnished by interviewee who wished to remain anonymous.
18. Pacific Business News, February 24, 1975, p. 2.
19. Hawaii, University, Cooperative Extension Service, The Livestock Industry in Hawaii, Miscellaneous Publication 67 (Honolulu: 1970), p. 24.
20. Information furnished by Mr. Toku Tanaka, State and Area Poultry Specialist, Department of Animal

Sciences, College of Tropical Agriculture, University of Hawaii, March 1975.

21. Statistics of Hawaiian Agriculture, 1973, pp. 68, 70.
22. Ibid., p. 70.
23. Information furnished by Dr. William Hugh, State and Area Swine Specialist, Department of Animal Sciences, College of Tropical Agriculture, University of Hawaii, March 1975.
24. Statistics of Hawaiian Agriculture, 1973, p. 7.
25. Budget testimony presented by the Hawaii State Department of Agriculture before the Hawaii State Senate Committee on Ways and Means, January 23, 1975.

CHAPTER 3

1. U.S., Congress, House, Subcommittee on Department Operations of the Committee on Agriculture, Malthus and America; a Report About Food and People, 93d Cong., 2d Sess., 1974, p. 15.

CHAPTER 4

1. D. Clive Drew, "The Economics of Grain Production," Proceedings: Third Annual Feed Industry and Nutrition Conference, University of Hawaii, Cooperative Extension Service, Miscellaneous Publication 110 (Honolulu: 1973), p. 30. Numerous other reference sources examined during the study period similarly concluded that feed is the single most costly item in the production of animal products. Livestock producers and other persons participating in the study likewise concurred that feed is indeed the single most expensive item in commercial livestock production.
2. Studies conducted by Dr. Harry R. Donoho, Specialist in Livestock Management, Cooperative Extension Service, College of Tropical Agriculture, University of Hawaii, show that feed accounted for \$305,883 of total production costs of \$556,054 or 55 per cent based on a study of 19 dairy herds on Oahu during calendar year 1973. A similar study of four dairy herds in Hawaii county for the same period shows feed representing \$148,970 or 58.8 per cent of the total production cost of \$253,244. A 1971 study of egg production costs of five poultry farms in the Hilo area shows that feed accounted for \$48,650 or 58.2 per cent of the total production cost of \$83,554. Depreciation costs were excluded in calculating production costs in each of these three studies.
3. An examination by the researcher of form "Schedule F," "Farm Income and Expenses," Department of the Treasury, Internal Revenue Service, voluntarily furnished by a swine producer on Kauai shows that of total production costs of \$70,259, feed accounted for \$52,750 or 75.1 per cent. Data were for the taxable year 1973. Similar types of data shared by various producers reflect that feed costs may range up to 80 per cent of the total cost of production.

4. Marshall H. Jurgens, Applied Animal Feeding and Nutrition, An Outline (Dubuque, Iowa: Kendall/Hunt Publishing Company, 1973), p. 1.
5. Ibid., p. 59.
6. Ibid., p. 25.

CHAPTER 6

1. Hawaii, Agricultural Experiment Station, Achievement Analysis Report, Fiscal Year 1973-1974, Miscellaneous Publication 120 (Honolulu: 1974), p. 3.

Part IV
APPENDICES

Glossary

Additive. An ingredient or combination of ingredients added to the basic feed mix or parts thereof to fulfill a specific need. Usually used in small quantities and requires careful handling and mixing.

Broiler. A chicken marketed at about seven weeks of age.

Commercial Feed. All materials which are designed to be used for the purpose of feeding of livestock except: Unmixed whole seed, Unground hay, Whole or ground straw, Wet garbage, Unmixed feeding molasses, Unmixed pineapple.

Commercial Mixed Feed. A commercial feed which is a mixture or blend of more than one feed ingredient.

Commercial Simple Feed. A commercial feed that consists of only one feed ingredient which has been cracked, ground, rolled, cut, or crimped.

Complete Feed. A nutritionally adequate feed for animals; by specific formula is compounded to be fed, as the sole ration and is capable of maintaining life and/or promoting production without any additional substance being consumed except for water.

Custom Mixed Feed. A special commercial feed mixture which is formulated by the manufacturer or processor in accordance with the specific instructions of the final purchaser.

Concentrate. A feed used with another to improve the nutritive balance of the total feed given. Generally refers to the high energy cereal grains and/or the high protein oil meals which are added to a ration.

Diversified Agriculture. All agricultural products including livestock and exclusive of sugar cane and pineapple.

Ensilage or Silage. The acidified plant product produced during the ensiling process. The finished product is used as a ruminant feedstuff.

Ensile. A process involving the packing of forage type feeds in air tight containers (silo) to undergo a chemical change resulting in the retardation of spoilage.

Feed. Nutritive material taken into an organism for growth and maintenance of the vital processes.

Feedstuff. All materials included in the diet of livestock because of nutritive properties. Can generally be defined as any product whether of natural origin or artificially prepared that when properly used has nutritional value in the diet.

Forage. Aerial plant material, primarily grasses and legumes containing more than 18 percent crude fiber on a dry basis, used as animal feed. The term usually refers to plant materials as pasture, hay, silage and green chopped feeds.

Grain. Seed from cereal plants.

Hay. The aerial parts of grass or herbage cut and dried (cured) for animal feeding.

Pullet. A young, non-egg laying hen.

Ration. The total amount of feed allotted to one animal for a 24-hour period.

Roughage. Plant material high in fiber, often low in digestibility, and low in protein. Includes the raw plant by-products or crop production as well as bagasse, straw, and corn cobs, etc.

Ruminant. An animal of the suborder, Ruminantia: even-toed hoofed animals, which chew the cud and possess a complex stomach consisting of the rumen, reticulum, omasum and abomasum. The cow is the only ruminant animal commercially raised in Hawaii.

Spent Hen. A laying hen no longer economical for egg production.

Toll-Milled Feed. A special feed which is processed by the processor from material or materials entirely delivered by the owner in accordance with the owner's specifications and which is not distributed.

APPENDIX A

(To be made one and ten copies)

HOUSE OF REPRESENTATIVES
SEVENTH LEGISLATURE, 1974
STATE OF HAWAII

H. R. NO.

315
H.D. 1

HOUSE RESOLUTION

REQUESTING A HEARING ON THE PROBLEMS FACED BY FARMERS.

WHEREAS, Hawaii's move toward increased production of diversified agricultural commodities is to achieve the State's goal of greater self-sufficiency in the production of food that the people of Hawaii consume; and

WHEREAS, the livestock industry is the major contributor to Hawaii's diversified agriculture, accounting for 68 per cent of diversified agricultural marketing or approximately 19 per cent of the total agricultural marketing including sugar and pineapple; and

WHEREAS, the growing population and expanding tourist industry increase demands for livestock products, yet the scarcity of land, rising labor costs, and extensive capital outlays necessary for livestock operations, further hampered by very modest profit margins, make livestock production a risky enterprise; and

WHEREAS, the continuation of livestock production as a viable industry depends upon the identification and solution of problems faced by livestock farmers in the State, specifically those problems which relate to:

- (1) High cost of feed;
- (2) Effects of increased grain prices on the national level;
- (3) Availability of feed during shipping strikes;
- (4) Consideration of need for state-subsidized storage and manufacturing of feed;
- (5) Credit arrangements between feed manufacturers and farmers;
- (6) Interisland transportation problems; and
- (7) Current and future inventories of commodities in the State;

and

WHEREAS, the solution of these and other problems that may be brought to attention will improve efficiency and increase production in the livestock industry; now, therefore,

BE IT RESOLVED by the House of Representatives of the Seventh Legislature, State of Hawaii, Regular Session of 1974, that the Legislative Reference Bureau is requested to conduct an in-depth

study into the problems faced by the livestock industry in the State of Hawaii and to deliver to the Chairman and members of the House Committee on Agriculture copies of a report of the study at least 20 days prior to the commencement of the next regular session of the Legislature; and

BE IT FURTHER RESOLVED that the House Committee on Agriculture, promptly after being furnished with the Legislative Reference Bureau study, is requested to conduct hearings into the problems faced by livestock farmers in the State; and

BE IT FURTHER RESOLVED that duly certified copies of this Resolution be transmitted to the Legislative Reference Bureau, the Chairman of the House Committee on Agriculture, and the Speaker of the House of Representatives.

APPENDIX B

LIST OF PERSONS INTERVIEWED

LIVESTOCK PRODUCERS AND RESOURCE PERSONS OTHER THAN GOVERNMENTAL PERSONNEL

A. Kauai

1. James Gushiken Swine Producer
2. Hong Min Hee Division Manager
Kekaha Sugar Company, Ltd.
3. Dr. J. H. Johnston Beef Producer
4. Mamoru Kaneshiro Swine Producer
5. Wakaichi Kondo Poultry Producer
6. Pat Lyons. Swine Producer
7. Martin Manaday Poultry Producer
8. Shigeo Masukawa. Pioneer Seed Company
9. James Matsunaga. Poultry Producer
10. Bernard Medeiros Poultry Producer
11. Iwao Nonaka. Swine Producer
12. Pat Rice Beef Producer
13. Bob Shires Grain Producer
14. Steve White. Milk Producer
15. Asaichi Yasuda Proprietor
Yasuda's, Inc.

B. Hawaii

1. Alex Akau. Beef Producer
2. Edward Boteilho. Milk Producer

3. Jack E. Caple. General Manager
Hawaii Biogenics
4. Frank Costa. Milk Producer
5. Guy Ha Poultry Producer
6. Richard Ha Poultry Producer
7. Hilo Egg and Poultry
Producers Cooperative. . Poultry Producer
8. Mitsuo Kitagawa. Poultry Producer
9. H. Peter L'Orange. . . . Manager
McCandless Ranch
10. Ronald Miyashiro Swine and Poultry Producer
11. Gilbert Motta. Swine Producer
12. Maurice Payne. Beef Producer
13. Edward Rice. Manager
Kukaiau Ranch
14. Tony Ruiz. Beef Producer
15. Kalani Schutte Beef Producer
16. Ted Sparrow. Swine Producer
17. Raymond Tanouye. Manager
Feed-Well, Inc.

C. Maui

1. John Agena Swine Producer
2. Alan Arakawa Swine Producer
3. Peter Baldwin. General Manager
Haleakala Dairy
4. Tom Browne Poultry Producer
5. Elmer Cravalho Beef/Swine Producer
6. Anthony DeCoite. Beef Producer/Slaughterhouse
Operator

7. Dennis DeCoite Poultry Producer
8. Pardee Erdman. Manager
Ulupalakua Ranch
9. Louis Fernandez. Beef Producer
10. Yeikichi Goya. Swine Producer
11. John Kaaewa. Swine Producer
12. Pal Perreira Swine Producer
13. Mrs. Louis R. Prucher. . Swine Producer
14. Harold Rice. Beef Producer
15. James Sakugawa Swine Producer

D. Molokai

1. Nancy Crouch Grain Producer
2. Jack Grambush. Beef Producer
3. Harry Hanchett Alfalfa Producer
4. Aka Hodgins. Manager
Molokai Ranch Company, Ltd.
5. Raymondo Quiniones . . . Poultry Producer

E. Oahu

1. Bruce Asayama. Tariff Superintendent
Young Brothers, Ltd.
2. Roy Bunn President and General Manager
Fred L. Waldron, Ltd.
3. Albert Hokama. Swine Producer
4. Iwao Ijima Poultry Firm Manager/Feed
Salesman
5. Bob Johnson. Manager, Hawaii Milling
Corporation Feedlot

6. Norris Kai Customer Service Supervisor
Matson Navigation Company
7. Randall Kamiya Milk Producer
8. Roy Kaneshiro. Poultry Producer
9. Merle Kelai. Manager, Freight Sales, Hawaii
Matson Navigation Company
10. Burt Maxwell Feed Manager and Chief
Nutritionist
Fred L. Waldron, Ltd.
11. Ernest Morgado Manager
Hawaiian Grain Corporation
12. Takeo Nakama Poultry Producer
13. Alex Napier. President and General Manager
Kahua Ranch, Ltd.
14. Tokio Okudara. Manager, Island Pork Producers
Cooperative Association
15. Seiko Oshiro Swine Producer
16. Albert Sakai Feed Division Manager, 50th State
Dairy Farmer's Cooperative
17. Ted Pump Searle. Vice-President
Young Brothers, Ltd.
18. Phillip Shimabukuro. . . Poultry Producer
19. Tadashi Tojo Poultry Producer
20. Billy Tokuda Administrative Director
Hawaii Farm Bureau Federation
21. Sotaro Uehara. Division Head, Plant Industry
Hawaii State Department of
Agriculture (retired)
22. Kal Uezu Vice-President
State Poultry Processors, Inc.
23. Ray Walker General Manager
Albers Milling Company

RESOURCE PERSONS IN STATE AND COUNTY GOVERNMENT

A. Kauai

1. Steven Au, Member, Hawaii State Board of Agriculture
2. John Blalock, Director, Cooperative Extension Service, Kauai Branch Office, College of Tropical Agriculture, University of Hawaii
3. Dr. Terry Sekioka, Director, Agricultural Experiment Station, Kauai Branch, College of Tropical Agriculture, University of Hawaii

B. Hawaii

1. Dr. Harry Donoho, Animal Scientist, College of Tropical Agriculture, University of Hawaii
2. Clarence Garcia, Cooperative Extension Service, College of Tropical Agriculture, University of Hawaii
3. Marvin Iida, Department of Research and Development, County of Hawaii
4. Shizuto Kadota, Member, Hawaii State Board of Agriculture
5. Lloyd Sadamoto, Director, Department of Research and Development, County of Hawaii
6. Dr. John Thompson, Superintendent, Hawaii Branch Station, College of Tropical Agriculture, University of Hawaii
7. Yoshi Watanabe, Agricultural Program Coordinator, Department of Research and Development, County of Hawaii

C. Maui

1. Fred Ogasawara, Member, Hawaii State Board of Agriculture
2. Arden Seiler, Cooperative Extension Service, Maui Branch Office, College of Tropical Agriculture, University of Hawaii

D. Molokai

1. Ann Marshall, Cooperative Extension Service, College of Tropical Agriculture, University of Hawaii

E. Oahu

1. Dr. Alexander M. Dollar, Irradiator Superintendent, Department of Agriculture, State of Hawaii
2. Fred C. Erskine, Former Chairman, Hawaii State Board of Agriculture
3. John Farias, Jr., Chairman, Hawaii State Board of Agriculture
4. Irwin Higashi, Member, Hawaii State Board of Agriculture
5. James S. Holderness, Station Editor, College of Tropical Agriculture, University of Hawaii
6. Dr. William Hugh, State and Area Swine Specialist, College of Tropical Agriculture, University of Hawaii
7. Dr. James Koshi, Former State and Area Dairy Specialist, College of Tropical Agriculture, University of Hawaii
8. Chapman Lam, Public Information Officer, Department of Agriculture, State of Hawaii
9. Roy S. Matsuura, Commissioner, Milk Control Division, Department of Agriculture, State of Hawaii
10. Robert Mitsuyoshi, Supervisor, Egg and Feed Section, Commodities Branch, Division of Marketing and Consumer Services, Department of Agriculture
11. Richard Morimoto, State Farm Loan Administrator, Department of Agriculture, State of Hawaii
12. Dr. Wallace T. Nagao, State Veterinarian, Department of Agriculture, State of Hawaii
13. Dr. James Nolan, Specialist in Animal Husbandry, College of Tropical Agriculture, University of Hawaii
14. Dr. Steven Olbrich, Acting State and Area Dairy Specialist, College of Tropical Agriculture, University of Hawaii
15. Dr. Perry Phillip, Agricultural Economist, College of Tropical Agriculture, University of Hawaii
16. Dr. Richard W. Stanley, Assistant to the Dean, College of Tropical Agriculture, University of Hawaii
17. Tokushi Tanaka, State and Area Poultry Specialist, College of Tropical Agriculture, University of Hawaii
18. Dr. Paul P. Wallrabenstein, Agricultural Statistician in Charge, Department of Agriculture, State of Hawaii
19. Dr. C. Peairs Wilson, Dean, College of Tropical Agriculture, University of Hawaii

APPENDIX C

LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol, Room 004
Honolulu, Hawaii 96813
Phone: 548-6237

LIVESTOCK FEED STUDY QUESTIONNAIRE

1. Is your business: *(answer a, b, and c)*

(a) Full-time () Part-time ()

(b) Family-owned () Partnership () Corporation ()

(c) Grossing per year from livestock business: *(check one)*

- . Less than \$5,000 ()
- . Between \$5,000 - \$10,000 ()
- . Between \$10,000 - \$25,000 ()
- . Between \$25,000 - \$50,000 ()
- . Between \$50,000 - \$100,000 ()
- . More than \$100,000 ()

2. How many of the following kinds of livestock or poultry are on your farm or ranch now?

	<u>Number</u>
. Beef cattle	_____
. Broilers	_____
. Dairy cattle	_____
. Hens and pullets of laying age	_____
. Hogs and pigs	_____
. Other (specify) _____	_____

3. How much land do you use for your total livestock operation? _____ (acres used)

4. How much land, if any, do you use for pasture? _____ (acres used)

5. If you own the land, what is your property tax every six months? \$ _____

6. If you lease the land, what do you pay per year? \$ _____

- . Number of years of current lease _____
- . Date current lease expires _____

7. How much feed do you use each month? (*answer all applicable*)

Tons

- . Commercial feed _____
- . Roughage _____
- . Other feedstuff (specify) _____

8. How much do you spend each month for feed? (*answer all applicable*)

- . Commercial feed \$ _____
- . Roughage \$ _____
- . Other feedstuff (specify) \$ _____

9. Do you use any of the following roughage materials? (*check all applicable*)

- | | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| . Alfalfa products | () | () |
| . Cane strippings | () | () |
| . Dry hay (specify type of hay) _____ | () | () |
| . Pineapple bran | () | () |
| . Pineapple green chop | () | () |
| . Other green chop (i.e., sorghum-sudan hybrid) | () | () |
| . Other roughage (specify) _____ | () | () |

10. Where do you obtain your roughage? _____

11. Do you pay for roughage? Yes () No ()

12. Are you able to get all the roughage you need? Yes () No ()

13. Would you use more roughage if it were readily available and at a reasonable cost? Yes () No ()

14. Who is your commercial feed supplier? _____

Do you obtain all your feed from this source? Yes () No ()

Where else do you obtain feed? _____

15. How do you usually buy your feed?

- | | <u>Wholesale</u> | <u>Retail</u> | <u>Cash & Carry</u> | <u>Credit</u> |
|-------------------|------------------|---------------|-------------------------|---------------|
| . Commercial feed | () | () | () | () |
| . Roughage | () | () | () | () |
| . Other feed | () | () | () | () |

NOTE: If you buy on credit, do you think the credit terms are satisfactory?
Yes () No ()

If not satisfactory, the reason is:

(check all applicable)

- . Not enough time to pay bill without extra interest charge ()
- . Interest charge too high ()
- . Other (explain) _____

_____ ()

16. Will your future needs for feed be: (check one for each feed category)

	<u>About the Same</u>	<u>More</u>	<u>Less</u>	<u>Don't Know</u>
. Commercial feed	()	()	()	()
. Roughage	()	()	()	()
. Other Feed	()	()	()	()

17. If you believe commercial feed is "too high", what do you think are some reasons?

(check all applicable)

- . Excess profits by feed dealers ()
- . General inflation ()
- . Mainland to Hawaii and interisland shipping costs ()
- . Not enough dealer competition locally ()
- . Shortage of feed supplies locally ()
- . Other reason (specify) _____

_____ ()

18. Do you think feed is "too high" only in relation to the price you get for your product? Yes () No ()

19. Have you done any of the following to cut down or offset your feed costs?

(check all applicable)

- . Cut down the number of animals or birds ()
- . Raised your prices ()
- . Used cheaper materials in feed ration ()
- . Used less commercial feed and more forage or roughage ()
- . None ()
- . Other (explain) _____

_____ ()

20. If feed prices remain high or go higher, will you make any of the following changes? (check all applicable)
- . Cut down the number of animals or birds ()
 - . Raise your prices ()
 - . Use cheaper materials in feed ration ()
 - . Use less commercial feed and more forage and roughage ()
 - . No change ()
 - . Don't know ()
 - . Other (explain) _____ ()
 - _____ ()
 - _____ ()
21. How much feed do you keep on hand? # of days supply
- . Commercial feed _____
 - . Roughage _____
 - . Other feed _____
22. What is your maximum storage capacity for feed? # of days supply
- . Commercial feed _____
 - . Roughage _____
 - . Other feed _____
23. Have you ever had trouble getting commercial feed from your usual supplier? Yes () No ()
24. If "yes" to above, what were the reasons? (check all applicable)
- . Shipping strike ()
 - . Shortage of feed not resulting from shipping strike ()
 - . Other (explain) _____ ()
 - _____ ()
25. If you have trouble getting commercial feed in the future, what would you do? (check all applicable)
- . Cut back the number of animals or birds ()
 - . Look for another supplier or source of feed ()
 - . Pay higher prices for feed ()
 - . Turn animals out to pasture ()
 - . Use more roughage or forage and less commercial feed ()
 - . Other (explain) _____ ()
 - _____ ()

26. State government help is needed in:

(check all applicable)

- . Financing and building bulk grain storage and handling facility a ()
- . Financing scientific research b ()
- . Reducing land taxes c ()
- . Supporting increased local production of feed grains d ()
- . Supporting state farm loan program e ()
- . Other (explain) _____
- _____
- _____
- _____
- _____ f ()

27. If you checked more than one in question 26 which do you think is the most important? (choose one only from a,b,c,d,e, or f) _____

28. Have you ever applied for a farm loan from any of the following? (answer all applicable)

	Amt. Applied	Amt. Approved	Loan Denied
. Berkeley Bank for Cooperatives	\$ _____	\$ _____	_____
. Commercial bank	\$ _____	\$ _____	_____
. Farmers Home Administration	\$ _____	\$ _____	_____
. Federal Land Bank	\$ _____	\$ _____	_____
. Hawaii Production Credit Assn.	\$ _____	\$ _____	_____
. State Farm Loan Program	\$ _____	\$ _____	_____

If loan denied, reason(s) for denial: _____

If never applied for farm loan, why not?

(check all applicable)

- . Didn't need money ()
- . Too much red tape in applying for loan ()
- . Other (explain) _____
- _____ ()

29. The State Farm Loan Program is:

(check one)

- . Excellent ()
- . Good ()
- . Poor ()
- . Unsatisfactory ()

30. If "poor" or "unsatisfactory", why?

(check one)

- . Loan ceiling too low ()
- . Too difficult to qualify ()
- . Too much red tape ()
- . Other (explain) _____
- _____ ()

31. Add any other comments you wish to make regarding feed and feed related problems.

APPENDIX D

LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol, Room 004
Honolulu, Hawaii 96813
Phone: 548-6237

FEED TRADE INDUSTRY QUESTIONNAIRE

- (1) Which of the following costs involved with the shipping and handling of feed items are directly or indirectly charged to you? Indicate the average cost to you of the direct charges.

	<u>Directly Charged</u>	<u>Per Ton Direct Cost</u>	<u>Indirectly Charged</u>
Maintaining mainland buying office or buying agent(s) for procuring grain or feed	()	\$ _____	()
Coordinating delivery of grain or feed to carrier (from place of purchase to coast port)	()	\$ _____	()
Land freight from place of purchase to coast port	()	\$ _____	()
Mainland elevator charge for storing grain or feed prior to delivery to ocean vessel	()	\$ _____	()
Loading charges (trimming costs, ship detention charges, elevator service charge)	()	\$ _____	()
Interest on investment in grain or feed from date of purchase to loading on vessel	()	\$ _____	()
Ocean freight from coast port or elsewhere to Hawaii	()	\$ _____	()
Unloading costs in Honolulu (or other island port)	()	\$ _____	()
Wharfage charge - Honolulu (or other island port)	()	\$ _____	()
Loss by shrinkage	()	\$ _____	()
Marine insurance on grain or feed while in transit to Hawaii	()	\$ _____	()

	<u>Directly Charged</u>	<u>Per Ton Direct Cost</u>	<u>Indirectly Charged</u>
Interest on investment in grain or feed while in transit	()	\$ _____	()

Costs of owning grain or feed after receipt at end of ship's tackle to date when commodity sold:

1) Transit cost to storage facility	()	\$ _____	()
2) Interest on investment in commodity	()	\$ _____	()
3) Cost of storage	()	\$ _____	()
4) Shrinkage	()	\$ _____	()
5) Insurance	()	\$ _____	()
6) Other (specify) _____	()	\$ _____	()

Interisland re-shipment:

1) Honolulu wharfage	()	\$ _____	()
2) Ocean freight	()	\$ _____	()
3) Neighbor Island wharfage	()	\$ _____	()
4) Loading and unloading charges	()	\$ _____	()
5) Cost of containers, insurance, etc.	()	\$ _____	()

(2) Do you import grain or feed into Hawaii directly from the U.S. mainland or elsewhere (i.e. Canada) and in what proportion?

	<u>Yes</u>	<u>No</u>	
Mainland	()	()	_____ %
Elsewhere (specify) _____	()	()	_____ %

(3) If you import your feed commodity direct from mainland or elsewhere:

a) By what mode of transportation and in what proportion?

	<u>Yes</u>	<u>No</u>	
Matson containers	()	()	_____ %

	<u>Yes</u>	<u>No</u>	
Barge	()	()	_____ %
Owned	()	()	_____ %
Leased	()	()	_____ %
Contracted	()	()	_____ %
Other (specify) _____	()	()	_____ %

b) Where do you buy your feed commodity and in what proportion?

West Coast	()	()	_____ %
Midwest	()	()	_____ %
Other (specify) _____	()	()	_____ %

c) How often do you bring feed into Hawaii per year and what is the average volume (in tons) of each shipment?

Number of times per year	_____
Average number of tons per shipment	_____

d) What specific types of grain or feed do you import per year, in what tonnage, and in bulk or bags?

		<u>Tons</u>	<u>Bulk</u>	<u>Bags</u>
Feed grains:				
Wheat	()	_____	()	()
Barley	()	_____	()	()
Corn	()	_____	()	()
Other (specify)				
_____	()	_____	()	()
_____	()	_____	()	()
_____	()	_____	()	()
Feedstuffs (i.e. fish and soy meals)	()	_____	()	()
Mixed or formulated feeds	()	_____	()	()

(4) How do you pay for your inventory?

Cash and carry	()
Credit	()
Other (explain) _____	()

(5) How are your feed purchase needs determined?

Customer's orders	()
Inventory needs	()
Projection of yearly livestock feed requirements	()
Other criteria (specify) _____	()

- (6) Do you do projection studies to determine future feed use requirements?
 Yes () No ()

If yes, what do your most recent projections show about the livestock industry's feed requirements for the next, say, five years?

	<u>Future Feed Needs</u>		
	<u>More</u>	<u>Same</u>	<u>Less</u>
Beef cattle	()	()	()
Dairy cattle	()	()	()
Poultry	()	()	()
Pigs and swine	()	()	()
The above projects are on:			
Statewide need			()
Neighbor Island need for			
island of _____			()

- (7) How many tons of the following items do you normally have on hand at any given time?

	<u>Tons</u>
Grains	_____
Mixed feeds	_____
Feedstuffs	_____
Other feeds (specify) _____	_____

How many days of feed to your regular customers does this inventory constitute?
 _____ days

- (8) Are you currently using all the feed storage space you have? Yes () No ()

If no, how much more of the following items can you store?

	<u>Tons</u>
Grains	_____
Mixed feeds	_____
Feedstuffs	_____
Other feeds (specify) _____	_____

- (9) What services do you provide your customers?

Storage	()
Maintenance of inventory	()
Delivery of feed to customer	()
Extension of credit	()
Other (specify) 1. _____	
2. _____	

- (10) What kinds of discounts do you offer your customers? *(For each type of discount you offer, describe in the space provided: (1) how a purchaser qualifies for the discount and (2) the discount formula and amounts.)*

	<u>Yes</u>	<u>No</u>
Trucking discounts	()	()

Volume discounts	()	()
------------------	-----	-----

Other discounts (specify)	()	()
---------------------------	-----	-----

- (11) What kinds of credit arrangements do you provide your customers (i.e. no credit arrangements; pay in 30 days; pay when customer markets his product; other)? Explain in the space provided:

- (12) Once the feed user buys feed from you, is he responsible for trucking it to his farm or operation? Yes () No ()

If no, do you provide delivery service and how much is the cost (i.e. per ton or per truck) to you? \$_____ (cost)

- (13) What percentage of your total feed sales are to:

Livestock producers	_____ %
Retail outlets	_____ %
Feed manufacturers	_____ %
Feedlots	_____ %
Other (specify) _____	_____ %

- (14) Your sale of feed by the bag represents what percentage of your total feed sales per year? _____%

Your sale of feed in bulk represents what percentage of your total feed sales per year? _____%

- (15) Is your mark-up on feed based on:

A percentage added to cost of feed item and importation costs ()

A flat amount added to cost of feed item and importation costs ()

Other formula (explain) _____ ()

- (16) Your feed mark-up goes toward: (in what proportion?)

Net profits	()	_____%
Labor costs	()	_____%
Upkeep of facilities and equipment	()	_____%
Utility costs	()	_____%
Inventory replenishment	()	_____%
Amortization of capitalization	()	_____%
Other (specify) _____	()	_____%
_____	()	_____%
_____	()	_____%
_____	()	_____%

- (17) Do you have different price rates on the same type of feed depending on the age of the feed, the price when it was obtained, or some other factor, or is there one set price for each particular type of feed at any given time? Explain.

- (18) Regarding local production of feed items, do you believe the following are feasible or unfeasible?

	<u>Feasible</u>	<u>Unfeasible</u>
Local production of feed grains	()	()
Local production of roughage	()	()
Development on use of agricultural by-products	()	()
Local production of other feed items (specify)	()	()

(19) What are some of the problems with regard to local production of feed items?

(20) Would you buy locally produced feed items? Yes () No ()

Would you qualify your answer?

If you would not buy locally produced feed items, explain why not.

(21) In your opinion, what are the major problems facing the feed trade industry in Hawaii?

(22) Is there anything the feed trade industry can do to offset the high cost of feed?

(23) Is there anything the feed user (or livestock producer) can do to offset the high cost of feed?

- (24) Is there anything the state government can do to offset the high cost of feed?

- (25) Please attach copies of your printed feed price lists, including those for feeds sold on the Neighbor Islands, for the past year. (If extra copies of price lists are not available, we can arrange to xerox a set for our use.)

LRB FSQ2, 11/74

APPENDIX E

LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol, Room 004
Honolulu, Hawaii 96813
Phone: 548-6237

AGRICULTURAL COOPERATIVES QUESTIONNAIRE

1. Name of cooperative: _____

2. Officers - President: _____

Manager: _____

3. Address of cooperative: _____

4. Number of members: _____

5. Dues/year: _____

6. Year cooperative organized: _____

7. Does the cooperative purchase feed for its members? Yes () No ()

8. What types of feed are purchased by the cooperative and in what volume per year?

Tons/Year

Whole grain

Mixed feed

Feedstuffs (i.e. soy and fish meal)

Other feeds (i.e. hay, greenchop)-specify

9. Where does the cooperative buy its feed?

Local feed dealer on:

Oahu

Maui

Kauai

Hawaii

()

()

()

()

Imported (specify where) _____

()

10. Does the cooperative buy its feed in bulk, bags, or some other unit and what percentage of the yearly purchase does each represent?

% of total purchase/ year

Bags	()	_____
Bulk (loose)	()	_____
Other (specify) _____	()	_____

11. Is there a cost savings to members in buying feed through the cooperative?
Yes () No ()

If yes, how much is the average cost savings per ton for the following types of feed?

Savings/Ton

Whole grain	\$ _____
Mixed feed	\$ _____
Feedstuffs	\$ _____
Other feeds (specify) _____	\$ _____

12. What are the average costs to the cooperative for providing this feed purchase service?

Per Year

Cost of feed	\$ _____
Cost of storage	\$ _____
Paper work involved with service	\$ _____
Other costs (specify) _____	\$ _____
_____	\$ _____
_____	\$ _____

13. Is the feed bill on feed bought by the cooperative paid by the cooperative (as opposed to by the individual member users)? Yes () No ()

If yes:

- (a) How does the cooperative pay for the feed purchased?

Cash	()
Credit	()
Other arrangement (explain) _____	()

- (b) How do the member users pay the cooperative for the feed they buy (i.e. automatically taken out of the users' marketing income)? Explain.

- (c) Does the cooperative levy a service charge or fee to the member user for providing the feed purchase service? Yes () No ()

If yes, (i) is this service a flat rate or dependent on tonnage purchased by the member user and other factors and (ii) what is this charge amount?

		<u>Charge Amount</u>
Flat service charge	()	\$ _____
Based on other formula (explain)	()	\$ _____

14. If the cooperative itself does not purchase feed, do the members get discounts (in addition to those discounts available to any purchaser) directly from the feed dealers due to membership in the cooperative? Yes () No ()

If yes:

- (a) Is the discount given only if a minimum amount of feed is purchased by the member? Yes () No ()

If yes, what are the minimum purchase amounts for the following types of feed:

	<u>Minimum Volume</u>
Whole grain	_____
Mixed feed	_____
Feedstuffs	_____
Other feeds (specify) _____	_____

- (b) What are the discount amounts (assuming that minimum purchase and other requirements have been met) for the following types of feed?

	<u>Discount/(specify weight)</u>
Whole grain	_____
Mixed feed	_____
Feedstuffs	_____
Other feeds (specify) _____	_____

15. Does the cooperative provide any of the following feed-related services to its members?

Extension of credit to farmer to pay for feed	()
Storage of feed	()
Feed delivery	()
Paying of feed bill through cooperative funds	()
Other (specify) _____	()
_____	()

16. Has the question of feed, feed prices, feed storage, etc. ever been discussed by your cooperative? Yes () No ()

17. Has your cooperative taken a vote or stand on any question regarding feed?
Yes () No ()

If yes, explain the stand or vote. _____

18. What can your cooperative or other cooperatives do to ease the prices farmers have to pay for feed?

