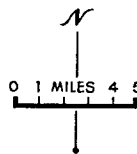
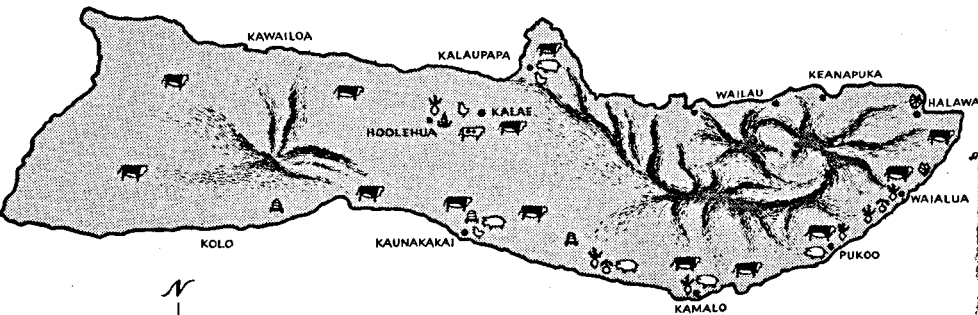
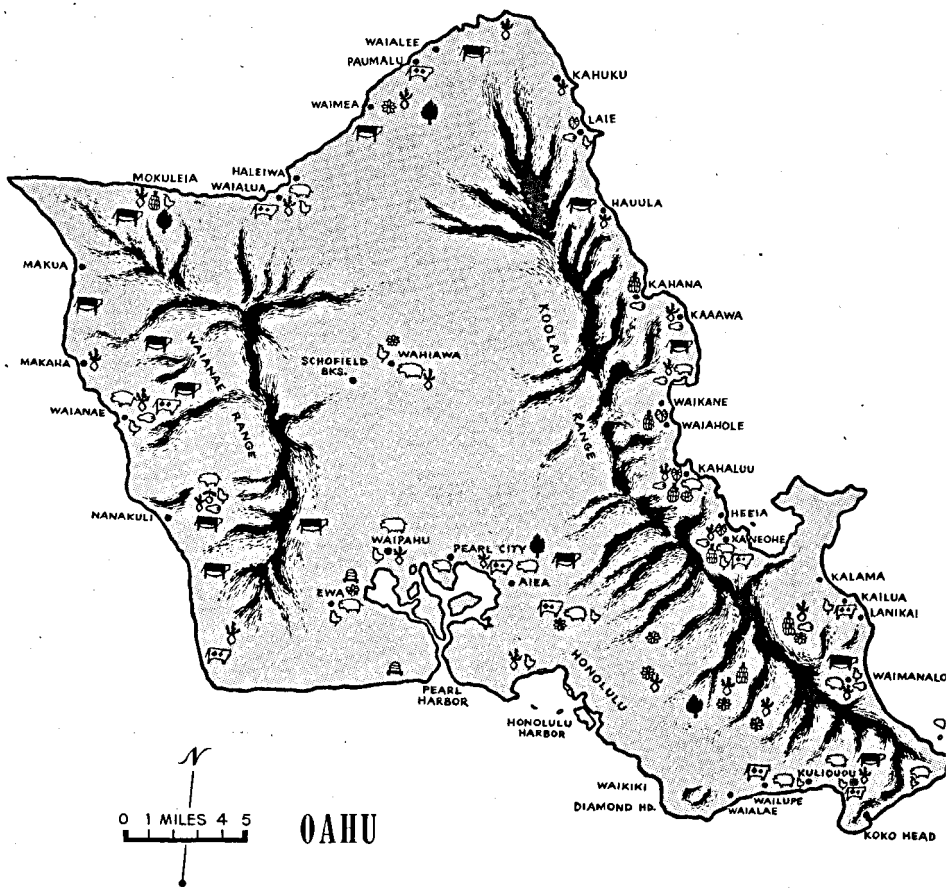
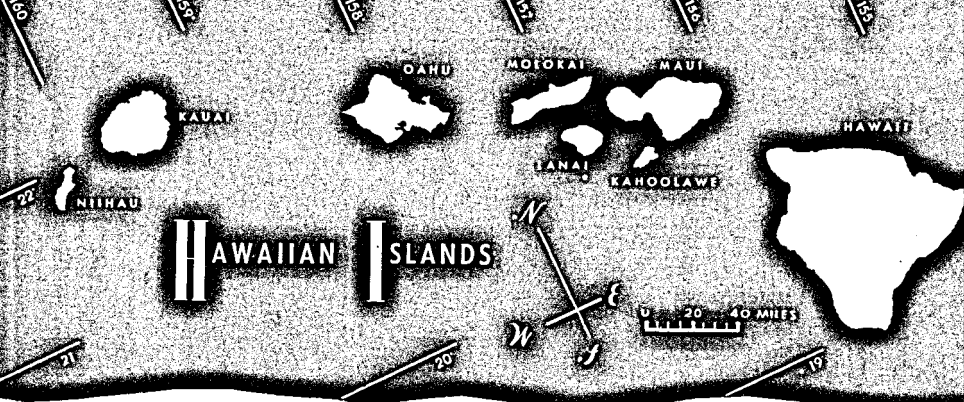


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DIVERSIFIED AGRICULTURE OF HAWAII

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PREFACE

The term diversified agriculture as used in Hawaii includes all agricultural industries of the Islands other than sugar and pineapple. It refers to the fact that these industries broaden or diversify Hawaii's narrow agricultural base. At present there is much interest in expanding the diversified agriculture to help stabilize the economy of the Islands.

This book gives in nontechnical language some of the essential economic information about Hawaii's diversified agriculture. It is written for the general public, both farmers and nonfarmers, and is adapted for use in schools. The Introduction presents the major economic problems of Hawaii. Part One discusses the history of farming in Hawaii; and the physical and institutional environment of diversified agriculture; Part Two considers each major diversified agricultural industry in some detail. Appendices give additional information on subject matter discussed in the text. Sources for tables in the appendices are identified by numbers which refer to the numbered sources in Appendix G.

The manuscript for this book was completed in March 1953. Latest available statistics were included, mostly for the year 1952. However, a two-month maritime strike in the summer of 1952 made that year unrepresentative for some purposes. Statistics for 1951 were used in these cases because no shipping strike occurred in that year.

PERRY F. PHILIPP

University of Hawaii
April 1, 1953

ACKNOWLEDGMENTS

Hundreds of persons and organizations have contributed to the preparation of this book. M. R. Benedict, D. Weeks, and P. S. Taylor guided the author in writing his Ph.D. dissertation dealing with the diversified agriculture of Hawaii, which was submitted to the University of California in 1951. R. C. Elliott, J. C. Ripperton, E. L. Rada, and H. E. Law assisted in several sections of the book.

The following persons, listed by subject matter, have made substantial contributions either by providing information or by reading portions of the text: T. K. Hitch, employment; W. A. Mordy, W. F. Feldwish, climate; G. D. Sherman, Z. C. Foster, soil and soil conservation; H. A. Wadsworth, water; A. W. Lind, population; C. R. Ferdun, public schools; C. C. Chapman, maritime transportation; L. E. Heaton and A. M. Scott, agricultural credit; N. Meller, laws; R. M. Kamins, taxes; R. S. Kuykendall, history; W. A. Frazier, D. C. McGuire, J. C. Gilbert, H. H. Murakishi, vegetables; W. B. Storey, J. H. Beaumont, H. F. Clements, L. Thevenin, fruits and nuts; Y. B. Goto, coffee; H. Kame-moto, Y. Nakagawa, flowers; L. A. Henke, O. Wayman, H. M. Vollrath, E. Y. Chun, H. J. Weeth, livestock; M. M. Rosenberg, C. M. Bice, C. I. Maruyama, poultry; N. K. Roberts, conclusions. Many other people, too numerous to mention separately, also helped.

Members of the following organizations provided information:

Federal: Army, Bureau of Entomology and Plant Quarantine, Farmers Home Administration, Navy, Production and Marketing Administration, Veterans Administration, Weather Bureau.

Territorial: Board of Agriculture and Forestry, Board of Health, Board of Harbor Commissioners, Commissioner of Public Lands, Department of Labor and Industrial Relations, Department of Public Instruction, Hawaiian Homes Commission, Survey Department, Tax Office, University of Hawaii.

Semi-private or private: Bank of Hawaii, Hawaii Employers Council, Hawaiian Sugar Planters' Association, Pineapple Research Institute, Research Committee, Hawaii Visitors Bureau.

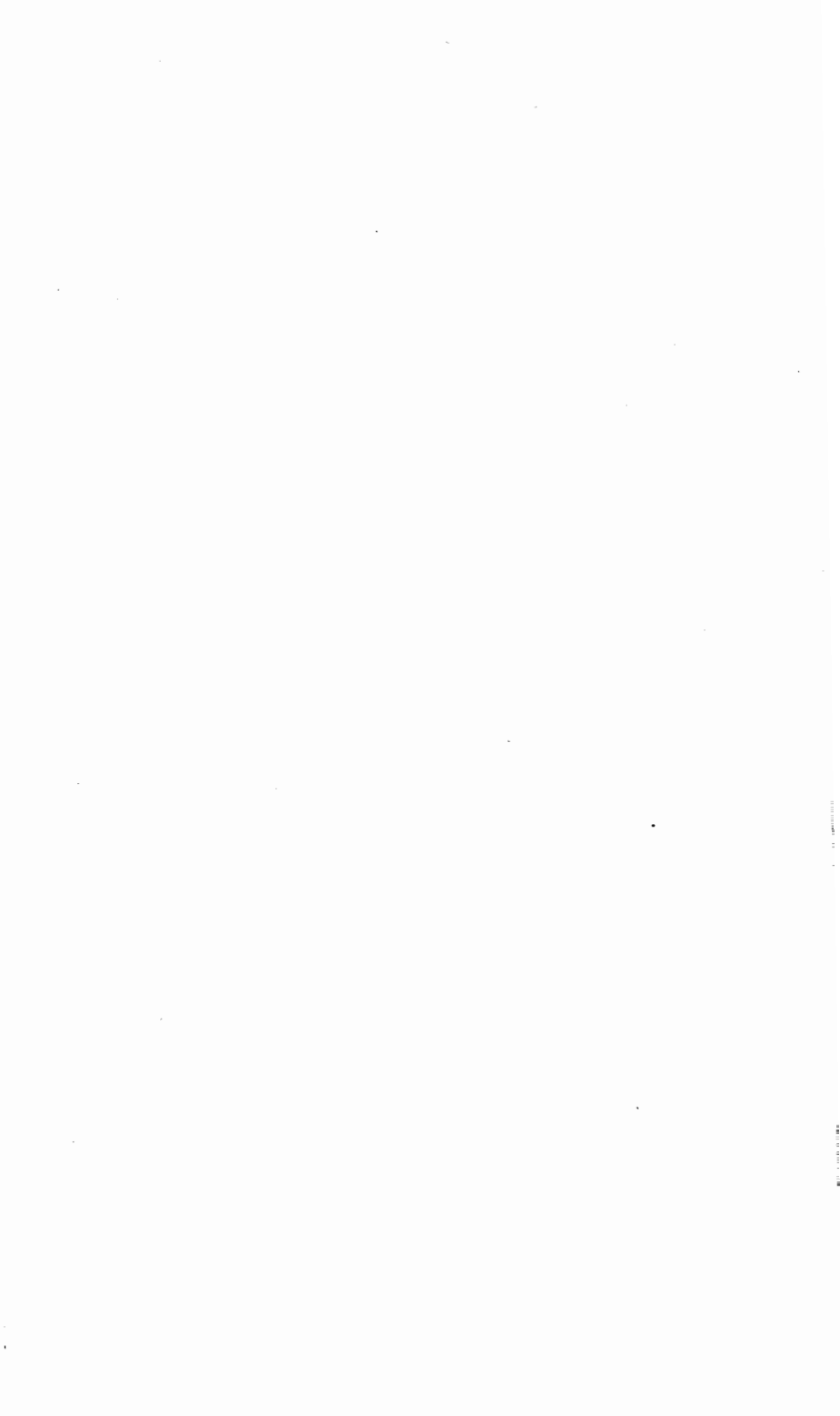
While the writer is grateful for the suggestions and corrections of the above persons and organizations, he takes full responsibility for any errors or misstatements.

J. Fabry and C. Price suggested changes in style. W. Kiyabu did the drawings and art work. E. Nihei assisted in the preparation of the tables. W. S. Ellis, A. Kaufman, and A. Morris edited the manuscript.

To all these people, the author wishes to express his thanks. Without their help the publication of this book would not have been possible.

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I NTRODUCTION

Hawaii faces serious economic problems, particularly an unfavorable balance of payments and limited employment opportunities. Its economy is vulnerable to business cycles, changes in federal policies, labor and management conflicts, and interruptions of transportation. Food prices, especially, are generally higher than in the mainland United States.

Some of these difficulties are the result of economic trends which began before World War II and gained momentum during and after the war; others are due to fundamental weaknesses in the Island economy. In view of the present prosperity of the Islands, resulting from the war in Korea and the rearmament program of the United States, a casual observer might easily overlook the long-range trends.

The purpose of this book is to describe the diversified agriculture of Hawaii and to investigate its potential as a strengthening factor in the Island economy.

Balance of Payments

Hawaii has a highly developed trading economy heavily dependent upon the mainland. The Islands possess no mineral resources which are used commercially at present except for some sand, stone, and lime. Therefore it is necessary to import most industrial equipment, fuel, and supplies, construction materials, and many consumer goods. Though Hawaii's economy is based on agriculture, about two-thirds of the food consumed and much livestock feed is imported.

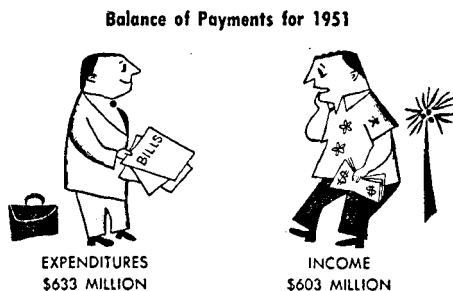
Exports of merchandise, primarily agricultural products and fish, pay for part of these imports. In addition to these visible exports, there are invisible exports such as services rendered and goods sold to the federal government and to tourists. When economists compare exports and imports, both visible and invisible, they use the term balance of payments.

Up to 1940 Hawaii's annual balance of payments was, with few exceptions, favorable. In other words, the people of Hawaii received more money from exports than they spent on imports. Throughout World

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War II, the balance of payments continued strongly in favor of the Islands despite an excess of imports over exports of goods. This was the result of local purchases of materials and services by the armed forces, the U.S.O., the Red Cross and similar agencies, and individual servicemen and war workers.

With the end of the war, federal expenditures were sharply reduced and the number of servicemen and civilians employed by the government declined greatly.



At the same time, merchandise imports continued to exceed in value exports of Hawaiian goods. As a result, Hawaii's postwar balance of payments has been unfavorable. In 1951, despite greater military spending than in the immediate postwar years, imports exceeded exports by about 30 million dollars.*

To maintain its present population and standard of living, Hawaii must find ways of increasing its exports of goods and services or of substituting local production for imports. What are the possibilities of doing this outside of the diversified agricultural industries?

The 1952 export value of sugar and molasses was 134 million dollars. Within one or two years sugar growers hope to increase their output from about one million tons of raw sugar to Hawaii's full annual marketing quota on the mainland and in the Islands of close to 1,100,000 tons. Exports of pineapple products were valued at approximately 92 million dollars in 1952, with little indication at this time of substantial future expansion.

Exports of canned tuna amounted to almost two million dollars in 1952. More than half of the commercial fish catch, valued at 3.6 million dollars for the fiscal year 1951-52 on the basis of payments to fishermen, is consumed in Hawaii. There may be an opportunity to expand fish canning for export if research now in progress is successful.

* However, preliminary estimates indicate that Hawaii's 1952 balance of payments was favorable, mainly because of an increase in federal expenditures and a decrease in imports.

Manufacturing industries in the Islands are relatively unimportant, producing mainly for local consumption or processing waste products of sugar mills and pineapple canneries. One export product is an insulating fiber board, called Canec, made of a by-product of sugar cane milling. Its sales, mostly on the mainland and in foreign countries, amounted to over three million dollars in 1952. Expansion of this industry is possible. The manufacture and export of Island-styled clothing and of Hawaiian handicraft products, such as lauhala weavings and woodenware, could also be increased.

A record number of 60,500 visitors stayed two days or longer in Hawaii during 1952. Direct visitor expenditures in the Islands were estimated at 32.8 million dollars. A further increase in the size of the tourist business appears possible with an expansion of hotel accommodations and recreational facilities, a decrease in transportation costs, and more intensive advertising on the mainland.

The combined payroll of the armed forces, including both servicemen and civilians, was approximately 128 million dollars in 1950. This compares to 33 million in 1940 and 377 million in 1945. The preparedness program brought about a payroll expansion to 195 million in 1952. However, when world tension subsides a reduction in the expenditures of the armed forces in Hawaii can again be expected.

All considered, opportunities exist in Hawaii industries other than diversified agriculture to rectify the usually unfavorable balance of payments. However, success would be more probable if diversified agriculture exports could be increased and imports decreased.

Employment

At the end of World War II there existed 10,000 unfilled job openings in Hawaii. By December 1948 an estimated 13,400 people were unemployed. A record high unemployment of 28,400 was reached in November 1949. By August 1951 the economic impact of the national rearmament program and the war in Korea had reduced the number of jobless to 6,600. However, unemployment is again increasing and amounted to 9,800 in January 1953.

Hawaii's labor force has grown faster than its permanent employment opportunities. The number of persons fourteen years old and over increased from 302,000 in 1940 to 350,000 in 1950. Even assuming a stable population, the age distribution in Hawaii is such that the number of persons of working age will grow rapidly during the next few years.

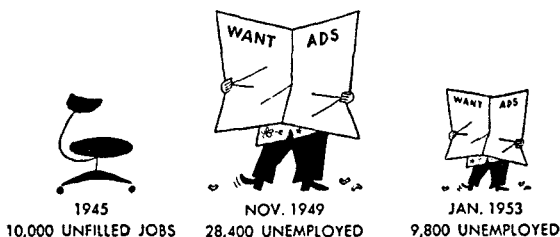
Civilian employment, excluding domestics, self-employed, and farm workers other than those in sugar and pineapple plantations, increased from 128,000 workers in 1940 to 189,000 in 1943, and declined to 142,000 in 1950. It rose to 155,000 in 1951 as a result of increased expenditures by the armed forces.

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Employment in sugar and pineapple declined during the war and the postwar period. The average working force in the sugar industry dropped from 41,400 in 1940 to 21,500 in 1952, a reduction of 48 percent. Average employment in the pineapple industry decreased by 16 percent from 16,500 in 1940 to 13,900 in 1952.

This reduction in the number of workers in both major industries occurred in spite of a rise in output. It was caused by two factors: first, the scarcity of labor during World War II; and, second, the increasingly high pay of agricultural labor during and after the war. Increased mech-

Employment Opportunities in Postwar Hawaii



anization and more emphasis on labor-saving methods were the necessary consequences. In the sugar industry the dissolution of several companies, the combining of adjoining plantations, and the abandonment of some fields with high labor requirements have contributed to the reduction in the labor force. Leaders in the two industries do not expect employment to decline much below present levels.

In 1949 the armed forces hired slightly more than 20,000 civilian workers, compared to the peak of 63,000 in 1944 and the low of 6,300 in 1939. Since the outbreak of hostilities in Korea this number has increased. Employment in the construction industry has also fluctuated, being influenced by the amount of building contracts let by the armed forces. Employment in other fields, such as local government, civilian federal agencies, manufacturing other than in sugar and pineapple, public utilities, and trade and service industries, gradually expanded over the last decade. This expansion resulted primarily from the rapid growth in population and the considerable rise in the standard of living.

Most of the reduction in unemployment since the outbreak of the war in Korea was due to inductions into the armed forces or to the increased employment of civilian workers in defense activities. Employment opportunities must be expanded to avoid a sharp increase in permanent unemployment if the defense program is cut back.

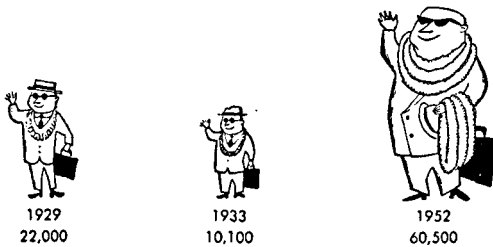
Vulnerability of the Economy

As previously noted, Hawaii's economy is vulnerable to business cycles, changes in federal policy, interruption of transportation, and strikes or lockouts. The tourist trade and the pineapple business appear to be especially sensitive to business cycles. Arrivals of visitors in Hawaii shrank from 22,200 in 1929 to 10,100 in 1933 during the low point of the depression. With money more plentiful, 31,800 visitors arrived in the Islands in 1941, and 60,500 stayed for two days or longer in 1952. The value of the pineapple pack reached a high point of 50.1 million dollars in 1930, but dwindled to 9.6 million dollars two years later. This was followed by a marked recovery of mainland shipments to 59.5 million dollars in 1937.

The sugar industry of Hawaii is particularly dependent upon favorable federal policies. Since 1876 sugar production has been continuously supported by such policies. At the present time the Sugar Act of 1948, amended in 1951, limits the total supply of sugar reaching the American market and allocates a production quota to the Islands. It also provides for grower subsidies financed by a tax on sugar manufactured in the United States and by a compensating tax on imported refined sugar. Without favorable federal policies, the sugar industry in Hawaii would have to reduce its output greatly.

Needless to say, the size of the armed forces in Hawaii is affected by changes in federal policy. Fluctuations over the past decade have already been discussed.

Tourist Arrivals in Hawaii, 1929, 1933, 1952



Hawaii has suffered in the postwar period from recurrent and long-drawn-out labor-management conflicts, particularly in the maritime transport, sugar, and pineapple industries. Management had been in a dominant position in Hawaii ever since the rise of the sugar industry because of close ownership and management ties between many of the Islands' important enterprises. Labor unions, relatively unimportant before World War II, transformed the Islands between 1944 and 1946

into one of the most strongly unionized areas of the United States; even agricultural workers in the sugar and pineapple industries are highly organized.

Because of its geographical location and the specialization of its economy, Hawaii is vulnerable to any interruption or even threatened tie-up of transportation to and from the mainland. Disputes in the sugar and pineapple industries have serious repercussions among the lesser Island industries.

Prices of Locally Produced Food

Most food prices average higher in Hawaii than on the mainland. On November 15, 1952, the cost of a typical market basket of food was \$46.90 in Hawaii as compared to \$41.91 on the mainland, or 12 percent more. (Retail prices used for the mainland were those paid on the average in 56 cities, according to the U. S. Bureau of Labor Statistics. Honolulu retail food prices were collected by the Territorial Bureau of Labor Statistics.)

For goods imported from the mainland, the higher prices are due somewhat to greater shipping and handling costs. The prices of many locally produced items such as milk, pork, eggs, and some vegetables and fruits are higher because of higher production costs.

In the preceding pages, the major economic difficulties confronting the Islands have been discussed. It has been noted that once the economic stimulus of the present mobilization program weakens, changes in Hawaii's economy outside of diversified agriculture may not be sufficient to solve these problems. To what extent the diversified agricultural industries can be of assistance in putting Hawaii's economy on a sounder basis can only be determined after an analysis of these industries.

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