

THE COOPERATIVE EXTENSION SERVICE IN HAWAII, 1928 TO 1981

George Alstad
Jan Everly Friedson

Hawaii Institute of Tropical Agriculture and Human Resources
College of Tropical Agriculture and Human Resources, University of Hawaii
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THE AUTHORS

George Alstad is a former director of the Publications and Information Office, College of Tropical Agriculture and Human Resources, University of Hawaii.

Jan Everly Friedson is an editor in the Publications and Information Office, College of Tropical Agriculture and Human Resources, University of Hawaii.

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IN CELEBRATION

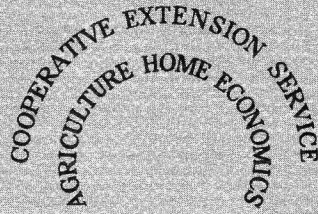
The Extension Service has been a part of the University of Hawaii family almost from the beginning. To celebrate the University's 75th birthday, Extension looked back on more than half a century of agricultural leadership and service to the people of Hawaii to produce this volume of memories and tribute to its staff—past, present, and future.

In carrying out its national mandate to extend the fruits of research to those who need them—farmers, consumers, homemakers—Extension's experience in Hawaii has been unique. Geography is destiny, and Extension work in Hawaii has been shaped by the isolation and distance of the islands from the mainland. Two examples are the effects of shipping strikes and our precarious position in wartime. Diversified agriculture, which assumed new importance in those critical times, is a goal that has always been encouraged by Extension staff. It is, in fact, the thematic thread of this narrative.

Today, we know more about agriculture than at any time in the past. But the more we know, the more we realize how much there is yet to know. We are living in an age of dichotomy, in which technological advances must be weighed against environmental concerns. The Extension Service, hoping to balance the scales, has always offered impartial guidance. It will continue to serve.

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Extension Workers Creed

I BELIEVE in people and their hopes, their aspirations, and their faith; in their right to make their own plans and arrive at their own decisions; in their ability and power to enlarge their lives and plan for the happiness of those they love.

I BELIEVE that education, of which extension work is an essential part, is basic in stimulating individual initiative, self-determination, and leadership, that these are the keys to democracy and that people, when given facts they understand, will act not only in their self-interest but also in the interest of society.

I BELIEVE that education is a lifelong process and the greatest university is the home; that my success as a teacher is proportional to those qualities of mind and spirit that give me welcome entrance to the homes of the families I serve.

I BELIEVE in intellectual freedom to search for and present the truth without bias and with courteous tolerance toward the views of others.

I BELIEVE that the Extension Service is a link between the people and the ever-changing discoveries in the laboratories.

I BELIEVE in the public institutions of which I am a part.

I BELIEVE in my own work and in the opportunity I have to make my life useful to mankind.

Because I BELIEVE these things, I am an extension worker.

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In the Beginning

A unique piece of legislation passed by the U.S. Congress in 1914 obligates cooperation between the U.S. Department of Agriculture and the land-grant college in each state. This legislation, the Smith-Lever Act, also permits the cooperation of these two government institutions with county officials, farmers and ranchers, and business organizations. Congressman Lever, author of the act, said in his speech to the House of Representatives, "This bill provides for simple, practical demonstrations, under the farmer's own vine and fig tree, as it were, that there are better methods than those he has been following. If the demonstration is the keystone of the Extension arch, then the County Extension Agent is the key person in the Extension organization."

The idea of Congress was to have in each county at least one agent of the U.S. Department of Agriculture and the state college. The agent would help people test new ideas on the farm or in the home, as determined from experiments in the laboratory and test plats, and he would spread information concerning the results of good farming practices that he observed in his immediate community. The Extension act included the whole family, young people as well as adults. The end product of all Extension work would be the satisfied home.

Passage of the Smith-Lever Act of 1914 had no immediate effect on the Territory of Hawaii, which was excluded from the provisions of the act at that time. The University of Hawaii developed its own version of an extension program, however, and it was the basis of a successful appeal to Congress for Hawaii's inclusion in the provisions of the Smith-Lever Act. After several years of struggle, this jointly financed program took effect in November 1928 (1).

William A. Lloyd came to Hawaii from Washington, D.C., to organize the staff and help establish the Extension program in accordance with federal requirements. In the first annual report (2) he wrote, "It would seem reasonably safe to place the beginning of agricultural extension in the Hawaiian Islands with Captain Cook, the discoverer, when in 1788 on his second voyage he brought sheep, hogs, and cattle to the Islands. Yet, the archaeologist and antiquarian may easily establish the fact that more had been done in the way of agricultural improvement before the coming of the white man than has been done since."

The organization plan called for a man and a woman agent in each of the four counties, with a provision for two men and two women in Hawaii County. There were also positions for an administrative assistant, an assistant director for agriculture and an assistant director for home economics, a Territorial agent in animal husbandry, one in farm economics and marketing, and one in forestry. Of the \$44,300 budget for the first year, \$28,841 was spent, leaving a \$15,000 surplus. Some of the projects that got under way the first year were food, clothing, poultry, coffee, gardens, and rabbits.

4-H, like other Extension programs, began long before the introduction of the Smith-Lever Act to Hawaii. Under the auspices of the Federal Agricultural Experiment Station and the leadership of Frederick G. Krauss, Harvey F. Willey, and Mabel Greene, 4-H Clubs were launched in 1918 with a 31-member pig club on Maui. In 1923, Miss Greene integrated the 4-H Club work under the public schools with teachers who were trained in agriculture and home economics. By 1926, there were 4-H Clubs on Oahu, Hawaii, and Kauai, too. That year, the Pollyanna 4-H Club of Honolulu exhibited at Chicago and won a national prize; it was the first time a club had participated from such a distant place as Hawaii.

When the first dean of Extension, William A. Lloyd, arrived in Hawaii, he found conditions very different from those to which he was accustomed. Not only were the crops grown differently, but the whole system of land tenure, industrial organization, social life, management, and method were unlike procedures on the mainland.

In February 1929, the Agricultural Extension Service became one of three divisions in the University—the others were the College of Liberal Arts and the College of Applied Science. All employees of the Agricultural Extension Service were members of the faculty. The county agents were nonresident members of the faculty, and the offices in the counties were part of the University plant. There was an organized chapter, Alpha Omega, of Epsilon Sigma Phi, the National Honorary Extension Fraternity.

During this early period, the home economics program held a mothers' vacation camp at Kokokahi on Oahu. A chef was employed to prepare and serve the meals; the mothers had no dishes to wash and no husband or babies to tend for two days—a novel experience for them.

An official Extension hibiscus was named and planted in a ceremony at the first annual Extension conference. One thousand rooted Extension hibiscus plants were awarded to 4-H members during the achievement program.

With the cooperation of the U.S. Army Air Corps, an air reconnaissance was conducted, which noted variations in irrigated and nonirrigated sugarcane fields, the need for water conservation and reforestation, barren lava flows that might be converted to economic pastures by air seeding, a need for roads to open up new agricultural lands, the small part played by small farming in agricultural production in the Territory, and marginal lands that should go out of agricultural production.

An important conclusion of the first year's survey and evaluation pointed out the need for Hawaii to become more nearly self-sufficient in the production of food—a goal still recognized as important today.

Depression

Scarcely had the Hawaii Extension Service been officially established when it was faced with its first

emergency. The business collapse in 1929 and the subsequent national depression, which so seriously reduced the purchasing power of the American public, had an immediate effect on the local economy. Pineapple producers found themselves with an enormous surplus of the canned product on hand. The sugar industry felt the depression, too, and when the Sugar Act imposed a fixed annual quota on shipments from Hawaii, considerable areas of land were made idle.

The result of these developments in the years that followed 1929 was a renewed emphasis on the need for diversified crop production. This was stimulated by a half-million-dollar fund of the Sugar Act, under which the Extension Service helped implement diversified agriculture in the field. These additional funds resulted in the hiring of a number of subject matter specialists.

Renewed emphasis on local food production soon brought out the need for improved methods of marketing truck crops. Extension personnel demonstrated the use of standard containers and the proper methods of grading and packing vegetables for interisland shipment. A market newsletter informed growers of improved methods of marketing commodities. Monthly unload reports and monthly crop estimates were also developed to give producers economic information on which they could base their operations (1).

In agriculture there was a division of thought. On the one hand, the cry for diversification to achieve self-sufficiency was the goal of the Extension Service. On the other hand, as long as good profits were realized in the two cropping systems, sugar and pineapple, the argument was for shipping in other agricultural products, particularly when those other products could not provide the same level of profit as either sugar or pineapple. As the economy of the nation slumped, however, and sugar and pineapple sales fell, diversification to produce at least some of the \$10 million in imported produce consumed in the Islands was reactivated.

The depression exacted its toll on participation in the demonstration activities of 1931, which in turn stimulated the undertaking of an important new project. This was the organizing of groups of older boys and girls who had left school and completed their regular 4-H Club work. These new groups were called junior farm demonstration clubs and junior home demonstration clubs. Y. Baron Goto,



In 1929, Manoa campus had lots of room for experimental fields.



The charter members of Epsilon Sigma Phi smiled for the camera in 1929.

then a county agricultural agent from West Hawaii, pioneered this movement in Hawaii. Not only did this work supply the missing link between 4-H Club work and the adult work program, but it greatly strengthened both.

At the close of the fifth year of Extension operation, Director Frederick G. Krauss summarized some of the outstanding achievements of county agricultural agents.

A survey of the Kona coffee district had revealed that up to \$8000 worth of fresh vegetables were being shipped into the area each year at a time when the coffee industry was at its lowest economic ebb. Agents persuaded small farmers to establish home gardens, and several were persuaded to undertake market gardening on a small scale, with the result that practically all vegetables consumed in the district were locally grown. In addition, 500 pounds of choice graded tomatoes were shipped weekly to the Honolulu markets, along with other vegetables, chickens, and eggs.

One of the Extension Service collaborators, Mr. H. Yamagata of Kealahou, was induced to select and grade his oranges. He harvested 150,000 oranges and sold them to people in Honolulu, who also paid for the parcel post charges.

Coffee growers in the Kona district were helped when County Agent Goto asked school authorities to change the regular school vacation, enabling the children, whose parents were mostly coffee growers, to harvest crops with a picking value of \$30,000. This large amount was thus kept in the families. At the suggestion of Extension agents, these same growers got together under a cooperative buying program and purchased rat poisons, fertilizers, and other commodities, saving themselves \$100,000 in operating costs.

On the other side of the Big Island another county agent, Roy A. Goff, was working with growers and Hawaii Experiment Station personnel in the introduction of new forage varieties and new fertilization programs to increase the productivity of forage crops as livestock feed. The early introduction of herbicides to Hawaii farms and ranches resulted in an average saving of \$25.75 per acre. In the case of cabbage, an application of fertilizer increased the yield to net an extra \$188.80 per acre.

Maui County Agent Ambrose's efforts resulted in a doubling of commercial potato acreage. Here fertilization increased potato production from 30 to 161 sacks per acre. The agent estimated the net fertilizer returns amounted to \$200 per acre. It was during this period that the mechanical potato planter was introduced to Maui potato fields. Ambrose also stimulated 4-H interest in bee culture, providing rural youth a source of income where none was previously available. Pollination by the bees increased yields by an estimated 25 percent.

In Honolulu County, Harvey Vollrath and H.C. Wong encouraged growers in the Pearl City area to convert their economically poor rice acreage to cantaloupes, watermelons, strawberries, potatoes, soybeans, and tomatoes. In Kaneohe and Kailua, marketing and trucking crops to market was a major problem for the growers. Agents interested growers in pooling their products after grading, and sending them to market in a few large trucks instead of many small trucks.

Agents Earl Nishimura, B.F. Johnson, and Harvey Vollrath helped out in the Governor's Unemployment Garden Project. The object was to help the needy help themselves by developing community and home gardens. These families were allowed to use land in various parts of the city to produce enough vegetables to form an important part of the family subsistence, possibly with some left over for sale.

On Kauai, Agent John C. Thompson and Extension Economist A.S.T. Lund were credited with saving Kauai rice growers from bankruptcy after a strenuous effort to market the crop. Pasture fertilization doubled the yield. When rice production failed to compete with the inexpensive, high-quality rice grown in California, Extension's vacant land utilization project promoted potato production in off seasons.

Extension also emphasized to growers the importance of the potential \$10 million market for garden and truck crops. Commodities explored included taro as a breakfast food and baby food, peanuts and soybeans, cotton, cassava, bananas, lima beans, cucumbers, eggplant, okra, sweet potatoes, tomatoes, bamboo shoots, ginger, onions, garlic, red kidney beans, and coffee. Emphasis was placed on processing other fruits during the off season for pineapple canning. Among those proposed were mango, breadfruit, papaya, banana,

Extension Office -
University of Hawaii.
Feb 10 - 1929.

At 10:30 A. M. a beautiful Sunday morning, the group of members of Epsilon Sigma Phi, and those eligible to membership, met to discuss the organization of a chapter.

Present were: President Crawford, Director Lloyd, member of Alpha chapter and National Organizer, Miss Green, Dr. Krauss, Miss Zimmerman, member of Delta chapter, and Miss White, members of Beta chapter.

The suggestion to organize a chapter was enthusiastically received, and as the National Organizer was present, the group proceeded at once to the business of forming a temporary organization.

Miss Zimmerman was unanimously elected temporary chairman, and Miss White temporary secretary.

Motion that chair appoint a committee of three to draw up constitution and by-laws. Seconded. Carried.
Director Lloyd, Dr. Krauss and Miss Green were appointed.

lime, carambola, tamarind, fig, guava, loquat, and lychee.

Forestry activity resulted in the planting of 26,000 trees for windbreaks, woodlots, and ornamental and roadside plantings. On 77 farms, planting trees for erosion control, terracing, and ditching were stressed. Macadamia nut trees were planted on Kauai.

Shipping Strike

While the nation and Hawaii suffered economic setbacks as a result of the depression, the maritime strike of 1936-37 stimulated even greater interest in self-sufficiency in supplying locally grown foods.

Agricultural economists made a detailed study (3) of the effects of the maritime strike on the food supply of Hawaii. Imports of food from foreign countries immediately increased and continued to increase as the strike went on, despite the high duties paid. The day-to-day expectation of settlement prevented even heavier imports, with dealers fearing subsequent losses on stock of duty-paid merchandise when normal conditions were restored. Considerable quantities of apples, potatoes, onions, and other perishables were imported on Canadian vessels. Large imports of rice from Japan were unloaded at Honolulu and other ports. A large shipment of California oranges and lemons came by parcel post. By special arrangement, another shipment of California citrus fruit was brought in on a U.S. Army transport ship.

The survey showed that the local population of 393,000 consumed about three pounds of food per person per day. At the same time, an estimated 37 percent of the consumed food was supplied by the local growers. About 92 percent of the food shipped in came from the mainland. Australia and New Zealand exported to Hawaii some fresh and frozen meat, considerable butter, and some cheese. From China, Japan, and Manchuria came dried beans, soybeans, large amounts of bean cake and sauces, fresh and preserved seafoods, and peanuts.

The report pointed out that an interruption of shipping between Hawaii and the mainland for three months created a situation that could easily become serious. A production program developed under normal conditions was needed so that future interruptions of shipping would find Hawaii

prepared. Being politically a part of the United States, Hawaii could not tax imports to encourage home production. The report concluded that government subsidies would be needed to compensate for lower labor costs in Asia, low costs of mechanized farming, and cheaper dairy feeds on the mainland.

Rumors of War

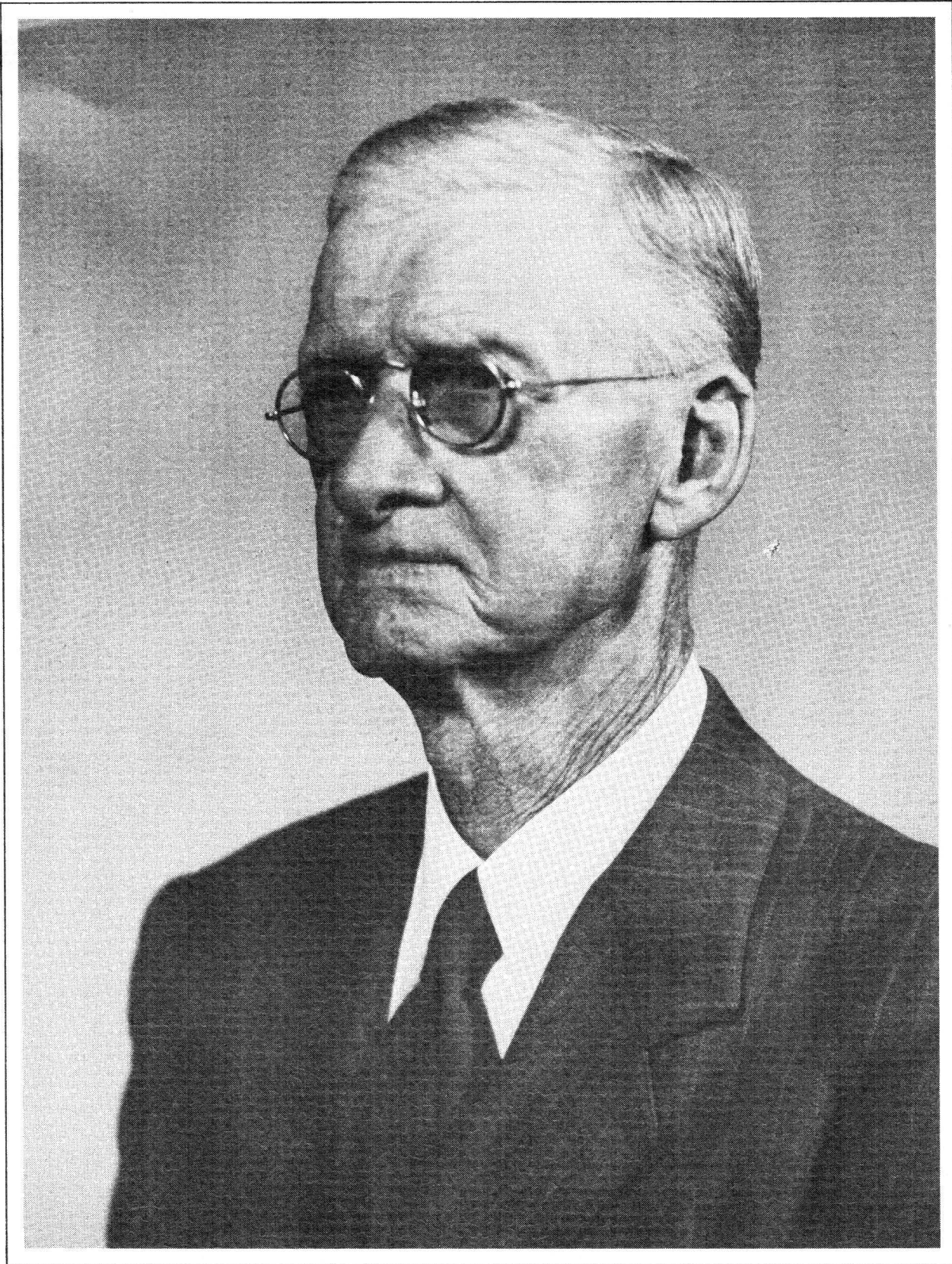
With all the trials of a new organization going through the growing pains of its first decade, Extension workers and their clientele were to be put to the test in a new challenge.

Governor Joseph B. Poindexter put it this way: "Rapidly changing international situations emphasize the increasing importance of food production in Hawaii. To grow in the Territory more of the food which is consumed here is not only sound economics at the present time but is a patriotic service in which all may engage. The Agricultural Extension Service of the University, whose workers are in intimate daily contact with the farmers, bears a definite responsibility for the success of this program with which the public is so genuinely concerned" (4).

Extension's 1940 Annual Report described 19th century efforts by the missionaries to prevent farmers from abandoning their kuleanas for the prospects of easy living in the seaport towns then beginning to develop. A definite part of the missionary program was the encouragement of better farming methods to make country life attractive and to offset the migration of rural people to the cities. Not only the missionaries but the rulers of the kingdom recognized the importance of keeping the people on the land. The Extension Service compared its agricultural program to that of the early rulers and other leaders (4).

Through the years, the national Extension Service had assisted frequently in developing agricultural programs in line with national policy and in meeting emergency conditions. Agricultural programs would play an important part in the inevitable adjustment to new world conditions.

The situation in Hawaii was unique. While mainland growers were generally burdened with problems of overproduction, local farmers were still producing less than half the food consumed in the



Frederick G. Krauss was director of the Hawaii Agricultural Extension Service from 1929 to 1936.

Islands. Continued efforts to increase the amount of food produced in the Territory assumed special significance.

Already more food was needed because of the increasing Army and Navy personnel and civilian construction employees. Increased production of feed for livestock and poultry was important, too. The supply of both human and animal food was becoming a matter of public concern under conditions that pointed to possible interference with normal shipping.

With the ever increasing federal agricultural aid programs to farmers and their families, Extension people were called upon to interpret the Soil Conservation Program, help families make out the farm and home management plans for the Farm Security Administration, and explain how to obtain benefit payments from the Agricultural Adjustment Administration. Assistance often was given to community credit unions organized by the representative of the Farm Credit Administration, and county agents usually were members of the committees responsible for administering these various programs under the Department of Agriculture.

In 1940, there were fewer than 6000 farmers in the Territory. But nearly 40,000 farm and home visits were made by Extension workers during the year. On approximately 2000 farms, improved practices were adopted during the year as a direct result of demonstrations given by county agents.

That year the Hawaii Extension people asked themselves, "Where are we?" They redefined their position and identified 13 Extension projects: administration, publications, county farm agents, county home agents, economics, animal husbandry, horticulture and truck crops, soil conservation, poultry, foods and nutrition, home management, clothing, and farm forestry. Dissemination of information to the public was accomplished through stories in newspapers and magazines, radio programs, and newsletters and publications pertaining to each of the other 12 program areas.

Agents operated from nine field offices at Wailuku, Hilo, Kohala, Kealahou, Lihue, Kaunakakai, Honolulu, Wahiawa, and Kaneohe. In each office there was an agricultural and a home demonstration agent; in larger offices there were assistant agents as well.

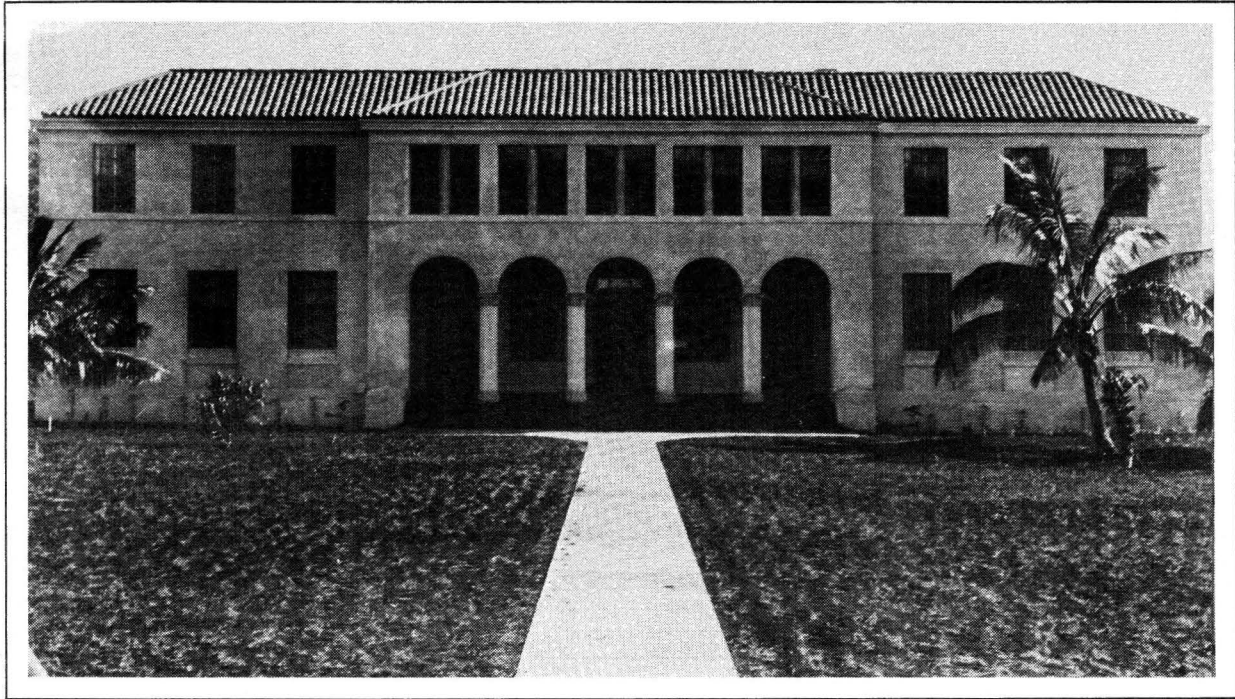
Once a year, agents attended a conference at the University of Hawaii, where they had an opportunity to review policies, to obtain new ideas, and to be trained in new methods. At the same time, a select group of older boys' and girls' club members and leaders attended the University's Agricultural Extension Week and saw much of the work of the Experiment Station.

As was true elsewhere, marketing was coming of age for farmers and ranchers. The problems of disposing of farm products often loomed larger than those pertaining to their production. Accurate market information was essential, and the weekly market report became very popular with the agricultural producer. Supplementing the market report, information contained in the monthly crop estimate gave growers of fruits and vegetables some knowledge of the acreage planted on other islands. Wholesalers regulated their purchases of mainland supplies in accordance with the estimated future supply of local produce.

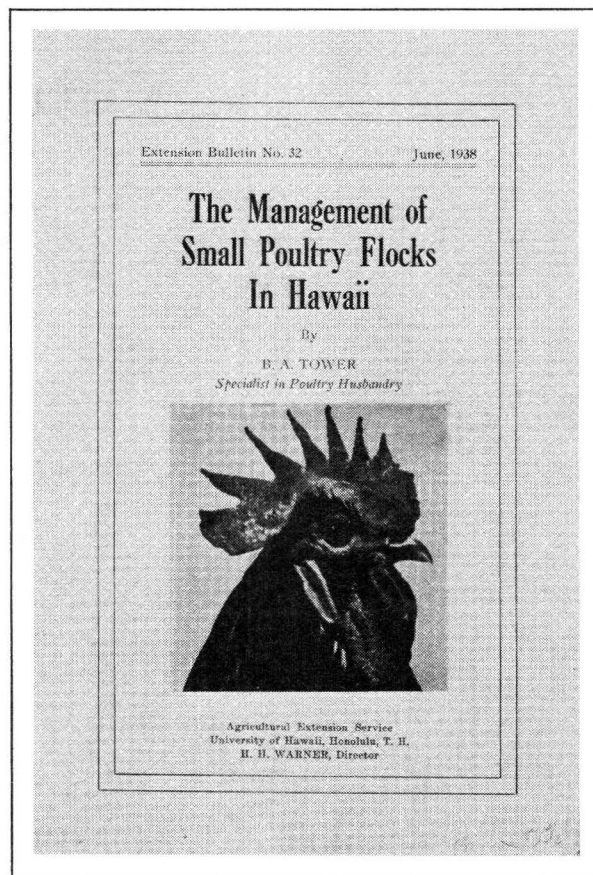
The kerosene case and the secondhand sack were common containers for field-run vegetables harvested by the majority of farmers, who had little knowledge of modern market demands. Extension workers persuaded growers to grade and pack their vegetables in standard lug boxes and crates. The additional cost paid dividends in better returns as they learned to compete successfully with mainland products in the Honolulu market.

Off-season harvesting of tomatoes, proposed by Extension agents, filled a market gap. Growers actually produced a surplus that was shipped to West Coast markets. County agents helped to organize several cooperative tomato growers' associations on Maui.

Nothing stimulated the adoption of better practices in hog production as much as the litter production contest, which encouraged producers to raise and grow out larger and heavier litters during the first eight weeks. Keen competition developed, and many recommended practices were adopted as growers began using more homegrown supplementary feed and appreciating the importance of better breeding for their swine herds. Through Extension urging, growers began mixing their own hog rations of barley, pineapple bran, soybean meal, fish meal, bonemeal, and molasses or pineapple syrup. Swine production, formerly based on



The old Gilmore Hall, built in 1935, was named for John Washington Gilmore, first president (1908 to 1913) of the College of Agriculture and Mechanic Arts, established March 25, 1907.



Printed publications, like this 1938 example, have always been an efficient means of getting Extension's message out to its clientele.

garbage feeding, became more dependent on sugar and pineapple by-products.

Demonstrations by county agents of the increased carrying capacity of improved pastures and the feeding of molasses and other local products did much to improve the quality of range cattle. The feeding of local waste products in pen-fattening beef cattle produced encouraging results.

Through the 4-H Clubs, information reached members' parents when no other way was effective. 4-H developed programs that included horticultural practices such as grafting macadamia nut trees. Interest in the macadamia nut industry was enhanced by demonstrations of propagating macadamia nut and coffee with grafting stock from trees of known quality.

When kerosene lanterns were abolished in favor of battery brooding of chicks, poultrymen reported a saving of 20 percent. Year-round culling and selecting of stock gradually reduced the incidence of paralysis and blindness. Getting the birds off the ground and into laying houses reduced mortality in the flock and produced a larger percentage of clean eggs. Fowl pox was a problem, but the Extension-promoted program resulted in a half-million baby chicks and pullets being vaccinated.

Adult club members were asked to include food production in their home gardens. This encouraged the consumption of more protective foods. Selection and proper preparation of food aimed to teach people how to supplement traditional ethnic diets with more milk, fruit, and vegetables, some whole-grain cereals, and less protein. The use of taro, poi, and sweet potatoes was also encouraged. More evaporated milk was used in rural districts, and more children were eating fruit instead of candy.

Work in home management emphasized the importance of keeping a family budget reflecting the cost of purchased foods as well as the value of home-grown supplies. Another objective was kitchen improvement—for example, installing pipes to bring running water to the kitchen sink.

Federal and Territorial money became available for the establishment of windbreak stands in the Hoolehua Homestead area of Molokai. The Extension forester established a 30-foot-wide windbreak nearly a mile long as a demonstration of farm forestry. In time, the planting became an effective wind-

break to lessen wind erosion, encouraging farmers to do the same on their land.

As the international tensions grew, national political leaders were urging increased food production by American farmers so the United States might ship more food to Great Britain. Extension workers told farmers in Hawaii to increase their production in order to release mainland food for shipment across the Atlantic.

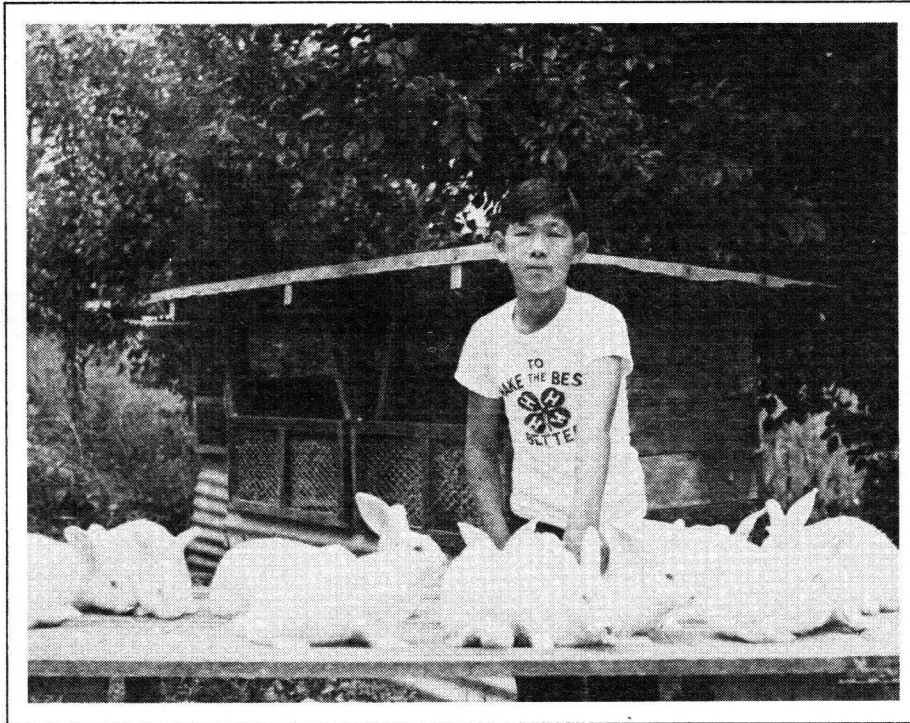
Hawaii's leaders realized early in 1941 that wisdom dictated preparation for a possible emergency at home. Extension workers cooperated in the plans to meet such an emergency and urged increased food and feed production in their day-to-day contacts with farmers. To step up Hawaii's food production, Extension appointed four special agents to teach plantation employees to produce food in their backyards. During this period, 75 percent of the vegetables consumed on one plantation came from the employees' gardens. On two islands, 40 to 50 percent of the vegetables consumed came from backyard gardens.

Titles of Extension publications indicate the intensity of the times: *How to Become a Full-Fledged American Farmer*; *Citizenship: Its Rights, Duties, and Benefits*; *Our Territorial Government: Training for Citizenship in a Democracy*; *This Land of Ours*; and so on.

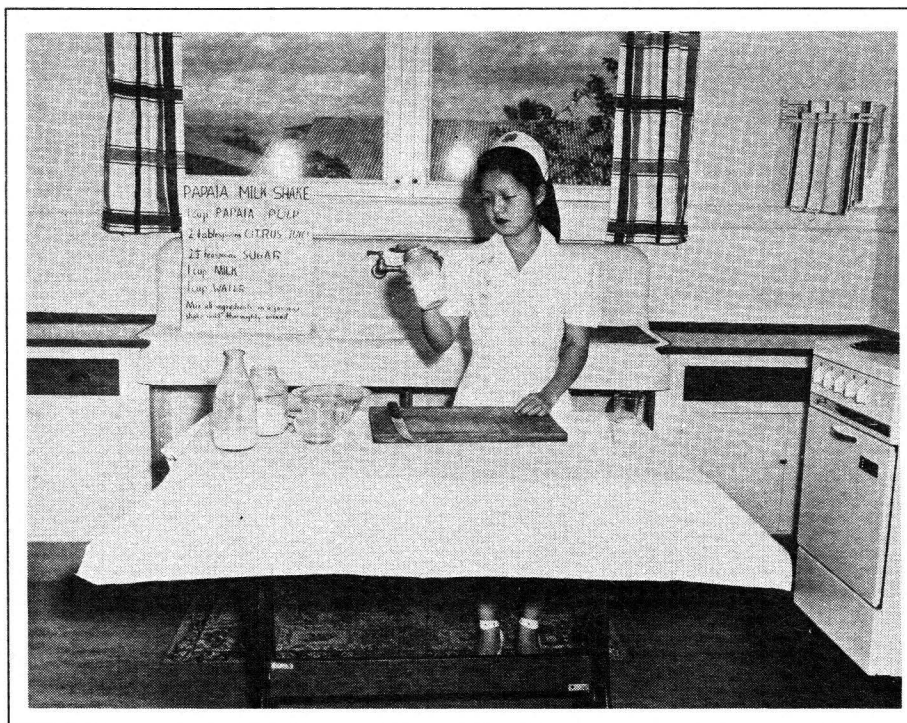
War in Hawaii

When Extension workers closed their desks on December 6, 1941, all was quiet. Home and farm visits for the week had been made and results recorded. Plans for next week's teaching were ready, carefully placed in briefcases. Demonstration materials had been assembled, ready to stow in automobiles that would take agents to club meetings and farm homes on Monday. Weekend conferences were over. Reports had been written. Hawaii was one day further along the road of speeded-up preparation to meet any kind of emergency. And then, on December 7, 1941, that emergency came.

On that morning every member of the Extension Service faced a mass of new duties, each seeming more urgent than the others. After the bombing of Pearl Harbor and other military bases, no one knew



Robert Matsunaga raised these rabbits in 1944 as part of 4-H's wartime food-producing effort.



Amy Nagaue won a \$50 war bond for the Kurtistown 4-H Club by demonstrating a new way to use fresh papayas.



Extension staff members stood on the step



Hawaii Hall for this postwar photo, circa 1946.



Agent Esther Rugland is justifiably proud of the young poultry growers in this late 1940s *Honolulu Advertiser* photo.



This 4-H tea party held in the late 1940s was captured by a *Honolulu Advertiser* photographer.

whether the attack would be repeated, and the agents of the Wahiawa office quickly organized a canteen, which fed hundreds of panicky refugees during the next 48 hours. Other Extension offices swung into action on that fateful Sunday, and within 24 hours the entire organization on five islands was operating on an emergency basis.

Now the commanding phrase "food for freedom" called men and women to action. The phrase had a more poignant meaning in Hawaii than on the mainland. Here it meant an adequate food supply that the enemy could not send to the bottom of the ocean. Ships that had formerly transported vegetables and fruits from one island to another were now needed for other war service. Soon, food and fodder had to be consumed on the island where they were produced. Oahu was especially hard hit, for in peacetime it had depended on the neighbor islands for most of its produce. The problem was complicated by the fact that Oahu's relatively few truck farms were now short of help as defense jobs called farm laborers away from the land in great numbers. The U.S. Army took some farmland for military purposes. Seed stocks and insecticides were "frozen." Feed for livestock was limited. Gasoline and tires were rationed.

Extension helped everyone realize that each day lost in the food production program was a day given to the enemy. Early in 1942, the U.S. government sent several units of agricultural machinery to the Territory to be lent to farmers. Extension agents taught the farmers to use the new machines effectively in producing food and feed crops. Extension also taught conservation. The food on hand had to be used wisely so that there would be enough for all. When some familiar foods became scarce, people had to learn to use unusual foods. Extension taught them how (5).

All in all, these were difficult times, but Extension came through. For example, county agricultural agents issued permits to buy tires and insecticides, inspected weekly consignments of fresh vegetables for the Army, helped farmers who requested occupational deferment of military service, and enforced the rules of the transportation pool to conserve gasoline and tires. They also interpreted rules and regulations of the military governor's office to non-English-speaking aliens and conducted an Americanization program (6).

County home demonstration agents had their hands full, too. In addition to teaching the principles of nutrition and home management, they also taught homemakers how to ventilate blacked-out rooms, how to conserve food and find substitutes for unobtainable foods, how to store food, how to make soap, how to make emergency use of the coconut, and how to comply with possible evacuation orders (6).

The population of the Islands increased dramatically during the war, and the swell of people eating in Army and Navy kitchens resulted in large quantities of garbage. Extension conducted a program to get hog growers to feed garbage to their hogs. As it turned out, there was more garbage than they could use—and hog production had already swelled to fill all the facilities. As a result, the Muscovy duck was introduced to eat the excess garbage.

The Army asked Extension home agents to teach selected mess sergeants how to prepare Island foods. On Kauai, Extension set up a program to show soldiers how easily they could subsist in a tropical jungle by living off the land if they knew what to look for and how to prepare it.

Space was very limited in shipping vessels from the mainland. To conserve on scarce materials and equipment, the word of the day was to repair it, patch it, or make it at home. 4-H Club members learned to make their own clothes and to make shoe racks, dressing tables, and laundry bags from scrap materials. Hawaii's 4-H Club members increased the Islands' food supply during the final year of the war by raising more than 5000 rabbits and 16,000 Muscovy ducks and by growing 41 acres of vegetables in their home and community gardens.

During the war, Extension activities went far beyond the boundaries of the Territory to Fiji, New Caledonia, the New Hebrides, Guadalcanal, New Georgia, Bougainville, Guam, Saipan, Tinian, Truk, Yap, and Koror. On these islands, five of Extension's top personnel served as members of the Foreign Economic Administration. The purpose of this organization was twofold: to produce fresh vegetables and milk for hospitalized troops in the forward area, and to restore native industries and provide native storekeepers with trade goods.



In 1947, Big Island 4-H members flew to Oahu for the Ahaolelo. Hidden in this picture are agents Iwane, Lyman, Mihata, Motoi, Ota, and Zane.

After the War

On August 14, 1945, the activities of the Extension Service were in line with the national goal of winning the war. On August 15, the world was suddenly at peace. With peace came relief and lessening of the tension. But with the peace also came unexpected and peculiar problems, immediate and urgent, which meant that there could be no relaxation on the part of the Extension Service in aiding the people of the Territory (7).

Guns were silenced; there was no rubble to be cleared from the streets. Gas masks became curios, and the khakis and whites of servicemen no longer dominated the sidewalks. But the problems that faced Extension workers did not cease. Shortages, strikes, skyrocketing prices, mainland competition, reconversion to normalcy—these were the things that demanded resourcefulness and ingenuity of Extension specialists and county farm and home agents.

The puzzled farmer, who had received the news of peace with joy, quickly realized that the military garbage he had fed his pigs during the war was now gone, and mainland shipments of feed were both scarce and costly. The farmer's bruised and poorly packed fruits, which had been gratefully bought during the war, were spurned in favor of greener and fresher vegetables arriving from the mainland. The homemaker who had put in a 48-hour workweek outside her home returned, money in pocket, eager to improve her home and make it attractive for her family—but found little in the market to buy.

Commercial fruit and vegetable growers, concerned about the competition of mainland produce after the war, sought suggestions for preparing to meet this threat to their livelihood. Extension showed farmers which local crops would meet the least competition from mainland produce, and how to assure vigorous plant growth by improving cultivation practices and using new types of sprays. Improved varieties of vegetables were field-tested to find out exactly how they would react to commercial growing conditions. Farmers were shown how to overcome the labor shortage by using mechanized equipment. Finally, Extension showed farmers approved methods of grading, packing, shipping, and marketing of vegetables and fruits.

Home demonstration agents were determined to assist homemakers in clothing their families ade-

quately without discarding any worthwhile garments on hand or buying more than the family's share of available merchandise. The problem was manifold. Prices on ready-made garments were high and materials were scarce. Families were spending more money than ever on clothes and getting less for their money.

When the University budget for fiscal year 1951 was slashed by \$1 million, the Extension Service and the Agricultural Experiment Station had to absorb the budget cut. Extension lost 21 full-time positions (10). At the same time, increasing numbers of foreign trainees were arriving at frequent intervals. As a result, greater emphasis was placed on the use of printed publications, news stories, and radio programs.

Even with these restrictions, agents and specialists managed to conduct 347 training meetings for nearly 6000 rural leaders. Method demonstrations attracted 42,000 people. The discussion meeting proved to be popular as well, with 2500 meetings held for 75,000 people. Since it was impossible for each county agent to attend every meeting, local leaders were trained to assume this responsibility.

Foreign trainees from Pakistan, Indonesia, Burma, the Philippines, Guam, the Ryukyus, Thailand, and Japan were instructed in various techniques of practical agricultural production. An employee was recruited for assignment in Indonesia; a clothing specialist and a county agricultural agent were loaned to the U.S. Army on Okinawa.

In 4-H Club work, the beef calf program was financed by the Bank of Hawaii for the first time. Under this arrangement, loans up to \$125 for the purchase of a beef calf were offered to qualified 4-H Club members by the bank. Thirty boys participated in the first year. Another outstanding activity for 4-H was the collection and sale of pasture grass and legume seed. Even though the project got off to a late start, the 4-H boys collected 1600 pounds of seed and sold them for \$475.

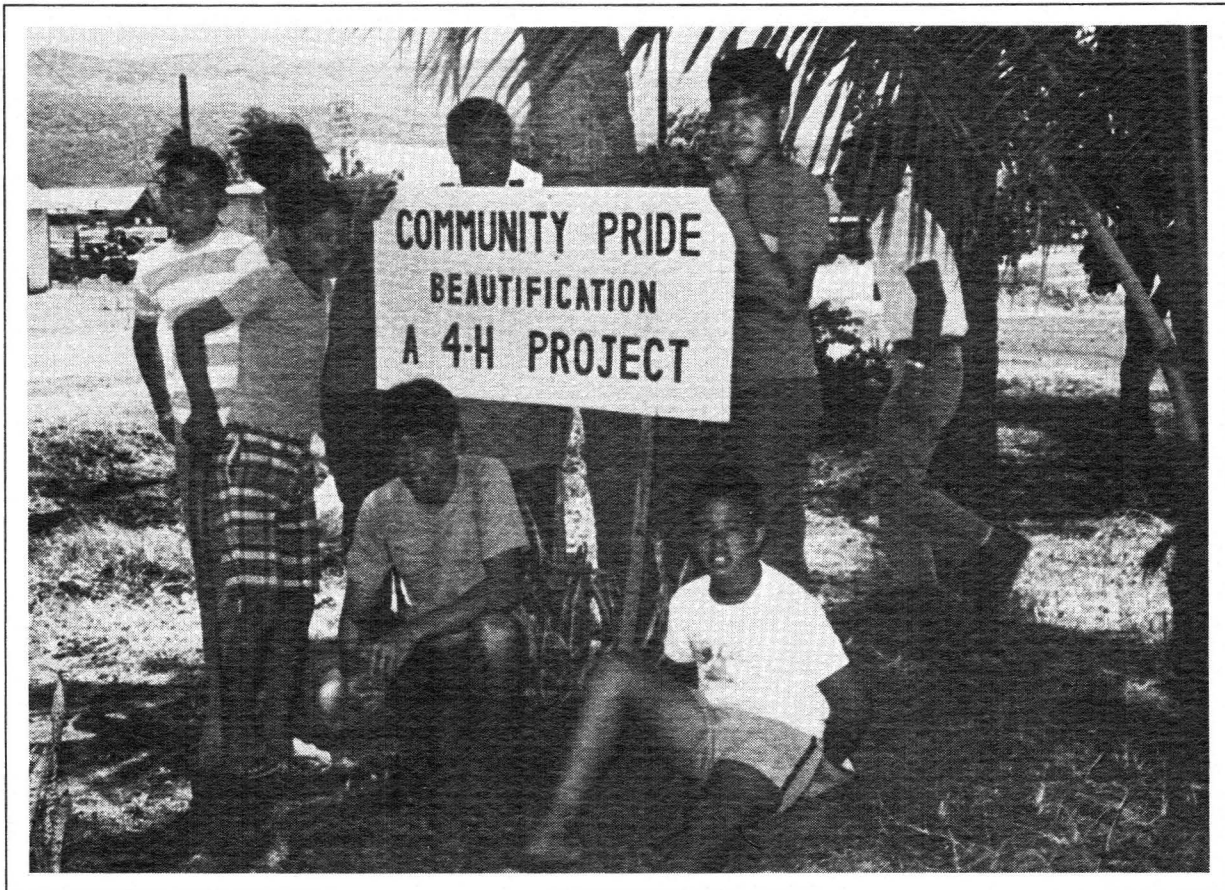
Under a pasture improvement project, ranchers and others seeded about 10,000 acres of poor rangeland to superior grass and legume varieties with a resultant increase in carrying capacity of 25 to 75 percent. Irrigation systems were installed on 128 acres, increasing carrying capacity from 20 head to 250 head per year.



Planting a *Cybistax donnell-smithii*, or gold tree, in front of Bachman Hall in the late 1950s were Director Y. Baron Goto, former directors Frederick G. Krauss and Howry H. Warner, and Dean Harold A. Wadsworth.



Y. Baron Goto joined Extension in 1928 as an assistant county agent for West Hawaii. He served as director from 1950 to 1962.



Extension's ongoing concern for young people led to the 4-H Community Pride Program in 1969.

Besides budget cuts, there was difficulty in hiring people to fill open positions due to the low salaries offered. Continued emphasis was put on in-service training of county personnel in the latest information and methods. An Extension education course was introduced in the spring of 1952 with an initial enrollment of 23 students.

After 25 years of experience, the home demonstration program was unusually well organized. Each county had a council to discuss problems and programs. The Territorial council offered recommendations to the county councils. They in turn selected activities for the coming year. After being trained by the agent or a specialist, each project leader took the knowledge learned in the training session back to the club members.

The Territory was undergoing a period of change. Urbanization was increasing at a faster rate, wages and salaries were going up, the standard of living was improving, and an expanding flow of high school and university graduates was moving into the pool of labor, with a corresponding increase in unemployment.

Attempts were made to replace mainland imports with local products. Commodities such as tomatoes, head lettuce, sweet peppers, and celery showed increases in production, while decreases in imports from the mainland were substantiated through reports compiled by the market reporting section. Certain losses were reduced substantially with an Extension-designed tomato shipper, and the farmer-supported standard container law helped in the export of produce. The crop and livestock reporting service acquired a federal statistician to expand this service to growers.

The emphasis on pushing local production towards self-sufficiency was given another boost throughout the 1950s. Those crops emphasized included carrots, onions, lettuce, sweet potatoes, tomatoes, celery, citrus, bananas, papayas, avocados, passion fruit, macadamia nuts, and flowers. Certain vegetable crops were adapted for year-round production—daikon, for example. When Extension personnel found that \$1.5 million worth of temperate zone fruits were imported to Hawaii annually, trials for adaptation of pears, plums, peaches, and grapes were set up.

In the continuing search for new agricultural enterprises to strengthen the economy of the Terri-

tory, there was considerable interest in growing passion fruit. Every county office had a program for trials and educational programs to interest and inform potential growers of this crop. The greatest activity was in East Hawaii, where acreage planted in passion fruit increased from 197 acres to 425. Altogether, there were 526 commercial acres of passion fruit in the Territory, and demand for the fruit remained ahead of supply.

In 1955, the Oahu Orchid Growers Association was organized. The Oahu Nurserymen's Association and the Oahu Lei Sellers Association were also formed to promote better marketing procedures, standards, and business relationships, and to increase mainland markets.

It was in 1955 that Y. Baron Goto became a full director of the Cooperative Extension Service. Also in 1955, a new county office was opened. In a few months, the home agent had trebled the number of 4-H and University Extension Clubs and doubled the number of farm and home cooperators. As additional Smith-Lever funds became available, new agents were placed on Oahu. A chief complaint at the time was the lack of support staff. Most home agents were doing their own clerical and stenographic work, which effectively restricted their programs.

In nutrition, the emphasis continued to be on introducing more milk products into the diet and encouraging increased consumption of vitamins A and C. The philosophy was to encourage the use of ethnic food, supplemented to obtain nutritional balance. Homemakers were also encouraged to use local vegetables, fruits, poultry, and fish.

Extension continued to work on improving the performance of marketing firms, with emphasis on increasing producer returns, assuring consumers of an adequate supply of food at reasonable prices, and providing incentives for a more efficient marketing system. Since there was a lack of bargaining power among producers in Hawaii, Extension agricultural economists and agents encouraged growers to form more than 25 cooperatives. They formed a produce information exchange to expedite interchange of demand and supply information to achieve stable market conditions. Passage of the federal marketing order for papayas occurred only after growers and Extension personnel worked long hours to meet all the requirements.

The position of area specialist was created in 1957 when a committee representing 57 dairies called on the administration, suggesting that the director create a new position for a dairy specialist who would work directly with the dairymen.

Beef growers had been using one feedlot, operating since 1941. In late 1957, two others were established. In one of the new feedlots, 1000 head of beef cattle and about 500 head of dairy heifers were fed. Construction began on an even larger feedlot.

Most of the effort in soil work during this period was devoted to building, amendment, fertilization, and irrigation of soils and croplands. Routine use of organic matter such as sugarcane bagasse, mill trash, and wood shavings was adopted by many growers in diversified farming. Many of these farms were located on rock land recently cleared and leveled from rain forests. The organic materials were applied as surface mulch. Agents found that the farmers were less interested in the nutritional enhancement of the soil than in the control of weeds.

It was in the late 1950s that *Consumer Spotlight* was started as a regular monthly publication. At first it was distributed to home and farm agents and specialists. One of the agents said it was what they needed in the preparation of their news releases, which reached the greatest number of people quickly and inexpensively. Consumer meetings also reached large audiences. Regular short releases called "plentifuls" provided information on seasonal supplies, quantities, price advantages, and use of products. Consumers had an opportunity to meet with food industry leaders at public meetings, where questions and discussions increased consumer appreciation of marketing costs relative to retail prices.

Farm agents, in cooperation with Experiment Station economists, developed cost studies. The idea was first to survey the costs of various forms of farming enterprise, and then to conduct meetings with the farmers to discuss these studies—with the ultimate goal of encouraging growers to adopt new, more efficient practices.

As a result of research done by the clothing specialist, a pattern company came out with a basic pattern expressly made for local figures. To introduce these new patterns, open meetings were held at a shopping center auditorium, and 1300 women

attended. The clothing specialist demonstrated how to take measurements and how to adjust patterns.

An attempt was made to attract the general public to University Extension Club meetings. Special meetings were held on military bases for wives of military personnel. Home agents were asked to hold meetings with any group not affiliated with home demonstration clubs. Agents also worked with Health Department and welfare clientele.

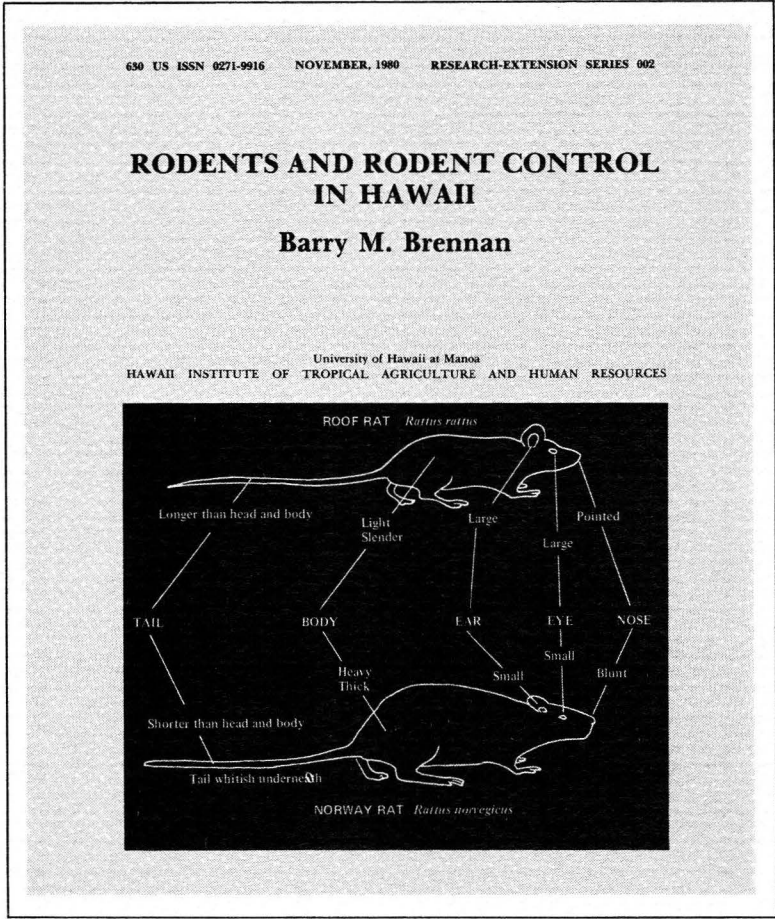
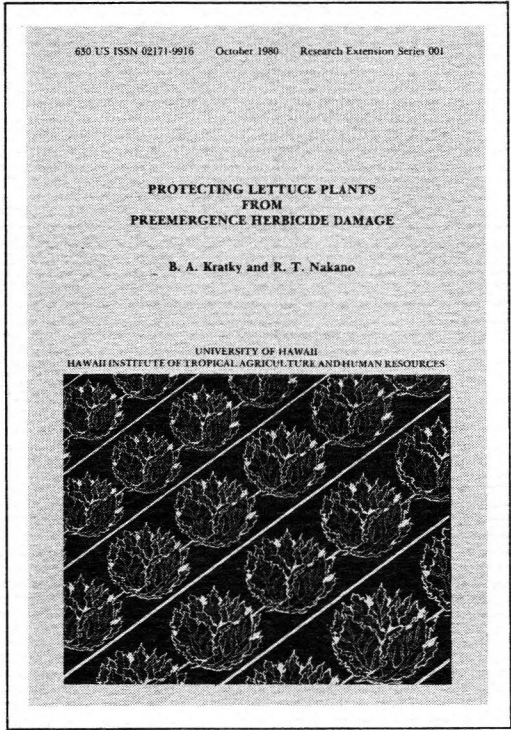
Perhaps this extra outreach effort was a reflection of the new era Hawaii was entering. In becoming a real part of the larger economic and political community of the United States, Hawaii reset its sights—and so did Extension.

Statehood

With the beginning of the 1960s, the joint Hawaii-Federal Extension Service launched a task force on program analysis. The Hawaii Scope Report, "A Review of Extension Responsibilities in Hawaii," began in 1959 at the annual conference and required two years of study. It involved the entire Extension staff and a number of lay people. During the first year, each staff member served on one of eight committees.

During the 1960 annual conference, preliminary reports prepared by the committees were studied and discussed. The next assignment was the development of new project assignments. Eight areas were recommended by the Federal Extension Service, but a lack of funds reduced the number to seven. The seven project areas completed were administration; communication; agricultural production, management, and natural resources development; marketing and utilization of agricultural products; home economics; 4-H and other youth programs; and organization and supervision of county operations.

Hawaii's Extension agents had been trained as generalists, and this was satisfactory as long as the farmers were not specialists. But as time went on and competition increased, only the highly specialized and efficient farmers could afford to stay in business. Extension had to respond to this trend, and beef, poultry, swine, and sugar production specialists were hired during the early 1960s.



The CES-HAES merger resulted in a telescoping and renaming of publications categories. These are the first two publications in the new HITAHR Research Extension Series.

During this time, sugar production in terms of dollar volume increased from \$145 million in 1955 to \$159 million in 1962. Pineapple dollar volume went down from \$115 million to \$114 million. All other agriculture—loosely called diversified agriculture—increased from \$37 million to \$45 million. Both underemployment and unemployment became evident in some sectors of agriculture. Coffee and pineapple, both relying on world markets, were caught in a cost-price squeeze.

From the end of World War II, the American farmer had concentrated on doubling his agricultural production to meet world and local demands—growing two blades of grass where one had grown before. This was also true in Hawaii. After 1955, the farmer had to spend more and more of his time on increased production efficiency—producing two blades of grass for what it had cost him to produce one. The farmer also had to increase his marketing proficiency—selling his blades of grass in a form and at a quality and price that appealed to consumers.

During the 1930s, the practices of the average farmer were years behind the technology developed by the researcher. By the 1960s, that time lag had been shortened considerably, due to farm magazines, radio programs, agricultural and home publications, and the efforts at out-of-school teaching by county agricultural and home agents and specialists. In some places and among certain commodity growers, the gap between research discovery and practical application on a commercial farm had been reduced to a few years.

Shrinking Resources, Changing Values

At the end of its fourth decade in Hawaii, Extension again had to shift gears to meet the changing needs of its clientele. The next few years would be a time of youthful unrest, growing awareness of minority concerns, and worries about energy depletion and the increasing rate of inflation.

Alarmed by high rates of crime and drug use among youth, 4-H began its Community Pride Program in 1969, giving young people a chance to put their energy into local community improvement, service, and beautification projects. Personal

development, which had always been emphasized in 4-H programs, came into sharper focus in the 1970s with the identification of certain "life skills" that young people need to become competent, mature adults: intellectual curiosity, relating to others, relating to change, physical and mental health, making vocational decisions, using time, and using science and technology.

The Expanded Food and Nutrition Education Program (EFNEP), which began in 1969, had both a 4-H and an adult phase. EFNEP was designed to help low-income audiences improve their diets through nutrition education and more efficient use of available resources.

The Extension program in food science and technology was intended to develop closer ties between the research program in processing of tropical food products and the food industry, thus promoting the products of research. Later, attention turned to the food service industry, particularly in the area of sanitation training for employees. The Extension food technologist began conducting certification programs for food service workers and for canners of low-acid foods.

A position for an Extension veterinarian was created in 1969, and three major priorities were set: planning and implementing a strong program of continuing education for veterinarians dealing with livestock and poultry as well as those working with pets; supporting county agents and specialists in the dissemination of information on disease control in poultry and livestock; and helping to establish a pre-veterinary program to help Hawaii residents enter mainland colleges of veterinary medicine and ultimately return to Hawaii to work. The Extension veterinarian has also given the general public timely information on the antirabies control program, the spaying and neutering program, and pet health care.

The poultry industry underwent significant changes during the 1970s; most of these were of economic benefit to individual farmers as well as to the industry as a whole. The Hawaii Egg Producers Association (HEPA) has accomplished several things since its formation in 1970. It has saved local producers \$25,000 a year by exempting them from the National Egg Research and Consumer Information Act of 1977, which would have required them to contribute \$.05 per case for research and promotion. At the same time, HEPA has run its own effective educational and promotional pro-

**DIRECTORS OF THE HAWAII AGRICULTURAL EXTENSION SERVICE, 1928 TO 1959,
AND THE HAWAII COOPERATIVE EXTENSION SERVICE, 1959 TO 1981**

William A. Lloyd, Dean, October 24, 1928, and Director, February 1, 1929, to November 28, 1929

Frederick G. Krauss, Director, November 29, 1929, to 1936

Howry H. Warner, Director, 1936 to 1950

Roy A. Goff, Acting Director, 1941 to 1944

Y. Baron Goto, Director, 1950 to 1962

Morton M. Rosenberg, Director, 1962 to 1964

Dale N. Goodell, Associate Director, 1962 to 1976

C. Peairs Wilson, Director, 1965 to 1975

Wallace C. Mitchell, Acting Director, April 1975 to June 1976

William R. Furtick, Director, 1976 to 1980

Margaret Edsel Fitch, Acting Associate Director, 1977 to 1980

Noel P. Kefford, Director of HITAHR, 1980 to the present

Yukio Kitagawa, Assistant Director for Cooperative Education Services, January 1981 to the present

gram, which is credited with increasing per capita egg consumption locally.

An agricultural service center was developed on the University's Manoa campus in 1975, the objective being to coordinate existing service work such as soil, tissue, and forage testing, the plant disease clinic, and work on insect pests. All samples from industry, county agents, and researchers go to this central office. In the first nine months of operation, the service center fielded 2675 requests for plant disease identification or control, 4000 requests for soil testing, 4483 requests for plant tissue analysis, and 150 requests for forage analysis. The majority of the clients for plant disease help and soil testing were homeowners and farmers.

A small group of anthurium growers approached Extension in 1973 for help in organizing an association. Extension conducted many educational meetings in Hawaii County, resulting in the formation of a growers' association and, in 1976, the Hawaii Anthurium Growers Cooperative. An immediate effect was a 20-percent increase in flower prices to members. Other commodity groups have become aware of the value of group action in marketing, and Extension can take a large share of the credit for this agricultural cooperative movement that is clearly taking shape in Hawaii.

Inflation and a back-to-nature ethic contributed to a growing interest in home gardening among urban and suburban residents. Extension responded by distributing seeds of locally adapted vegetable hybrids and cultivars to home gardeners, giving lectures and demonstrations to interested groups, answering specific questions over the phone, and publishing fact sheets on various home gardening topics. One series of leaflets, prepared in cooperation with EFNEP, contained nutrition information as well as gardening advice.

Under federal legislation, all persons who use or supervise the use of restricted-use pesticides must be certified as competent. Hawaii's State Plan, prepared in 1975, gave Extension the responsibility for developing training materials and programs. By November 1977, 5250 pesticide applicators had been trained by Extension agents and certified by the Hawaii State Department of Agriculture.

A pilot project in integrated pest management was started with the papaya industry. Several agencies have cooperated with Extension in this ongoing

effort, and several disciplines are involved, including entomology, plant pathology, horticulture, and biochemistry. The immediate objective is to develop an integrated approach to papaya pest management that is both economically and environmentally sound, with the pilot project to serve as a model that can be applied to other major commodities grown locally. Ultimate objectives are to reduce pesticide use, to save on energy costs associated with pest management, to lessen the potential for environmental contamination, to develop new job skills in agribusiness, and to encourage interested agencies to participate in other such integrated projects (8).

Pineapple and sugarcane, long the backbone of Hawaii's economy, have recently bent under the pressure of changes in the global economy. Hawaiian homesteaders on Molokai, faced with a phase-out of Dole pineapple production, asked Extension for help in organizing feasibility studies for other crops and livestock enterprises that would create jobs while making wise use of land and other resources. By 1979, Extension had completed three major feasibility studies on alfalfa production and harvesting and an integrated livestock-production system. Temporary facilities at Kohala, on the Big Island, are being used for research to find a substitute crop for sugar.

Diversified agriculture, always an Extension goal, is enjoying renewed support in the larger community as politicians and people alike see the need for increased self-sufficiency—in energy as well as in food.

A Turning Point

In 1979, as part of the College's reorganization plan, the Cooperative Extension Service and the Agricultural Experiment Station were merged administratively under the name Hawaii Institute of Tropical Agriculture and Human Resources. HITAHR's joint objectives are to promote new knowledge in the agriculture and human resource disciplines; to carry out multidisciplinary programs in resource development in Hawaii and other tropical areas; and to provide statewide, county-based programs and services that will help people and organizations solve social and economic problems (9).

Programs still fall into the same four categories: agriculture and natural resources, home economics, community resource development, and 4-H and youth development. The primary clients of this educational delivery system are still farmers, ranchers, other businessmen, families, youth, consumers, and community leaders. Behind the cooperative education effort are the research program, the Publications and Information Office, and other support services of the College.

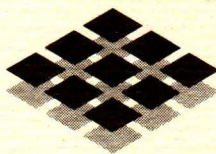
What is new about Extension, then, besides the name? Probably the most significant and far-reaching effect of the merger is one that has already been foreshadowed in many Extension activities of the past: cooperation. Recent funding cuts, spiraling inflation, and diminishing resources make it more important than ever that public sector agencies cooperate wholeheartedly with one another to make the most efficient use of human and economic resources, avoid duplication of effort, and—perhaps—follow the wise bit of depression era advice that must have originated with an Extension agent: “Use it up, wear it out, make it do, or do without.”

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