

GUAM DEPARTMENT OF AGRICULTURE

# **INFORMATIONAL HANDBOOK**



**The cover scene of Chinese Cabbage was taken at the farm  
of Ahn Hi Sup in Talofoto.**

# **INFORMATIONAL HANDBOOK**

**DEPARTMENT OF AGRICULTURE**



**GOVERNMENT OF GUAM**

**1974**





**Government land-lease farms on Guam represent a sizeable acreage and are important to the island's agriculture economy.**

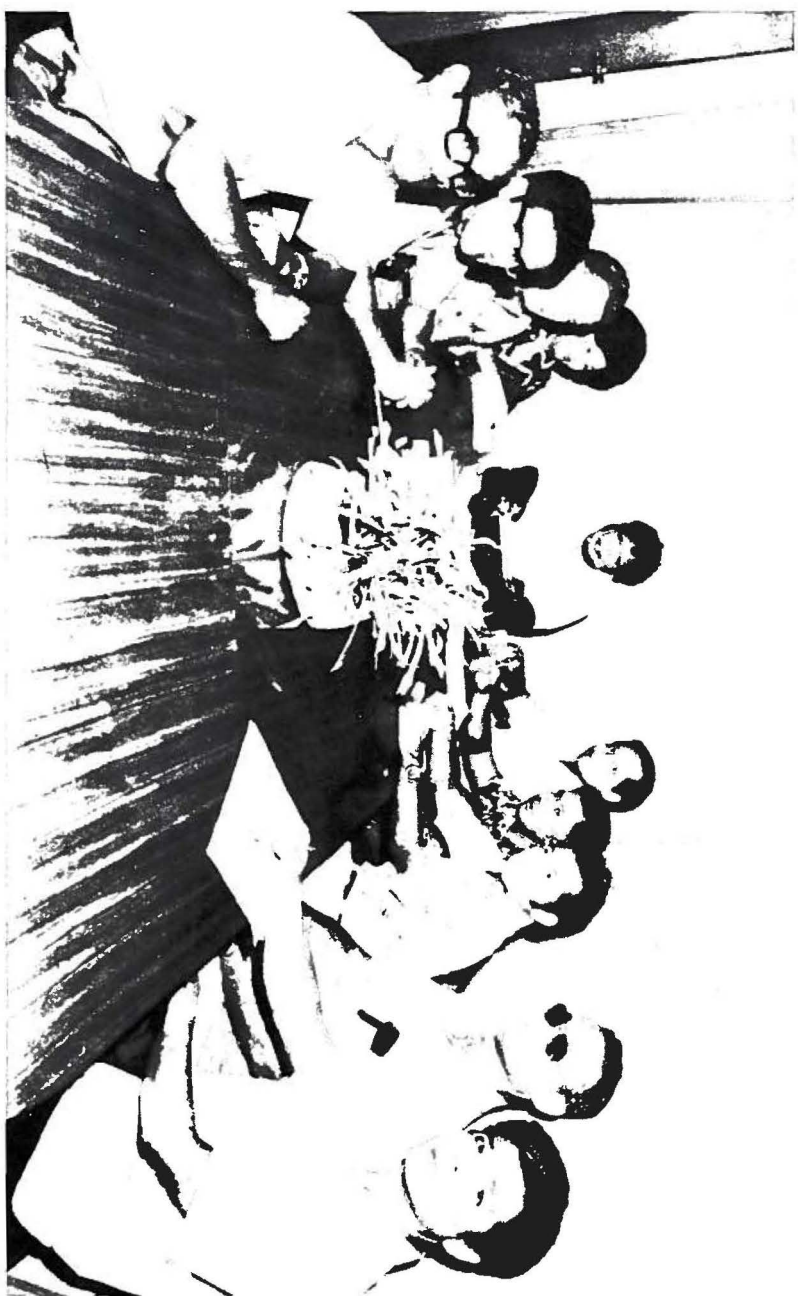


# **TERRITORY OF GUAM DEPARTMENT OF AGRICULTURE**



**JOSE T. BARCINAS, DIRECTOR  
JESUS M. TEDPAHOGO, DEPUTY DIRECTOR**

**TEXT, LAYOUT AND PHOTOGRAPHY BY DON SEERY**



Department of Agriculture, Supervisory Personnel

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**JOSE T. BARCINAS**  
Director of Agriculture

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J. M. Tedpahogo, Deputy Director of Agriculture and In-Charge, Departmental Administration, Personnel Services, Agriculture Land Lease, Farmers Small Loans and Agriculture Expense Insurance Programs.

Paul A. Hansen, Acting Manager, Guam Farmers Cooperative Association

Matilde C. Santos, Clerical Services

Ricaredo Hautea, Accounting and Property

## **DIVISION OF ANIMAL INDUSTRY**

Dr. Leoncio Palomares, Division Chief and In-Charge, Animal Control Unit (Proposed — 1974)

Jesus T. Palomo, Assistant Division Chief and Field Supervisor

Jose Q. Cruz, Poultry Section

Enrique A. Concepcion, Cattle and Stud Services

Manuel Techaira, Swine Section

## **DIVISION OF CONSUMER AND MARKETING SERVICES**

Bonifacio P. de Guzman, Division Chief and In-Charge, Marketing Information and Agricultural Statistics



Juan A. Quinata, Marketing

Jesus S. Quinata, Marketing

David G.. Blas, Compliance

Peter M. Tainatongo, Compliance

## **DIVISION OF EXTENSION SERVICES\***

Antonio S. Quitugua, Division Chief and In-Charge,  
Extension Education

Lorraine M. Aguon, Home Economics

Thomas C. Crisostomo, 4-H Clubs

## **DIVISION OF FISH AND WILDLIFE**

Isaac I. Ikehara, Division Chief

Ho Kuo, Commercial Fisheries

Nick Drahos, Wildlife Research and Management

Harry Kami, Fishery Research and Management

Juan N. Quichocho, Law Enforcement

## **DIVISION OF FORESTRY**

<sup>pod</sup>  
Henry R. Ketchum, Division Chief and In-Charge,  
Reforestation and Forest Recreation

Donald A. Seery, Assistant Division Chief, Information  
and Education, Erosion Control

Gregorio C. Rodriguez, Forest Nursery Technician

*\*Transferred to University of Guam  
(Land Grant) 1974*

## **DIVISION OF MAINTENANCE AND EQUIPMENT SERVICES**

Charles I. Wolford, Division Chief

## **DIVISION OF PLANT INDUSTRY**

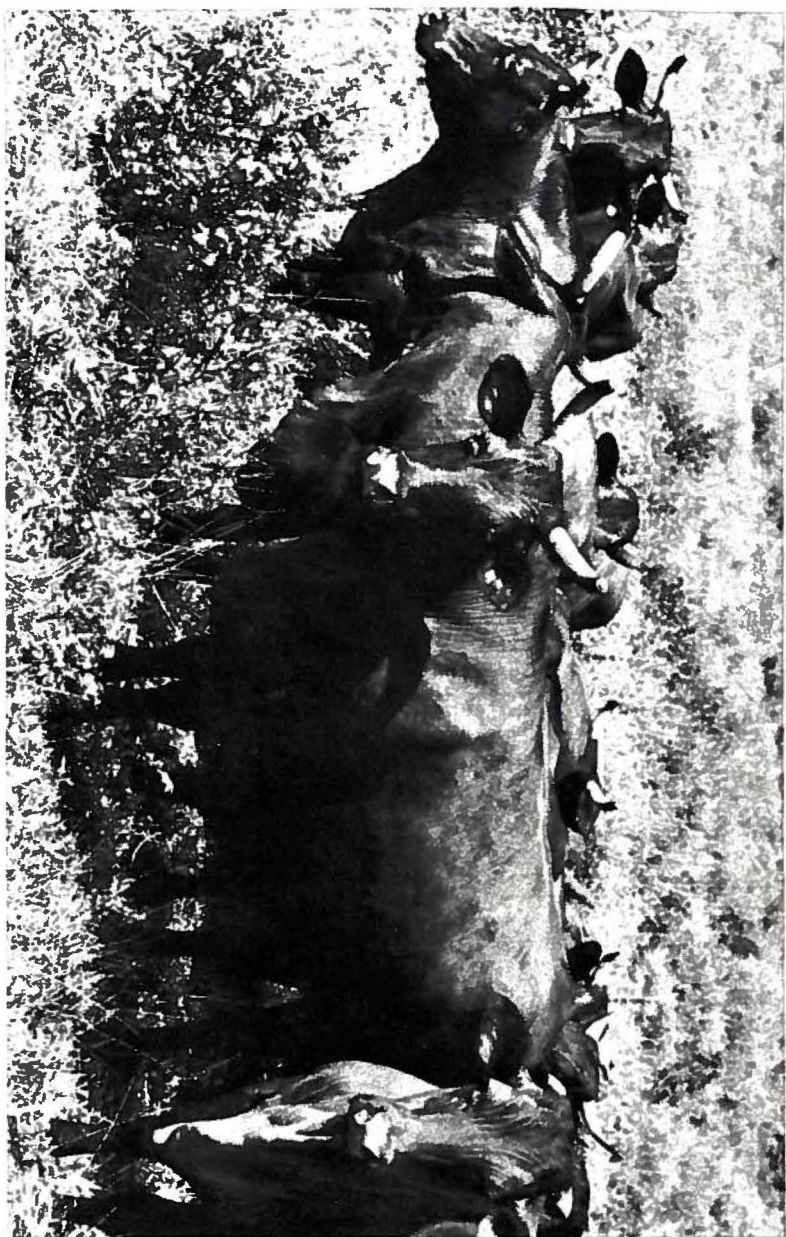
Dr. R. Muniappan, Division Chief and In-Charge,  
Plant Quarantine, Entomology Research and Development

Dr. Joseph E. Elson, Plant Pathology, Research and Development

Jose C. Barcinas, Seeds, Seedlings and Nursery Services

## **DIVISION OF VETERINARY SERVICES**

Dr. Walter F. Mestanza, Division Chief and In-Charge,  
Animal Quarantine



Beef production at commercial cattle ranches exceeded 140,000 pounds in 1973.



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**JOSE T. BARCINAS**  
**Director of Agriculture**

## DIRECTOR'S MESSAGE

On more than one occasion people have asked me if Guam still has a future in agriculture . . . . Certainly, a question of this nature cannot be answered in a few brief sentences, and one must reflect back to Guam's past agriculture history as well as its present development to answer it completely.

After the devastation of World War II, many on the island assumed that agriculture as an industry would never again be important. The years following the war saw a small upturn in agriculture production, but this progress was again brought to a standstill by the crippling impact of Typhoons Karen and Olive.

If one considers our past problems and the progress that the island has made since that time, I can say with certainty that agriculture has indeed survived and will continue to add tremendously to our island's economy.

This handbook portrays some of the major activities that have been and are still silently going on in a once-primary industry. Although agriculture has not kept pace with the island's economic boom, definite improvements have been achieved in certain sectors of the industry.

During the past four years, the poultry industry has developed so rapidly that now, for the first time, Guam has reached a point of near self sufficiency in egg production. I am also pleased to note that even today, as the island continues to import most of its fruit and vegetable needs, the period of 1969 to 1973 nevertheless, showed a 40 percent gain in local production.



A breakthrough in the freshwater commercial fishing industry became a reality with the recent development of the government fish ponds at Talofofo. The excellent results of this project have shown that the island could very well supply local demands for eel, catfish, shrimp and carp.

Another plus for the island's agriculture development program is the construction of Guam's first poultry processing plant. The facility, when completed, will add tremendously to an already growing industry.

The current negotiations for the importation of alien farm labor underscores the government's concern for agriculture. Success in that direction should be a factor in helping to alleviate our perennial manpower shortage problem, a major factor that has persistently worked against any serious attempt to promote and develop local farming.

The conservation program on Guam was given a foreward thrust in 1972 when the Department of Agriculture created a Division of Forestry to develop and execute a reforestation program for the island.

Hydroponic farming is no longer new to our island and a number of corporate firms have already taken the lead in this venture.

All of these things and many more are signs that agriculture is still with us and will continue to be an important facet of our island's economic picture.

Si Yuus Maase.

JOSE T. BARCINAS



**A variety of island-grown vegetables and fruit is sold daily at roadside produce markets. — J. Quintanilla Farm.**



**The Department of Agriculture provides important services to farmers in the areas of agriculture land lease, crop insurance, farm loans and farm cooperatives.**



# **DEPARTMENT OF AGRICULTURE**

## **ADMINISTRATION**

The Director of Agriculture is delegated the responsibility for managing all departmental programs and activities. He is assisted by the Deputy Director whose office provides and maintains the necessary management skills for planning, organizing and implementing the department's programs and activities, among which are: fiscal and property accounting, personnel management, public relations, farm cooperatives, land lease, farm loans and crop expense insurance.

## **FUNCTIONS**

The Department of Agriculture conducts an active research and development program to increase the productivity and quality of the territory's agriculture and fishery industries. It also encourages sound, scientific conservation projects that will insure and protect the environmental welfare of the island.

An additional function is the promotion of programs to encourage wise-use and preservation of Guam's unique, natural resources in terms of the economic, esthetic, educational and scientific benefits that are derived from such resources.

The department also provides important services to farmers in the areas of agriculture land lease, crop insurance, farm loans, farm cooperatives and advise to individuals wishing to form farm associations.

## PROGRAMS

Departmental programs for the next five years are designed to increase the production of fruit and vegetables, poultry, pork, and fish by as much as 75, 80, 150 and 200 percent, respectively, above their present output levels. Strong emphasis will be placed on the expansion of commercial-type farming operations; construction of poultry processing and slaughterhouse facilities; development and expansion of freshwater fish farms as well as vessel-type salt water fishing operations. A viable, well-planned marketing system and a consumer service program will also be part of the overall plan.

The Department of Agriculture is also involved in the enforcement of plant and animal quarantine programs that provide protection for Guam's agriculture industries against the entry of import items that host or carry harmful insects, pests and diseases.

Programs are currently underway to intensify and develop existing conservation projects. Included in such plans will be the improvement and expansion of natural recreation areas for multiple-use outdoor related activities. An integral part of this program will be the development of the Bolanos Conservation Reserve for hunting and recreation. The Masso Reservoir will additionally provide public fishing and other recreational facilities.

Protection of Guam's wildlife, forests, and watershed from wildfire and other detrimental practices is a most important segment of the overall project which is presently being implemented through reforestation and enforcement of natural resource regulations. Enforcement and conserv-

ation education programs are presently being intensified to reduce the current high incidence of fish and game violations.

## **SERVICES**

The Department of Agriculture has a variety of service-orientated programs to encourage landowners to invest in farming, fishery operations and other activities related to agriculture. A number of these services, which come directly under the control of the office of administration, assist individuals, partnerships, or corporate parties in achieving specific project goals.

### **Agriculture Land Lease**

The primary objective of this service is to provide long-term leasing of agriculture lands for individuals desiring to engage in the commercial production of fruit, vegetables, ornamental plants, poultry, livestock and fresh water fish. The maximum term of the land lease contract is 50 years and renewable every 10 years at the option of the lessee. As an incentive measure, the lessee is exempted from paying rent for the first five years. Rent is due on an annual basis at the end of the sixth year and every consecutive year thereafter. An investment made on lease land must be certified by the Department of Agriculture before approval is recommended. The present operations are situated in the Dededo area and include extensive development in field crops, hydroponics, ornamental plants (nursery operations), poultry, cattle and piggery operations.

## **Farm Loan**

The primary objective of the farm loan service is to provide financial assistance to bonafide farmers who are interested in developing or expanding their agriculture or fishery projects. Farmers may borrow money for one or more of a variety of purposes which includes: improvement of farmlands, purchases and construction or upkeep of essential farm buildings and maintenance of fishery or other basic equipment. The plan also includes expenses incurred for marketing, labor, harvesting, emergencies and other related crop expenditures.

To qualify for the farm loan program, an applicant must be a bona-fide farmer or fisherman. He must also be a citizen of the United States and have resided on Guam for at least three consecutive years. The participating farmer or fisherman must also be willing to follow the recommended farm and fish management practices prescribed by the Department of Agriculture. The size and type of a project determines the amount of money a farmer or fisherman may borrow, and a loan can reach a maximum of ten thousand dollars (\$10,000) with a small annual interest rate of 2 percent.

At the discretion of the Department of Agriculture, a loan recipient may be granted a deferred payment on the principal for a maximum duration of one year from the time the loan is disbursed.

## **Crop Expense Insurance**

This service is administered by the Guam Economic Authority; however, processing and investigatory work is

handled by the administrative office. Under this program, a farmer may insure his crop against loss due to natural disasters. Calamities such as typhoons, rain, floods and drought are covered under this plan. Insurance coverage is limited to hired labor costs, land preparation expenses, costs of fertilizers, insecticides, seeds and other expenses incidental to crop production up to the time of damage. Maximum liability for one policy under this program is five thousand dollars (\$5,000) for any qualified farmer. The minimum is twenty dollars (\$20) for any one year.

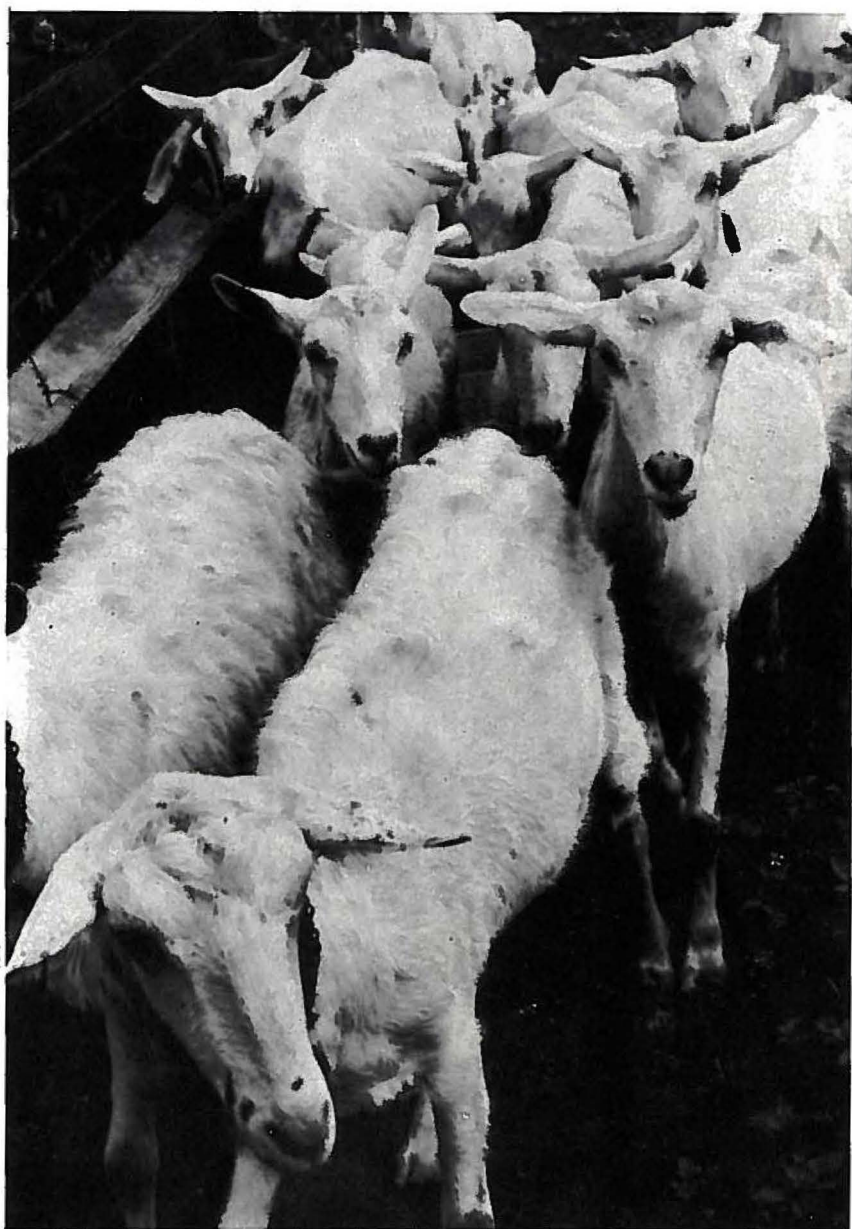
### **Farm Cooperatives**

The office of administration plays an important role in the organization of farm cooperatives. It serves to coordinate and unite the efforts of local farmers into an efficient, strong body that can best serve the interests of the overall farm community. Currently, the Territory of Guam has two farm cooperatives and three agriculture associations; these are the Guam Farmers Cooperative, the Malojloj Green Farm Cooperative, the Guam Agricultural Development Association, the Guam Swine Producers Association, and the Marianas Poultry Association.

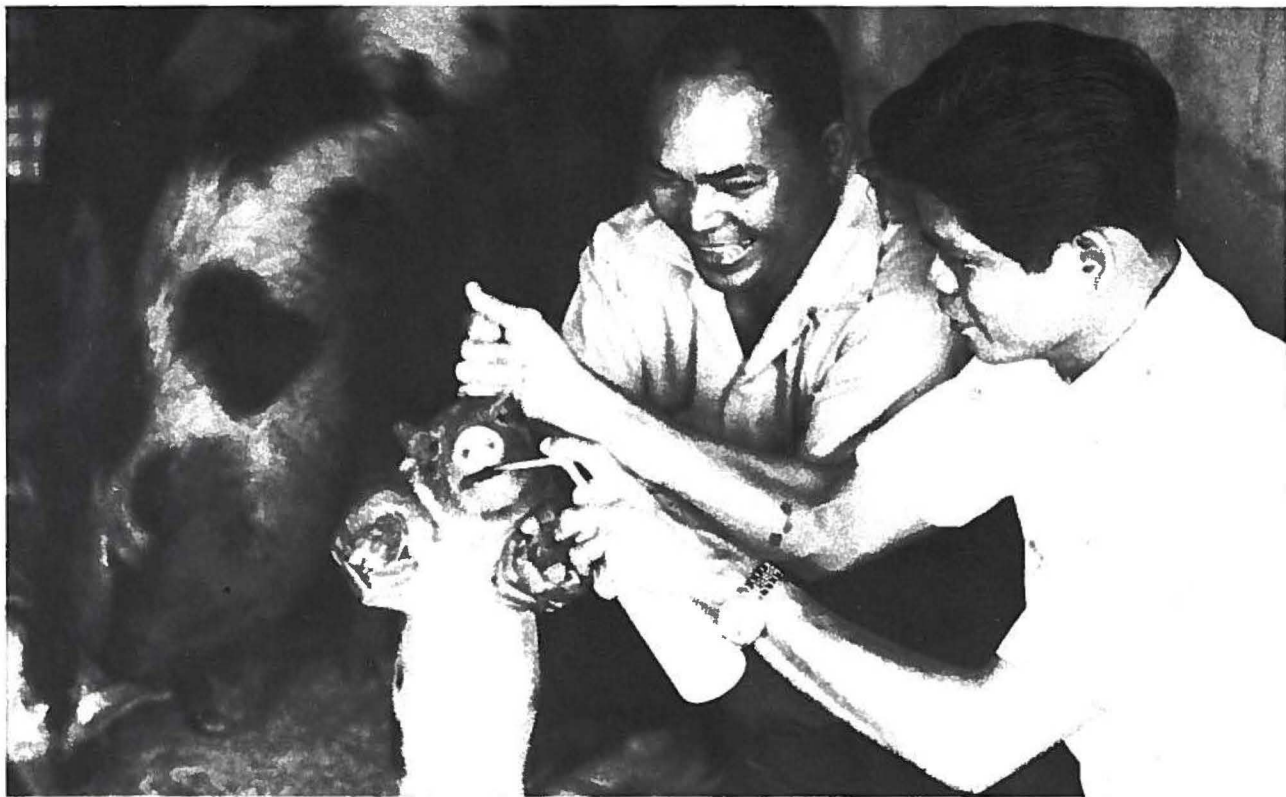




Thousands of Guam's school children annually tour the Department of Agriculture's facility.



**Goat raising on Guam is becoming increasingly popular — R. Torres Farm, Yigo.**



One of the most important programs in the department is the expansion and development of its purebreed piggery project.

# **ANIMAL INDUSTRY DIVISION**

**Dr. Leoncio L. Palomares**

**Division Chief**

## **FUNCTIONS**

- a. To increase the production and quality of purebreed animals such as swine, poultry, and cattle.
- b. To conduct extensive research work in the fields of animal nutrition, animal breeding and animal disease prevention and control.
- c. To extend technical assistance and advice to poultry, cattle and swine raisers of the island about the modern, scientific methods of animal propagation.

## **PROGRAMS**

### **a. Swine Program**

Expansion and development of the division's purebreed piggery project. Varieties used are: Poland China, Yorkshire, Duroc Jersey, Hampshire and Landrace breeds.

### **b. Cattle Program**

Expansion and development of purebreed cattle herds. Those currently being raised and maintained by the division are: Angus, Brown Swiss and Santa Gertrudis breeds.



c. Poultry Program

Expansion and development of existent purebred layer programs for the purpose of baby chick production.

## SERVICES

a. Stud Service for Cattle and Swine

This is to upgrade the quality of local animals by way of cross breeding. There are 5 breeds of swine to choose from: L

1. Poland China
2. Duroc Jersey
3. Hampshire
4. Yorkshire
5. Landrace

In cattle, there are 3 breeds available namely:

1. Angus
2. Brown Swiss
3. Santa Gertrudis

b. Sale of Weanling Pigs

These are obtained at a minimum price for breeding purposes.

c. Hauling Service

Transporting of cows and sows to the department for breeding purposes.



d. Sale of Day-Old Baby Chicks

There are 3 breeds of poultry available to producers:

1. Leghorn — or egg type
2. Hampshire or the dual type (both egg & broiler)
3. Cornish — broiler

e. Artificial Insemination of Cattle

## **PHYSICAL FACILITIES**

- a. Swine barn
- b. Poultry house
  1. Incubators
  2. Hatchers
  3. Brooders
- c. Cattle pastures
- d. Large and small animal trailers

## **HOURS OF OPERATION**

- a. Sales and Stud Services, Monday thru Friday 7:30 a.m. to 3:30 p.m.
- b. Information and consultation, Monday thru Friday 8:00 a.m. to 5:00 p.m.

## **AREA SERVED**

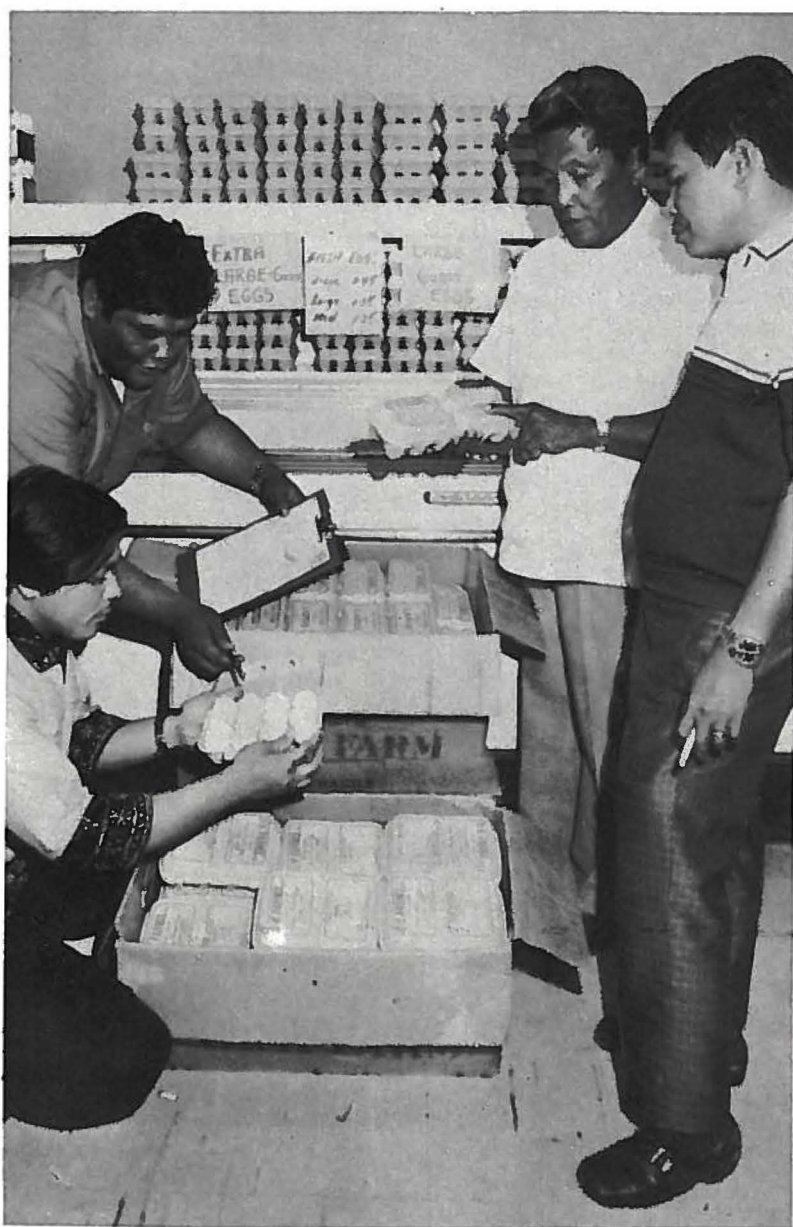
Entire Island of Guam

Three breeds of day-old baby chicks are available for Guam's poultry producers.





Locally grown produce is in great demand at Guam's supermarkets.



**Consumer and Marketing Services personnel periodically check locally produced eggs for grade and quality.**

# **CONSUMER & MARKETING SERVICES**

**Bonifacio P. de Guzman**

**Division Chief**

## **FUNCTIONS**

To provide services relative to marketing information, commodity inspection and marketing development.

## **PROGRAMS**

### **a. Marketing Information**

**L**

This program involves the collection and dissemination — on a continuing basis — of marketing and other statistical information that make a direct contribution to the marketing decisions of farmers and marketing agencies.

### **b. Commodity Inspection**

Program activities include: 1) the study and establishment of quality criteria for local commodities; 2) formulation of marketing rules and regulations suitable to the local area; and 3) enforcement of marketing rules and regulations as they affect both the consumers and producers.

### **c. Market Development**

Work in this program includes: 1) studying the local marketing set-up; 2) determining and reporting to



farmers and marketing agencies the variety, size, type of package and merchandising method preferred by consumers, trade agencies and markets; and 3) studying how and where additional market outlets can be established.

## **SERVICES**

- a. The division collects and disseminates various agricultural and economic statistics including prices, production, imports and distribution patterns of various agricultural commodities.
- b. It also conducts inspection activities relative to the grading, labeling, processing, storing and transporting of shell eggs distributed in the territory.
- c. The Consumer and Marketing Office assists local producers in negotiating marketing contracts with various domestic market outlets, including the military.

## **PHYSICAL FACILITIES**

Department of Agriculture Office.

## **HOURS OF OPERATION**

Monday thru Friday 8:00 a.m. to 5:00 p.m.

## **AREA SERVED**

Entire Island of Guam



**Tomatoes are produced in large quantities to meet Guam's increasingly high demand for fresh produce.**



**The Extension Service assists in the development of specific long and short term programs to solve problems in the farming community.**

## **EXTENSION SERVICES DIVISION**

**Antonio S. Quitugua**

**Division Chief**

### **FUNCTIONS**

- a. The primary purpose of this division is to act as the liaison officer between the Department of Agriculture, Guam's farmers and the general public.
- b. The division is responsible and obligated by law to be the information and educational arm of the Department of Agriculture.
- c. An additional function of the division is to disseminate technical information about agriculture and other related areas (in layman's terms) of the department's research divisions in relation to current farm problems.
- d. The Extension Service also assists in the development of short and long-range programs to solve problems in the farming community.
- e. Another important function is the organization of commodity groups for the purpose of coordinating production and marketing. It also assists other governmental agencies dealing with commodity development.

### **PROGRAMS**

- a. Home Economics Program

This program is designed primarily for women in the

interest areas of home improvement, child care, family health, nutrition and consumer education.

b. Marketing Program

The marketing program was established to assist farmers and producers in providing high quality, standard farm products for the consuming public.

c. 4-H Club Program

This is a priority program designed to meet the interests and needs of Guam's youth in both urban and rural areas. The program was designed to assist both agriculture and non-agriculture projects.

d. Extension Education Program

A priority program designed to meet specific and general problems in all areas of local agriculture. The program provides assistance to other commercial commodity groups such as producers of eggs, cattle, swine as well as nursery, greenhouse and landscaping operators.

## **SERVICES**

- a. Dissemination of technical agriculture information to farmers and the general public.
- b. Initiation of farm organizations among farmers and 4-H Clubs on Guam.
- c. Development and execution of educational programs for homemakers in home improvement, family living and community development.



- d. Development of an improved marketing system with the military and civilian markets.

## **PHYSICAL FACILITIES**

Department of Agriculture Office.

## **HOURS OF OPERATION**

Monday thru Friday 8:00 a.m. to 5:00 p.m.

## **AREA SERVED**

Entire Island of Guam



**The Home Economics Program is designed for women with interest in the areas of home improvement, child care, family health, nutrition and consumer education.**



**Officials from government and private industry attend an openhouse and eel barbecue to mark the Department of Agriculture's first eel harvest at Talofoto.**





**Guam's first commercial harvest of freshwater eels took place in April, 1974 at the government ponds near the Talofofo River. This was a new, cooperative program assisted by the Government of Nationalist China.**

## **FISH & WILDLIFE DIVISION**

**Isaac I. Ikehara**

**Division Chief**

### **FUNCTIONS**

The Division of Fish and Wildlife is responsible for conservation (wise use) and management of Guam's fish and wildlife resources. The goal of the division is to protect, manage and develop the island's renewable resources so that present as well as future generations of Guam's citizens will be assured of a continued utilization of those resources.

### **PROGRAMS**

#### **a. Wildlife Research and Management**

The major objective of this program is to gather factual wildlife and ecological data and to implement management procedures that will further the long range goal of perpetuating wildlife on Guam for maximum sustained use and enjoyment by the public.

The division's research efforts are primarily devoted to havestable species such as the Guam deer, wild pig, fruit bat, dove and quail. This also includes an assessment of population status and trends, habitant needs and preferences, movements and the factors influencing them, productivity, mortality, and other aspects of the life history of each species. Management procedures



based on research findings will include regulation of methods for taking harvestable species through seasonal control, bag limits, the enforcement of needed regulations as well as the protection and improvement of wildlife habitat. Another aspect of this program is the producing and releasing of species in areas that have habitats with poor stocking utilization. Conservation lands under government control will also be developed for use as public hunting grounds.

b. Fishery Research and Management

The major objective of this program is to gather the basic biological information that is needed for proper development, management, and utilization of Guam's marine and aquatic resources.

Because of the predicted population growth on Guam and the increase in leisure hours caused by a higher standard of living, it is estimated that fishing activities will very likely double within 5 years. This increase in use, plus the continued degradation of the marine habitat caused by other developments, will make heavy demands on the renewing capabilities of the marine and aquatic resources of Guam. Fishery research management and development activities are being programmed to assure that those resources are wisely utilized and kept in good condition for the present as well as future generations.

The program is basically concerned with the monitoring of fish populations, the measurement of fishing intensity throughout the island, the manipulation of habitats and ecological studies as well as the introduction of desirable

species. It is also interested in providing long range plans for fresh water streams and the development of fishing lakes.

c. Commercial Fisheries Research and Development

The present estimated demand for fish on Guam is placed at over 2 million pounds per year. The island is presently producing approximately 200,000 pounds of fish annually and is importing about 500,000 pounds of frozen fish per year. The development goal, therefore, is to increase local production and reduce a deficiency that exceeds 1 million pounds.

The initial Commercial Fisheries Research and Development Program was established for the purpose of obtaining information about the important fish resources found in water on and surrounding Guam. Its primary goal was to determine the most suitable methods for utilizing and harvesting those resources. That phase having now been completed, private industry is being encourage to develop a production phase.

The present program is being directed with emphasis on the initiation of a fish farming program; this includes the commercial production of fresh-water eels, shrimp, channel catfish, milkfish, tilapia, carp and other suitable species. A program of aquaculture will continue to be developed and expanded on Guam as interest increases. A two acre fish pond area is now in operation along the banks of the Talofofo River. Concurrently, the department is also continuing discussions for the promotion of Guam as a high seas tuna fishing

base which would include fishing operations for the total Western Pacific area.

d. **Law Enforcement of Fish and Wildlife Management Regulations**

Research and survey programs indicate that much of the fish and wildlife resources of Guam have been on the decline for many years. This decline can be attributed to factors such as: (1) Reduction in habitats due to land clearings; (2) Increase in hunting and fishing activities caused by an increase in population and leisure time; (3) Increase in the use of better hunting and fishing gear; (4) Prolonged harmful practices in harvesting of fish and wildlife resources with the use of poisons, explosives, and the subsequent taking of young fish and wildlife at a stage when they have not had a chance to reproduce.

Enforcement activities are directed toward stopping illegal and harmful practices, thus permitting the beneficial regulations to become effective. Formulation of beneficial fish and wildlife management regulations alone is not effective unless an active enforcement unit is available to see that those regulations are complied with.

## **SERVICES**

- a. The primary service of the Fish and Wildlife Division is to safeguard and properly manage the fish and wildlife resources of Guam, which by right belong to all the people of Guam as public property.

- b. In the event that a citizen suffers crop damages caused by wildlife, the division investigates and recommends measures to prevent further damage.
- c. Source of information regarding fish and wildlife resources of Guam.
- d. Provides licensed hunting seasons for the various wildlife species of the island.
- e. Provides research and development information relating to fish farming and also for deep sea commercial fishing.

## **PHYSICAL FACILITIES**

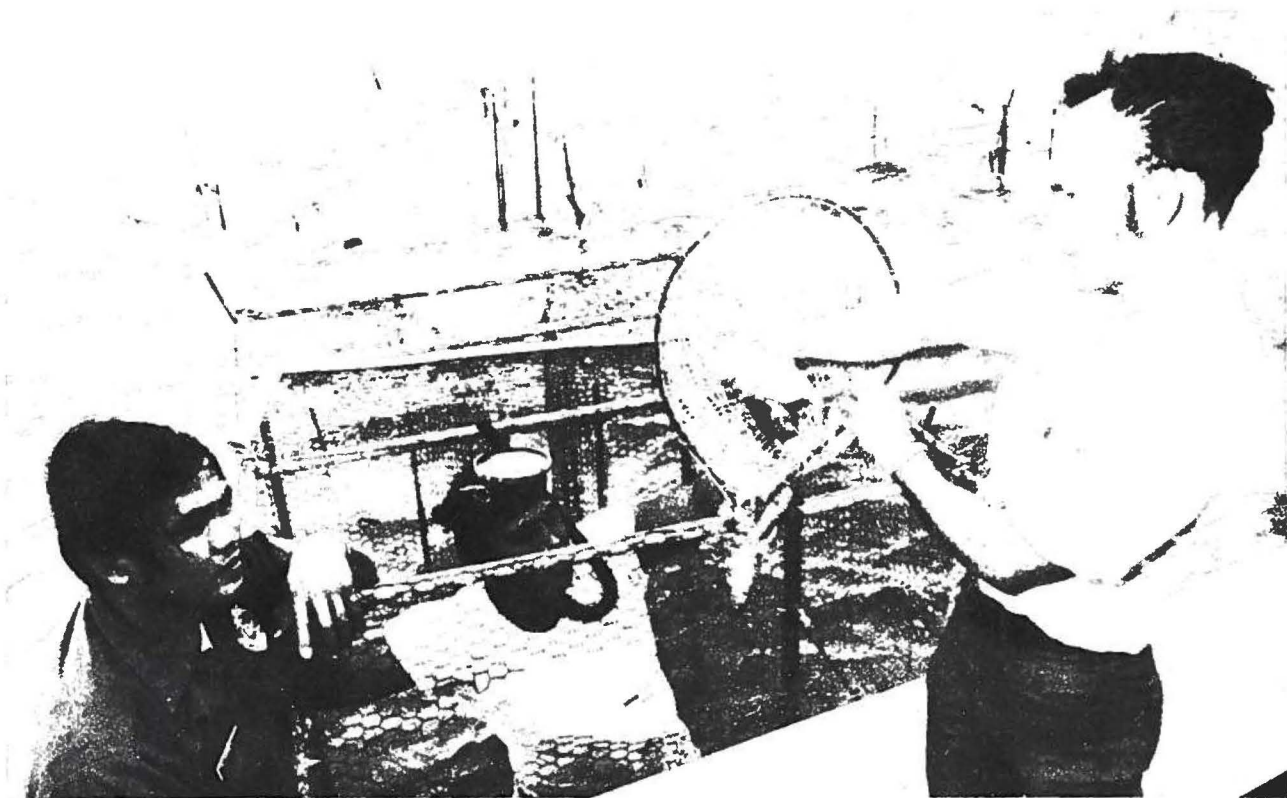
- a. One 2 acre fish farm
- b. One 17 foot power catamaran
- c. One 37 foot Hawaiian sampan (leased)

## **HOURS OF OPERATION**

- a. Office hours — Monday thru Friday 8:00 a.m. to 5:00 p.m.
- b. Enforcement Officers on call 24 hours a day.

## **AREA SERVED**

Land and sea area — entire Island of Guam.



Wildlife officers periodically inspect fish weirs and nets to determine legal size and production.





**Smokey Bear, the famous forest fire prevention symbol of the United States Forest Service, made a historic, first visit to Guam in 1974 to help forestry officials with an island-wide fire prevention program.**



A variety of forest tree seedlings produced at the Forestry Division Nursery are used for reforestation of government lands.

## **FORESTRY DIVISION**

**Henry R. Ketchum**

**Division Chief**

### **FUNCTIONS**

The Division of Forestry is concerned with placing Guam's mountainous forest land under multiple-use management as rapidly as possible. This includes the proper protection and use of soil, water, timber, forage and recreation on land owned by the Government of Guam as well as the re-establishment of grass, trees and other cover crops on badly eroded areas. The Division of Forestry will also coordinate its activities with the fish and Wildlife Division in maintaining favorable wildlife habitats. Beautification and esthetic development will be a vital component in the divisions' program for improving the environment for both the residents and tourists of Guam.

### **PROGRAMS**

- a. Reforestation programs of which the forest nursery is an integral part.
- b. Forest fire prevention and control programs for the forest plantations.
- c. Forest recreation programs to improve and maintain trails, picnic areas, and camping locations on the island's forest lands.

## **SERVICES**

- a. Information and educational talks about conservation and forestry to both private and public organizations.
- b. Field trips for school groups to the forest nursery and tree plantations.
- c. Limited forest tree seedlings are made available to the public for planting projects.
- d. Assistance to private landowners in the management of forest lands. (projected).

## **PHYSICAL FACILITIES**

- a. Division office
- b. Greenhouse (40 x 60)
- c. Shadehouse for seedling propagation

## **HOURS OF OPERATION**

Monday thru Friday 8:00 a.m. to 5:00 p.m.

## **AREA SERVED**

The division serves the entire Island of Guam and also supplies planting stock (at a nominal cost) to Andersen Air Force Base, the Navy Public Works (Fena Reservoir), the Navy Fuel Farm, the Naval Air Station, and the Navy Golf Course.





**Foresters check growth of a 2 year old Teak plantation on a government forest reserve. The Division of Forestry is concerned with replanting all of Guam's unproductive forest land.**





**The Department of Agriculture provides, at a nominal cost, all necessary light and heavy equipment for spraying and discing of private farmland.**

# **MAINTENANCE AND EQUIPMENT SERVICES**

**Charles I. Wolford**

**Division Chief**

## **FUNCTIONS**

- a. This division provides all necessary light and heavy equipment (bulldozer, tractors, etc.) for spraying and discing of farmland to effect optimum agricultural practices and maximum production.
- b. The division also provides minor equipment and building services as well as maintenance within the Department of Agriculture.
- c. Miscellaneous — The Maintenance Division additionally assists in fishpond construction within the department.

## **SERVICES**

- a. A bulldozer is provided for landclearing to farmers at a nominal cost.
- b. Light equipment service (tractor) is provided for plowing and discing of land at a nominal cost.
- c. Spraying service is provided for all fruit and vegetable farms at a nominal fee.
- d. Special Services — Road clearing is provided to farmers as well as site preparation for hog pens.

## **PHYSICAL FACILITIES**

- a. Light tractors with farm implements.
- b. Bulldozer with large disc.
- c. Shed for equipment maintenance.

## **HOURS OF OPERATION**

- a. Monday thru Friday, 7:00 a.m. to 3:30 p.m.
- b. Saturday (Emergencies only)

## **AREA SERVED**

Entire Island of Guam.



**The Maintenance and Equipment Services Division provides agriculture equipment maintenance for the department.**





**The professional staff of the Plant Industry Division visits farms to assist farmers in technical problems concerning plant and disease diagnosis.**



## **PLANT INDUSTRY DIVISION**

**Dr. R. Muniappan**

**Division Chief**

### **FUNCTIONS**

- a. To select and experiment with high-yielding varieties of vegetables suitable to Guam's climate and soil.
- b. To develop control programs for insects, fungi, and bacteria of vegetable and fruit crops grown on Guam.
- c. To select vegetable varieties resistant to pests and disease.
- d. To experiment with and recommend improved cultural practices for different vegetable and fruit crops.
- e. Execution and formulation of plant quarantine regulations for the Territory of Guam and the collaboration of this information with the United States Department of Agriculture.
- f. Production of improved vegetable and fruit seedlings and the dissemination of that source to farmers.
- g. To introduce parasites and predators for the control of pests and weeds on Guam.
- h. Identification and recording of plant diseases on Guam.
- i. Farm visits for determining problems associated with crop growth.

- j. Preparation and distribution of pamphlets concerning the cultivation of major crops.

## **PROGRAMS**

### **a. Varietal Trial**

Seed varieties of vegetables such as tomato, eggplant, Cabbage, watermelon, onions, Chinese cabbage, peppers, etc. are obtained from the different seed companies and universities. These varieties are grown in experimental plots, and the varieties that are high-yielding and have other desirable qualities favorable to Guam's climate and soil conditions are selected and recommended to the farmers.

### **b. Pesticide Trials**

Development of an insecticide control schedule for Chinese cabbage pests as well as fungicide and bactericide control programs for tomatoes and bell peppers.

- c. The selection of tomatoes resistant to bacterial wilt and field trials for corn resistant to the Asiatic corn borer.
- d. Use of seep hose and various polyethylene mulches on tomatoes for weed and moisture control.
- e. Preparation of plant quarantine regulations for Guam, disposal of confiscated materials, and the issuance of applications for importation of plants and plant products.
- f. The varieties of vegetables and fruits that are selected for high yields and other desirable qualities are grown

in number at the plant nursery and are supplied to farmers and home gardeners at a subsidized price.

- g. Introduction of parasites and predators of the Philippine lady beetle, citrus swallow tail, diamond back moth and lantana are being imported from off-island research laboratories for biological control.
- h. Plant diseases which are found on Guam are presently being cataloged; the causal organism is also being identified and cultured. Color slides are being prepared to assist in plant disease identification programs and for use in publications and related media.
- i. Farm visits are currently being made throughout the island to assist any farmer having problems with his crops. The entomologist and plant pathologist often can make recommendations for alleviating the problem immediately. In other instances, a more detailed study must be made in the laboratory before control measures can be suggested.
- j. Preparation and distribution of pamphlets concerning the major crops grown on Guam. These pamphlets contain cultural information as well as sections on pest control programs.

## SERVICES

- a. The professional staff of the Plant Industry Division visits farms to assist farmers in technical problems concerning plant and disease diagnosis; the technicians then make recommendations for control measures.

- b. Seedlings of tomato (N-11), bell pepper (California Wonder, Yolo Wonder and Chinese Giant) hot pepper, medium hot pepper, head cabbage (CO-Cross, OS-Cross and KK-Cross), onions (bunching and bulb), broccoli, lettuce, papaya, starapple, citrus, passion fruit, Surinam cherry and mango are sold to the public at the Plant Industry Division Nursery.
- c. Information on the importation and exportation of plants and plant material is provided by this division. Applications for obtaining USDA permits are also distributed by this office.
- d. Distribution of pamphlets concerning some of the major crops grown on Guam.

## **PHYSICAL FACILITIES**

- a. Plant Industry Division Office Building
- b. Plant Nursery
- c. Plant Pathology and Soils Laboratory

## **HOURS OF OPERATION**

Monday thru Friday, 7:00 a.m. to 5:00 p.m.

## **AREA SERVED**

Entire Island of Guam.



**The Plant Industry Nursery provides a variety of vegetable and fruit seedlings to the public at nominal cost.**





**Free veterinary visits are offered to farmers for treatment and diagnosis of sick and injured food producing animals.**

# **VETERINARY SERVICES DIVISION**

**Dr. Walter F. Mestanza**  
**Territorial Veterinarian**

## **FUNCTIONS**

The purpose of the Veterinary Services Division is to control and eradicate prevalent diseases of livestock and poultry and to prevent the introduction of new animal diseases transmissible to other animals or man. Morbidity in animals cause severe economic losses to livestock and poultry producers resulting in a decrease in the quality and quantity of meat, eggs, milk and other animal products to the consumer. The basic function and goal of this division is to maintain the health of livestock and poultry on Guam to a level that will result in increased productivity.

## **PROGRAMS**

### **a. Control and Eradication of Prevalent Animal Diseases**

Treatment of sick and injured animals including medication and isolation of animal herds or poultry flocks as required to avoid dissemination of pathogenic agents. Recommendations are given for periodic treatments against internal and external parasites.

### **b. Prevention of the Introduction of New Livestock and Poultry Diseases**

Organization and implementation of regulations gov-

erning the importation of animals and animal products and their movement within the Territory of Guam. Consultation with other state and federal livestock sanitary authorities on the prevalence of infectious or contagious diseases in their respective areas.

- c. Cooperative Programs with Public Health Authorities to Control Diseases Transmitted from Animals to Man  
Anti and post-mortem inspection of animals for slaughter in accordance with existing federal and local rules and regulations.
- d. Animal Quarantine — Dogs and Cats only.  
(See Animal Quarantine Section)

## **SERVICES**

- a. Free veterinary visits to farms for treatment and diagnosis of sick and injured food producing animals.
- b. Free drugs and medicine for food producing animals and free diagnostic laboratory analyses.
- c. Technical advice in disease prevention and animal productivity.
- d. Consultation about federal and local regulations governing the importation of domestic animals and their products into Guam and movement of the same within the territory.

## **PHYSICAL FACILITIES**

- a. Veterinary office

- b. Laboratory
- c. Animal quarantine station

## **HOURS OF OPERATION**

Monday thru Friday 8:00 a.m. to 5:00 p.m.

## **AREA SERVED**

Entire Island of Guam



**The Territorial Veterinarian helps local swine producers in the control of livestock diseases.**





**A commercial piggery operation at the F. Quitugua Livestock Farm in Yigo.**



**Eighty spacious kennels are provided for all incoming cats and dogs from rabies designated areas during Guam's required 120 day quarantine period.**

# **ANIMAL QUARANTINE STATION**

**Dr. Walter F. Mestanza**

**Territorial Veterinarian**

## **FUNCTIONS**

The Animal Quarantine Station is located in the northern part of the island near the Yigo area. At the present time only the Rabies Section is in operation. Provisions have been made for future construction of facilities for livestock and poultry. The purpose of this division is to prevent the reintroduction of rabies into Guam. In 1967, Guam experienced the first rabies epidemic in recorded history. With the help of territorial and federal health authorities, this disease was eradicated and Guam is now an officially declared rabies-free area. Although health authorities and experts on the disease recommend six or more months of quarantine for dogs and cats and rabies-free countries like England, Australia and New Zealand have a minimum of one year of quarantine, the period of quarantine on Guam is only 120 days.

## **SERVICES**

Rabies Control — Custody and quarantine of all incoming dogs and cats for a period of 120 days (from designated rabies areas) with periodic analysis and daily observation to determine the presence of rabies or other diseases. A minimum daily fee (the owners share of the government's expense) is charged for boarding

animals during this period. Reservations for kennels are on a "first come, first served" basis and an entry permit is required. Written information about requirements for entry is available upon request.

## **PHYSICAL FACILITIES**

- a. Eighty spacious kennels for dogs and cats (66 dogs-14 cats) are provided for animals during the quarantine period.
- b. Grooming room
- c. Caretaker's office

## **HOURS OF OPERATION**

- a. Office hours — Department of Agriculture Monday thru Friday 8:00 a.m. to 5:00 p.m.
- b. Quarantine Station — Visiting hours — 7:00 a.m. to 10:00 a.m. & 4:00 p.m. to 7:00 p.m. Daily.

## **AREA SERVED**

Entire Island of Guam.



**Egg production is a big business on Guam, exceeding 2,000,000 dozens in 1973. — C & H Poultry Farms.**





**Vegetables for local consumption are also produced on Guam by modern hydroponic methods-Service and Development Corporation.**

## **AGRICULTURE STATISTICS**

## AGRICULTURE STATISTICS, FY 1969-1973

### Fruit & Vegetable Production

| Fiscal Year | Pounds    | Value in Dollars |
|-------------|-----------|------------------|
| 1969        | 2,230,493 | 404,919          |
| 1970        | 2,410,562 | 430,556          |
| 1971        | 1,819,924 | 354,973          |
| 1972        | 2,504,308 | 478,264          |
| 1973        | 3,129,453 | 622,672          |

### Fish Production

| Fiscal Year | Pounds  | Value in Dollars |
|-------------|---------|------------------|
| 1969        | 326,498 | 163,250          |
| 1970        | 151,000 | 98,150           |
| 1971        | 170,577 | 110,875          |
| 1972        | 143,629 | 93,359           |
| 1973        | 183,000 | 118,950          |

## **AGRICULTURE STATISTICS, FY 1969-1973**

### **Beef Production**

| <b>Fiscal Year</b> | <b>Pounds</b> | <b>Value in Dollars</b> |
|--------------------|---------------|-------------------------|
| 1969               | 289,539       | 187,042                 |
| 1970               | 241,629       | 157,784                 |
| 1971               | 185,388       | 124,581                 |
| 1972               | 157,267       | 106,155                 |
| 1973               | 141,370       | 94,817                  |

### **Pork Production**

| <b>Fiscal Year</b> | <b>Pounds</b> | <b>Value in Dollars</b> |
|--------------------|---------------|-------------------------|
| 1969               | 560,900       | 420,675                 |
| 1970               | 411,800       | 308,850                 |
| 1971               | 436,909       | 327,682                 |
| 1972               | 449,464       | 336,649                 |
| 1973               | 538,965       | 404,323                 |

## **AGRICULTURE STATISTICS, FY 1969-1973**

### **Poultry Production**

| <b>Fiscal Year</b> | <b>Pounds</b> | <b>Value in Dollars</b> |
|--------------------|---------------|-------------------------|
| 1969               | 130,560       | 47,002                  |
| 1970               | 195,000       | 70,200                  |
| 1971               | 160,725       | 60,272                  |
| 1972               | 194,780       | 72,848                  |
| 1973               | 230,145       | 95,153                  |

### **Egg Production**

| <b>Fiscal Year</b> | <b>Dozens</b> | <b>Value in Dollars</b> |
|--------------------|---------------|-------------------------|
| 1969               | 1,305,000     | 913,500                 |
| 1970               | 2,150,000     | 1,505,000               |
| 1971               | 1,858,912     | 1,319,838               |
| 1972               | 2,065,270     | 1,445,689               |
| 1973               | 2,265,000     | 1,812,000               |



## MISCELLANEOUS AGRICULTURE STATISTICS, FY 1969-1973

| ITEM   | 1969  | 1970  | 1971 | 1972  | 1973  |
|--|-------|-------|------|-------|-------|
| Number of fruit & Vegetable Producers (Commercial) : |       |       |      |       |       |
| a) Full time   | 20    | 31    | 39   | 46    | 54    |
| b) Part time   | 36    | 42    | 50   | 62    | 80    |
| Acres under cultivation                              | 1,025 | 1,061 | 986  | 1,057 | 1,389 |
| Number of Acres under Government Leases              | 677   | 677   | 677  | 677   | 677   |
| Number of Livestock Producers                        | 135   | 149   | 158  | 171   | 180   |
| Number of Poultry Producers                          | 56    | 51    | 47   | 36    | 24    |
| Number of Farm Loans                                 | 4     | 25    | 9    | 9     | 23    |
| Number of Acres of Insured Crops                     | —     | —     | 13   | 8     | 17    |
| Number of Fish Weirs                                 | 17    | 17    | 17   | 17    | 17    |
| Number of Farm Associations                          | 1     | 1     | 1    | 5     | 5     |



**"Growing is good on Guam"**