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Agriculture Improvement in the Ryukyus

By

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In the two years I have been on Okinawa, I have endeavored to study and observe the agriculture of the Islands. The number of hours of human labor that is utilized in the farming operation intrigues me. The system of farming can be classified as gardening. Rice, sweet potatoes, and vegetable production appear to be the staple food crops. Sugar cane and pineapples are grown for cash crops. Swine and poultry are the chief sources of animal protein. The fish that are caught from the sea make up the balance of the protein products.

The mild climate and the rough topography of the Islands create a problem. The high humidity and the heavy rainfall cause rapid depletion of the soil fertility. The excessive rainfall, especially during typhoons, causes soil erosion. Insects and diseases are very troublesome due to the mild climate.

The Islands are in the dividing line between temperate and tropical climates. During the winter, temperate zone crops thrive, and during the summer, sub-tropical crops are grown. Crop adaptation studies are essential. The system of farming is influenced by the frequent typhoons which are most severe in the period of June to October.

The high winds of a typhoon, and the accompanying heavy rainfall, up-root most shallow rooted plants. Nature has provided trees and shrubs that will withstand such severe treatment. These should be utilized more in providing windbreaks in the unsheltered areas.

Soils The soils of Okinawa are low in nitrogen, phosphorus, and potash. The calcium content is high in most of the soils. Application of lime to correct soil acidity is not necessary in most areas. More emphasis should be placed on soil testing and research to provide the farmers with the most economical procedure to obtain the maximum use of the soil. Soil fertility studies are essential for maintaining the organic matter content. Research is necessary to learn the best procedure to follow in utilizing the native grasses and legumes. In

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a country where land for agriculture is at a premium, as it is in the Ryukyus, every effort should be made to utilize the rough land for the production of legumes and grasses for replenishing the organic matter in the continuously cropped soils.

Commercial fertilizer is expensive. Research in the placement of fertilizer is essential to obtain concrete evidence for the most economical use of commercial fertilizers. Studies with varying amounts of nitrogen should be made to determine the optimum amount to decompose the native grasses when tilled in the soil. The practice of burning grass should be discouraged. This can be accomplished through tests to show the farmers that the physical properties of the soil are as essential as the chemical properties. All of these named practices will reflect in an increased crop yield. Concentrate on tests that will show the greatest improvement.

Kudzu This legume appears to have considerable promise for providing organic matter. It also can be used for livestock forage. Kudzu will make good silage. Research in the propagation and utilization of this crop on the rough terrain of Okinawa should be accomplished. Other native legumes and grasses should be investigated.

Diseases Plant diseases, which include fungi, bacteria, and viruses, should be studied. Emphasis on the methods of spread, and the best control measures should be studied. Limited amount of plant breeding would be applicable. Resistance of present varieties and species of plants should be studied for any or all of the plant diseases that cause an annual crop reduction.

Insects More attention should be given to the practical control of insects. Tests should be made to demonstrate the kind and amount of chemical for the maximum control under Ryukyuan climatic conditions. Emphasis should be placed on the control of insects that spread diseases in plants and animals.

Crop Adaptation Crop varieties respond to the length of daylight. Many varieties of vegetables grown in the Ryukyus were developed for regions of long daylight. The same varieties respond differently when the environment is changed to the short days of winter. This is very evident in the adaptation of varieties of tomatoes. A knowledge as to the reaction of different species of plants to change in length of day is essential before introducing new species.

Sweet Potato The sweet potato crop is the backbone of the Ryukyus. Without doubt, it has been the one most neglected. The most nutrients for any area can be supplied by this crop. The prospect for increase is greater than any other crop on the islands. Emphasis should be placed on research for the maximum utilization not only for human consumption but animal feed as well. Sweet potato meal is about equal to the feeding value of corn.

The practice of using a declining wood supply for the cooking of sweet potatoes can be eliminated by substituting the fermentation processes. Studies should continue on the ensilage of sweet potatoes.

Livestock Livestock production is limited in the Ryukyus. Swine and poultry appear to be the most essential. Feed costs are prohibitive when the ration consists of all imported feeds. Research should continue along the line of utilizing and substituting home rations.

Demonstrations Many of the points I have discussed are known facts to the investigator. The results should be simplified and taken to the farmer through demonstrations. Therefore, an effective extension service should be initiated, having well-trained people to carry the information to the farmer. Research results that do not reach the farmer, for whom it is intended, are useless—like a leg or arm that is not used.
