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# JAPANESE AGRICULTURE

## PROGRAMS UNDER THE OCCUPATION

26 September 1949

Prepared by Agriculture Division, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

26 September 1949

# AGRICULTURE IN JAPAN

## Introduction

1. The two most important agricultural problems confronting the Occupation in Japan have been insufficient food production and the low economic status of the rural community. Topography and the pressure of a large farm population on a limited acreage have had much to do with the relatively small area under cultivation, and with the small, uneconomic farm units, widespread tenancy, and the low standard of living of those who till the soil. The Japanese are good farmers, but even their skill cannot overcome the limitations imposed by a total of only 15 million acres of cultivated land and 82 million people. In the past Japan could not attain food self-sufficiency even in years of abundant crops, but has had to rely on imports to make good the deficit. Now that former overseas sources of supply are no longer available, maximizing food production is one of Japan's most urgent needs.

2. The scarcity of arable land in Japan gave rise to many abuses in the land tenure system and in the field of agricultural taxes and credit. These abuses, coupled with domination of agriculture by bureaucratic and nonagrarian interests, multiplied the difficulties of the Japanese farmer in attaining a level of economic security comparable to the remainder of the population. National policies designed to expand industrial production and foreign trade relegated agriculture to an inferior position in the economy. Those dependent upon the land for their livelihood did not share to any substantial degree in the improved standard of living that resulted from the increased national income.

3. The low economic status of the Japanese farmers over the years has created among that group a feeling of hopelessness and restlessness. Agrarian unrest in turn has provided no small part of the stimulus to Japan's imperialistic foreign policy. Tenants particularly, and farmers generally, have been in large measure sympathetic to extremist political movements by Japan's militaristic exponents.

4. In recognition of the nature of Japan's economy, the Occupation has directed its agricultural programs toward two major objectives, namely, maximum food production, and the achievement of social and economic stability of the farm population. The brief report that follows outlines the nature and scope of the agricultural programs instituted.

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# JAPANESE AGRICULTURE: PROGRAMS UNDER THE OCCUPATION

INTRODUCTION

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# SUMMARY

## Production Statistics

Stimulated by expansion of trade and population, Japan increased its staple food output 96 percent between the 1880's and the decade immediately preceding World War II. Rice and wheat accounted for most of this gain. At the end of World War II hostilities, however, many of its people faced the threat of starvation. By 1945 fertilizer shortages, combined with bad weather and other disrupting influences, had reduced harvests. Since that time production has gradually increased. In 1948 staple food crop harvests were six percent above the 1931-40 average, but not as high as the 1939 record crop. Increase came chiefly from sweet and white potatoes and barley.

In the period extending from the 1880's to 1921, Japan had expanded its cultivated areas from 12 percent of the total land mass to 16 percent, resulting in a total cultivated area of about 15,000,000 acres. After that time the area remained relatively constant until the war, when military requisitions reduced it by about 500,000 acres.

Annual harvest of minor cereals, beans, and peas followed the upward trend of the staple crops until about 1920, but declined thereafter. The trend in vegetable and fruit production continued upward for a longer period. However, with major emphasis on staple food crops during and since the war, the trend reversed. In 1948 production ranged from 23 to 40 percent less than prewar for these groups.

Among industrial crops, mulberry for silkworms (which more than doubled in average annual acreage from the 1881-90 decade to the 1931-40 decade) has been cut back during and since the war to less than two-thirds of the 1881-90 figure. This decrease has been due to loss of foreign silk markets and need for land for food production. Tea production is little more than one-half of the prewar average. On the other hand, the 1948 tobacco crop was 42 percent more than in 1931-40.

## Fertilizer

With soils naturally low in fertility and with intensive cropping, Japan must rely heavily on fertilizers. When World War II began the nation had ample facilities to produce most of its nitrogenous and phosphatic commercial fertilizers but had to import phosphatic rock. Limited equipment and lack of indigenous deposits made it necessary also to ship in the inorganic potash used. Peak fertilizer production was reached during the

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period 1936-40. When war hostilities ended, the fertilizer industry was in a serious condition. Since then commercial fertilizer supplies have increased steadily, largely as a result of action by Allied authorities, including imports of large quantities and introduction of measures to increase domestic production. The supply of nitrogenous fertilizer for farm consumption has risen from 439,000 metric tons in fiscal year 1946 to 1,464,000 metric tons in 1949; phosphatic fertilizer used by farmers increased during that period from 32,156 metric tons to 1,033,125 metric tons, and potash supplies concumed have mounted from 902 metric tons to 159,000 metric tons.

A system of fertilizer allocations, begun during the war, has been recast by the Occupation to insure timely deliveries and equitable distribution between crops and areas. Importance of compost, animal manures, and night soil in crop production has been emphasized continuously. Current use of compost and night soil is estimated to be above the 1936-40 average.

Insect and Disease Control

Plant insects and diseases, although estimated to reduce crops in Japan by at least 12 percent annually, received minor control attention prior to 1947. While some good resulted from laboratory investigations, field work had been neglected. Use of pesticides in the dust form was practically unknown. Insecticide supplies, reduced during the war, have been adequate in 1949. Natural Resources Section has encouraged experimental work on insect control, the use of dusts, and the use of new insecticides. DDT and benzene hexachloride, newly developed insecticides which can be produced in Japan, have relieved the pressure on other chemicals, particularly diesel oil and pyrethrum for control of rice leaf hoppers. Other insecticides have been imported for testing. In addition to larger supplies and more effective kinds of pesticides, efforts are being made to improve control practices. The principle and use of insecticide dusts and aerosols are being emphasized by Natural Resources Section to obtain more effective control of pests. An Agricultural Chemical Control Law was promulgated in 1948 to assist in overcoming the inferior quality of pesticides. A Plant Quarantine and Emergency Pest Control measure will be presented to the next session of the Diet. Natural Resources Section is assisting the Japanese Government in the programs discussed above and is sponsoring an extensive research program designed to develop more effective controls of plant pests, particularly rice borers.

Seed Situation

Improved seed is a major factor affecting crop production in Japan. Methods of plant breeding, and seed increase, inspection, certification, and distribution as means of increasing food production have been greatly improved under the guidance of Natural Resources Section. Hybridization and back-crossing have only recently received attention from Japanese scientists, and long-range increase in yields through these techniques may be expected.

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Under the Occupation, pronounced advances have been made in the production of certified seed of white potatoes. Seven foundation seed farms were established in 1947 and increased emphasis placed on seed production. This program is reflected in banner potato production in 1948 and 1949 despite inclement weather over much of the potato area of Japan during the 1949 growing season.

Notable improvement has also been made in the selection, curing, and storing of seed of sweet potatoes. Methods of curing introduced by Natural Resources Section now permit long-time storage and the planting of sound seed, and are paving the way for improving the main crop storage.

## Livestock

Livestock plays a minor role as a direct food in Japan. Before 1868, the nation consumed almost no meat or milk. Up to 1941 animal foods, other than fish, amounted to only a little more than one percent of the total food consumed. Even this amount decreased during and after World War II, largely because of lack of concentrate feeds. Horses and draft cattle are necessary to provide farm draft power, the present number of draft animals is considered sufficient for that purpose. More dairy cows, dairy goats, and sheep are needed for increased production of protein food and other products. Swine have increased markedly in recent years despite the shortage of concentrate feeds. Poultry has regained only a slight portion of the 70 percent decrease it suffered during the period 1941-46.

Under SCAP direction, the livestock control companies were dissolved. Government livestock breeding stations are still maintained, although their need has not been demonstrated. Natural Resources Section is encouraging policies to establish an economically sound livestock program. These policies include increased indigenous feed production, (especially improved forage production) to the extent possible without decreasing the amount of staple food grown and livestock breeding production and utilization by private enterprise, at maximum levels consistent with feed imports. Government aid in the form of improved research and education facilities, and farmer access to long and short term credit at low interest rates are also included in these policies.

## Food Storage and Preservation

The Japanese climate, with hot humid summers and rains in the late spring and fall harvest seasons, magnifies food storage and preservation problems. The six million tons of sweet potatoes deluging the fall markets present an especial difficulty. Storage facilities are inadequate, and freezing weather in winter prevents later shipment. Grain storage is adequate in capacity but is not rodent-proof or air-conditioned. Vegetables are preserved by salting, pickling, or drying, but major losses result during market movements from lack of refrigeration and shipping facilities. At the instigation of Natural Resources Section, the Japanese are paying particular attention to potato spoilage problems. Sweet potato storage on farms has been receiving increasing emphasis since 1947; the government will pay 70 percent more for farm-stored sweet potatoes after 1 March 1950

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than during the peak season. As a result of Natural Resources Section recommendations, a five-year plan has been launched to provide 110,000 metric tons additional space for potatoes each year. Currently 215 buildings to provide an annual storage capacity of about 25,000 metric tons are under construction.

Land Reclamation and Improvement

Recognizing land reclamation and improvement as a basic means of increasing food production, the Japanese Government has provided subsidies for this activity for many decades. Nevertheless, land reclaimed from 1910 to 1939 averaged slightly less than 30,000 acres per year; gains from reclamation were largely offset by diversions of agricultural land to other uses. From 1937 to 1944, because of military acquisition, cultivated areas decreased about 500,000 acres. After the surrender, the government placed increased emphasis on land reclamation. Under SCAP direction the Land Reform Law was written; it included authority for the government to acquire uncultivated land for reclamation and established procedures for sale of reclaimed land to cultivators. A new Land Improvement Law, promulgated in June 1949, provides for more effective land improvement conducted by associations of the local people concerned.

With the increased emphasis on reclamation since 1945, the government has acquired 2.7 million acres of uncultivated land for reclamation and 845,000 acres have been reclaimed.

SCAP consultants have assisted the Japanese authorities not only in implementing legislation and instructions but also in the solution of technical problems in actual field work. Guidance has been given in developing standards for the selection of land to be reclaimed, in planning and settling reclaimed areas, and in designing and constructing land improvement projects.

Soil Survey

Basic knowledge of the soils is essential to proper evaluating of Japanese agriculture, and to establishment of policy and development of programs for increasing food and food crops. The first soil maps of Japan were made under a program instituted in 1882, and by 1945 all cultivated land, except parts of Hokkaido, had been mapped. In 1936, however, aware of the inadequacies of their soil maps, Japanese soil scientists began the study of foreign classification methods. Few maps were completed under the revised scheme. A reconnaissance soil survey was initiated under the Occupation late in 1945. The survey, by United States soil scientists, makes use of an internationally known system of classifying soils by the morphological characteristics of the soil profile. Field work has been completed, and preparation of a series of eight reports is now in progress.

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Food Collection

As the Japanese Government tightened its economic and other controls in the years immediately preceding and during World War II, it instituted a system of food collection from farmers and rationing to non-farm families. Only rice was collected in the first year - 1940. Wheat and barleys were added in 1941 and sweet potatoes and white potatoes in 1942. The system was used through the remaining war years. Food shortages necessitated continuance by the Occupation of the collection and rationing system. Use of the system apparently will be necessary for a number of years to come.

About 80 percent of all staple crops is subject to collection. Before planting time each year, the Ministry of Agriculture and Forestry, on the basis of "normal" production, determines delivery quotas and assigns them to prefectures. The prefectural governments sub-allot the quotas to counties (guns) and cities; the counties sub-allot them to towns and villages, which in turn assign them to individual farmers. Quotas may be revised downward at harvest time if crop conditions warrant. Authority to increase quotas at harvest time will be considered at the next session of the National Diet.

Consumer goods in short supply are made available to farmers as an incentive to stimulate crop deliveries.

The 1942-44 war years showed a continuously high total collection level, followed by a sharp drop in 1945 and progressive increases through 1948. Deliveries of each of the staple crops in 1948 exceeded those of 1947. The outlook for 1949 collections is encouraging.

The Natural Resources Section maintains close and continuing surveillance over all phases of the food collection program, including food production, assignment and revision of collection quotas, and actual collections by the Japanese Government.

Crop Reporting

In 1878 Japan began to collect national statistics on area and production of all major crops, based on reports from prefectural government officials. Field sampling to determine yield at harvest time was commonly used by local crop surveyors as early as 1933, but prior to 1947 little attempt was made to forecast production ahead of harvest.

A lucrative "black market," and fear of actual hunger growing out of the war served as incentives for farmers and local officials to underreport both crop plantings and yields. As a result, the accuracy of national crop area and production reports was impaired. Following a study by an expert from the United States in 1946, a new crop reporting system was set up, with control and supervision centralized in the Ministry of

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Agriculture and Forestry. Under this system, the accuracy of farmers' reports on acreage of crops is measured by means of sample surveys, and yields are determined by field sampling. These operations are conducted by trained personnel in prefectural offices of the Ministry of Agriculture and Forestry. Acreage surveys in 1948 accounted for more than a million acres of staple crops that farmers had failed to report.

Japan's food deficit must be made up by U. S. tax dollars, so a reliable crop reporting system is mandatory. The present system is superior to that used prior to 1948, but many problems remain. Effective guidance by Natural Resources Section eventually should place the Japanese crop reporting system on a high plane of efficiency and effectiveness.

Agricultural Research

Japan's lack of sufficient arable land to provide food for her growing population makes an effective agricultural research system imperative to insure highest returns from the agricultural resources. When the Occupation began, research work was scattered, with little coordination, among several hundred experiment stations and research institutions. The arrangement resulted in duplication of effort and inefficient use of funds. Further, equipment was inadequate in many of the stations.

On advice of Natural Resources Section specialists the Japanese Diet enacted legislation in 1948 to provide for elimination of non-essential stations, consolidation of research institutions, application of research to immediate and practical farm problems, and prompt dissemination of findings to farmers. An Agricultural Improvement Bureau was established in the Ministry of Agriculture and Forestry in August 1948. A plan for consolidating research institutions was approved by the Cabinet in July 1949 and is scheduled for accomplishment by 1 April 1950; under this plan 135 stations will be closed and 53 will be combined with the 191 remaining. Natural Resources Section specialists conducted a school in experimental methods in March 1949. Under the guidance of these specialists various experiments have been conducted which utilize experimental design methods only recently known to the Japanese.

Agricultural Extension

Planned distribution of technical knowledge to farmers in Japan was provided by legislation enacted in 1899 establishing a government-controlled system of agricultural associations to improve crop practices. Under this system the government provided for one or more technicians in each village to work with farmers. In addition, cooperatives, organized under a law of 1900, helped finance operations of farms to supply superior seed and in some instances employed technicians to advise farmer members.

During World War II the associations and cooperatives were combined into a national association which was given control over crop quotas, collections, and rationing of critical materials. Agricultural technicians

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were given control and policing duties. The national control organization and its member associations were dissolved by direction of the Occupation authorities.

Legislation enacted in July 1948 on advice of Natural Resources Section specialists provided for an agricultural advisory service. Prefectural governments are completing the organization of Agricultural Improvement Sections to work with the national government in developing such a system. More than 6,000 village farm and home advisors have been appointed, and more than 3,300 rural youth clubs have been organized. Natural Resources Section specialists are working with the Japanese on plans for on-the-job-training programs to develop advisory techniques and leadership skills.

Land Reform

Prior to the Occupation 70 percent of the Japanese farmers rented all or part of the land they cultivated. The pressure of population on limited land resources perpetuated a feudalistic land tenure system requiring payment of exorbitant rents in kind often amounting to 50 to 70 percent of gross farm production. Japanese land reform legislation enacted by the Diet and promulgated 21 October 1946 has two main objectives: (1) transfer of land ownership to farmers who actually till the soil and (2) improvement of farm tenancy practices for those who continue as tenants. The program emphasizes private individual ownership of land rather than state or collective ownership. During the initial transfer phase, which is virtually completed, almost one-third of the cultivated land in Japan, more than 4.5 million acres involving about 30 million tracts, has been purchased by the government from former land owners for resale to cultivators. An estimated 12 percent of the cultivated land will remain in tenancy to provide the necessary amount of tenure flexibility. The land reform program also includes provisions to insure fair tenancy practices for the remaining tenants such as written farm leases, rent ceilings, cash rentals, restrictions on land transfer, and safeguards against arbitrary changes in rental contracts. Current operations include the registration of title transfers, collection and payment for lands sold and purchased by the government, and continued improvement of tenancy practice.

The Natural Resources Section provided technical advice and guidance in the preparation of the legislation on which the land reform program is based. Specialists consulted with Ministry of Agriculture and Forestry officials, furnishing advice and guidance on administrative policies adopted and maintaining continuous contact with the progress of all activities.

Agricultural Cooperatives

The minute size of the average Japanese farm management unit requires that farmers pool their effort and resources through cooperation. The prewar Japanese government took advantage of this situation to construct

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a monopolistic hierarchy of agricultural associations through which the government controlled almost all aspects of farm life. Membership was compulsory for all farmers.

SCAP policy has required dissolution of this basically militaristic set-up and its replacement by a genuine agricultural cooperative movement free from domination by nonagrarian interests and dedicated to the economic and cultural advancement of the farmer. The Agricultural Cooperative Association Law which became effective on 15 December 1947, provided for the organization of democratic agricultural cooperatives based on internationally recognized cooperative principles. By 30 June 1949 a total of 31,329 local and individual cooperatives had been organized. These had federated into a total of 993 federations of agricultural cooperatives by the same date. Volume of business records for the year 1948 showed that cooperatives handled a major portion of farmer purchases, sales, financial deposits, and loans. Membership in these cooperatives is voluntary. Each member has one vote. The primary purpose of the cooperatives is maximum service to participating members rather than payment of dividends on invested capital. Results of officer elections for these organizations in March through May 1949 show that over 80 percent of the present officers have never been directors or auditors in the former agricultural associations. This indicates a substantial change of leadership in rural communities.

Problems remaining include improving the operating efficiency and placing the new organizations on a sound financial basis, building membership loyalty, retaining the present freedom from political control, and strengthening democratic management.

Natural Resources Section advised the Ministry of Agriculture and Forestry in the preparation of the new cooperative legislation, and in administration of the program.

Crop and Livestock Insurance

Japan's deficit food position requires that agricultural production be maintained on land which would be considered submarginal in a country which produces surpluses of food. Compulsory crop insurance, supported in part by government subsidy, and voluntary livestock insurance have been in operation with limited benefits since 1929 and 1939 respectively as measures required to keep submarginal land in production.

Japan's present insurance system, as authorized in the law of 15 December 1945 for Compensation Against Agricultural Loss is a version of the system existing at the time of surrender. The changes were designed to bring the system into harmony with basic Occupation objectives and to correct administrative and procedural difficulties. Insurance coverage on staple food crops is compulsory in order to guarantee maximum effectiveness of the program in terms of crop production. Premiums are fixed for each area in accord with that area's past record of losses. Livestock insurance is voluntary unless the general membership of the local agricultural

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mutual association votes to make it compulsory. Insurance of other property and produce is optional. Administration is placed in local agricultural mutual relief associations operated by farmers, and in prefectural federations of these local associations. The Japanese Government exercises only limited general supervision.

Agricultural mutual relief associations established on a local basis numbered 10,663 as of 30 April 1949. Each prefecture had one federation. Local associations insure with prefectural federations, which in turn reinsure with the national government. Losses in excess of the amount collected as premiums are met by government subsidy. The principle of subsidy is established partly in recognition of the nation's responsibility to participate in costs incurred for benefits which accrue to the nation, and partly to keep premiums within the farmers' capacity to pay.

The Natural Resources Section assisted the Ministry of Agriculture and Forestry officials in preparing the present crop and livestock insurance legislation, in developing and implementing administrative policies, and in analyzing the progress of insurance activities under the new law.

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# JAPANESE AGRICULTURAL PRODUCTION STATISTICS

At the beginning of the Meiji Era (1868) Japan was largely self-sufficient from the standpoint of food, cultivating about 12 percent of the total land area. Rice was the principal crop. By the turn of the twentieth century, population increases had already caused food requirements to exceed crop production. Since that time the food requirements of the population always have been greater than indigenous production of food crops. By the early 1940's this deficit was averaging about 15 percent of total food requirements each year. The difference was supplied by imports, principally of rice and other grains, soybeans and sugar.

Rapid expansion of trade and population after the Meiji Restoration caused a steady increase in production and prices of agricultural products. By 1948, the cultivated area comprised 16 percent of the total land area of the country. Average annual production of staple crops (rice, wheat, barleys, sweet potatoes and white potatoes) in terms of brown rice equivalents[1/], increased from 6,711,000 metric tons during the ten-year period 1881-1890, to 13,115,000 metric tons during the period 1931-40 — an increase of 96 percent. In 1939, a record crop of staple foods was produced -- 14,615,000 metric tons. During the war years, production held up well until 1945 when fertilizer shortages and unfavorable weather caused short crops. Largest production of the staple crops for the war years was in 1942 -- 14,023,000 metric tons, only four percent less than the record 1939 output. In 1948, total production of the staples was 13,927,000 metric tons (brown rice equivalents). This volume of food was six percent more than the average annual production of these crops during the period 1931-40 but five percent less than the peak production in 1939.

Production of each of the staple food crops in 1948, on metric ton brown rice equivalent basis, was as follows; rice, 9,352,000; wheat, 937,000; barley, 654,000; naked barley, 686,000; sweet potatoes, 1,874,000; and white potatoes, 427,000. The overall increase in staple food production in 1948 as compared with the 1931-40 period, is accounted for by the

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1/ To facilitate valid comparisons between crops, and between time periods, actual product weights of crops other than rice have been converted to caloric equivalents of brown rice.

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sweet potato, white potato and barley crops. Output of these crops rose 102 percent, 46 percent and six percent, respectively. Rice production was almost exactly equal to the 1931-40 average. The wheat and naked barley crops were 18 percent and 12 percent less respectively than the average for the above pre-war period.

During the 60 year period, 1881 to 1940, rice and wheat accounted for most of the increased food output from staple crops. Of the total 6,403,000 metric ton (brown rice equivalents) increase in average annual production between the periods 1881-90 and 1931-40, rice accounted for 70 percent and wheat 13 percent. Barley and naked barley production had climbed steadily to reach a peak production in 1913 nearly double the 1881-90 average. These crops declined in importance thereafter, giving way to wheat. Even so, however, production of these two crops was substantially higher during the nineteen thirties than in the eighties, and accounted for five percent of the total increase in staple food production.

Sweet potato output during the years 1931-40 averaged more than twice the annual production indicated by incomplete data for 1881-90. The crop accounted for eight percent of the increase in staple food production occurring between these two periods. White potato production was negligible prior to 1890. On the basis of meager production data for the early years, this crop accounted for four percent of the total increase in production between the two periods mentioned above.

In addition to the staple crops, minor cereals, beans and peas contribute to the total caloric output of Japanese farms. In addition a sizable production of vegetables and fruits contribute valuable calories and provide a vital source of vitamins and minerals in the Japanese diet. For the years prior to 1920 the production picture for these minor crops is obscure because of incomplete statistics. Such data as are available, however, indicate that production of most of these commodities showed a gradual upward trend until about 1920. Annual harvests of minor cereals, beans and peas declined after that time but the trend in vegetable and fruit production continued upward, reaching an annual average of 6,600,000 metric tons of vegetables (443,000 metric tons brown rice equivalents), and 1,200,000 metric tons of fruits (136,000 metric tons brown rice equivalents) during the years 1931-40. The average annual production of vegetables and fruits during this period was 17 and 38 percent larger respectively than during the preceding decade.

Production of minor cereals, and beans and peas declined to an average of 1,015,000 metric tons (brown rice equivalents) during the decade preceding World War II. This output was 15 percent less than during the twenties. Because of the major emphasis placed on staple food crops during and since the war, the downward trend in production of the minor crops listed above has continued. Thus, in 1948 the total harvest of these minor crops was only 611,000 metric tons -- 40 percent below the prewar level.

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Vegetable and fruit production in 1948 also was less than before World War II. The vegetable crop totalled 6,159,000 metric tons (413,000 metric tons brown rice equivalents) -- 40 percent less than during 1931-40. Fruit output was only 928,000 metric tons (105,000 metric tons brown rice equivalents) -- 23 percent smaller than the 1931-40 average.

Area of cultivated land in Japan increased steadily from an average of 11,596,000 acres during the eighteen eighties to 14,944,000 acres in 1921. The latter figure represents the largest area ever cropped in a single year. Since 1921, the area has remained relatively constant. A slight decline occurred in 1929 but most of this reduction was restored during the thirties; and by 1939 the total was 14,750,000 acres. Average for the period 1931-40 was 14,677,000 acres. The area of cultivated land declined somewhat during the war, due chiefly to its being requisitioned for military purposes; but by the fall of 1949 land available for crops was estimated at 14,800,000 acres.

Since the reporting of crops statistics was begun in Japan in 1880, paddy land for rice production always has comprised slightly more than half of the cultivated land of Japan, except for a brief period (1917-21) when the area of paddy and upland fields was divided about equally. During the ten-year period, 1881-90, 57 percent of all cultivated land was devoted to rice paddies, the proportion declining gradually until about 1918. During the thirties paddy land comprised 53 percent of the total; and the proportion has remained practically unchanged since that time.

Though Japanese agriculture always has been chiefly concerned with production of the important food crops, considerable acreage has been devoted to certain industrial crops. Most important of these is mulberry for silkworm production. Area planted to mulberry increased from an annual average of 679,000 acres during the period 1881-90, to an average of 1,441,000 acres during the years 1931-40. When Japan lost her foreign silk markets during World War II, most of the mulberry trees were removed. Land formerly used for mulberry production now is used for production of food. Even so, 438,000 acres were devoted to mulberry in 1948.

Other important industrial crops include tea and tobacco. Tea production in 1948, at 26,000 metric tons, was little more than half of the 1931-40 average of 48,000 metric tons. But the 1948 tobacco crop, estimated at 98,000 metric tons of dried leaf, was 42 percent more than the average during the above prewar period.

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# FERTILIZER IN JAPAN

Fertilizer has played an important role in Japanese economy for centuries. It is not known when the use of commercial fertilizer began, but history records that as early as 1624 trade in fish-meal fertilizer flourished in Osaka. Authoritative Japanese sources claim that fertilizer commerce began in Japan 100 years before it did in Europe. At first only organic materials were handled. It was not until 1886, which marked the beginning of the superphosphate industry, that inorganic fertilizer came into use.

Agricultural conditions peculiar to Japan have resulted in fertilizer problems which are especially characteristic of this country. Soils are low in fertility. This condition as it applies to agricultural land, stems partly from the fact that approximately 25 percent of the arable area is derived from volcanic ash material low in fertilizer nutrients. In addition, centuries of intensive cropping have reduced the potential supply of plant food elements in the soil to the point where high crop yields cannot be obtained without liberal applications of fertilizer.

Several years before the outbreak of World War II, the soils of Japan were heavily fertilized in comparison with other countries. Data compiled by the Ministry of Agriculture and Forestry show that with respect to the commercial fertilizer consumed by the major agricultural countries of the world during 1935-1937, in terms of pounds per acre of arable land, Japan was third in the total amount of nitrogen (37.4 lbs), fifth in phosphoric acid (34.4 lbs), and fifth in the amount of potash (15.1 lbs). During the same period, Japan was the world's largest user of ammonium sulfate.

In 1941 the nation had ample facilities to produce most of her required nitrogenous and phosphatic commercial fertilizer. Phosphate rock for processing into superphosphate, as well as potash, however, had to be purchased from abroad. No indigenous deposits exist either of phosphate rock or of potash.

In 1937 Japan ranked third in world production of nitrogenous fertilizers, and sixth in processing phosphatic fertilizers. Peak production of commercial nitrogenous fertilizers (organic and inorganic) occurred during the period 1936-1940, when an average of 1,813,000 metric tons of ammonium sulfate equivalents were produced annually. Production of inorganic nitrogenous fertilizer declined rapidly after 1941 to only 323,000 metric tons in 1945; output of organic forms decreased to 12,000 metric tons during the same period.

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The period 1936-40 was also the peak period for production of inorganic and organic forms of commercial phosphatic and potassic fertilizer. The yearly average was 1,936,000 metric tons of superphosphate equivalents, and 20,000 metric tons of potassium sulfate equivalents, More than half of the commerical potassic fertilizer manufactured during these years was organic material.

At the termination of World War II the Japanese fertilizer industry was inaserious condition. Immediate steps were taken, however, to rehabilitate fertilizer plants and, on 17 May 1946, the Supreme Commander for the Allied Powers approved the conversion of a number of nitrogen plants formerly used for munitions manufacture to the production of nitrogenous fertilizers. These plants, together with those normally supplying fertilizers, were judged capable of eventually turning out about 2,000,000 metric tons of inorganic nitrogenous fertilizers annually (ammonium sulfate equivalents).

Considerable progress has been made in increasing indigenous fertilizer output since 1945. Actual production during this period is summarized in the following table:

Production of Inorganic Commerical Fertilizer (Metric tons) 1/

| | Nitrogenous | Phosphatic | Potassic |
|---|---|---|---|
| US FY 46 2/ | 345,251 | 190,141 | Negligible |
| US FY 47 | 808,484 | 442,820 | Negligible |
| US FY 48 | 991,689 | 871,713 | Negligible |
| US FY 49 | 1,382,917 | 1,048,923 | Negligible |

The above figures do not include relatively small quantities of nitrogen, phosphorus and potassium present in organic fertilizers, Reliable data for these are not available. Production of inorganic fertilizer must be further increased to supply more nearly the quantities required in Japan. Immediate needs are estimated at 2,075,000 metric tons of ammonium sulfate equivalents (20% N), 1,719,000 metric tons of superphosphate equivalents (16% $P_2O_5$), and 325,000 metric tons of potash (40% $K_2O$).

To help meet the pressing need for fertilizer to increase food production, the Occupation instituted an import program. Under this program total imports of fertilizer and fertilizer materials from 1 February 1946 to 30 June 1949 are as follows: ammonium nitrate, 578,000 metric tons (33.2% N), phosphate rock, 1,697,200 metric tons (32% $P_2O_5$), and potash, 376,400 metric tons (40% $K_2O$).

1/ Nitrogenous fertilizer expressed as ammonium sulfate equivalents (20% N); phosphatic as superphosphate equivalents (16% $P_2O_5$); and potassium as potassic equivalents (40% $K_2O$).

2/ FY - Fiscal year.

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The combined import and indigenous production programs have steadily increased the supply of commercial fertilizers to farmers. The tonnage of nitrogenous fertilizer in terms of ammonium sulfate equivalents (20% N) rose from only 439,000 metric tons in fiscal year 1946 to 1,464,000 metric tons in 1949. Stocks of phosphatic fertilizer were at an all time low at the end of the war. In fiscal year 1946, only 32,156 metric tons of superphosphate equivalents (16% $P_2O_5$) were received by farmers. However, in fiscal year 1949, farmers received 1,033,125 metric tons. During the same period, potash supplies to farmers, consisting almost entirely of imports, increased from 902 metric tons to 159,000 metric tons of potash equivalents (40% $K_2O$). Though great progress has been made in supplying fertilizer needs, the total of all fertilizer nutrients available in 1949 was only 75 percent of the 1931-40 average annual supply, and only 64 percent of the 1936-1940 average.

Even before the close of World War II the Japanese realized that the most efficient use of diminishing fertilizer supplies was not possible without an allocation system. Such a system was first established by the Nogyokai or Agricultural Association (later dissolved by order of the Supreme Commander for the Allied Powers). In the fall of 1944, the responsibility for allocating fertilizer to farmers was placed in the Ministry of Agriculture and Forestry.

The essential of equitable distribution by allocation was one of the first problems receiving attention by Occupation Forces. Close cooperation between fertilizer specialists in the Agriculture Division of Natural Resources Section, personnel in other sections of General Headquarters, Supreme Commander for the Allied Powers, and officials of the Japanese government has brought about a satisfactory solution of most phases of the problem. One of the important results of this collaboration has been the establishment of an effective fertilizer allocation program for farmers. Another accomplishment has been more efficient allocation as between various crops, on the basis of individual crop requirements. Farmer interest in allocations also has been stimulated. Farmers are learning to insist on fair allocation practices, especially at the village level.

The organization of the Fertilizer Distribution Kodan in the Japanese government in 1947 facilitated solution of the fertilizer distribution problem. This organization receives domestically produced nitrogenous and phosphatic fertilizers at the factory and distributes them to prefecture, city, town, and village warehouses in accordance with an allocation plan prepared by the Ministry of Agriculture and Forestry. The Fertilizer Kodan also has the responsibility for distributing imported nitrogenous and potassic fertilizer on a similar basis.

The ultimate goal which has recently been approached in the distribution of fertilizer is to make fertilizer supplies accessible to farmers when most needed. Prior to 1948, reliable information on disbribution was not available. Such data as were at hand, however, indicated that

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fertilizer was not reaching farmers in time for effective use. Figures on distribution for the spring period of 1948 (1 January - 31 July) show that by 31 July farmers had received for spring-planted crops only 88 percent of the allocated nitrogen supply (961,366 metric tons of ammonium sulfate equivalents). Deliveries for 1948 fall plantings, however, were increased to 97 percent of an allocation of 440,500 metric tons of ammonium sulfate equivalents. This percentage was increased to 99.5 percent of 1,023,400 metric tons for the spring period of 1949. Similarly, for phosphatic fertilizers, farmers had received only 91 percent of their allocated supply of 360,000 metric tons by the end of the 1948 spring period. At the end of the 1949 spring period, however, this figure had risen to 99.6 percent of 618,000 metric tons. The supply of potash for the spring of 1948 amounted to only 2,648 metric tons and was so small that difficulties were experienced in distributing it to farmers on an equitable and effective basis. To the end of July 1948, only 78 percent was distributed. In contrast, 99.5 percent of a total allocated potash supply of 139,811 metric tons had been delivered to farmers by the close of the 1949 spring fertilizer period.

The importance of maximizing the use of such materials as compost, animal manures and night soil in crop production has been emphasized continuously. These help maintain soil fertility and support crop yields. It is estimated that during the five-year period, 1936-40, the percentage of the total quantities of fertilizer nutrients which were supplied by farm manures was nitrogen, 48 percent, phosphoric acid ($P_2O_5$), 35 percent, and potash ($K_2O$), 74 percent. The current use of compost and night soil is estimated to be above the 1936-40 average.

Natural Resources Section specialists have advised and guided Japanese government officials in planning and carrying out a suitable fertilizer program. In addition, technicians have assisted in the determination of imports needed and the proportioning of the total supply between the spring and fall periods. Research work on fertilizers has been stimulated. Japanese technicians currently are receiving instructions in experimental design and field plot technique which will enable them more adequately to determine the kinds of fertilizer required and their most effective use on farm crops. Assistance is being given also in the solution of fertilizer problems pertaining to chemical analysis, storage, transporation and financing..

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## INSECT AND DISEASE CONTROL

The control of insect pests and diseases of plants in Japan probably received less attention than any other phase of agriculture prior to 1947. This was due partially to a lack of information on damage caused and, consequently, to lack of appreciation of control importance. Japanese Government statistics have indicated a probable annual loss to crop production of 1.5 percent from insects, and a like percentage from plant diseases. Occupation force agricultural specialists believe these figures to be unrealistically low. Japanese professional entomologists and plant pathologists share this view. Estimates of American specialists after four years of first-hand observation are that these two sources of loss reduce crops at least 10 percent annually.

Most of the entomological work in Japan has been in the laboratory, and some good results have been obtained. However, field work has been neglected with the result that for a number of pests practical methods for field control have not been developed. Equipment for the control of plant pests has been inadequate. Dusts are more easily applied and less expensive for the control of many insects than are sprays. Prior to 1947 the use of pesticides in the dust form in Japan was practically non-existent. Sprays were applied to fruit trees from a limited number (less than 5,000 for all Japan) of antiquated power sprayers, or from 2 - 5 gallon knapsack or compressed air sprayers. All treatment of field and vegetable crops was done by low pressure hand sprayers, in many instances of low efficiency. Because equipment was not available, farmers were unable to carry on a complete pesticide control program. During 1941-45 the supply of many pesticides, including the arsenates, nicotine sulfate and derris root, was inadequate. The combination of inadequate equipment and the shortage of pesticides probably was partially responsible for continued emphasis on many comparatively ineffective methods of insect control. Such ineffective methods include catching rice beetles in a wooden box swung by hand over rice plants and using light traps for rice borer control.

The high cost and inefficiency of the pesticides was another factor causing continued use of out-of-date methods rather than chemicals. Limited quantities of manganese and iron(ferric) arsenate were used for insect control. These arsenicals have been shown to be inferior to the standard lead and calcium arsenates by extensive tests in other countries, and the cost is appreciably higher. Low insecticide content, inferior materials, incorrect combinations, and recently for dusts, unsatisfactory grinding, were all causes of unsatisfactory results from insecticides.

The principal insecticides used in Japan prior to World War II, as indicated by the 1936-40 average annual consumption, include lead arsenate 1,726 metric tons, calcium arsenate 496 metric tons, nicotine sulfate 129

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metric tons, derris root 140 metric tons, and pyrethrum flowers 1,585 metric tons. The use of calcium arsenate increased rapidly from the time of its introduction in 1934. By 1941 the amount of calcium arsenate used was 3,213 metric tons and lead arsenate used was 1,168 metric tons. The change was due partially to the replacement of lead, a war metal, with the relatively cheap and abundant calcium.

Prior to 1947 lead arsenate was used to control insect pests of fruits and vegetables. Calcium arsenate was applied primarily to vegetables and white potatoes, with a limited quantity to control rice leaf beetles. Nicotine sulfate was used primarily as a contact insecticide on fruits and vegetables, and to a limited extent on rice seed beds. Derris root was used to control chewing insects on fruits and vegetables when arsenate could not be used because of the danger to humans. Pyrethrum served as a substitute for nicotine sulfate and was used extensively in oil emulsions for the control of rice leaf hoppers.

During the years 1936-40 Japan produced more arsenates than were consumed domestically, and annually exported several hundred tons of lead arsenate to Far Eastern countries. However, insecticides, particularly the arsenicals, were in short supply in 1945-47. The complete change of industry to war production during 1941-45, and the post-war economic situation, with reduced mining activities, resulted in Japanese production of little arsenious acid during 1944-46. Most of that produced was used in industry. The supply of lead arsenate in 1945 was 250 metric tons, about one-eighth of the estimated need. All arsenic for insecticides was imported in 1946 and some in 1947. As a result of increased production of arsenious acid during the last two years indigenous production of arsenates met the demand in 1948-49 and 300 metric tons were exported during early 1949.

Insecticide and fungicide supplies generally have been adequate to meet farmers' demands during the current year. In the first half of 1949 lead arsenate distributed to farmers was 1,214 metric tons, more than half the amount used in 1948. During the first half of 1949 consumers also had 805 metric tons of calcium arsenate, 120 tons less than the total used in 1948 and more than 300 tons above the 1936-40 annual average usage. No derris root and little nicotine sulfate are produced in Japan. Significant quantities of these insecticides were not available during 1946-48. In early 1949 nicotine sulfate, 144 metric tons, and derris root, 193 metric tons were imported and released to farmers in late June and July.

During 1936-40 pyrethrum was produced and used extensively in Japan and was an export item. The use of pyrethrum as an agricultural pesticide dropped from 1,590 metric tons annually during 1936-40 to 805 metric tons in 1948, and a first six-months' 1949 sale of 545 metric tons. This reduction is due partially to reduced stocks of pyrethrum resulting from a smaller acreage planted. Increased use of synthetic organic insecticides, particularly DDT and BHC (benzene hexachloride) has reduced the demand for pyrethrum.

The use of DDT and BHC, from imports and indigenous production, reduced the demand for other insecticides to some extent. DDT, initially for health and welfare purposes, was first manufactured in Japan in 1946. A small

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amount was used experimentally for agriculture in that year, and about 40 metric tons were used in 1947. In experiments emphasis was placed on the use of DDT or BHC as a replacement for the laborious Japanese method of using diesel oil and pyrethrum to control rice leafhoppers. Leafhopper control with DDT and BHC was successful, and three million pounds of 10 percent DDT dust were obtained from Army surplus stocks for agricultural purposes in 1948. Use of this dust was instrumental in averting a serious rice leafhopper epidemic that year. A total of about 171 metric tons of technical DDT was used in 1948. By 30 June 1949, 449 metric tons of technical DDT were formulated into agricultural insecticides and distributed. Benzene hexachloride was used only experimentally prior to 1949. An import of 349 metric tons of 10 percent gamma isomer BHC supplemented indigenous production, and 495 metric tons were distributed by 30 June 1949. The use of DDT and BHC for leafhopper control in 1949 eliminated the requirement for about 2,650,000 gallons of diesel oil for that purpose, and indications are that equally or more effective control has been secured despite the drastic change in method. It is expected that indigenous production of DDT and BHC will meet the agricultural requirements in 1950, and an appreciable saving of foreign exchange credits is anticipated.

Other promising new insecticides, including chlordane, toxaphene, and parathion, have been imported for testing in Japan. Courtesy donations of the manufacturers in the United States have been responsible for such imports.

Although the supply of fungicides generally has been adequate in recent years, serious plant disease epidemics have resulted from insufficient education of farmers in the importance of timely use of fungicides. As an example, improper and/or inadequate spraying of white potatoes in 1948 and 1949 resulted in a heavy loss of that crop through late blight. Educational programs on plant disease control are receiving continuing emphasis from Natural Resources Section personnel.

Although insecticide and fungicide stocks are generally adequate to meet current demands of farmers on a national basis, reserve stocks of many pesticides are small. Allocations of some pesticides still are made to consuming areas on the basis of stocks available, and local emergency demands at times result in shortages. Such problems arise from lack of reserve stocks and problems of distribution that cannot be foreseen. A slight increase in reserve stocks would alleviate the situation. Indications from research now in progress on insect control are that demands for insecticides in the future will be increased substantially above present levels.

In addition to improvements in the supply and types of pesticides, Occupation officials are working toward the improvement of control practices. A large acreage of rice in north Honshu and Hokkaido is seriously damaged each year by rice leaf miners. Little has been done in the past to control this insect with pesticides. It is considered highly probable that timely applications of synthetic organic insecticides will do the job.

Rice borers are considered generally to cause more damage than any other insect in Japan. Research work is in progress to develop positive control mearures. In 1946-49 over one billion yen were spent on the installation

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of blue fluorescent light traps. This method of control has been studied for many insects in the United States, including those similar to rice borers, and has been discarded in that country as ineffective. Tests conducted in Japan indicate that light trape are at best mediocre as an economic method of control. Adequate control of rice borers, general in all rice growing areas of Japan, might increase rice production by as much as five percent or approximately 460,000 metric tons.

Some improved methods of preventing insect damages would be impossible under methods of insecticide application used in Japan prior to 1947. In June 1947 Japanese engineers were furnished information on the principle and use of insecticide dusts and aerosols (fog), and on the principles of construction of machines for dispensing insecticides in these forms. One Japanese company has designed and manufactured a hand rotary duster and a power dusterfog generator. By 30 April 1949 this company had sold 40,605 durable, aluminum hand rotary dusters, and 167 power-operated dusterfog machines. With the hand duster a farmer easily is able to treat his entire farm in one day, and the power machine can be used cooperatively to apply pesticides to crops in entire villages.

The low quality of pesticides has been a critical problem in Japan. Prior to 1948 specific labeling of pesticides showing details of composition, usage, and effectiveness was not required. At the instigation of agricultural specialists of Natural Resources Section, an Agricultural Chemical Control Law was promulgated in 1948 to alleviate that situation. An extensive educational campaign is planned to stimulate public opinion for enforcement of this law. A complete Plant Quarantine and Emergency Pest Control Bill has been prepared, with assistance and encouragement of Natural Resources Section personnel. It is expected that the bill will be presented to the next session of the Diet.

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# THE SEED SITUATION IN JAPAN

Agriculturists know that remarkable differences in yields are obtained from different varieties of the same crop grown under comparable conditions. For centuries in Japan, as in other countries, it was assumed that all seed was good. Agriculture was not specialized and different varieties of crops adapted to the soil and climatic conditions were not used as a means to increase production. About 1900 the population in Japan began to exceed indigenous food supply, and industrialization resulted in higher standards of living. These factors focused attention on seed quality and on improvements as a means of increasing yields. Improved seed stock is now a major economic factor in food production in Japan.

The possibilities of improved stock have not been realized fully. Although much progress in plant breeding has been made and improved seed of many crops is available, it is only recently that hy ridization and backcrossing have been employed. The opportunity for major advances through insect and disease resistance, adaptation, nutritive value, and many other factors is recognized by Japanese plant scientists. Methods of plant breeding, seed increase, inspection, certification and distribution have been worked out but the operational standards, ospecially for inspection and certification, in many instances are not sufficiently rigid. Education of the farmer to the value of food seed is progressing steadily, and the use of improved varieties offers a practical method of increasing food production materially with the same amount of land and fertilizer.

Improvement of rice through strain collection and selection was initiated with the establishment of the Imperial Agricultural Experiment Station in 1893. From 1904 through 1925, pure line selection combined with crossing produced strains with yields from 10 to 15 percent above the parent material, and permitted the northern expansion of rice growing throughout Hokkaido. Present experimental breeding stresses disease resistance, especially to rice blast, a disease which reduces yield materially. Approximately 90 percent of the rice grown in Japan is from improved strains or varieties. Foundation seed is produced by the experiment stations and increased by prefectural farms, towns and village farms, and farmer cooperatives. The supply of improved seed of available varieties is adequate.

Improved varieties of sweet potatoes were first introduced in the early 1930's, with major introductions beginning in 1940. Over the years and especially during and since World War II, emphasis was placed on high yield to meet food shortages. Disease resistance and quality, combined with high yield, have not been exploited fully. In the seed breeding program, crossing is done in Kyushu. Resulting seed is sent to other regions where it is tested

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for four years. Superior strains are numbered and grown in prefectural seed increase farms. From these farms the seed is distributed to plant grower cooperatives, where plants are grown for farmers. The planting of improved varieties has increased from seven percent of total area planted in 1940 to 83 percent in 1948. The supply of improved seed, except a few new varieties, is adequate.

In Japan, no other crop is so dependent upon the production of high quality seed as white potatoes. The prevalence of virus diseases, and more recently, ring rot, transmitted vegetatively, contributes markedly to the low yields of potatoes. (Japan 166, U. S. 198, Germany 277, and the world average, 163 bushels per acre in 1948). As a result of recommendations of Occupation Force Agricultural Specialists, the Ministry of Agriculture and Forestry, on 10 July 1947 established seven foundation seed farms, four in Hokkaido with a climate similar to Maine, and three in cool areas of Honshu. These farms are in isolated areas. The tuber unit method of seed selection is practiced. Foundation seed is supplied to approved seed growers who produce seed primarily for the spring crop areas of Japan. Since 1946 agricultural specialists of Natural Resources Section have maintained close surveillance over the seed potato program. Production of certified seed meets from 60 to 70 percent of the planting requirement. Technical improvements still are needed in the inspection and certification of the crop.

Selection of wheat and barley varieties, begun by the agricultural experiment stations about 1900, produced most of the leading varieties of wheat and barley now grown. The pure-line method of selection was followed with hybridization of wheat, beginning in 1927, and of barley in 1941. Foundation seed is produced at the prefectural stations, increased at prefectural seed farms, then distributed to villages or towns for increase for general farm use. Seed supply of available improved varieties is adequate.

The supply of improved oat seed, mostly Victory No 1, originally introduced from Svalof, Sweden, is adequate. Breeding and variety improvement in Japan has been negligible.

Little attention has been given to the growing and improvement of corn. Most corn is grown for table use, or as a soiling crop or silage. Selection has been done without controlled pollination. Common seed stock is adequate. Corn offers a virgin field for improvement through plant breeding.

As a result of long years of selection and introductions from Korea and China, many superior varieties and strains of soybeans are cultivated in Japan. In fact, many of the varieties now general in the United States came from Japan. future improvement through further selection and breeding, is, however, a definite possibility.

Most varieties of vegetables produced are the result of plant selection followed for many years. Improvement was initiated at the agricultural experiment stations in 1901-1902 and hybridization work started in the early 1920's. Sizable surpluses of seed of carrots, spinach, pumpkin, radish, leek, cucumber, egg plants, and Swiss chard are available for export. A considerable amount of flower seeds, including specialty items such as

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double petunias, violets, and lily bulbs, have been developed and are being exported.

Historically, Japan has imported substantial quantities of forage or green manure crop seed. Imports of appreciable quantities have been made in the past, and such imports should continue until Japan is capable of producing good seed. Improved varieties of green manure and forage crops are a distinct possibility.

Through Natural Resources Section Agriculture Division personnel, seeds of many varieties of farm crops have been brought into Japan since the beginning of the Occupation. According to the Accession List, 46 varieties of wheat, 28 of barley, 108 of corn, 78 of vegetables, 17 of sweet potatoes, 6 of white potatoes, 4 of sweet sorghums, and some 50 grasses and legumes are among those introduced. These seeds were brought in with the primary purpose of introducing improved genetic material which may contribute directly or indirectly, through hybridization, to the increase of food production. Two potato introductions, Sebago and 125-4, show promise as replacements for varieties now grown. It is of interest to note that the Irish Cobbler, known as "Danshaku" introduced from the United States about 1904, is still the leading early potato grown in Japan.

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# LIVESTOCK IN JAPAN

The livestock industry in Japan is small and of minor importance as a food source when compared to crop production. Animal foods, other than fish, have never been an important part of the Japanese diet. Prior to the Meiji Restoration in 1868 the Japanese people consumed almost no meat or milk. Since that time they have used increased amounts of livestock products for food. However, prior to 1941 animal foods other than fish amounted to only a little more than one percent of the total food consumed. Even this meager amount decreased during and after World War II because of the reductions in the meat animal population.

During 1931-40 about 1,000,000 metric tons of concentrate feeds were imported annually into Japan. Since World War II feed imports have been negligible in comparison to the prewar volume. Lack of concentrate feeds caused an especially large reduction in numbers of poultry, swine, dairy cows, and rabbits. Populations of those animals subsisting primarily on roughage were not so adversely affected.

Livestock, although relatively few in number when compared to the United States, play an important role in the Japanese agricultural economy. Horses and draft cattle are necessary to provide draft power on farms and for city transportation. Present populations of horses and draft cattle are considered sufficient to supply draft power needs for the 14,900,000 acres of land now in cultivation if maximum usage is obtained from these animals. However, small farms, many less than $\frac{1}{2}$ acre in size, and inequities in distribution of draft animals will continue to require that some farms operate without draft power. Land reclamation may be expected to increase the need for draft animals to a limited extent.

Increased numbers of dairy cows, dairy goats, and sheep are desirable. Milk is needed in larger quantities to supply even the minimum needs for infants, invalids, and pregnant women. Significant increase in population of dairy cows in Japan appears feasible in Hokkaidō and northern Honshu. Hokkaido particularly appears to have a noteworthy potential for enlargement of its dairy industry. Climatic conditions are satisfactory for dairy purposes and relatively unfavorable for many agricultural crops. In addition, the area is relatively sparsely populated when compared to the remaining part of Japan, and farms average several times larger than those in the other islands. Larger farms provide good potential for roughage and concentrate feed production, and for diversified farming operations essential to maximum food output on the island. Milk goats are being encouraged for areas where pasture or feed supplies are inadequate to maintain dairy cattle. Sheep are

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grown in Japan chiefly for their wool which is used primarily for home-spuns for home consumption. Sheep usually are maintained in small flocks of 2 - 5 per farm.

Swine numbers have increased markedly in recent years despite the shortage of concentrate feeds. Decayed and partially decayed sweet potatoes, other perishables, and feeds not suited for human consumption, are the principal sources of swine feed.

Poultry decreased approximately 70 percent during 1941-45 because of the shortage of feed. Only a slight increase has been achieved to date, largely in small farm flocks.

The livestock industry prior to the Occupation was highly organized and controlled by the Government. Several livestock control companies, operated for the benefit of a few men in control, supervised the procurement and distribution of livestock and livestock products. These control companies have been dissolved as a result of directives from SCAP.

The Government maintains Livestock Breeding Stations to provide breeding services for farmers. Emphasis in the past was given almost entirely to horses, largely for military purposes. Currently horses receive most support, but some attention is given to dairy cattle and other classes of livestock. The need for these breeding stations has not been demonstrated. Observations of Agriculture Division personnel have shown that farmer breeders are capable of breeding and growing animals of equal or superior quality to those produced on livestock breeding stations. Many breeders of dairy cattle, draft cattle, swine, horses, and chickens have demonstrated this ability beyond question. The Livestock Bureau, MAF, currently is engaged in a reduction program relative to national livestock breeding stations. As a result of recommendations by NR, in 1949 seven national livestock breeding farms of a total of 25 were eliminated. Others were reduced in size. The Ministry expects to discontinue some other breeding farms in 1950.

Natural Resources Section has established certain policies directed toward the establishment of an economically sound livestock program for Japan. Basic tenets of this program are:

a. The program must be based on private ownership of animals. Private ownership includes ownership by agricultural cooperatives.

b. Sufficient numbers of draft horses and/or draft cattle must be maintained to insure maximum food production, facilitate transportation of material, and alleviate, to the extent feasible, the labor burden of the Japanese farm family.

c. Efficient and maximum utilization must be made of draft horses and cattle.

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d. Maximum utilization must be made of feeds unsuited for human consumption. This applies particularly to decayed or partially decayed perishables that can be utilized by swine, and to forage crops.

e. Increased quantity and quality of roughage should be produced on pastures and meadows. This applies particularly to the use of exotic forage plants proved by test to be more productive than indigenous plants.

f. Superior breeds should be developed and present breeds should be improved through breed improvement programs supervised by the Ministry of Agriculture and Forestry.

g. Production of dairy goats, because of their small size and ability to utilize roughage, particularly should be encouraged as a means of improving the nutrition and income of the Japanese farm family.

h. Production of sheep, rabbits, and poultry should be encouraged, particularly where land area or feed supply is insufficient to maintain larger animals.

i. Government aid in the form of improved research and educational facilities should be readily available at all times. Long and short-term credit at low interest rates should be provided.

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# FOOD STORAGE AND PRESERVATION IN JAPAN

Storage and preservation of food in Japan is difficult. The hot humid summers throughout most of the country cause stored grain to mold. In addition, the rainy weather usually prevailing in the late spring and fall harvest seasons causes farmers great difficulty in adequately drying their grain crops before moving them into market channels. The approximately 6,000,000 metric tons of sweet potatoes harvested during the period 20 September - 1 December each year present the major food storage problem. Consumers will not accept the quantity of potatoes farmers seek to market during this period and inadequate facilities prevent farm or commercial storage through the winter. Freezing weather in most areas prevents shipment and handling of potatoes between 10 December - 1 March.

Japan has had adequate capacity to store its grain crops for a number of years. Most warehouses were improved prior to 1940 and are of substantial construction. However, few are rodent proof and none air conditioned. Because of these deficiencies, it will be difficult to stockpile grains and to make larger purchases of food in periods of abundant supply and lower prices.

Prior to 1940 sweet potato production approximated 3,000,000 metric tons annually, or about 50 percent of current production. Most of the crop was consumed soon after harvests, and the storage problem was minimized. However, many farmers stored substantial quantities of sweet potatoes in caves. The success of such storage varies greatly, but in many instances spoilage has caused high losses.

For many years vegetables have been preserved successfully by salting, pickling, or drying. However, the absence of adequate refrigeration and shipping facilities historically has cuased major losses in these products during movement from producing to consuming areas.

The Agriculture Division of Natural Resources Section has recognized since the beginning of the Occupation the necessity for an adequate food storage program, particularly for sweet potatoes. The need includes also air conditioned grain storages to permit larger purchases at lower prices on world markets during food surplus periods, and limited procurement during years of poor crops in supplier countries. Definite action to implement a grain storage program has been delayed by the post-war shortage of building materials and by the financial straits of the Japanese Government.

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Increased sweet potato production from the 1931-40 annual average of 3,000,000 metric tons to the current level of about 6,000,000 metric tons has created a major utilization and storage problem. The 3,600,000 metric tons of sweet potatoes which moved into commercial channels in 1948 were sufficient to provide the staple food component for the rationed population for about 45 days. However, potatoes in quantity are available during about 90 days of the year and the Japanese people will not willing accept potatoes during the harvest period to the extent of 50 percent of their staple food diet. Consequently, a significant portion of the crop must be stored or diverted to other uses. In 1948 about 725,000 metric tons were diverted to starch manufacture and 265,000 metric tons to industrial alcohol production. Despite this use of approximately 99,000 metric tons of sweet potatoes for nonfood purposes, innumerable complaints were received from consumers during October-November 1948 that the percentage of potatoes included in the ration was unreasonably high.

Since 1946 Natural Resources Section agricultural specialists in cooperation with the Ministry of Agriculture and Forestry have studied the sweet potato storage problem. Production of this crop must be maintained at high levels because sweet potatoes produce from two to three times the amount of calories per unit area of land as do competing crops. During 1331-40 sweet potatoes produced 3.6 metric tons per hectare in brown rice equivalents compared to 1.5 metric tons for corn. Occupation agricultural specialists and Japanese Government officials believe that consumers could utilize the sweet potato crop effectively if the period of use for food were extended from three to six or eight months.

The problem of potato storage on farms has received increasing emphasis since 1945. Japanese experiment station personnel for several years have studied the possibilities of underground storage. The use of thermostatic controls for such storage to maintain the proper temperature, with suitable ventilation, has been developed to permit overwinter storage of small lots without excessive losses. To encourage more extensive use of farm storage the Japanese Government has instituted a pricing program under which it will pay 70 percent more for farm-stored potatoes after 1 March 1950 than the price during the peak harvest season in the fall of 1949.

In the spring of 1948 at the instigation of the Agriculture Division of Natural Resources Section, the Japanese Government submitted a five-year plan for construction of sweet potato storage and curing houses which would provide 110,000 metric tons additional storage space each year throughout the five-year period. The program has been initiated and currently 215 buildings are under construction. It is expected that those building will be completed in time to cure and store about 25,000 metric tons of the 1949 potato crop. Implementation of the Japanese Government five-year plan will alleviate the storage problem but will not provide a complete solution. Storage for at least 1,000,000 metric tons must eventually be provided if the Japanese people are efficiently to utilize the sweet potato crop.

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

26 September 1949

LAND RECLAMATION AND IMPROVEMENT IN JAPAN

For generations Japan has had need for increased areas of cultivated land, and governing groups have paid special attention to the improvement and increase of farm acreage. But, despite this emphasis, Japan today has greater need for arable areas than at any time in history. She is faced with the problem of producing food on 14,900,000 acres for a rapidly growing population, which now has reached 81,600,000, or more than five people per cultivated acre. To sustain this population on such a limited area requires intense development of agricultural productive power. The effective use of land and water as a basic productive means in agricultural management is an urgent necessity. The nation's greatest possibilities for increasing crop production lie in the reclamation of uncultivated areas, improved drainage and irrigation of rice land, and the maintenance, and repair of facilities serving or protecting cultivated areas.

Indicative of the possibilities are estimates of the Ministry of Agriculture and Forestry of the Japanese Government, that approximately 3,800,000 acres of potentially reclaimable land existed in Japan at the beginning of the Occupation. Further estimates of the Ministry in May 1946, indicated that drainage or irrigation improvements were needed on more than 3,000,000 acres of cultivated land for maximum production. Still further reports of the Ministry, as of March 1949, indicates a need for repairs to 144,758 acres which have been directly damaged by floods, earthquakes, and other forms of natural disaster. In addition, repairs are required to damaged agricultural facilities (canals, drainage ditches, diversion dams, farm roads, bridges) affecting the productivity of 1,500,000 acres. The repair of these damages is a continuing program of the Japanese government essential for the maintenance of crop yields. These various possibilities of substantially increasing indigenous production of food caused the Japanese government to embark in the fall of 1945 on an enlarged land development program for reclamation and land improvement.

Reclamation and improvement over the years has resulted in progressive enlargement and development of Japan's cultivated land. In the year 900, the cultivated area was only slightly more than 2,450,000 acres. This area gradually increased until in the early days of Meiji Restoration (1872) the cultivated area was reported at nearly 10,000,000 acres, of which 5,500,000 acres were irrigated and 4,500,000 acres were upland fields. A gradual increase of the cultivated area continued and was reported to about 13,000,000 acres in 1905, 14,400,000 acres in 1920, and 14,700,000 acres in 1934. Since that period, Japan's cultivated area has increased very little. In fact, due to acquisition for military purposes, the cultivated area actually decreased about 500,000 acres from 1937 to 1945.

Concurrent with the development of new land was the improvement in

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water utilization on existing farms. As early as 700 BC, it is traditionally told that farms were irrigated by means of canals, and in 35 BC reservoirs reportedly were constructed for the use of irrigation in Japan. Progressive development of irrigation and drainage facilities continued throughout the ages. Today, Japan has an intricate net work or irrigation and drainage canals supplemented by gates, wiers, diversion dams, water reservoirs, flumes, pumping stations, and other installations. Most of these facilities are used for the irrigation and drainage of Japan's 7,400,000 acres of irrigated rice.

Throughout her history, Japan has offered some inducement for reclamation and improvement. In the early periods these inducements were exemption from taxes, loans to favored individuals, and special privileges to privately operated enterprises for land development. Beginning in 1909, farmers were able to obtain loans at low interest rates. In 1919, payment of small subsidies for reclamation and improvement was provided, and in 1929, this subsidy was increased to 40 percent of the cost. When the current land development program was started in 1945, field operations were authorized under four laws passed during 1878-1941. The laws were designed mainly for encouragement of land improvement and were inadequate in many respects. The local farmers, especially cultivators, had little voice in deciding the improvements undertaken, and the affairs of the improvement district were controlled by a few influential land owners. There were no provisions for construction of large scale projects, and the national and prefectural governments initiated improvement work on the basis of an informal agreement with land owners. Under this procedure, many projects were started without proper regard for the need or economic feasibility of the work. One of the laws permitted field operations through a quasi-government organization called the Land Development Corporation. This organization contracted field operations on a cost plus basis. The work was characterized by poor management, excessive costs, and small returns in proportion to funds expended.

The land reclamation program gained momentum early in the Occupation. Former military land and other readily available tracts were promptly made available for cultivation. The Japanese government estimated that 3,800,000 acres of land were reclaimable as crop land. This estimate has been partially verified by SCAP agriculturists who have observed large areas of unreclaimed land suitable for cultivation. The potential productivity of this land after reclamation is believed to approximate the productivity of the average cultivated land which is now producing crops satisfactorily in areas near the reclaimable land. About six percent of the area (229,054 acres) is potential irrigated rice land and the remainder (3,570,946 acres) is potential upland fields of not to exceed 15 degrees slope. Thirty-five percent of the reclaimable area is estimated to be in Hokkaido, the other is scattered throughout the main islands, of which a large amount is in Northern Honshu.

The legal devices for implementing the program since 1945 were abrogation of the old laws, the enactment of new legislation, and the issuance of cabinet orders and ministerial instructions, associated with the laws. First action, under Occupation direction, came with promulgation on the 21st of October 1946, of the Land Reform Law. This law included authorization for the gov-

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ment to acquire uncultivated land for reclamation. In response to subsequent SCAP directive, the Land Development Corporation was closed. Its operations and field offices were transferred to existing national, regional and prefectural government offices. Increased responsibilities required re-vamping of the administrative organization. SCAP guidance resulted in the passages of Law No 309, 29 November 1947, and Law No 153, 31 March 1949, whereby the Land Development Bureau was reoganized. The bureau's name was changed to the Agricultural Land Bureau. This central bureau operating through six regional offices and 46 prefectural land departments, is responsible for administration of the land reclamation and improvement program.

The Land Reform Law provides for acquisition, management, and disposition of land for reclamation, but it does not contain provisions concerning reclamation undertaken on such land or the execution of other land improvement work. These latter provisions were incorporated in the Land Improvement Law, No 105, 6 June 1949. A companion law known as the Enforcement Law, No 106, 6 June 1949, abrogated the four earlier laws under which land reclamation and improvement previously was carried on. The new Land Improvement Law provides for overall development and conservation of land resources of the nation. Under the law cultivators are qualified to participate, through land improvement associations, in the development programs. On reclamation areas, settlers and local farmers reclaiming the land participate in the project even before they receive title. All work must be reviewed by competent specialists. This requirement is designed to eliminate selection of projects on a political basis rather than on technical and economic justification.

The land reclamation and improvement program since the Occupation began has resulted in the following accomplishments as reported by the Ministry of Agriculture and Forestry. A total of 880,000 acres of uncultivated land has been reclaimed from September 1945 to 1 July 1949. Reclamation of these areas has provided new farms for 172,000 new settlers and additional cultivated land for 503,000 local farmers. As of 1 July 1949, of the 2,778,000 acres acquired for reclamation purposes, about 250,000 acres have been sold; 400,000 acres additional are scheduled for sale by 1 April 1950. In land improvement accomplishments the completion of major irrigation and drainage works as of 1 April 1949 (the latest date for which figures are available) has benefitted 328,000 acres, and minor land improvements have benefitted 514,200 acres. The repair of land damages to cultivated land has been accomplished on 275,242 acres as of the same date.

Financing of land reclamation and improvement is primarily from central government funds. But prefectural governments supply some support for local personnel and generally subsidize 10-20 percent of the cost of land improvement and damage repair projects. Land reclamation is presently being financed by a direct subsidy averaging about 50% of the cost of reclamation for new settlers in remote areas. Local farmers reclaiming nearby tracts receive no subsidy. Setlters reclaiming remote areas received 45,000 yen as housing subsidy for construction of small houses and are permitted to borrow amounts not exceeding 60,000 yen for purchases of tools, livestock, seed, and

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fertilizer. No loans are granted for land improvement or damage repair, but authorized work is subsidized from 40 to 60 percent by the central government. The remaining cost is generally divided equally by the local farmers and the prefectural government.

The Japanese government has spent substantial sums for land reclamation, land improvement, and disaster damage repair from 1945 through the 1949 Japanese fiscal year. In the 1949 Japanese fiscal year more than 16 billion yen were appropriated for reclamation, improvement, and repair of disaster damage of land. The appropriation was about 2.3 percent of the Japanese national government budget, exclusive of self-liquidating special accounts.

The details involved in the administration of land development are of an involved and varied nature. The reclamation program includes the selection of reclaimable land, acquisition of these tracts, planning of the areas into suitable size farms for reclamation by individuals, construction of improvements necessary for settlement such as roads, water supply, irrigation or drainage ditches; allocation of reclaimable areas to nearby local farmers, selection of new farmers to settle and reclaim the more remote areas, payment of reclamation and housing subsidy to these settlers, granting of loans for purchase of tools, animals, seed and fertilizer; guidance to the individuals in this settlement and reclamation operations and final sale of the land to the individual reclaimers. A separate phase of reclamation is the construction of sea walls whereby shallow tidal and lake areas are reclaimed for agricultural use.

The land improvement program consists of a variety of construction operations varying from the building of concrete dams 180 feet high to small tile drainage installations. Each project undertaken requires a preliminary analysis of the physical and economic feasibility of the job, detailed engineering design, and supervison of construction operations. Land damage repair operations require constant surveys of land damaged by floods, earthquakes, volcanoes, typhoons, heavy snow fall, coal mine subsidence, and drought causing severe cracking of ground with water loss from canals and rice fields. Based on these surveys, subsidies are allocated, and repair operations are undertaken.

SCAP technical consultants have given advice and guidance on the various phases of the land development operations. In addition to aid in implementing logislation and instructions, assistance has been given on many technical problems. One major problem receiving special attention has been the selection of uncultivated land suitable for cultivation. Selection standards were developed, under SCAP guidance, which insured that any land involved in reclamation is more suitable for crop production than for other purposes. To implement these standards, prefectures have committees of land use technicians to advise on selection of land.

Policies and procedures for planning and settlement of reclamation areas have been given close study. A broad policy statement was issued 22 June 1949, to the Ministry of Agriculture and Forestry, Japanese Government, by the Chief of Natural Resources Section. This statement has served as a basis

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for more detailed operating procedures.

In the land improvement program, technical guidance of the regular SCAP consultants was supplemented by a six weeks visit of an expert consultant on engineering design and construction, in February and March 1949. SCAP attention has lately turned to detailed inspection of irrigation and drainage work in order to develop criteria for the loan of US counterpart funds.

Land development has always been an important part of the Japanese government agricultural program and its importance is likely to continue. The current program, originally initiated as a 5-year plan, has now developed into a program of longer duration. About 23 percent of the area originally scheduled for reclamation has been reclaimed, leaving about 77 percent for future accomplishment.

Almost two million acres of land already acquired for reclamation purposes is awaiting development and final sale to individuals. Generally speaking, the land improvement program initiated under the Occupation is only one-fifth or one-sixth completed.

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GENERAL HEADQUARTERS
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## SOIL SURVEY IN JAPAN

Basic information on the nature of the soils, their potentialities and their limitations is necessary to eveluate Japanese agriculture properly, and to develop programs for increasing crop production. Suitable information has been limited because of deficiencies in Japanese soil surveys which included differences in soil survey methods and nomenclature used by Japanese scientists and by scientists in the United States and Europe. A reconnaissance soil survey of Japan was initiated by the Natural Resources Section in the fall of 1945 to classify the soils in a more usable form than that employed by the Japanese.

The first soil maps of Japan were made by the Agronomy Division of the Imperial Geological Survey under a program instituted in 1882. Maps of about two-thirds of the cultivated land had been completed by 1905, when the work was transferred to the Central Agricultural Experiment Station. By 1945 all the cultivated land in Japan except parts of Hokkaido had been surveyed and maps of the surveyed areas had been published.

The soils classification system used by Japanese scientists was based on texture of the surface soil, geology of the underlying material and topography of the area surveyed. Soil units were defined in terms of the kind and geologic age of underlying material, but texture and humus content of the surface soil and texture of the subsurface layers were observed and noted in the course of the survey. Published maps were on a scale of 1: 200,000; each map or set of maps covered one prefecture. The kind and age of underlying material were shown by colors, and texture of the surface soil by various types of cross-hatching. Diagrams showing the mechanical composition of the surface and subsoil layers of the various soil units were printed along the margins of the maps. The maps were accompanied by brief reports describing the area surveyed, discussing the agricultural land as to geological origin, and attempting to correlate soil fertility and plant growth with geological formations. Non-agricultural areas were classified very broadly on the basis of geology, relief and climate. Comparable terminology and classification were not used in the various prefectures, consequently the usefulness of the surveys was limited.

About 1936, Japanese soil scientists, who had become increasingly aware of the inadequacies of their soil surveys, undertook a study of Russian, German, and American soil classification methods and began to develop a more scientific scheme of classification. For the first time climate, biological activity, relief, and age were considered, in addition

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to parent material, as important to soil forming processes; the morphology 1/ of the soil profile was employed as the basis of classification. Maps of only a few small areas were completed under this scheme of classification.

The reconnaissance soil survey of Japan made by American soil scientists follows the internationally-known system of classifying soils by the morphological characteristics of the soil profile. The survey classes the soils into associations without designating soil series or delineating soil types. A soil association is a group of soils with or without common characteristics geographically associated in an individual pattern. Each association mapped is designated by the great soil group to which the dominant soil of the association belongs. The associations are further subdivided by slope groups, drainage conditions and texture of the surface soils. Persons familiar with soil classification can readily grasp the relationship between the soils included within any great soil group.

For convenience in conducting the reconnaissance soil survey and in mapping the distribution of the soils, Japan was divided into eight parts. Field work on all areas has been completed, one report is published and the seven remaining reports are in the process of publication. These reports discuss the relationship of soils to agriculture and contain basic information which can be used for several purposes, including:

a. Broad scale planning of programs related to agriculture and forestry.

b. Application of experimental data on soils in a general manner over wide regions.

c. Selecting areas for more detailed surveys and other studies.

d. Comparing soils of Japan with those of other parts of the world for which similar studies are available in order to make practical use of information from non-Japanese sources on land use and crop production, and to contribute information from Japan that can be applied to soils of other parts of the world.

e. Locating and planning the construction of highways, airfields and other engineering projects involving use of soil as a building material.

Some Japanese soil scientists are now using the system of soil classification used in the Natural Resources Section reconnaissance survey. Under the guidance of American soil scientists, they are mapping small areas of forest and grassland that have possibilities of being developed into cultivated fields.

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1/ Morphology, soil - The physical constitution of the soil including the texture, structure, porsity, consistence and color of the various soil horizons, their thickness, and their arrangement in the soil profile.

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## FOOD COLLECTION IN JAPAN

Japan has been a deficit food producing nation for many years, but until the World War II period a substantial level of imports enabled the government to avoid direct control of supply and distribution. The first governmental program for direct collection of food from farmers was begun in 1940. Institution of this control then did not necessarily mean that the food situation was worse, but reflected the general tightening of economic and other restrictions by the government to place the country on a war footing. Only rice was collected in the first year. In 1941, wheat and the barleys, were added to the program. As military demands increased and the maladjustment of supply and demand was accelerated the government broadened the collection program in 1942 to include the other major staple crops, sweet potatoes and white potatoes. A rigid collection system embracing these crops was maintained throughout the war. At the end of the war, food imports from the former overseas possessions and Manchuria were cut off. A critical food shortage existed and Japan became heavily dependent on food provided by the occupying powers to maintain a minimum level of sustenance. Under these conditions it was necessary to collect the maximum amount of indigenous food, and the government under SCAP direction has continued and strengthened the program of staple food collection.

The staple crop collection program in Japan is intended to make available for rationing to non-farm families, at controlled prices, staple food in excess of the farmers' minimum needs for food, seed, and feed. The magnitude of this program is indicated by the fact that about 80 percent of all staple crops (rice, wheat, barley, naked barley, white potatoes, sweet potatoes, and some minor cereals and pulses) is subject to collection. The remainder is produced by farmers who grow no more than enough food to maintain their families. About 45,700,000 people, or 56 percent of the population, are carried on the general consumer ration roster throughout the year, and an additional 10,800,000 persons for a part of the year.

The first step in the collection process is the determination and assignment of delivery quotas. The Ministry of Agriculture and Forestry determines these quotas for each staple crop before planting time. The preplanting quotas are based on "normal" production, which takes into consideration the anticipated area to be planted, average yields from previous years, and the expected supply of producer goods. Quotas also reflect anticipated changes in rural population as well as in livestock feed requirements. Natural Resources Section specialists review critically all collection quotas to assure that they are established at realistic levels. After approval of the national quota by Natural Resources Section, delivery quotas are assigned by the Central Government to each

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prefecture. The latter sub-allots the quotas to counties (guns) and cities. The county chief, an appointed official of the prefectural government, further sub-allots the quotas to towns and villages. At each level the allocation is made with the advice of an Agricultural Adjustment Committee, composed of elected farmer representatives. For the production and delivery of food in quantities above the preplanting quota level, the government provides a money and incentive premium.

The preplanting quotas are subject to revision downward at the time of harvest on the basis of production estimates. Revision of the quotas is closely supervised by Natural Resources Section personnel and is followed by a repetition of the sub-allocation process. In December 1948, GHQ, SCAP directed the Japanese Government to take necessary legal steps to provide that quota revision may be either upward or downward. The law now prohibits upward revision of preplanting quotas. This directive has not been implemented, but action on it is expected during the 1949 fall session of the Diet.

Staple foods are purchased at prices calculated by parity formulas. To maximize food collections, rural information programs stressing food production and collection, and the provision of selective monetary and commodity premiums for deliveries above preplanting quotas to provide economic incentives for production and for timely deliveries, are used.

An Occupation-sponsored policy has been to encourage the use of vital consumer items in short supply as a means of stimulating crop deliveries. Under this incentive goods system farmers may purchase at official prices designated quantities of such items as cotton cloth and rubber shoes upon the delivery of specified quantities of crops. Efforts are being made to improve the goods distribution system to make it more effective as a crop delivery stimulant. Progress was evident in the summer of 1949 when changes were made to speed up distribution and allow the farmer more freedom in selection of goods.

Prefectural and local governments are responsible for planning and executing crop collection programs in their areas to assure fulfilment of quotas. Assigned quotas are legally collectible and failure to comply may subject a farmer to prosecution. Local authorities generally do not rely on legal compulsion, however. They employ such devices as intensive publicity campaigns stressing the need for deliveries, and commendations and awards to cooperating farmers.

A major problem is the adequacy of the production estimates, which are the bases for collection quotas. These estimates are being improved constantly by the Crop Reporting Service of the Ministry of Agriculture and Forestry. Development of this recently federalized agency has been greatly stimulated since mid-1948 by the permanent assignment to the Agriculture Division of an experienced crop reporting specialist from the United States Department of Agriculture.

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Other basic problems that continue to affect the food collection program arise from the interaction and net impact of many economic, political, and psychological factors upon the farm family. The extent to which collections can be pushed without inducing a decline in production, or the growth of undesirable political movements, must always remain a matter of subjective judgment. This problem is well illustrated by a letter from a Japanese farmer to Natural Resources Section in December 1948. Asserting that fulfillment of quotas will leave farmers with insufficient food for their own needs, he says, "Desperately farmers are joining the Communist Party in order to escape from disaster. The Communist is flourishing and gaining power among farmers, especially among young farmers. If farmers' living condition is not stabilized a serious situation may have to be anticipated." A similar kind of problem is illustrated by the "economic decontrol" philosophy expressed by nearly all political parties during the campaign for the Diet in January 1949.

That equitable sub-allocation of quotas will continue to be difficult can also be expected. Political and personal factors entering into quota determinations transcend adequacy or inadequacy of statistical data and cannot be fully removed by democratization or by other known means. In this connection, it has been noted that the provision of crop production estimates on a village basis usable within error limits would require the staff of the Japanese crop reporting service to be enlarged appreciably over the present level.

Another type of problem, depending upon education and the passage of time for solution, is a consequence of decentralized government. Decentralization, essential to democratization, often results in divergence of thought at the several levels of government as to quotas and related matters. To effect centralized control over the administration of food crop collections under these conditions is difficult, even though the legal basis for such control is adequate in theory.

An additional problem relates to implementation of the current economic stabilization program. In tightening controls on an economy, it is inevitable that control programs become somewhat competitive as locally administered.

The effect of less Occupation control on the collection effort through dissolution of the prefectural Civil Affairs teams, scheduled to take place by 1 November 1949, remains to be seen. These teams have had a strong influence on successful collections. Regional teams will assume some of the surveillance duties formerly exercised by the prefectural teams, but Japanese officials must assume more responsibility than in the past.

Collection by years from 1942 through 1948 is shown in the chart on the next page. A limited collection program was in effect in 1940 and 1941, but it was not until 1942 that all six staple crops (rice, wheat, covered barley, naked barley, sweet potatoes, and white potatoes) were included in the collection system. For quota purposes, wheat and the barleys are counted as one crop.

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The 1942-44 war years showed a continuously high total collection level, followed by a sharp drop in 1945 and progressive increases through 1948. If the 1942-48 average is taken as 100, the index of total collections by years is:

| | |
|---|---|
| 1942 - 115 | 1946 - 89 |
| 1943 - 113 | 1947 - 92 |
| 1944 - 115 | 1948 - 105 |
| 1945 - 71 | |

In comparing collection by years several factors should be considered. During the principal war years, 1942-44, farmers were subjected to patriotic and forcible pressure to deliver maximum amounts of food. At the same time the farm population was relatively low because of departures for military and war-industry service; the farm population in 1944 was about seven million, or 20 percent, less than the estimated population in 1948. Low collection in 1945 was due to poor rice and potato crops and the general economic and political dislocation attending the surrender. Since 1945 production has been steadily increasing. The quantity of food retained by farmers has likewise been increasing with the farm population.

Comparison of the two most recent crop years is of interest for current trends. Total collections in 1948 were up sharply from 1947. As of 31 August 1949 (with deliveries virtually complete) collection of the crops harvested in 1948 had reached 7,198,000 metric tons in brown rice equivalents. This was 14 percent above 1947 and 10 percent below the 1944 wartime peak.

In terms of collection quotas, 110 percent of the assigned 1948 quota had been delivered. Final deliveries of the 1947 crops reached 102 percent of the assigned quota. The 1948 quota was five percent higher than the 1947 quota.

Deliveries of each of the staple crops in 1948 exceeded those of 1947. Rice collection (including substitutes) was six percent higher in 1948 than in 1947, wheat and barley (including substitutes) 20 percent, sweet potatoes 58 percent, and white potatoes 28 percent.

The outlook for collection of 1949 crops is encouraging. Deliveries of summer-harvested crops now in progress are ahead of 1948. As of 31 August 1949 a total of 1,123,000 metric tons (brown rice equivalents) of wheat and barley and white potatoes had been collected, compared with 956,000 tons on the same date last year. This is an increase of 17 percent. Production of fall crops has not been officially forecast as yet, so that collection prospects are indefinite. Indications are that the rice crop, while suffering spotty damage from disease and drought, will exceed the 1948 level. Sweet potatoes may equal or even surpass the record production of last year. Especially adverse weather conditions between now and harvest time could, of course, alter the fall crop production outlook. On present indications, however, the final quotas for both crops are expected to ap-

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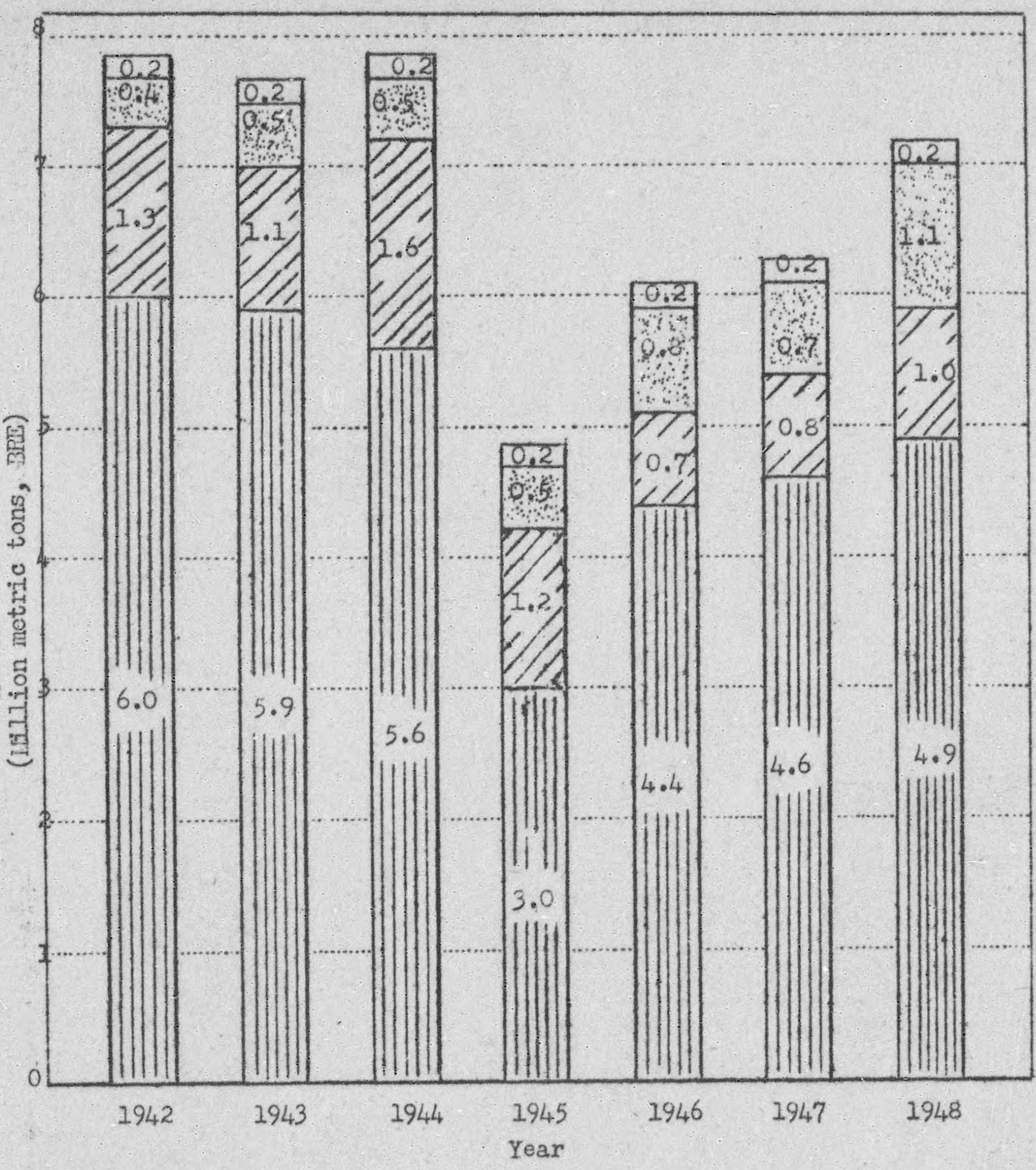
STAPLE FOOD COLLECTION BY CROPS AND YEARS




Rice

Wheat and Barley

Sweet Potatoes

White Potatoes

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proximate the 1948 quotas, and the total 1949 collection should compare favorably with that of 1948.

Maximum staple crop collection in a controlled economy obviously is the fundamental element in food management where indigenous supplies are insufficient to meet the subsistence requirements of the population.

With an ineffective collection program the following major developments would be likely:

The rationing of staple food would break down. The economic pressure on farmers and the spread between official prices and black-market prices are too great to justify an assumption that staple foods would be delivered to official channels without existence of a rigid collection program underwritten by law.

Price controls would not function in the absence of adequate distribution and rationing controls.

Effective consumer prices for staple foods would increase substantially, as evidenced by past experience in Japan whenever the quantity of rationed food was diminished.

Resulting pressure for higher wages for urban workers would accentuate a wage-price inflationary spiral.

A disproportionate distribution of staple foods among the various income groups would occur. The lowest income groups probably would be unable to purchase enough food to meet minimum requirements.

Probably at this point emergency requisitions of food upon the United States would be necessary in order to forestall "disease and unrest" conditions.

Governmental collection and distribution of staple foods apparently will be necessary for a number of years to come. The basic condition under which these controls could be terminated would be possession of a food supply sufficient to meet the consumption demands of the population at reasonable prices. Such a supply must be obtained through indigenous production plus imports that Japan is able to pay for through her own resources. Production is expected to increase by a relatively small amount, but not enough to substantially affect the food deficit; probably not enough, over a period of years, to keep pace with the growing population. As the country's industrial and export situation improves more imports can be financed. However, the use of available exchange for purchase of food and other consumer goods should be kept at a minimum. In the immediate future producer goods should receive import preference to permit the fullest measure of industrial recovery on which stabilization of the economy will largely depend. Certainly as long as food imports are financed by the United States the indigenous food supply must be utilized with maximum efficiency. That, in effect, means a continuation of the official collection and distribution system. Changes in detail may be made, but food collection probably will continue to be necessary.

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## CROP REPORTING IN JAPAN

Statistics on area and production for important agricultural crops in Japan were first compiled on an organized basis about 1878. Beginning about that time, the upward trend in population with its attendant food problems furnished the necessary stimulus for the initial action in the compilation of crop production records.

Certain refinements in crop reporting were made possible when the National Government directed the preparation of a land ledger in 1880 based on actual field survey measurements. A definite form for tabulating agricultural statistics within each prefecture was adopted in 1883 and statistical survey committees were appointed in 1894 to conduct surveys within each city, town, and village. In 1921 each city, town, and village was divided into 15-20 sections for crop reporting purposes and a surveyor (enumerator) appointed for each section. Prefectural governors appointed officials in each city, town, and village to compile and report the data supplied by the survey committees. The composite data of the cities, town, and villages were assembled and reported from the prefectural offices. Crop reporting costs were borne by the local governments.

Field sampling to determine crop yields for taxation purposes was used as early as 1650 in Japan, but was not adopted by the government as standard procedure by local crop surveyors until 1933. In 1940 the government adopted definite procedures for reporting inter-planted crops and scattered plantings, such as fruit trees. At the same time standard weights per "koku" (the common Japanese volumetric measure, equivalent to 5.1 bushels) were adopted for each of the common cereal crops, and regular crop and livestock census enumerations on 1 February and 1 August of each year were inaugurated.

The accuracy of the crop data compiled by the Japanese Government during the period 1878-1947 was dependent upon the accuracy and integrity of crop reporting agencies functioning on local levels. The Central Government accomplished little in the field of crop reporting except to receive reports from the prefectures and compile them into a statistical record, by prefecture for all Japan. Little attempt was made accurately to forecast production in advance of harvest. Recommendations for improving the accuracy and reliability of the reports were made to the prefectures by the Central Government, but the government had no authority to effect constructive changes not agreeable to the prefectural officials.

To secure an adequate supply of food for the urban population during the war period, Japan initiated a crop collection system in 1940. However, the previous year (1939) was the best crop year on record and the requisite supplemental food supplies could easily be imported from the Japanese empire at that time. Therefore, the food situation was good in 1940; and rice was

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the only crop collected under government auspices during that year. In 1941 collection quotas were established for wheat, barley, and naked barley in addition to rice. In 1942 sweet and white potatoes came under the collection system.

By 1945 outside sources of food for Japan were virtually climated by allied blockade. Advorse weather conditions and shortage of fertilizer reduced the production of indigenous food. High food prices in the "black market" and fear of actual hunger within the farm household served as incontives for farmers to under-report planted areas and crop yields as a means of justifying reduced collection quotas. Thus, the local system of crop reporting which had functioned fairly well for nearly 70 years yielded to pressure exerted by farmers and others interested in maintaining an adequate food supply in their homes and communities. Consequently, the Ministry of Agriculture and Forestry reports, which were dependent on the accuracy of reports received from the prefectures, no longer reflected the true situation with respect to food production.

Soon after the beginning of the Japan Occupation it was realized in Natural Resources Section that the Japanese system of crop reporting could not be depended upon to furnish unbiased reports under the pressure of a compulsory crop collecting system. Accordingly, a crop reporting expert was secured from the United States Department of Agriculture who was assigned the task of preparing recommendations for the establishment of a more effective system.

In the latter part of 1946 comprehensive plans were formulated and recommendations were made to the Japanese government for a new crop reporting system. The new plans provided for centralized control in the Ministry of Agriculture and Forestry, with complete independence from local government influence. The result was the establishment of the Crop Reporting and Statistics Bureau in the Ministry of Agriculture and Forestry on 1 April 1947. Field operations started during the 1948 crop season.

The central office of the bureau in Tokyo prepared field sample designs and procedures in 1948 for use in the 46 newly established prefectural crop reporting offices. These prefectural offices now supervise, coordinate, and summarize reports from approximately 1800 branch offices located throughout Japan. Under this program, farmers report their planted acreage of staple crops to enumerators shortly after planting time. Enumerations are conducted in the spring for winter and spring grains and in the summer for summer crops. The accuracy of farmers' reports is measured by means of sample surveys in which sample fields, selected at random, are actually measured. In addition, sample areas are checked to determine the extent to which farmers have failed to report entire fields. Yields are determined by grain counts prior to harvest, and harvest sampling, in randomly selected fields. In 1948, these sample surveys accounted for more than a million acres of staple crops that farmers had failed to report.

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In the spring of 1949, the Japanese government reduced the status of the new bureau to that of a division in another bureau. This reorganization was injudicious, and was opposed by Natural Resources Section. Crop reporting personnel interpret this lowering of status as discrediting their previous efforts. It already has had a deleterious effect . the integrity of their work. For example, Natural Resources Section judged their June 1949 forecast of wheat and barley production to be approximately a quarter of a million tons lower than indicated by field data collected by crop reporting offices and therefore rejected the Ministry forecast. Final harvest data supported this action.

Since Japan's food deficit, at least for the present, must be made up by imports financed by U. S. tax dollars, a reliable crop reporting system is mandatory. In order to effect further necessary improvements in the new system, Natural Resources Section secured the services of a technical adviser on loan from the U. S. Department of Agriculture during the winter of 1948-49, to conduct an intensive study of Japanese crop reporting methods. The results of this study pointed to the need for more reliable sampling methods, simplifications of procedures as a means of reducing costs, and development of earlier and more reliable preharvest forecasts. In addition, possibilities for using crop-weather relationship data in crop forecasting were pointed out. The present program of the Ministry includes extensive experiments along this line but this work needs a guidance into channels which will provide more useful information. Serious need exists for reliable estimates of crops other than the six staples; and production statistics on the staple crops are needed for each city, town, and village to eliminate troublesome inequities in allocation of farmer collection quotas. And to date, little has been accomplished in the field of livestock and livestock products reporting.

Considerable progress is being made. Natural Resources Section is furnishing guidance and instruction to Ministry personnel on all of the above problems; but progress, necessarily, is slow because of the limited number of personnel available to give guidance to the Japanese on these programs.

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GENERAL HEADQUARTERS
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# AGRICULTURAL RESEARCH IN JAPAN

Japan is a country of intensively farmed valleys and coastal plains segregated by rugged mountains. Only 14,900,000 acres or about 16 percent, of her total area are under cultivation. Approximately 5,910,000 farm households consisting of 36,509,000 people, 46 percent of the total population, are wholly or partially occupied with farming. Though a wide variety of crops are grown, approximately one-half of all cultivated land is used for paddy rice production. Approximately 35 percent of the cultivated land produces two crops each year. Farms average a little less than two and one-half acres in size. The soils in many areas are inherently low in plant nutrients. Despite the farmers' best efforts, food yields are insufficient to feed the rapidly expanding population, and the needs for still higher production will become greater each year. The presure of population upon the land requires that all effort possible be made to increase food production. One of the items most essential to such a program is an agricultural research system. A hopeful new approach to the coordination and improvement of Japan's research system was initiated by legislation recommended by the Occupation Forces Agricultural Division and enacted by the Japanese National Diet on 15 July 1948.

## ORGANIZATION

The first agricultural experiment station was established by Fukuoka Prefecture in 1879 at Futsukaichi City. In 1893 the Central Government established the first main station near Tokyo with branch stations in six locations throughout Japan to serve each of the large agricultural regions except Hokkaido. Most of the prefectures had established one or more experiment stations by 1910. In 1916 the Central Government began to extend financial aid to prefectural experiment stations for support of selected projects. Since 1926 the Central Government has provided full support for selected projects on these stations.

The prefectures, however, working independently of each other, developed their own systems to meet their own problems. Overemphasis of minor differences in environment and of the problems of specialized crops led to the establishment of 386 national and prefectural agricultural experiment stations, 164 sericultural stations, 139 livestock breeding or animal hygiene stations, and nine tobacco stations. In addition, there are 83 educational institutions, 20 miscellaneous government institutes, and 91 private institutions devoting at least a part of their time to agricultural research.

Occupation agricultural specialists early saw the need for a central agency in the Japanese government with broad powers to plan, coordinate, and advise on agricultural research programs. While recognizing that the Japanese had achieved many notable results in agricultural research, especially in rice production and in sericulture, Occupation agriculturists also were aware that the existing agricultural experiment station system, was developed

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under concepts not conducive to efficiency and coordination of research. In many instances individual stations did not have sufficient financial support to attract highly trained personnel or to buy modern equipment. Too little attention was paid to the practical problems and needs of the farmers. Little effort was made to avoid duplication of effort and expenditure between stations. Procedures for central coordination of research work or exchange of research results between stations were almost entirely lacking. Clearly, the situation called for extensive consolidation and reorganization of existing experiment stations.

On the basis of the above findings, Occupation agricultural specialists made recommendations to the Japanese government for the elimination of many nonessential and inefficient research and experiment stations, the consolidation of research institutions wherever feasible, improvement in professional personnel standards, increased emphasis on practical agricultural research applicable to farm problems and an adequate system for dissemination of research results to farmers.

In pursuance of the recommendations, basic research legislation was enacted by the Diet on 5 July 1948 under the title, "Law for Improvement and Promotion of Agriculture." The stated purpose of the law is "to promote the public welfare by providing for the acquisition, dissemination and exchange of impartial and practical information on subjects related to agriculture in order to develop more efficient farming methods, increase agricultural production and improve farm living conditions."

To insure that agricultural research is directed toward the solution of practical farm problems as well as to the explanation of fundamental research concepts and to provide for informing farmers adequately of research results, the law further requires close integration of extension and research. In addition it establishes a method for the Central Government to provide financial aid and general technical guidance to the research and extension programs administered by the prefectures.

The Agricultural Improvement Bureau, containing research, extension, and statistics divisions, was established in the Ministry of Agriculture and Forestry in August 1948, to administer the provisions of the "Law for Improvement and Promotion of Agriculture." The bureau promptly started to formulate plans for the consolidation of agricultural experiment stations. Prefectural agricultural research needs were reviewed. Research requirements were consolidated by regions in order to determine the stations necessary for the nation as a whole. The consolidation plan was approved by the Cabinet on 22 July 1949, and necessary actions for its implementation are scheduled for completion by 1 April 1950. It provides for a total of 135 stations to be closed and 53 stations to be combined with the 191 stations which are to be continued. Funds, essential projects, and the best trained personnel will be transferred from stations that close to those remaining in operation. Prefectural agricultural experiment stations and their branches will be administered by a single staff in each prefecture. The

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National Agricultural Experiment Station and its seven regional stations will each have a seperate administration. The national station, however, will direct and conduct the work of the seven branches.

During the past fifteen years improvements in the design of agricultural experiments in Japan have lagged behind those in the United States and other western countries in terms of plan and layout for utmost efficiency and statistical significance of results. Besic principles of experimental design have been ignored. Plots were usually not replicated, and treatments are assigned to plots systemically rather than at random. Conclusions have been drawn without the proper statistical data to support them. Occupation agriculturists took an important step toward improving the quality of experimental work on a nationwide basis when they sponsored, in March 1949, a school in experimental methods for Japanese technicians. Representatives of a large number of experiment stations and several universities attended. The lectures given during the course were mimeographed and furnished to the Ministry of Agriculture and Forestry for distribution to all experiment stations. Some of the Japanese technicians have begun to use the elementary principles of experimental design taught in that course. Much remains to be done to improve field plot techniques. This work is receiving constant attention by the Agriculture Division.

## NEW RESEARCH PROJECTS

Prior to the Occupation, little experimental work was carried on by Japanese stations to determine the adaptability and efficiency of improved strains of grasses and legumes. Virtually all livestock in Japan are fed the common indigenous grasses and legumes, which are low in yield and in nutritive values. To assist in initiating experiments on grasses and legumes the Agriculture Division obtained from the U. S. Department of Agriculture small amounts of 64 different species and varieties of grasses and legumes for trial under Japanese conditions as forage, green manure and cover crops. The trials were planned according to the improved experimental designs now being used in the United States. Since these tests have been in effect only one year, no conclusive information is available. Early results, however, indicate that many of the species may be superior to indigenous species being grown in Japan.

In Hokkaido climatic conditions are such that severe injury occurs to the commonly grown wheat and the barleys from "snow blight". Rye, however, is comparatively immune to these attacks. No experimental data are available on yield tests in which wheat, rye and the barleys were grown under identical conditions. A detailed yield test is to be carried on at four experiment stations in Hokkaido during the 1949-50 growing season. The tests have been planned so that all four crops will have identical conditions and care. The results of these tests should furnish valuable information in determing the most effective cropping systems to be used in Hokkaido.

During the 1948 growing season, experiments were conducted at several experiment stations in which 2,4-D was used for killing weeds in paddy rice.

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The data collected were of uncertain accuracy because the experiments were improperly planned. To secure accurate data, Agriculture Division specialists designed a series of experiments to test the effectiveness of 2,4-D as a weed killer in rice paddies. The Japanese Government will conduct identical tests in nine prefectures using the designs recommended by the Agriculture Division.

In the experiments listed above and others under consideration, detailed plans were prepared by American agricultural specialists even to the extent of specifying plot location to insure complete randomizing of treatments. Where land is available, all plots are quadruplicated. These experiments are serving as demonstrations to Japanese agricultural scientists of the system by which all agricultural experiments can be most effectively conducted. They are an important means of creating a lasting interest in experimental design among agricultural experiment station workers in Japan.

## RESEARCH OUTLOOK

Significant progress has been made in the improvement of agricultural research in Japan. However, to make this research a strong factor in the world-wide attack on agricultural problems three more steps must be taken. First, all experiments must be planned and conducted in the light of improved laboratory and field plot techniques. Results must be analyzed so that their statistical significance can be precisely stated. Second, accepted scientific language, titles, tables and summaries of all published technical articles or bulletins must be used to facilitate exchange of research results with scientists of other countries of the world. And, third, the tie between agricultural education, research and extension programs must be strengthened to enable the most effective attack possible on all farm problems.

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# AGRICULTURAL EXTENSION IN JAPAN

Prossure of population upon the land has created demands upon the capable and energetic Japanese farmers which can be met only if they are constantly informed of the most advanced farming practices. The necessity for keeping farmers abreast of latest techniques in agricultural production and improvement in farm living resulted in the enactment of legislation in July 1948 to replace and improve the farmer advisory service discontinued by early Occupation actions in connection with the reorganization of the agricultural cooperative system.

Planned and systemic distribution of technical knowledge to farmers is not new to Japan. National legislation enacted in 1899 established a government-controlled system of agricultural associations to improve agricultural practices. Under this system the government provided each village with one or more agricultural technicians who worked with farmers in improving their methods of producing crops, livestock, and livestock products. In addition, many of the agricultural cooperatives, organized throughout rural Japan under authority of a law enacted in 1900, supported farms for the production of superior seeds for members and in some instances employed technicians to advise farmer members on production problems. This technical guidance and advisory service was effective, and was a primary factor in the record increases in the yields of many crops in Japan prior to 1940.

During World War II, however, the farmer-managed cooperatives and the agricultural associations were combined into the government controlled All Japan Agricultural Association (Nogyokai). Farmer membership was made compulsory. The association was given control of nearly every phase of agricultural life by its authority to administer crop quotas, collect crops by compulsion, and ration critical materials. The agricultural technicians were given so many control and policing duties that their farmer advisory functions were neglected.

In 1947 the agricultural associations (Nogyokai) with their rigid national control functions were dissolved by direction of Occupation authorities. Since the farm advisory service was a part of their activities, it too was eliminated. The agricultural extension system now being developed under provisions of the "Law for Improvement and Promotion of Agriculture," enacted by the Diet on 5 July 1948, is intended to reestablish an effective farm advisory service.

To assure joint support and cooperative effort between the national government and prefectures, the law provides that central government funds be made available only to prefectures appropriating at least one yen to

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every two yen of national money appropriated for support of agricultural extension. Ninety percent of the total national extension budget is divided each year among the prefectures on the basis of cultivated area and farm population. The remaining ten percent is awarded on the basis of unusual need or exceptional extension performance. An important provision of the law forbids extension workers to assume responsibility for regulatory or control programs of the government.

The nation-wide extension system is administered under guidance of the Extension Division of the Agricultural Improvement Bureau established in the Ministry of Agriculture and Forestry in August 1948. Locally the system is administered by the Agricultural Improvement Section of the prefectural government.

Under guidance of the Agricultural Improvement Bureau and with advice of Natural Resources Section agricultural specialists, prefectural governments have made considerable progress in developing their local extension systems. Since the program was started one year ago, all of the prefectures have established extension systems eligible for grants-in-aid from the central government by enacting legislation or by issuing regulations. All but one of the 46 prefectures have established agricultural improvement committees to develop local policy and guidance on research and extension. A total of more than 6,000 farm advisers have been selected from lists of qualified candidates and assigned to duties as extension workers in rural villages of Japan. An adviser for each of Japan's 10,500 villages is the goal for the complete program. Thirty-nine prefectures have from two to 13 home advisers engaged in field work. More than 3,300 rural youth project clubs have been organized in farm communities. Subject-matter specialists to coordinate research results with extension practices have been selected in all the prefectures. Training schools on extension methods have been held in many prefectures and are being planned in others.

During the next few years rapid advances are expected in developing an adequate farm women's advisory service and a rural youth project club movement in every prefecture, in improving the skill of the extension workers in advising farmers, in developing farmers' interest and participation in the programs, and in closely coordinating agricultural research, extension and educational programs throughout Japan.

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## JAPANESE LAND REFORM PROGRAM

Abolition of the pernicious land tenure system which has long blighted Japanese agriculture and impaired development of a peaceful national economy has been a basic objective of the Occupation. Accomplishment of this objective is essential to the economic and political well-being of Japan.

Having an area of 142,270 square miles, Japan is smaller than the State of California. Only 16 percent of the total area is arable. Approximately 47 percent of the total population of about 81,600,000 depends on agriculture for all or part of its income. Before the surrender, about 70 percent of the farmers rented all or part of the land they cultivated. Only 9 percent of farm households cultivated more than 4.9 acres of land, and 67 percent cultivated less than 2.4 acres. This overcrowding had led to a highly inequitable land tenure system with rents ranging from 50 to 70 percent of the annual crop and had resulted in widespread economic instability and social strife. Repulsed in their demands for remedial legislation, farmers, during the decade preceding World War II, consciously and unconsciously gave strong support to the military group which held out the promise of new lands and prosperity to be won through aggressive war. This course was thwarted by defeat and surrender. The tenant class in occupied Japan, with demands for relief from their intolerable situation still foremost in their minds, remained a fertile field for any other extremist ideology promising a solution to their problems.

The elimination of this malignance was recognized as vital to the promotion of maximum production of staple foods and requisite social and economic stability. On 9 December 1945, the Supreme Commander for the Allied Powers issued a directive to the Japanese Government "to take measures to insure that those who till the soil of Japan shall have a more equal opportunity to enjoy the fruits of their labor."

Japanese land reform is based on legislation enacted by the Diet and promulgated 21 October 1946. It has two main objectives: (1) transfer of land ownership to farmers who actually till the soil, and (2) improvement of farm tenancy practices for those who continue as tenants. The program has emphasized private rather than state, and individual rather than collective ownership of the land.

The program in each village is administered by a local agricultural land commission, elected by and from the farmers. The ratio of tenants, owner-cultivators, and owners on each commission was originally established by law at 5, 2, and 3 respectively. With virtual completion of

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the land transfer phase of the reform and the resulting increase in the number of owner cultivators, it was necessary to change representation on these commissions prior to the second general election held on 18 August 1949. The new ratio is 2 tenants, 2 landowners and 6 owner-cultivators. Each category elects its own representatives to the commission. Elected prefectural agricultural land commissions coordinate and supervise the work of local commissions under the general supervision of the Central Agricultural Land Commission (National), of which the Minister of Agriculture and Forestry is chairman.

Agricultural lands subject to purchase have been: (1) lands owned by absentee landlords; (2) tenant-operated lands in excess of specified retention rates; (3) owner-operated lands in excess of retention rates fixed by law, except those that can be reasonably operated by the farmer and his immediate family; (4) corporation-owned lands that do not relate directly to the principal objective of the corporation; and (5) lands capable of reclamation for agricultural use.

Lands subject to transfer have been purchased by the government (through the agency of the land commission) for resale to eligible buyers. Tenants on the land as of 23 November 1945, other tenants, and other persons who wish to cultivate the land have had priority to purchase in that order.

The purchase price of land, established by law, is subject to variation within legal limits at the discretion of the land commission. Sellers of land receive payment in ¥1,000 bonds bearing 3.65 percent interest and redeemable in 24 equal annual installments. Any amount less than a unit of ¥1,000 is paid in cash. Tenants may pay for all or any part of the land at the time of purchase and the remainder in 24 annual installments with interest at 3.2 percent. Tenant payments for the land, plus other expenses coincident with landownership, in any year cannot exceed one-third of the gross income from the land in that year. In case of crop failure or low farm prices, the government will reduce, defer or cancel the annual payment.

Agricultural lands purchased under the program may not be sold or used as collateral for loans during the 24-year amortization period without specific approval of the government. Tenant purchasers desiring to discontinue their purchase contract during the 24-year amortization period must sell their lands back to the government on terms similar to those of the original contract. All future land transactions are subject to approval by the agricultural land commission.

Through the land reform program, the Japanese Government had acquired 4,594,721 acres of cultivated land by 2 July 1949, of which 4,461,688 acres had been sold by 30 June 1949. The cultivated land area operated by tenants will have thus been reduced from an estimated 6,300,000 acres (46 percent) to approximately 1,670,000 acres (12 percent). As of the same dates 590,549 acres of pasture land had been acquired, of

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which 418,984 acres had been sold. An estimated additional 325,000 acres of pasture land await purchase. In addition to cultivated and pasture land, 2,775,488 acres of land has been acquired for reclamation and future resale to owner-farmers as part of a long-range program for increasing the total cultivated area of the country. Of this amount 245,127 acres had been reclaimed and sold to individuals for private reclamation by 2 July 1949. Registration in the official land registry book of lands transferred under the program is now being accomplished.

Although the land reform program is dedicated primarily to creating owner-farmers, total elimination of farm tenancy is not considered feasible. A small reservoir of land subject to tenancy is considered essential to a program of maximum food production. Flexibility in the land tenure pattern must be preserved to prevent withdrawal of land from cultivation in cases where the owner becomes temporarily unable to cultivate for himself, or where no applicant to purchase land is available. The land reform program therefore also includes provisions to insure fair tenancy practices for those who remain as tenants. The most important of these provision are: (1) a written farm lease with all principal elements clearly stated; (2) cash payment of rent; (3) rent ceiling of 25 percent of the production from paddy and 15 percent from upland fields; and (4) rent contract cancellation or alteration subject to approval by the land commission. A model lease contract form to be used by tenants and landlords as a guide in drawing up their own contracts has been widely distributed.

The total cost to the Japanese Government of administering the land reform program was ¥7,825,284,203 for the period 1 September 1946 through 30 April 1949. Of this amount ¥6,257,126,605 was spent for the support of the 11,322 local land commissions. Principal responsibility and credit for the success of this program, involving transfer of title to about 30,000,000 individual parcels of land, accrues to these local land commissions. The average cost of operating an individual local land commission has been approximately $1,535 (computed at an assumed rate of ¥360 to $1) for the period September 1946 to 30 April 1949, or about $48 per month per commission.

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# AGRICULTURAL COOPERATIVE PROGRAM IN JAPAN

Approximately 5,910,000 farmers are engaged in farming Japan's 14,900,000 acres of cultivated land. Average farmers operate only about 2½ acres. The extreme small size of their individual operations makes it essential that they pool their efforts and resources through cooperation to the greatest practical extent in order to achieve economic stability and maximum production. Towards this end, legislation which became effective on 15 December 1947, provided for the establishment of democratic, farmer-controlled cooperative associations in accord with internationally recognized cooperative principles.

Cooperative associations replace a monopolistic, government-controlled system of agricultural associations which had been developing in Japan since 1899. Legislation enacted that year established associations to improve farming practices. Membership was compulsory. A year later, industrial cooperatives were similarly authorized to facilitate trade and essential business -- especially in rural areas. Although this law provided for voluntary membership and permitted some degree of independent action, the Japanese agricultural cooperative movement was from its inception primarily a government-sponsored movement. In most instances the cooperatives were controlled by the local agricultural associations which were in turn agents of the original legislation, especially between 1930 and 1943, and culminating in the Agricultural Organization Law of 1943, steadily increased government control over these organizations, particularly in relation to farm prices and thereby the entire farm economy. The 1943 legislation eliminated even the fiction of democracy, and the agricultural associations (Nogyokai) which emerged existed primarily to compel farmers to conform to the aims of the military. They served to control agricultural prices and production, to handle collections and rationing, and to bring in rural capital for the war effort. They were one of the important means used to police farm communities in the war effort.

Abolition of this totalitarian structure was recognized by GHQ, SCAP, as a preliminary requisite to fostering and encouraging an agricultural cooperative movement free from domination by nonagrarian interests and dedicated to the economic and cultural advancement of the Japanese farmer. Law 133, promulgated on 19 November 1947, required the dissolution of all of approximately 10,800 incorporated agricultural associations, and 169,818 incorporated agricultural and sericultural practice associations by 14 August 1948. After this date these associations were prohibited from transacting any business except liquidation of assets. By 31 July 1949, liquidation of agricultural associations was 44 percent complete, while that of the agricultural practice and sericultural practice associations was 97 percent complete.

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The new cooperative associations organized pursuant to Law 132 which became effective on 15 December 1947, have as their primary objective maximum service to participating members rather than payment of dividends on invested capital. They are incorporated enterprises, authorized to perform practically any economic service which will contribute to the advancement of farm communities. Fifteen or more farmers may organize a cooperative. Membership is voluntary. Each farmer member has one vote. Persons residing within the business area of the organization may be associate members with all privileges except voting. A farmer is defined as any individual who personally carries on or engages in agriculture. This definition includes all of those within a household whose activities make them eligible, and the participation of women is encouraged. The business area is as defined by the articles of incorporation. Two or more cooperatives may organize a federation of agricultural cooperatives. Such federations may perform any activity which the local cooperatives are authorized to perform except that if a federation is engaged in the making of loans and receiving of deposits, it is prohibited from performing additional functions not connected with these activities. Federations engaging in credit activities may, however, act in behalf of affiliated associations in discounting bills and guaranteeing debts towards banking organizations with which such associations are authorized to do business.

A cooperative association may charge expenses and require contributions in accordance with its articles of incorporation. It may organize as a capital stock or nonstock association, but no nonstock association may carry on both the functions of making loans and receiving deposits. Liability for a share is limited to the amount of the share and, in the case of a nonstock organization, the amount of the authorized fee. In a capital stock association, each member must have at least one share, and the maximum number of shares which one member may own is specified in the articles of incorporation. Only members may hold stock. Transfer of stock is subject to the approval of the association. Primary responsibility for carrying out the Agricultural Cooperative Program is vested in the Ministry of Agriculture and Forestry.

As of 30 June 1949, a total of 32,862 new cooperative associations and federations had been approved under the new law. These were distributed by type as follows: 382 federations covering a prefecture or larger area, of which 357 were stock and 25 nonstock; 611 federations smaller than a prefecture, of which 514 were stock and 97 nonstock; 67 individual cooperatives covering a prefecture or larger area, of which 58 were stock and 9 nonstock; and 31,262 local cooperatives, of which 16,202 were stock and 15,600 were nonstock.

Volume of business records for the year 1948 showed that cooperatives handled 36 percent of all farmer purchases, 61 percent of all farmer sales, 64 percent of financial deposits, and 71 percent of loans to farmers.

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Types of cooperatives included general purpose, sericulture, livestock, reclamation, fruits, tea, firewood and charcoal, poultry, dairy farming, and miscellaneous, of which general purpose, sericulture and reclamation were by far the most numerous. Members of more than 99 percent of all farm households belong to at least one cooperative, and substantial numbers of households are represented by memberships in two or more associations. In 27 prefectures reporting to date about 86 percent of local cooperative directors and auditors and about 69 percent of federation directors and auditors elected during March through May 1949 have never been directors or auditors in the agricultural associations abolished by Law No. 133 of 19 November 1947. This indicates a substantial measure of transfer of leadership in rural economic affairs into new hands.

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## CROP AND LIVESTOCK INSURANCE PROGRAM IN JAPAN

Japan's deficit food position requires that agricultural production be maintained on land which would be considered submarginal in a surplus food production country. Maintenance of a high level of production, including use of submarginal land involving high operation risks, is therefore a matter of national policy and national necessity. The risks of operating poor land or land unusually subject to flood or other disaster are intensified in Japan by the minute scale of Japanese agriculture and the difficulties faced by a farmer in finding essential substitute income in the event of even a small-scale crop failure. A farmer must be guaranteed a minimum return for his efforts or he will cease to farm. In order to stabilize the economic position of the individual farmer and to maintain production on a maximum area, the Japanese Government requires farmers to participate in a compulsory insurance program, and in return undertakes on behalf of the whole community of consumers as well as producers to subsidize a part of the cost of insurance benefit payments.

Japan's present insurance system represents a revision of the system existing at the time of surrender to bring it into closer harmony with basic Occupation objectives and to correct inherent administrative and procedural difficulties. Public relief in the event of crop failure had been recognized in principle since the Tokugawa Era. Relief in the form of insurance was instituted in 1929 with the passage of the Livestock Insurance Act and in 1939 with the passage of Crop Insurance Act. Under these acts responsibility for administration of livestock insurance rested with voluntary associations organized for the purpose, but crop insurance, which was compulsory, was carried on by agricultural associations. These have been dissolved as part of the agrarian reform program and replaced with democratically organized cooperative associations. Development of a new administrative mechanism to replace that provided by the dissolved organizations thus became necessary. Moreover, preexisting insurance procedures were defective in a number of ways. Procedures for fixing crop insurance premiums failed to differentiate between high- and low-risk areas. Farmers in low-risk areas thus had to assume a part of cost of insuring crops in the higher-risk regions. Premium rates were insufficient to finance insurance obligations, and a substantial deficit had accumulated. Both livestock and crop insurance systems were established to pay losses in amounts which, under present economic conditions, are insufficient to be effective in maintaining maximum agricultural production.

The new Compensation Against Agricultural Loss Law, promulgated 15 December 1947, substitutes a unified compensation system for the dual system previously in effect. Its object is to maintain maximum agricultural production. It calls for determination of premium payments on the

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basis of historical records of losses. Premiums are fixed for each area in accord with that area's past record. Ordinary losses are paid insofar as possible from premiums paid by members. Losses in excess of an amount collected as premiums are met by government subsidy. The principle of subsidy is established partly in recognition of the nation's responsibility to participate in costs incurred for benefits which accrue to the nation and partly to keep premiums within the farmers' capacity to pay. Insurance of silkworms, cocoons, paddy and upland rice, wheat, barley, and oats is compulsory. Livestock insurance is voluntary, unless an individual association makes it compulsory by majority votes at a general meeting. Farm buildings, implements and miscellaneous crops may be insured on a voluntary basis.

Compulsory crop insurance covers one-half of the estimated average production per tan of crops. Additional coverage is theoretically permissive but has not been started. Maximum payments cover one-half of the losses in excess of 30 percent (40 percent for sericulture.) No payments are made for losses of less than 30 percent (40 percent for sericulture).

Livestock insurance coverage on adult animals is limited to 80 percent of the value of the animals. On embryo and newborn animals, maximum coverage is 16 percent of the value of the parent. The rate increases up to 30 percent with the age of the animal.

Administration of the law at the local level rests with agricultural mutual relief associations organized under the supervision of prefectural governors. At the prefectural level, responsibility for administration rests with federations of agricultural mutual relief associations organized under the supervision of the Minister of Agriculture and Forestry. Local associations insure with prefectural associations, which in turn reinsure with the national government. General surveillance over the entire structure is maintained by the Ministry of Agriculture and Forestry to insure compliance with the law.

As of 30 April 1949, agricultural mutual relief associations established on a local basis under the new law of 15 December 1947 numbered 10,663 out of an eventual total of 10,881. By that date, each prefecture had one federation of mutual relief associations. These replaced 46 prefectural insurance, 531 county associations, and an unreported number of local associations, in addition to 288 livestock insurance associations in operation when the law was enacted and now in the process of dissolution and liquidation or transfer of assets. The total of about 4,556,000 cho (11,165,025 acres) of land planted to rice, wheat, barley, oats, and naked barley in 1948 and the 23,644,721 grams of silkworms and coccons produced in 1948 were covered by insurance. Benefits paid to members totalled ¥2,801,897,799 for the 1948-49 fiscal year compared with ¥1,086,084,505 paid by members in premiums as of 16 March 1949. Livestock insurance covered 306,658 head of cattle, horses, goats, sheep, and swine as of 5 March 1949, insured for ¥3,003,134,920. Premiums paid totalled ¥62,661,359 against which ¥22,718,432 in benefits had been paid.

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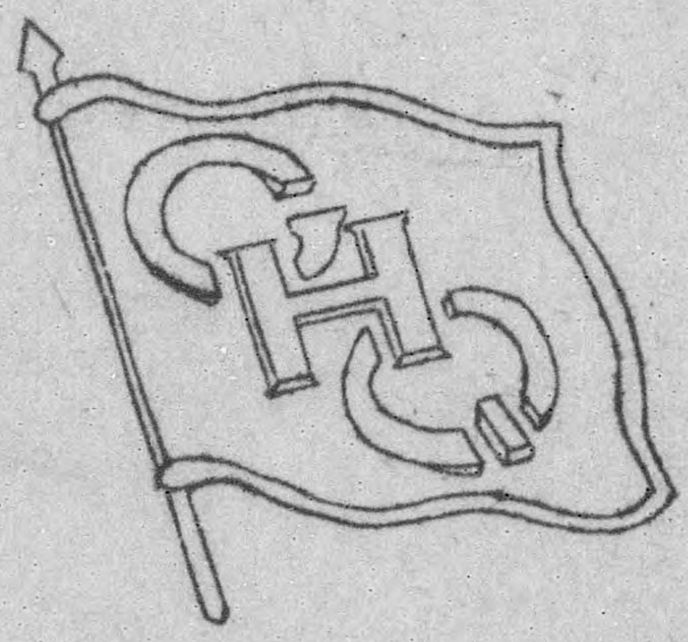
# SURVEY SERIES

## ATTITUDES OF FARMERS TOWARD RURAL PROBLEMS



Public Opinion and Sociological Research Division
21 May 1949

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# ATTITUDES OF FARMERS TOWARD RURAL PROBLEMS

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## FOREWORD

During November and December of 1948, Dr. Arthur F. Raper, Bureau of Agricultural Economics, U. S. Department of Agriculture, in conjunction with the Natural Resources and the Civil Information and Education Sections of General Headquarters, Supreme Commander for the Allied Powers, conducted a survey of 13 rural villages in Japan.

The purpose of the survey was primarily to assess changes -- particularly those concerning the effects of the land reform program -- which had taken place in the villages since a similar survey made in May and June of 1947. A forthcoming report will present the general findings of the 1948 survey.

The present report contains only the materials obtained from a questionnaire submitted to heads of farm households in the villages. It is being published in advance of the complete report so that Military Government Teams, SCAP staff sections, and other organizations having an operational or a policy mission may have these findings at their disposal as soon as possible. For a detailed description of life in the villages, and for final conclusions and recommendations, the reader is referred to the forthcoming report.

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## INTRODUCTION

During a survey of 13 rural villages throughout Japan[1] conducted in November and December, 1948, a questionnaire was given to a sample of the heads of farm households in each village. The sample was not intended to be a representative cross section of the population of rural communities throughout Japan, but only a sample of the heads of farm households[2] of

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1. A list of the villages surveyed follows:

Ebetsu, Hokkaido
Mizuwake, Iwate Prefecture
Yokogoshi, Niigata Prefecture
Nobuta, Nagano Prefecture
Karako, Saitama Prefecture
Futomi, Chiba Prefecture
Kawashiro, Shizuoka Prefecture
Nikaido, Nara Prefecture
Obie, Okayama Prefecture
Aioi, Kagawa Prefecture
Yoshida, Shimane Prefecture
Suye, Kumamoto Prefecture

2. In each village, it was found that between five and 10 of the selected heads of farm households were unable to appear personally to fill out a questionnaire. In such cases, another member of the family (usually a wife or a son) filled out the questionnaire.

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the selected villages.[3] It is, therefore, a sample of a specialized group and should be interpreted as such.

3. However with respect to tenure status, the sample percentages correspond very closely to those found in the total rural population.

Tenure Status as of September 1946

| | The sample | | All Japan* | |
|---|---|---|---|---|
| Category | Number of heads of households | Percentage of all respondents | Number of households | Percentage of all farmers |
| Tenants | 599 | 46.08% | 2,427,495 | 44.88% |
| Owner-cultivators | 594 | 45.69 | 2,446,433 | 45.23 |
| Landlords | 93 | 7.15 | 535,412 | 9.89 |
| Unknown** | 14 | 1.08 | | |
| | 1,300 | 100.00% | 5,409,340 | 100.00% |

* Source: Ministry of Agriculture and Forestry. Based upon number of registered voting households for the 1946 land commission elections.

** Fourteen respondents failed to note their status on their questionnaire. The responses to these questionnaires were omitted in this analysis in all tenure status breakdowns.

Tenure Status as of November-December 1948

| | The sample | | All Japan* | |
|---|---|---|---|---|
| Category | Number of heads of households | Percentage of all respondents | Number of households | Percentage of all farmers |
| Tenants | 113 | 8.69% | ** | 8.3% |
| Owner-cultivators | 1121 | 86.23 | | 83.8 |
| Landlords | 52 | 4.00 | | 7.9 |
| Unknown | 14 | 1.08 | | |
| | 1,300 | 100.00% | 5,909,227*** | 100.00% |

* Estimates only. Source: Ministry of Agriculture and Forestry.
** Exact figures for subtotals not available.
*** As of 1947. Source: Monthly Statistical Bulletin, No. 115, August 1948, Ministry of Agriculture and Forestry.

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Because of time and staff limitations, the size of the sample in each village was limited to approximately 100 respondents. Exactly 100 heads of farm households were selected in each village, regardless of the total number of farm households. These individuals were selected from the Land Commission election registry for 1946. These registries contain information concerning all farmers in a village: the size of their family, the size of their holdings, the amount of land rented to or from others, and the location of their home. They were used in this study as the basis for selecting the sample partly because they are complete, accurate, and accessible, but largely because they contain information upon which a sample based upon tenure status prior to the land reform could be drawn. The 1946 entries in these registries were made current as of the date of the sample, i.e., death and other personal changes not related to land reform were taken into consideration. The sample, therefore, contains landlords, tenants, and owner-cultivators in proportion to their numbers in September 1946, and was so constructed in order to reflect the reactions of each group to the land reform program.

In each village the 100 cases were selected by the technique of stratified random sampling. That is, they were selected randomly from the registry in proportion to the number of landlords, tenants, and owner-cultivators in each buraku as of 1946. It is believed that this method of sampling has resulted in a sampling error ranging between one and seven percent per village, depending upon the proportion of responses in any given answer category.

School teachers were trained in each village to administer the questionnaire. The individuals selected for the sample came to the school building or the village office and filled out the questionnaire themselves. A small proportion of cases in each village sample were interviewed directly by the researchers in order to test the general validity and meanings of responses. Respondents were asked not to reveal their names and were urged to be completely frank and honest in their responses.

Limitations of space do not permit the inclusion of all of the survey data obtained. Only those tabulations which seem to have the most significance have been included. For purposes of uniformity, all "no response" answers have been excluded from the percentage calculations, unless stated otherwise. Similarly, all representations by tenure status and all references to tenure status are on the basis of pre-land reform tenure status, unless otherwise stated. This has been done for two reasons. First, it results in a more accurate analysis of the opinions and reactions of the tenure groups most affected by the land reform program, the pre-land reform tenants and landlords, and second, it is a representation which reflects the criteria used in the sample design.

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It should be noted that the terms used to describe tenure status in this report may not always correspond to the commonly accepted definitions of the words, but rather refer to the definitions used in land reform legislation.[4] A tenant is defined as a person engaging in cultivation who either owns no agricultural land or who cultivates at least twice as much land as he owns; a landlord as a person who does not cultivate the land he owns or who owns at least twice as much land as he cultivates; and an owner-cultivator as a person who cultivates, but who does not belong in either of the previous categories.

The number of individuals or items represented by each 100 percent has been designated by the symbol "n."

Because of the scope of t e survey of rural villages, the questionnaire contained a wide variety of questions. Some of them were intended to secure factual material concerning the lives of the farmers, and others to obtain opinions and attitudes. In this analysis the questions have been subsumed under eight chapter headings. Each chapter contains a brief background statement, and an analysis of the responses to the questions which pertain to the subject of the chapter. Space limitations have prohibited the presentation of all of the tabular materials, and only those representations which bear most directly upon the subject under discussion have been included. However, representations of the data which might conflict with the general interpretations made have not been excluded; the materials which have been excluded are those which offer only supplementary evidence.

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4. Agricultural Land Adjustment Law, Law Number 42, 22 October 1946.

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SUMMARY

General Economic Problems of Farmers

There is evidence of considerable and widespread uneasiness among all classes of farmers concerning their current economic situation and their prospects for the near future. A majority of all farmers felt that their living conditions had worsened in the last year. Income taxes, the clothing shortage, and the general high prices are frequent sources of hardship. Most of t e farmers either definitely expect an agricultural depression or are afraid that one may come.

Use of Appeal Procedures

A majority of the farmers in all tenure groups were aware of the fact that appeal procedures are available. More farmers knew of income tax appeal procedures then knew of grain quota appeal procedures, and about one-quarter of the farmers actually had made an appeal. There was great variation in the village-by-village results, reflecting local conditions, but in 10 of the 13 villages, the number of appeals to the income tax assessments was significantly and in some cases markedly higher than the number of appeals to grain quotas.

Attitudes Toward the Land Reform Program

One-half of all t e farmers and over two-thirds of the tenants felt that the land reform program had benefited their families, and more than one-half of all the farmers and exactly two-thirds of t e tenants felt that the program had been beneficial to their village. The program was generally unpopular among landlords. Fifty percent of all the farmers felt that landlords should not be allowed to retain land other than that which they cultivate themselves. While the general level of satisfaction with the land reform program seems to be high, many specific complaints were voiced by farmers. The most frequently mentioned points of dissatisfaction were that landlords should not have been permitted to retain so much land cultivated by others, that land purchase was unduly complex, and that forest, meadow, and unreclaimed land should have been included in the program.

Landlord-Tenant Relations

At the time of t e survey, eight percent of all farmers renting land from others reported that they had a written tenancy contract for all of the rented land, 22 percent reported that they had a contract for part, and 70 percent reported that they had no written contract. The same proportions were found among persons renting land to others. However, a majority of all tenure groups felt that a written contract is necessary,

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and an even larger majority felt that the conditions of the contract should be written in detail. Sixty-two percent of all the farmers preferred payment of rent in cash rather than in kind. A majority of all tenure groups felt that tenants should not be allowed to sublet land without the consent of the owner.

Attitudes Toward the Local Land Commissions

A large majority of the farmers stated that they had voted in the land commission elections of 1946. Nearly two-thirds of them thought that their local commission members were the best persons for the job.

The method used by the land commissions to determine individual eligibility to purchase land was approved by a majority. Higher percentages of owner-cultivators, people who felt that the land reform program had been beneficial to their family, and people cultivating larger plots of land, than of the respondents as a whole, approved of the method used.

A majority stated without qualification that they thought that those villagers who had bought land during the program were satisfied with the handling of their cases by the land commission and that they themselves were satisfied with the handling of their own cases.

The principle of price controls for the sale of land, administered by the local land commissions, was favored by a majority, although one-fifth of all farmers thought that the matter was one to be settled either by the commission or by the concerned parties, depending upon the circumstances.

When asked to select the proper method of settling problems arising from delay in paying rent on the part of a tenant, 78 percent of the farmers replied that the land commission should settle the issue in some or all circumstances. Tenants tended to favor settlement by the land commission and landlords settlement by consultation between the concerned parties.

Attitudes Toward the Village Agricultural Cooperatives

The village agricultural cooperatives are visited often by two-thirds of the farmers, although 13 percent of the post-land reform landlords reported that they never go to the cooperative. A majority of all tenure groups expressed qualified confidence in the present officials of the cooperative and over one-quarter expressed full confidence. About a third of the farmers expressed a favorable attitude toward the inclusion of women among the officials, while 43 percent thought that it would make no difference.

Attitudes Toward the Inheritance of Land

Over three-quarters of the farmers whose families had previously possessed land reported that primogeniture has been the custom in their family in the past, and only four percent reported that the land has been equally divided among all sons.

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Presented with a hypothetical situation in which they had two sons and one daughter, and could act as they pleased, only 16 percent of the farmers stated simply that they would give their land to the eldest son. Almost half of the farmers wished to give the land to the son who would become a farmer.

When asked if t ey thought that t e eldest son should be excused from his traditional duties to the family if the land were divided equally, farmers of all tenure groups expressed divided opinion: 40 percent said "yes," 50 percent said "no," and 10 percent were undecided.

Two-thirds of the farmers thought that if all the sons and daughters were given land equally the family would be unable to get along.

Use of Information Media

A large majority of the farmers reported that they take a newspaper. Subscriptions are almost evenly divided between a national paper and a local or a regional paper. Over 80 percent of the subscribers were satisfied with their present newspaper, and only 12 percent wanted to change.

Radio ownership averages 64 percent, and appears to have risen in the past 18 months. Higher percentages of owner-cultivators, landlords, and cultivators of the larger tracts of land own radios than do tenants and smaller operators. A majority of all respondents reported that they listen both to the "Early Bird" and the "New Farm Village" radio programs.

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## Chapter I

## GENERAL ECONOMIC PROBLEMS OF FARMERS

There is evidence of considerable and widespread uneasiness among all classes of farmers concerning their current economic situation and their prospects for the near future. This underlying anxiety affects all farmers, whether or not they feel that they have been benefited by the land reform program.

The majority of all tenure groups, including tenants (a large majority of whom have become owner-cultivators under the land reform program), felt that their living conditions had worsened in the last year. Only 13 percent felt that there had been an improvement. The prevailing pessimism seems to be independent of experience with the land reform program, as there was no appreciable tendency for farmers who felt that the land reform program had not been beneficial to their family to feel that living conditions were now worse than last year. The grievances most frequently mentioned by all tenure groups are high income taxes, the scarcity of clothing, and the general high prices.

Question: How are living conditions in your family as compared with last year?

| | All respondents |
|---|---|
| Better | 13% |
| Same | 33 |
| Worse | 51 |
| Don't know | 3 |
| | 100% |
| | n = 1,298 |

| Those percentages thought that living conditions compared with last year were: | All respondents | Of those farmers who thought that the land reform program had: Been beneficial to their family | Not been beneficial to their family | Made no difference |
|---|---|---|---|---|
| Better | 13% | 14% | 7% | 11% |
| Same | 33 | 33 | 34 | 34 |
| Worse | 51 | 52 | 55 | 53 |
| Don't know | 3 | 1 | 4 | 2 |
| | 100% | 100% | 100% | 100% |
| | N = 1,298 | n = 621 | n = 168 | n = 366 |

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Question: What are the greatest difficulties in your living conditions at the present time?

| Item causing difficulty | Percentage of respondents who mentioned the item |
|---|---|
| Income tax | 31% |
| Clothing | 25 |
| High prices | 19 |
| Food | 12 |
| Quotas | 11 |
| Money | 6 |
| Shortage of fertilizer | 4 |
| Shortage of labor | 1 |
| Others | 4 |
| | * |

* These percentages add to more than 100 percent, as a total of 1,195 farmers (92 percent of the sample) supplied 1,364 answers to this question. Some farmers gave more than one answer.

Not only do farmers feel that living conditions have become worse during the past year; a majority of them reported a feeling of pessimism over the economic prospects for the coming year. Most of the farmers either definitely expect an agricultural depression or think that one may come. Only seven percent of the farmers felt definitely that there was no prospect of a depression.

Question: Do you think a severe depression will come during the next twelve months?

| | All respondents |
|---|---|
| Yes | 42% |
| Maybe | 36 |
| No | 7 |
| Don't know | 15 |
| | 100% |
| | n = 1,281 |

The expectation of an agricultural depression was to some extent conditioned by the farmer's estimate of his current economic situation as compared with last year. A farmer who felt that his living conditions

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had worsened was more likely to expect a depression than a farmer who had experienced some improvement in conditions.

| These percentages thought (concerning the probability of a severe depression during the next twelve months) that: | All respondents | Of those farmers who thought that living conditions in their family compared with last year were: Better | Same | Worse |
|---|---|---|---|---|
| It would come | 42% | 38% | 32% | 50% |
| Maybe it would come | 36 | 34 | 46 | 31 |
| It would not come | 7 | 12 | 9 | 4 |
| Didn't know | 15 | 16 | 13 | 15 |
| | 100% | 100% | 100% | 100% |
| | n = 1,281 | n = 157 | n = 427 | n = 669 |

Similarly, the farmer's evaluation of his current condition was influenced strongly by his view of future prospects. Farmers who felt that a depression was bound to come were much more pessimistic about their living conditions than farmers who were not anticipating a depression.

| These percentages thought that living conditions in their family compared with last year were: | All respondents | Of those farmers who thought (concerning the probability of a severe depression coming during the next twelve months that): It would come | Maybe it would come | It would not come |
|---|---|---|---|---|
| Better | 13% | 11% | 12% | 22% |
| Same | 33 | 26 | 42 | 46 |
| Worse | 51 | 62 | 44 | 31 |
| Didn't know | 3 | 1 | 2 | 1 |
| | 100% | 100% | 100% | 100% |
| | n = 1,298 | n = 533 | n = 464 | n = 86 |

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The income tax seemed to be of predominant concern to farmers. While there is evidence on this point independent of the findings of the questionnaire, 31 percent of the respondents spontaneously mentioned income taxes as one of their greatest difficulties at the present time. Furthermore, a plurality, 49 percent, of those farmers who had been assessed for an income tax felt that their own tax was unfair compared with that of others. One-half of the farmers felt that the grain quotas and the income taxes were equally difficult to bear; of the other half of respondents, a larger proportion felt t at the taxes were more difficult than the grain quotas.

Question: (To those who were assessed for an income tax) Do you think your income tax assessment is fair as compared with that of others?

| | |
|---|---|
| Fair | 24% |
| Unfair | 49 |
| Don't know | 27 |
| | 100% |
| | n = 1,198 |

Question: (To those who were assessed for an income tax and had grain quotas to meet) Which do you find harder to bear, the grain quota or the income tax?

| | |
|---|---|
| Grain quota | 15% |
| Income tax | 25 |
| Equally hard | 57 |
| Don't know | 3 |
| | 100% |
| | n = 1,136 |

While not mentioned as the most burdensome by as many farmers as the income tax, the grain quota is nonetheless a serious grievance. Thirty-eight percent of those farmers who had quotas to meet felt that their quota was unfair compared with that of others (in contrast to 47 percent who thought that their quota was fair).

Question: (To those with grain quotas to meet) Do you think your grain quota is fair as compared with that of others?

| | |
|---|---|
| Fair | 47% |
| Unfair | 38 |
| Don't know | 15 |
| | 100% |
| | n = 1,172 |

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As a consequence of the large number of new village projects in a period of inflation, there has been a substantial increase in local assessments and contributions of all kinds. The majority of the farmers feel some of them to be a burden.

Question: How do you feel about the village assessments and contributions?

| | All respondents |
|---|---|
| Reasonable | 15% |
| Some reasonable, some difficult | 68 |
| Difficult | 10 |
| Don't know | 7 |
| | 100% |
| | n = 1,279 |

As many farmers feel that their own assessments are unfair as feel them to be fair.

Question: Do you think your village assessments are unfair as compared with those of others?

| | All respondents |
|---|---|
| Fair | 37% |
| Unfair | 36 |
| Don't know | 27 |
| | 100% |
| | n = 1,261 |

Nearly one-fourth of the respondents complained about the excessiveness of village assessments and contributions and about the nature of the system itself. Many specific complaints were made concerning assessments for particular purposes.

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Question: What kinds of village assessments and contributions do you find difficult?

| Kinds of assessments | Percentage of respondents who mentioned this kind |
|---|---|
| (General complaints concerning excessiveness and the nature of the system itself) | 24% |
| Ones for schools | 5 |
| Ones for "unknown purposes" | 4 |
| Ones for temples and shrines | 4 |
| Ones for the Community Chest | 3 |
| Ones for local entertainments | 2 |
| Ones for lotteries | 1 |
| Ones for the police office | 1 |
| Ones for village organizations other than the above | 6 |
| | * |
| | n = 644 |

* These percentages add to less than 100 percent as a total of 612 farmers (47 percent of the sample) supplied 644 answers to this question. Some farmers gave more than one answer.

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## Chapter II

## USE OF APPEAL PROCEDURES

In order to minimize injustices, appeal procedures have been established. These enable farmers who feel that their crop quotas or their income tax assessments are too high to register an official appeal to their agricultural cooperative or their local tax office. A majority of the farmers in all tenure groups were aware of the fact that appeal procedures were available. More farmers knew of income tax appeal procedures than knew of grain quota appeal procedures.

Question: (To those with grain quotas to meet) If you consider your grain quota unfair, is it possible to appeal it?

| | |
|---|---|
| Yes | 64% |
| No | 22 |
| Don't know | 14 |
| | 100% |
| | n = 1,262 |

Question: (To those who were assessed for an income tax) If you consider your income tax assessment unfair, is it possible to appeal it?

| | |
|---|---|
| Yes | 72% |
| No | 14 |
| Don't know | 14 |
| | 100% |
| | n = 1,269 |

About one-quarter of the farmers not only knew of the existence of appeal procedures, but had actually made appeals. This is true of all three tenure groups. Village-by-village responses, presumably reflecting local conditions, show great variation. In Nikaido, for example, only 17 percent of the farmers reported that they had appealed a grain quota, while 38 percent reported that they had appealed an income tax assessment; in Honami, 36 percent reported that they had appealed a grain quota and 46 percent that they had appealed a tax assessment. In 10 of the 13 villages, appeals to the income tax assessments were significantly and in some cases markedly higher than appeals to grain quotas. The percentages of farmers who had appealed their assessments and quotas, and who also thought them unfair, was twice that of those who had **not appealed and thought them to be fair.**

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Question: (To those with grain quotas to meet) Have you ever appealed a grain quota?

| | |
|---|---|
| Yes | 25% |
| No | 75 |
| | 100% |
| | n = 1,195 |

Question: (To those who were assessed for an income tax) Have you ever appealed an income tax assessment?

| | |
|---|---|
| Yes | 30% |
| No | 70 |
| | 100% |
| | n = 1,217 |

| These percentages thought (concerning a comparison between their grain quotas and those of others) that theirs was: | All respondents | Of those farmers who had a grain quota to meet and reported that they: Had appealed it | Had not appealed it |
|---|---|---|---|
| Fair | 47% | 30% | 54% |
| Unfair | 38 | 64 | 30 |
| Didn't know | 15 | 6 | 16 |
| | 100% | 100% | 100% |
| | n = 1,172 | n = 291 | n = 904 |

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| These percentages thought (concerning a comparison between their tax assessments and those of others) that theirs was: | All respondents | Of those farmers who were assessed for an income tax and reported that they: Had appealed it | Had not appealed it |
|---|---|---|---|
| Fair | 24% | 14% | 28% |
| Unfair | 49 | 74 | 38 |
| Didn't know | 27 | 12 | 34 |
| | 100% | 100% | 100% |
| | n = 1,198 | n = 369 | n = 848 |

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# Chapter III

## ATTITUDES TOWARD THE LAND REFORM PROGRAM

In the early days of the land reform, critics expressed some doubt concerning the reaction of Japanese farmers. However, at the time of the present survey, the greatest part of the farmers, especially of the former tenants, was satisfied with the land reform program. One-half of all the respondents, and over two-thirds of those who had been tenants prior to the land reform program, reported that their families had been benefited. More than one-half of all the respondents and exactly two-thirds of the tenants felt that the land reform program had been beneficial to their village. As expected, the program was unpopular among the former landlords. The majority of them reported that the program had not been beneficial to their family, and only 37 percent stated that the program had been good for their village.

Question: Do you think the land reform program is good for your village?

| | All respondents | By tenure status | | |
|---|---|---|---|---|
| | | Tenants | Owner-cultivators | Land-lords |
| Yes | 57% | 66% | 50% | 37% |
| No | 5 | 4 | 5 | 16 |
| Both good and bad | 28 | 20 | 35 | 37 |
| Don't know | 10 | 10 | 10 | 10 |
| | 100% | 100% | 100% | 100% |
| | n = 1,276 | n = 597 | n = 586 | n = 93 |

Question: Was the land reform program beneficial to your family?

| | All respondents | By tenure status | | |
|---|---|---|---|---|
| | | Tenants | Owner-cultivators | Land-lords |
| Yes | 50% | 68% | 38% | 8% |
| No | 14 | 4 | 16 | 61 |
| Made no difference | 29 | 22 | 39 | 27 |
| Don't know | 7 | 6 | 7 | 4 |
| | 100% | 100% | 100% | 100% |
| | n = 1,231 | n = 583 | n = 562 | n = 86 |

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In addition to the general finding that the land reform program had been beneficial, it was found that 39 percent of all of the farmers interviewed, and 47 percent of the tenants, felt positively that without the land reform, conditions would have been worse than they are at present.

Question: If there had been no land reform program, how do you think living conditions in the village would have been?

| | All respondents | By tenure status: Tenants | Owner-cultivators | Landlords |
|---|---|---|---|---|
| Better | 8% | 8% | 7% | 12% |
| Worse | 39 | 47 | 34 | 21 |
| No different | 37 | 30 | 43 | 51 |
| Don't know | 16 | 15 | 16 | 16 |
| | 100% | 100% | 100% | 100% |
| | n = 1,278 | n = 598 | n = 587 | n = 93 |

The farmers' evaluation of the land reform program seems to be based largely upon the actual benefits they have themselves derived from it, rather than upon more theoretical considerations. For example, a majority of those farmers who felt that conditions in the village would have been worse without the land reform program thought that the program had been beneficial to their family, while less than one-fourth of them thought that the program had not been beneficial to their family.

| These percentages thought that if there had been no land reform living conditions in the village would have been: | All respondents | Of those who thought that the land reform program had: Been beneficial to their family | Not been beneficial to their family | Made no difference to their family |
|---|---|---|---|---|
| Better | 8% | 9% | 9% | 4% |
| Worse | 39 | 57 | 24 | 23 |
| No different | 37 | 23 | 56 | 57 |
| Didn't know | 16 | 11 | 11 | 16 |
| | 100% | 100% | 100% | 100% |
| | n = 1,280 | n = 616 | n = 167 | n = 365 |

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The correlations between pre-land reform tenancy status and post- land reform attitudes deserve special emphasis. Tenants, for whose betterment the program was initiated, expressed the greatest enthusiasm. Only eight percent of them thought that conditions in the village would have been better had there been no land reform, while 47 percent thought they would be worse, and 30 percent that they would not have been different. Landlords, on the other hand, were more critical. That numbers of them are able to be objective concerning general village conditions is attested to by the fact that a large majority of them felt that the land reform program had been either good or both good and bad for the village, while only 16 percent of them thought that it had definitely been bad. However, only eight percent of the landlords felt that the program had been beneficial to their own family, and a majority of them, 61 percent, thought definitely that it had not. The distinction that landlords seem to make between "good for the village" and "good for my family" is demonstrated by several facts. Only a slightly higher percentage of landlords than of other groups thought that living conditions in the village would have been better had there been no land reform, and 21 percent of the landlords expressed the belief that conditions would have been worse.

The land reform program did not seek to destory tenancy completely, but rather to reduce it to a minimum and to eliminate its evils. Although absentee landlordism was totally eliminated, resident landlords were permitted to retain a certain amount of land for tenant cultivation under conditions specified by law. In April 1949, the total area thus retained and cultivated by tenants was about 600,000 cho, or approximately 10 percent of the total arable land in Japan. Critics of the land reform program have contended that these retention provisions are inimical to the stated purpose of the legislation, and are an invitation to the landlords to maintain their traditional control in the rural community. Supporters of the law have replied that the margin of permissible tenancy which these provisions allow is sound for farm management reasons, as it permits that measure of flexibility required to adjust tenure conditions to the changing social and economic requirements of individual farm operators. In the present survey, all respondents were asked how they felt about this much discussed point. Thirty-four percent of them thought that this retention should be permitted, 50 percent thought that it should not, and 16 percent stated that they did not know. As might be expected, tenants were the most critical of the provision, although 20 percent of them favored the law as it stands.

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Question: It has been argued that a landowner should not be allowed to retain any land other than that which he actually cultivates himself. How do you feel about this?

| | All respondents | By tenure status: Tenants | Owner-cultivators | Landlords |
|---|---|---|---|---|
| He should | 34% | 20% | 45% | 70% |
| He should not | 50 | 63 | 40 | 21 |
| Don't know | 16 | 17 | 15 | 9 |
| | 100% | 100% | 100% | 100% |
| | n = 1,279 | n = 595 | n = 591 | n = 93 |

Of the farmers who reported that the land reform program had been beneficial to their family (a majority of whom were tenants prior to the land reform), nearly two-thirds thought that landlords should not be allowed to retain the excess land, while of those who reported that the program had not been beneficial, nearly two-thirds thought that landlords should be allowed to retain the land.[1]

| These percentages thought (concerning a land-owner's being allowed to retain any land other than that which he actually cultivators himself) that: | All respondents | Of those who thought that the land reform program had: Been beneficial to their family | Not been beneficial to their family | Made no difference to their family |
|---|---|---|---|---|
| He should | 34% | 25% | 64% | 40% |
| He should not | 50 | 64 | 28 | 42 |
| Didn't know | 16 | 11 | 8 | 18 |
| | 100% | 100% | 100% | 100% |
| | n = 1,279 | n = 616 | n = 167 | n = 365 |

1. This issue seems to be a critical one in the lives of the farmers. When respondents were asked directly what points of dissatisfaction they had with the law, the most frequently mentioned specific complaint was that landlords should not have been permitted to retain so much land cultivated by others. (See next paragraph)

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While the general level of satisfaction with the land reform program seems to be high, many specific complaints concerning inadequacies of the program, local conditions, and unfairness were voiced by farmers. Twenty-four percent of the farmers interviewed offered specific observations. The most frequently mentioned points of dissatisfaction were the following: landlords should not have been permitted to retain so much land cultivated by others; land purchase was unduly complex; and forest, meadow, and unreclaimed land should have been included in the program. Many of the points relate to local conditions or individual cases, for example, claims of unfair treatment by the land commission. Others, however, such as the suggestion that other lands be included within the categories of land subject to reform, touch on broader problems. The release of forest land, for example, is considered by some farmers to be a pressing problem in mountainous areas.

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## Chapter IV

## LANDLORD-TENANT RELATIONS

Before the land reform program was put into effect, the Japanese tenant farmer was substantially at the mercy of his landlord. Contractual arrangements were rarely formal and explicit, and in cases of doubt the landlord's interpretations generally prevailed. A majority of these arrangements were oral. Under traditional tenancy, the land rental was commonly paid in kind, rather than in cash. This arrangement was frequently a burden upon tenants, for the rent was usually a stipulated amount of grain, set by the landlords, and determined before the harvest on the basis of yields harvested during good seasons. In the event of a bad harvest, a tenant had to turn over a majority of his total crop to his landlord as rent, and buy food to eat at the high prices common during a bad harvest year.

The provisions of land reform legislation stipulated changes in these conditions. In order to provide tenants with security of tenure and protection from dishonest landlords, the legislation provided that all tenant-landlord agreements be written, and that all written contracts be registered at the village office. It was also stipulated that contracts would specify the amount of farm rent, the terms of payment, the period of tenure, the conditions which would warrant rent reductions, and the provisions under which certain expenses incurred by the tenant would be shared by the landlord and under which remuneration for immovable improvements would be granted tenants in case of lease termination.

At the time the survey was made, the Ministry of Agriculture and Forestry's program for promoting tenancy agreements had been in effect only six months. Nevertheless, eight percent of all farmers renting land from others reported that they had a written tenancy contract for all of the land, and 22 percent reported that they had a contract for part of their land, while 70 percent reported that they had no written contract for the land they rented from others. The same proportions were found among persons renting land to others.

Question: Do you have a written contract on leased land?

| | Persons renting from others | Persons renting to others |
|---|---|---|
| All | 8% | 8% |
| Part | 22 | 22 |
| None | 70 | 70 |
| | 100% | 100% |
| | n = 570 | n = 289 |



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A majority of all tenure groups felt that a written tenancy contract is necessary, and an even larger majority felt that if tenancy contracts were concluded, the conditions of the contract should be written in detail.

Question: Do you think it necessary to exchange written tenant contracts when you lease or let land?

| | All respondents |
|---|---|
| Yes | 54% |
| Depends upon the man and the circumstances | 33 |
| No | 4 |
| Doesn't matter | 5 |
| Don't know | 4 |
| | 100% |
| | n = 1,269 |

Question: Do you think it necessary to write all the conditions in detail in a tenancy contract?

| | All respondents |
|---|---|
| Yes | 76% |
| No | 10 |
| Doesn't matter | 10 |
| Don't know | 4 |
| | 100% |
| | n = 1,273 |

Sixty-two percent of all respondents preferred payment of rent in cash rather than in kind. As might be expected, tenants and landlords differed widely in their preferences, and owner-cultivators tended to support the tenant point of view. Seventy-seven percent of the tenants preferred payment of rent in cash, as did 51 percent of the owner-cultivators, while 63 percent of the landlords favored payment in kind.

Question: Without regard to whether prices are high or low, which do you think is better; payment of rent in cash or payment of rent in kind?

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| | All respondents | By tenure status: Tenants | Owner-cultivators | Landlords |
|---|---|---|---|---|
| Payment in kind | 18% | 6% | 24% | 63% |
| No difference | 14 | 11 | 18 | 15 |
| Payment in cash | 62 | 77 | 51 | 20 |
| Don't know | 6 | 6 | 7 | 2 |
| | 100% | 100% | 100% | 100% |
| | n = 1,280 | n = 598 | n = 592 | n = 90 |

Preferences differed widely according to the extent to which the respondents thought that the land reform program had been beneficial to their family. A large majority of those farmers who thought that their family had been benefited by the program also favored the payment of rent in cash. A plurality of the respondents who felt that the program had not been beneficial to their family favored the payment of rent in kind, while nearly four out of every five who thought that land reform had been beneficial to their family favored payment in cash. This might be expected, as the majority of those who benefited were tenants.

Question: Was the land reform program beneficial to your family?

| These percentages preferred payment of rent | All respondents | Of those who felt that the land reform program had: Been beneficial to their family | Not been beneficial to their family | Made no difference |
|---|---|---|---|---|
| In kind | 18% | 7% | 49% | 24% |
| In cash | 62 | 79 | 29 | 52 |
| Made no difference | 14 | 10 | 18 | 18 |
| Didn't know | 6 | 4 | 4 | 6 |
| | 100% | 100% | 100% | 100% |
| | n = 1,280 | n = 616 | n = 167 | n = 365 |

There has been a good deal of discussion about the right of tenants to sublet their land without the consent of the landlord. Most of the farmers felt that this is wrong, although there was a higher percentage of objections from landlords than from tenants.

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Question: Do you think that it is all right for a tenant to sublet leased land without the landlord's consent?

| | All respondents | By tenure status | | |
|---|---|---|---|---|
| | | Tenants | Owner-cultivators | Landlords |
| Yes | 10% | 14% | 8% | 2% |
| No | 82 | 78 | 85 | 94 |
| Don't know | 8 | 8 | 7 | 4 |
| | 100% | 100% | 100% | 100% |
| | n = 1,282 | n = 599 | n = 591 | n = 92 |

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## Chapter V

## ATTITUDES TOWARD THE LOCAL LAND COMMISSIONS

Land reform legislation provided for the election of a local land commission in every city, town, and village in Japan to administer the program. As the executive organs of the land reform program, the local land commissions drafted the purchase plan for each village, determined the suitability of lands to be purchased, established prices within legal limits, verified the eligibility of purchasers, decided cases requiring unusual or special treatment, and effected the actual purchase and resale of land. Each local commission is composed of five tenants, three landowners, and two owner-cultivators, who were originally elected to serve for a two-year term. Elections were held during December of 1946. In only 52 percent of the cases, among the 10,777 local commissions, was it necessary to hold elections, since, in the other cases, the number of candidates equalled the number of positions to be filled.[1] The lists of the electors were open to public inspection. Persons eligible to vote in the elections were those who were at least 20 years of age and members of households cultivating one tan or more of land in Japan proper and three tan in Hokkaido. It is assumed in this analysis that many of the respondents who said that they had voted in the elections actually meant that they participated in the selection of a buraku nominee.[2]

A large majority of the respondents stated that they had voted in the land commission elections. Nearly two-thirds of them thought that their local commission members were the best people for the job, although one-fifth

---

1. In the majority of those villages in which commissions were seated by proclamation, nominees were selected by democratic means in each of the buraku of the village. In accordance with Japanese law, whenever the number of nominees equalled the number of positions open, no elections were held, and the mayor simply seated the candidates by proclamation.
2. On the basis of the results of field investigations conducted from 6-15 January 1947, Occupation authorities believe that from 75-80 percent of the land commissions were accepted as satisfactory by their constituents, and that in the majority of cases in which no elections had been held the selection of candidates had been accomplished according to democratic procedures. However, a few instances have been discovered in which there was evidence of voting controlled by vested community interests. The Ministry of Agriculture and Forestry took immediate steps to inform farmers of their rights under the law to recall commissioners who did not represent them. As a consequence, recall elections were held in many villages.

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thought that while the members were good, there were others who were just as good. A higher percentage of tenants than landlords expressed confidence in the land commissions.

Question: Did you vote in the land commission elections?

| | All respondents |
|---|---|
| Yes | 80% |
| No | 20 |
| | 100% |
| | n = 1,257 |

Question: Do you think the members of the land commission in your village are the best persons for the job?

| | All respondents | By tenure status | | |
|---|---|---|---|---|
| | | Tenants | Owner-cultivators | Landlords |
| Best | 61% | 64% | 59% | 46% |
| Good, but there are other good men | 22 | 19 | 24 | 35 |
| Not the best | 6 | 6 | 6 | 3 |
| Don't know | 11 | 11 | 11 | 16 |
| | 100% | 100% | 100% | 100% |
| | n = 1,284 | n = 598 | n = 593 | n = 93 |

One of the most important duties of the land commission was to determine which individuals in the village were eligible to buy land that had been bought from owners by the Government. Land reform legislation stipulates certain criteria of eligibility. In general, all persons who were "likely to devote themselves to agriculture," and who had demonstrated reasonable proficiency in farming were eligible to purchase land, with priority being given to those persons who on 23 November 1945 were tenants on the land they wished to buy. However, within the limits of these criteria, many decisions, concerning both the policy for the entire village and the policy to be applied to individuals, had to be made, and in most cases it was the local land commission that made them.

A majority of the respondents thought that the method used to determine individual eligibility had been appropriate. A higher percentage of owner-cultivators -- the group least affected and most likely to have an objective point of view -- than of other groups expressed this feeling. People who

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felt that the land reform program had been beneficial to their family were also the most satisfied; only nine percent of them thought that the method had been inappropriate, while 26 percent of those who felt that the land reform had not been beneficial to their family disapproved of the method used to determine eligibility. The large percentage of the people who felt that their family had been benefited by the land reform, and who also thought that the method of determining individual eligibility was appropriate, probably reflects the fact that the majority of those benefited were tenants, who were for the most part automatically eligible. The fact that one-half of the landlords (and nearly one-half of all farmers who felt that land reform had not been beneficial to their family) also thought the method was appropriate suggests that landlords, while objecting to the entire program, can be somewhat objective about the program's methods. A higher percentage of the heads of farm households (exclusive of those in Ebetsu, Hokkaido) who, at the time the survey was made, cultivated from 1.51-5 tan per family member, approved than did those who cultivated less land per family member. A disproportionately high percentage of the people who cultivated less than one tan of land per family member replied that they did not know whether or not the method of determining eligibility was appropriate.

Question: Do you think that the method of determining who was eligible to purchase land in the village was appropriate?

| | All respondents | By tenure status: Tenants | Owner-cultivators | Landlords |
|---|---|---|---|---|
| Yes | 60% | 53% | 61% | 50% |
| No | 13 | 18 | 13 | 12 |
| Don't know | 27 | 29 | 26 | 38 |
| | 100% | 100% | 100% | 100% |
| | n = 1,268 | n = 594 | n = 581 | n = 93 |

| These percentages felt (concerning the method of determining eligibility to purchase land) that: | All respondents | Of those who felt that the land reform program had: Been beneficial to their family | Not been beneficial to their family | Made no difference |
|---|---|---|---|---|
| It was appropriate | 60% | 75% | 48% | 52% |
| It was not appropriate | 13 | 9 | 26 | 13 |
| They didn't know | 27 | 16 | 26 | 35 |
| | 100% | 100% | 100% | 100% |
| | n = 268 | n = 616 | n = 167 | n = 365 |

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thought that while the members were good, there were others who were just as good. A higher percentage of tenants than landlords expressed confidence in the land commissions.

Question: Did you vote in the land commission elections?

| | All respondents |
|---|---|
| Yes | 80% |
| No | 20 |
| | 100% |
| | n = 1,257 |

Question: Do you think the members of the land commission in your village are the best persons for the job?

| | All respondents | By tenure status | | |
|---|---|---|---|---|
| | | Tenants | Owner-cultivators | Landlords |
| Best | 61% | 64% | 59% | 46% |
| Good, but there are other good men | 22 | 19 | 24 | 35 |
| Not the best | 6 | 6 | 6 | 3 |
| Don't know | 11 | 11 | 11 | 16 |
| | 100% | 100% | 100% | 100% |
| | n = 1,284 | n = 598 | n = 593 | n = 93 |

One of the most important duties of the land commission was to determine which individuals in the village were eligible to buy land that had been bought from owners by the Government. Land reform legislation stipulates certain criteria of eligibility. In general, all persons who were "likely to devote themselves to agriculture," and who had demonstrated reasonable proficiency in farming were eligible to purchase land, with priority being given to those persons who on 23 November 1945 were tenants on the land they wished to buy. However, within the limits of these criteria, many decisions, concerning both the policy for the entire village and the policy to be applied to individuals, had to be made, and in most cases it was the local land commission that made them.

A majority of the respondents thought that the method used to determine individual eligibility had been appropriate. A higher percentage of owner-cultivators -- the group least affected and most likely to have an objective point of view -- than of other groups expressed this feeling. People who

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| These percentages felt (concerning the method of determining eligibility to purchase land) that: | All respondents | Of those farmers who cultivated this amount of land per family member at the time of the survey:* 0-1 tan | 1.1-1.5 tan | 1.51-5.0 tan |
|---|---|---|---|---|
| It was appropriate | 60% | 51% | 59% | 66% |
| It was not appropriate | 13 | 12 | 16 | 13 |
| They didn't know | 27 | 37 | 25 | 21 |
| | 100% | 100% | 100% | 100% |
| | n = 268 | n = 411 | n = 311 | n = 449 |

* Exclusive of Ebetsu, Hokkaido.

A majority of the respondents stated without qualification that they thought that those villagers who had bought land during the program were satisfied with the handling of their cases by the land commission, one-third thought that some might not be satisfied, and only three percent stated definitely that they thought the purchasers were not satisfied. A higher percentage of tenants, most of whom bought land themselves and thus might be in a better position to speak for all those who bought land, gave an unqualified answer expressing satisfaction than did other groups. Those farmers who indicated satisfaction with the benefits of the land reform program to their family also expressed the greatest satisfaction with the handling of the cases of others by the land commission.

Question: Do you think that those who bought land under the provisions of the land reform law are satisfied with the handling of their case by the land commission or not?

| | All respondents | By tenure status: Tenants | Owner-cultivators | Landlords |
|---|---|---|---|---|
| Satisfied | 53% | 60% | 48% | 41% |
| Some are satisfied, some are not | 33 | 29 | 36 | 41 |
| Unsatisfied | 3 | 2 | 4 | 2 |
| Don't know | 11 | 9 | 12 | 16 |
| | 100% | 100% | 100% | 100% |
| | n = 1,261 | n = 583 | n = 585 | n = 93 |

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| These percentages felt (concerning the satisfaction of others with the handling of their case by the land commission) that: | All respondents | Of those who felt that the land reform program had: Been beneficial to their family | Not been beneficial to their family | Made no difference to their family |
|---|---|---|---|---|
| They are satisfied | 53% | 66% | 45% | 45% |
| Some are satisfied, some are not | 33 | 27 | 42 | 38 |
| They are unsatified | 3 | 3 | 4 | 3 |
| They didn't know whether or not they are satisfied | 11 | 4 | 9 | 14 |
| | 100% | 100% | 100% | 100% |
| | n = 1,261 | n = 616 | n = 167 | n = 365 |

Similar percentages of farmers expressed personal satisfaction with the way the land commission handled their own case. Among landlords, those who said they were personally satisfied were fewer in number than those who thought that people in general had bought land were satisfied -- not surprising, as few of this group bought land, and many of them were forced to sell it.

Question: (For farmers who bought or sold land under the provisions of the land reform law) Were you personally satisfied with the way that the land commission handled your case?

| | All respondents | By tenure status: Tenants | Owner-cultivators | Landlords |
|---|---|---|---|---|
| Satisfied | 52% | 61% | 46% | 30% |
| Neither satisfied nor dissatisfied | 30 | 26 | 36 | 40 |
| Unsatisfied | 13 | 10 | 13 | 26 |
| Don't know | 5 | 3 | 5 | 4 |
| | 100% | 100% | 100% | 100% |
| | n = 1,143 | n = 568 | n = 497 | n = 78 |

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Land reform legislation provides that the price of land shall henceforth be determined by the land commissions, acting in accordance with principles established by law, rather than by negotiations between the concerned parties. This was one of the issues which had caused the failure of all previous land reform programs in Japan, for without price controls, a majority of the tenants were unable to purchase land. Furthermore, the present land reform legislation stipulated that, in order to prevent speculation with land purchased from the Government, land could not be resold privately, but that all resales would be made directly to the Government on terms similar to those characterizing the original sale contract.

A majority of all farmers, and a majority of all tenure groups except landlords, favored the principle of price controls administered by the local land commissions. However, one-fifth of all farmers and one-fourth of the landlords and owner-cultivators, thought that the determination of price should be made according to the circumstances. Nearly one-third of the landlords favored negotiation.

Question: Which do you think is better: to have the price of land fixed by the land commission, or to have the price fixed by negotiation between the parties concerned?

| | All respondents | By tenure status | | |
|---|---|---|---|---|
| | | Tenants | Owner cultivators | Landlords |
| Land commission | 61% | 74% | 52% | 32% |
| It depends upon the circumstances | 20 | 15 | 25 | 24 |
| Negotiation | 11 | 4 | 14 | 30 |
| Doesn't matter | 6 | 4 | 7 | 11 |
| Don't know | 2 | 3 | 2 | 3 |
| | 100% | 100% | 100% | 100% |
| | n = 1,283 | n = 598 | n = 592 | n = 93 |

Several provisions of land reform legislation protected the tenant by guaranteeing him security of tenure. This factor had been the cause of nearly one-half of prewar tenant-landlord disputes, and the lack of security of tenure had been one of the greatest evils of the tenancy system. Many tenant evictions were caused by the failure of tenants to pay the rent that they had agreed to pay in their contracts. However, under a provision of land reform legislation, all disputes arising out of any delay in payment of rent by the tenant for good cause must be settled by the land commission, rather than by consultation between the concerned parties.

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A plurality of all the respondents favored the settlement of such questions by the land commission only in some cases; a plurality of the tenants favored settlement by the land commission in all cases; and less than 10 percent of the tenants preferred consultation. In general, tenants favored settlement by the land commission and landlords settlement by consultation, with owner-cultivators occupying a midway position.

Question: In the event of delay in payment of rent by the tenant for good cause, do you think the question should be settled by the land commission, or do you think it should be settled by consultation between landlord and tenant only?

| | All respondents | By tenure status | | |
|---|---|---|---|---|
| | | Tenants | Owner-cultivators | Landlords |
| Land commission | 38% | 46% | 34% | 22% |
| In some circumstances by the land commission | 40 | 39 | 40 | 39 |
| Consultation between the concerned parties | 14 | 8 | 16 | 32 |
| Doesn't matter | 6 | 5 | 8 | 6 |
| Don't know | 2 | 2 | 2 | 1 |
| | 100% | 100% | 100% | 100% |
| | n = 1,278 | n = 595 | n = 590 | n = 93 |

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## Chapter VI

## ATTITUDES TOWARD THE VILLAGE AGRICULTURAL COOPERATIVES

Prior to the Occupation, monopoly agricultural associations, organized in 1943, served as the instrumentality through which agricultural prices and production were controlled, crop collections and rationing accomplished, and rural capital utilized in accordance with national policy. One local agriucltural association (Nogyokai) was established in each city, town, and village in Japan. These local associations were members of the national association. The entire system was under the direct control of the Ministry of Agriculture and Forestry. Membership in local associations was compulsory for individual farmers.

Legislation authorizing the formation of agricultural cooperatives was enacted by the Diet in 1947. The goals of the legislation were to release farmers from the domination of non-agrarian interests and to afford them the opportunity to organize independent cooperatives. Under the provisions of the legislation, 15 or more farmers may organize a cooperative, any number of cooperatives may be formed in one village, farmers may belong to more than one cooperative, and each member farmer is entitled to one vote in his cooperative. Cooperatives may perform banking, marketing, purchasing, mutual relief, and other services to farmers. In addition, the Ministry of Agriculture and Forestry has urged cooperatives to perform educational and recreational functions, and has stressed the fact that if the cooperatives are to be truly democratic the women of the community should be afforded full opportunity to participate in the activities. Some of the new cooperatives had been in operation for as long as five months at the time the survey was made, and the agricultural associations were all dissolved by 14 August 1948. Since their dissolution, the agricultural associations have been engaged in terminating their affairs.

In order to determine the extent to which farmers have direct contact with a cooperative, respondents were asked if they visited their cooperative often. About two-thirds reported that they did, and only three percent stated that they never visit the cooperative. Post-land reform landlords reported the least frequent regular visits to the cooperative. Pre-land reform tenants and owner-cultivators, and post-land reform owner-cultivators, reported the most frequent regular visits. Only a small percentage of these groups, in contrast to 13 percent of the post-land reform landlords, reported that they never visit the cooperative.