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TERMINATION REPORT

of

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Nature and Extent of Proposed Agricultural Program

Agriculture bulked large in the initial plans of the War Relocation Authority. The Executive Order creating the Authority authorized the Director to: "Provide, insofar as feasible and desirable, for the employment of such persons at useful work . . . ." Since a large percentage of the evacuees, while residing on the West Coast, had been employed in agricultural production or marketing activities and, since agriculture products were needed for use in the war effort as well as for feeding the evacuees, it was natural to assume that a large proportion of the evacuees should be employed in agriculture and, therefore, that agriculture should be given a prominent place in the WRA program. This was taken into account in the selection of sites for the centers. The availability of agricultural land, and irrigation water or rainfall were among the chief factors considered in site selection. It was agreed that for a center with a capacity of 10,000 people there should be available at least 10,000 acres of land, a large percentage of which was tillable. On several of the centers, the acreage of land which could be developed for agriculture greatly exceeded 10,000 acres.

While several of the areas consisted entirely of raw land which must be cleared, leveled and irrigated before being available for production of crops, there were considerable acreages on other centers,

notably, Tule Lake, Gila River and Granada, which could be put into crops at once. It was expected, however, that the enormous job of subjugation of raw land would proceed rapidly. A letter dated June 22, 1942 sent by the Director to the Secretary of Agriculture stated: "For the crop year 1942, we will be able to produce only a small amount above our subsistence needs. However, we estimate that for the crop year 1943, we will have approximately 60,000 acres available for commercial production, and a still larger acreage for 1944 and succeeding years." Preliminary estimates at that time of the amount of land which would be available in 1944 were placed as high as 142,000 acres.

Since, when they were on the West Coast, it was rather common for evacuee women and children as well as men to work in the fields, it was estimated that from 50 to 70 percent of the total population of the centers would be available for work and it was contemplated that 50 percent or more of those working would be employed in agriculture, the remainder being employed in industry, center operation, etc. It was thus anticipated that there would be from 25,000 to 35,000 persons employed in agriculture. The evacuees had the reputation of being very industrious and it was expected that the amount of work accomplished per worker on relocation centers would at least equal, and probably greatly exceed, that of the average worker on the outside. Therefore, in view of the conditions, plans were made to conduct a very extensive agricultural program.

It was the desire of the Authority that the labor of the evacuees be used to the best advantage in furthering the war effort. First consideration was to be given to the production of food--vegetables and livestock products--needed in feeding the evacuees. The feed needed in feeding the livestock would be raised insofar as possible. It was expected that the production of food and feed crops needed for use on the center would require only a relatively small proportion of the crop land and that large quantities of produce would be produced for sale. It was expected that these products would be sold to the Army, Navy, and Lend Lease Administration. It was thought that by selling direct to the Army, Navy or for Lend Lease we could make a direct contribution to the war effort and that by avoiding selling our produce on the open market through regular marketing channels we would not disrupt the farmers' markets.

With the ideas of a very large commercial agricultural production program in mind, we set about the task of determining the kinds and amounts of crops which should be produced at the centers. Studies of available records of climatic conditions, soil types, etc., were made. We also consulted with the Department of Agriculture, the Quartermaster Department of the Army, and the Bureau of Supplies and Accounts of the Navy in determining what agricultural products were most needed in the war effort. It was generally agreed that vegetables, especially the staple vegetables, such as carrots, cabbage, onions and potatoes should be given primary consideration. It was expected that large quantities of these would be dehydrated for use

overseas by the Army or Navy, or for Lend Lease. It was also recommended that we grow large quantities of vegetable seeds which were at that time needed for use in this and foreign countries. We also contemplated growing oil crops such as flaxseed, castor beans, and soy beans. It was expected that large acreages of long staple cotton would be grown at the Arizona Centers. We planned to grow pyrethrum which was needed in the preparation of insecticides. We also considered growing guayule and Russian <sup>a</sup>dandelion for rubber production. It was also suggested by some that we produce a variety of other products such as silk, ramie, hemp, and angora rabbits. One person who had always been considered somewhat of a cotton authority even insisted that we grow Sea Island cotton at the Arkansas Centers, even though he knew that farmers had not been able to produce Sea Island cotton at a profit. These and many other suggested enterprises were investigated at some length but after investigation were not adopted. I believe that those in charge of planning the agricultural program deserve credit for turning down many of the suggestions which were made.

#### Change in Agricultural Plans

At about the time detailed plans for agriculture production were beginning to take definite form, the Authority officially decided that evacuees would be given leave for outside employment, and that the chief emphasis of the Authority would be placed on relocation of the evacuees rather than their employment on the center for the

duration of the war. This decision, therefore, necessitated an almost complete reversal of the agricultural plans. Instead of producing large quantities of crops for use outside the center, it was agreed that chief consideration should be given to the production of crops needed for consumption on the centers and that, if land and labor in addition to that needed in producing such crops was available, we would then produce crops needed in the war effort. This is set forth in revised Administrative Notice No. 14 issued February 15, 1943, in the following words: "It is the policy of the Authority to produce as large a percentage as possible of the crop and livestock products needed for the feeding of the evacuees. If land and labor in addition to that needed in the production of subsistence crops and livestock products are available, they should be used in the production of commodities needed in the war effort." In these subsistence plans, it was generally agreed that first consideration should be given to the production of vegetable crops. Plans called for the production of a wide variety of vegetable crops with emphasis being given to early spring and late fall production in order that the harvesting period might be spread as much as possible. The plans also called for the building of vegetable storage cellars and the storage of potatoes, carrots, cabbage, onions, etc., for winter use. Due to the dietary need for green leafy vegetables, it was planned that considerable quantities of these should be produced. Since the harvest season for most

vegetables in the Arizona centers was during the months of October to May, inclusive, it was planned that during these months shipments of fresh vegetables would be made from the Arizona Centers to the other centers. Since potatoes could not be grown to advantage and since root crops could not be stored to advantage in Arizona, it was planned that some of the northern centers would produce and store root crops, especially potatoes, for shipment to the southern centers. Through this system of shipment between centers, coupled with the production on the center, it was thought that WRA could produce at least 90 percent of the vegetables needed for subsistence.

#### The Livestock Program

Hog and poultry enterprises were planned for each of the centers. It was thought that the hog enterprise had a particular place in the agricultural program since hogs could subsist largely on garbage and on cull vegetables. There was some difference of opinion as to whether hog breeding enterprises should be conducted on the center, or whether the feeder pigs which were required should be purchased outside. In general the Washington Staff favored purchasing feeders while most of the center preferred to raise them. After much consideration it was agreed that breeding enterprises should be started at all the centers with the exception of Heart Mountain, Manzanar, Jerome and Rohwer. At most of the centers

where breeding enterprises were started, it was originally planned that practically all the feeder hogs which were needed would be raised on the center. These plans never fully materialized, however, and as a result only a relatively small percentage of the hogs ~~fed~~ were raised on the center.

Experience has shown that the decision to raise feeder hogs on the centers was probably unwise. In the first place, facilities for the farrowing and raising of feeder pigs were not available but had to be constructed and, in most cases, breeding operations were attempted before adequate facilities were available. In the second place, very few of the evacuees had had previous experience in raising pigs and in spite of the efforts of the agricultural personnel on the appointed staff to properly supervise the enterprise the evacuees persisted in keeping the sows too fat. As a consequence many of the pigs farrowed were weak and the death loss was high. As a result of this experience the hog breeding enterprise was drastically reduced, if not entirely eliminated, on most centers in the summer of 1944.

Since both poultry meat and eggs were desirable from the standpoint of the diet and since the evacuees had a reputation of being excellent poultrymen, it was decided that poultry enterprises should be conducted on all centers. The general plans called for 1 to  $1\frac{1}{2}$  laying hens per person, that is, on a center with a population of 10,000 evacuees, we would have 10,000 to 15,000 laying hens. It was planned to produce from 25 to 40 pounds of poultry meat per person per year. As we look back upon the experience in the poultry

production, we question whether the Authority was justified in entering into the poultry business. Since no housing facilities were available and it was necessary to construct all the houses needed and purchase the equipment required, the cost of initiating this enterprise was rather high. Since the program was of short duration, it being anticipated from the beginning that it would not last more than five years, the outlay for housing and equipment put a large overhead on the enterprise. The laborers worked only eight hours per day and consequently if the brooder houses were tended sixteen to twenty hours per day which was desirable during the brooding season, it meant that two or more crews were responsible for the production of a given flock of chicks. This lack of exclusive responsibility coupled with the lack of financial interest resulted in inadequate care of the chicks. Since poultry subsist largely on grain or grain products and, since on most centers we were in a position to produce but very little grain during the first year, it was necessary that most of the feed for poultry be purchased. It is thus probable that if accurate data were available, they would show that the poultry enterprise was conducted at a loss. The chief advantages of the enterprise were: first, that we were assured of a moderate supply of poultry and eggs, and second; it was not necessary for us to purchase all of our requirements on the outside in competition with the Army and Navy and civilian population generally.

It was agreed that beef cattle enterprises should be conducted only on centers where adequate pasture was available. It was agreed that the beef cattle enterprises conducted should consist of cattle feeding, and that no cattle breeding enterprise was to be entered into. Since the cattle would subsist primarily on pasture, and since cattle of common to medium quality would produce beef of sufficient quality for our needs, it was agreed that, as a rule, common to medium feeder steers should be purchased. It was found on some centers that steers were scarce and high in price and it was, therefore, contended by the agricultural personnel on some centers that cows should be purchased as feeders. Our experience showed that in many cases a large percentage of these cows were with calf when purchased and, as a result, the production of the calf delayed the time when the cow was ready for slaughter as well as leaving us with a calf which would not be large enough to slaughter for at least two years. As we see it now, it would probably have been better had we adhered to the original plan to confine our purchase to steers. If cows were purchased, we should have assured ourselves that they were not with calf when purchased.

It was agreed from the beginning that dairy enterprises should be started only where it was found impossible to obtain a satisfactory supply of milk within a reasonable shipping distance. A statement appearing in Administrative Instruction No. 14 issued June 23, 1942 stated: "Dairies will ordinarily not be established on relocation

areas because of the indefinite period of occupation of a center, State and local sanitary requirements and other regulations, and the lack of experience in dairying on the part of the evacuees." Many of our agricultural friends and especially those interested in nutrition were surprised at this decision, since they contended that from the standpoint of nutrition, an adequate supply of fresh milk should be given first consideration in a subsistence program. In reply to this, we pointed out the expenditure required to equip a dairy plant, the probable short life of the relocation program, the lack of experienced dairymen among the evacuees and the probability of poor management in view of this lack of experienced dairymen. Only one dairy enterprise was started and while this was reasonably successful, we believe that the decision to limit the number of dairy enterprises was fully justified.

#### Methods of Planning the Subsistence Program

In formulating the agricultural program, a studied effort was made to fit the program to consumption requirements. It was recognized that the Japanese diet differed somewhat from the diet of the average American and, therefore, the consumption requirements would likewise differ. Very little information was available, however, as to what extent or in what respects the Japanese diet differed from that of the average American. At our request, therefore, the Committee on Food Habits of the National Research Council made a study of the Japanese-American diet. In brief, this study indicated that Japanese

were very fond of fresh vegetables, especially the leafy vegetables. They, however, normally consumed relatively small quantities of potatoes; rice being relied upon primarily to supply a large portion of the starch used in the diet. They were also very fond of certain foods which were not normally consumed by the average American such as daikon, (a large white radish) and gobo, (a burdock). They were also very fond of certain soybean products, such as tofu and miso. Much of the daikon as well as many of the common vegetables are put through a pickling process before being consumed. This information, together with information of the same nature obtained from other sources, was helpful to us in the planning of the program and showed us the desirability of increasing leafy vegetables over that which we had originally thought desirable, with a consequent decrease in the quantity of potatoes originally thought necessary.

It was natural for us to look to the project stewards for information as to the kinds and amounts of foodstuffs needed for subsistence since they, rather than the agricultural workers, were responsible for the feeding of the evacuees. We, however, were able to obtain but little information from this source since very few, if any, of the project stewards had previous experience with the feeding of persons of Japanese descent. Most of the information which they had relative to the quantities of different foods needed was obtained from the Army or from hotel and commercial restaurant records. We were, therefore, able to obtain but little information

from our project stewards as to the dietary needs since they disclaimed knowledge of diets and some stated proudly that they were "cooks" rather than "dietitians". In determining the kinds and amounts of foodstuffs which would be produced, we felt that consideration should be given to the dietary needs of the population for whom we were producing. We obtained much assistance from the Bureau of Home Economics of the Department of Agriculture on the dietary value of different foods and thus were able to take the dietary requirements into account in the formulation of our subsistence production program. We believe that this consideration was very desirable and that we would have been remiss in our duty had we not kept the dietary needs of the population definitely in mind in the formulation of our production program.

It was necessary, of course, in planning the program for a particular center, that we give consideration to soil and climatic conditions of that center. Available information relative to soil type, temperature, length of growing season, etc., for the several centers was obtained for this purpose.

After the information on both dietary needs and physical conditions was obtained as indicated above, we then made a trip to each of the centers to assist the agricultural personnel in planning the program for their particular center. Evacuee foremen and project mess personnel, as well as agricultural personnel, were in attendance at these meetings. In order that we might have a common background much of the information which had been obtained relative to Japanese diets and nutritional needs was reviewed and discussed, and additional

information relative to Japanese diets was sought from the evacuees in attendance. In determining the crops to be grown, it was our aim to stress both early and late crops thus "spreading" the season as much as possible. It was also our aim to lay special stress on the production of those crops wherein a large amount of digestible nutrients could be produced per acre with a minimum amount of labor--in other words, the production of the staple vegetables such as carrots, cabbage, onions, etc. We found that the evacuees particularly stressed leafy vegetables since they desired these in preference to some of the more common vegetables. As a result of these discussions we ordinarily included a wide variety of vegetables in our production programs. Some persons have criticized these programs and intimated that we had attempted to grow everything in the seed catalogue. It is true that we could have greatly reduced the number of vegetables which were planted. However, we do not believe this was a serious criticism since it did spread the risk and did help greatly in increasing the variety in the diet.

Plans were made for the production of relatively large quantities of vegetables which could be stored for future use such as potatoes, carrots, cabbage, onions, squash, etc. Since several of the centers, especially the Arizona centers, could not store vegetables to advantage, plans were made for some of the northern centers especially Tule Lake and Minidoka to store additional quantities of vegetables for shipment to the Arizona centers. The Arizona centers,

on the other hand, harvest most of their leafy vegetables during the months of October to May, inclusive. Since leafy vegetables were needed at the northern centers during this period, plans were made for the Gila River Center to produce fresh vegetables for shipment to other centers during the winter and early spring months. The centers were thus interdependent insofar as the food production program was concerned, some of the food requirements being supplied at certain times from current local production while at other periods the supply was furnished from stored products shipped from other centers.

In determining the kinds and amounts of vegetables to be shipped, preference was given to the "more essential" vegetables such as carrots, cabbage, onions and potatoes. Preference was also given to production of those vegetables which could be shipped in bags and did not require package icing. "Less essential" or "luxury" vegetables such as cucumbers, watermelons, and cantaloupe were not shipped between centers since it was felt that the transportation of this type of vegetables could not be justified, in view of the shortage of transportation facilities.

The livestock production program was planned in much the same manner as is outlined above for the vegetable production program. It was planned that each center should produce insofar as possible all of the pork which was needed as well as a large proportion of the poultry and eggs. Beef production was planned only on those centers

where pasture was available. During the first year no plans were made for the shipping of livestock or livestock products between centers. However, in planning the production program for the calendar year 1944, plans were made for Gila River to supply Colorado River with beef. Granada was to supply Heart Mountain with beef, while Central Utah was to supply Minidoka. These plans were carried out very well at Gila River and this center supplied Colorado River with beef for about sixteen months. The plans for beef cattle production at Granada and Central Utah did not materialize as had been originally planned partially due to the difficulty of obtaining feeder cattle. As a result, Granada shipped only one carload of cattle to Heart Mountain, while Central Utah supplied Minidoka with beef for only a few months.

The production of beef at Gila River for use at Colorado River worked satisfactorily. A contract was made with the Tovrea Packing Company of Phoenix for the slaughtering of beef for both Gila and Colorado River. After the cattle were slaughtered, part of the beef was trucked to Gila and part to Colorado River.

As we see it now it is probable that we were not justified in attempting to produce beef at Granada for use at Heart Mountain nor were we justified in shipping beef cattle from Central Utah to Minidoka. This is primarily because of transportation costs. In each case, very few cattle were shipped in the direction in which

we were shipping and, therefore, no adjustments had been made in freight rates. The rate on beef cattle from Delta (Central Utah) to Hunt (Minidoka) was 44¢ per cwt. while that from Granada to Heart Mountain was 67½¢. It was not thought desirable to ship dressed beef since refrigerator cars equipped for the hanging of beef carcasses were difficult to obtain, the majority of such cars being owned by the packing companies. A further deterrent to the shipping of dressed beef was the requirement that all interstate shipments must be slaughtered under Federal inspection.

#### Operation and Management Problems

Many problems were faced in putting the agricultural program into effect. In the first place, much of the land had to be prepared for agriculture production. At Heart Mountain, Minidoka and Colorado River all of the land was raw, none of it had been subjugated. It was, therefore, necessary that this land be cleared, leveled, and irrigated. The growing of intensive crops, such as vegetables, on new land the first year out of sage brush was practically unheard of and many predicted it could not be done successfully. The land in the Arkansas Centers was cut-over timber land which was badly in need of drainage and, of course, had to be cleared. The land at Manzanar previously had been farmed but much of it was very sandy and the duty of water was high. The land at Central Utah was very alkali and extremely heavy and impervious. The most favorable conditions for crop production existed at Tule Lake, Gila River and Granada. The soil at Tule Lake was of excellent quality. However,

the season was very short and it was not unusual to have frost ten or eleven months during the year. While many vegetables were grown in the Salt River valley in Arizona, many predicted that vegetables could not be grown to advantage on the soil type existing at the Gila River Center. Likewise it was predicted that many of the vegetables, especially potatoes, could not be grown at Granada. Despite these handicaps, however, a total of 7,637 acres of vegetables and 6,431 acres of feed crops were grown in 1943. A total of 38,618,000 pounds of vegetables were produced. In 1944 a total of 5,954 acres were grown with a production of 36,789,000 pounds.

Another problem was that of obtaining agricultural machinery and equipment. It is obvious that this was no small task. During the calendar year 1943, there were no governmental limitations on the purchase of agricultural equipment. Furthermore, since this was early in the war period, a fair amount of both new and used agricultural equipment was available for sale. Some of the centers, especially Tule Lake, Gila River, Manzanar, and Colorado River obtained considerable quantities of equipment in 1942. However, several of the other centers which were not populated until late in 1942 did not attempt to obtain agricultural equipment until the spring of 1943. At this time new agricultural equipment was rationed and was, therefore, difficult to obtain. While some new equipment was obtained at some of the centers, other centers obtained used equipment primarily. Much difficulty was experienced in 1944 in obtaining equipment needed. The manufacture of farm machinery was closely

controlled through the allocation of steel. Before machinery could be ordered it was necessary to obtain a certificate of necessity from the War Food Administration. We were able to obtain certificates for only a fraction of the machinery requested. After a certificate was obtained, it was not always possible to find a manufacturer who could supply the machine. In 1942 and 1943 some centers, in anticipation of a very large production program had obtained some machinery which they did not need now that the crop production program had been confined to subsistence needs. Early in 1944 we arranged for the transfer of surplus machinery between centers. This aided greatly in supplying the needs of some centers.

Another problem which had to be faced in initiating the agricultural program was the construction of buildings and facilities such as poultry houses, hog houses, feeding lots, garbage feeding platforms, etc. Since no buildings were available on any of the centers, with the exception of Granada and Central Utah, it was necessary that all of the facilities required be constructed. Since the Engineering Division which was in charge of the construction program was, at that time, fully occupied with the construction of facilities needed in housing the evacuees or providing for their needs, it was impossible in many cases for them to give high priority to the construction of agricultural facilities. In many cases, it was necessary that the agricultural crews construct temporary facilities. As a result, the livestock enterprises on many of the

centers were started with wholly inadequate physical facilities. In many cases, the hog enterprise was started with only a few lots made of temporary fences and garbage was fed on the ground or on temporary wooden platforms. Baby chicks were ordered before brooder houses were constructed and, in many cases, at the time the chicks were delivered the brooder space was wholly inadequate. As a consequence, it was necessary to crowd the chicks much more than was desirable. In many cases, the construction of laying houses lagged much behind schedule and as a result pullets were maintained in overcrowded brooder houses when they should have been in laying houses. As a result of this lack of physical facilities, both the hog and poultry enterprises were not conducted as efficiently as was desirable. However, the losses during the first few months were much smaller than might have been expected under these unfavorable conditions. This demonstrated that the feeding and care was fairly good--had it not been, the losses would normally have been very large. Had it been possible to have foreseen how long it would take to construct satisfactory facilities, it is probable that the initiation of the livestock enterprises on several of the centers would have been much delayed. Agriculture personnel, however, continued to be optimistic throughout the program and as a result the amount of livestock on hand was ordinarily in excess of the amount which could be handled efficiently with the physical facilities. It was not until about the end of the year in 1944 that physical facilities for live-

stock became reasonable adequate and, in many cases, this was the result of reducing the number of livestock to fit the physical facilities, rather than indreasing the physical facilities to correspond with the planned numbers of livestock.

Another problem which was faced in the agricultural program was that of labor efficiency. As was previously stated, the evacuees had the reputation on the West Coast of being very industrious and it was expected that the amount of work accomplished on the relocation center would at least equal, and probably greatly exceed, that of the average worker on the outside. Experience on the centers, however, showed that this was not the case. Most of the experience which the evacuees had in farming had been with farm operations of a small or medium size. They were, therefore, inexperienced in organizing and managing enterprises as extensive as those on the centers. Many of the evacuees were specialists in growing one or more crops but did not have experience with a wide variety of crops such as were grown on the center. Therefore, while an individual might be an expert in the production of head lettuce, for example, he might know practically nothing about the production of cabbage, potatoes, or onions. The soil and climatic conditions experienced at the centers were much different from those on the West Coast. Consequently the evacuees technical knowledge of the cultural practices, irrigation methods, etc., which were applicable on the West Coast was not wholly applicable at the relocation centers.

However, many of the evacuee foremen insisted on using their own methods and until their methods were proven inapplicable were not willing to accept advice from the appointed agricultural personnel. It thus took one season or more for many of them to become reasonably proficient in crop production techniques. Comparatively few of the evacuees had experience in the production of grain or hay, or with the garbage feeding of hogs. This lack of applicable technical knowledge thus resulted in inefficient use of labor.

Another cause of labor inefficiency was the lack of financial interest on the part of the evacuees in the work they were doing. Some of them deeply resented the evacuation and did not feel kindly towards the government. The wage scale of \$12, \$16, or \$19 per month was something over which they could not become enthusiastic. In the early days of the center history, they had been led to believe that some cooperative profit-sharing plan would be worked out wherein they might share in any profits obtained from the agricultural program. When such a plan was not put into effect, many of them were disappointed since there was little or no hope of individual reward for exceptionally meritorious work. It was believed by the Administration, however, with which belief we are in full accord, that the making of employment on the center profitable to the evacuees was inconsistent with the main objective of the Authority, which was relocation.

Another reason for low labor efficiency was that many of the evacuees were not employed in positions where their highest skill could be used. Many were interested in getting an easy comfortable

job, or in learning new skills. Therefore, many of the persons who had most experience in agriculture production on the West Coast sought employment in the mess halls where they could be warm in the winter time, or as automotive mechanics, or electricians where they could learn new skills. Conversely many of the persons employed on the center farms had had no previous experience in agriculture. While this situation resulted in labor inefficiency on the center, it probably was valuable from the vocational standpoint, in that many of the evacuees learned new skills which probably increased their opportunity of obtaining employment on the outside.

#### Vegetable Storage

As was previously mentioned, the agricultural plans called for the storing of considerable quantities of vegetables for consumption during the winter and early spring months. In accordance with these plans, considerable quantities of vegetables were stored at Tule Lake, Minidoka, Heart Mountain, Granada, Central Utah and Manzanar. No storage was attempted at the Arizona centers due to climatic conditions. Some storage was attempted at the Arkansas Centers but this was largely unsuccessful due to a combination of weather, inadequate storage facilities, and lack of knowledge of proper methods of handling storage cellars. The vegetable storage operations at the other centers were in the main very successful. Especially good results were obtained at Minidoka and Heart Mountain.

At each of these centers two excellent storage cellars were constructed. The design and construction of these cellars were excellent and the management was also very good, therefore, the results were very satisfactory. Some losses in storage were experienced at Granada, Central Utah and Manzanar due partially to inadequate storage facilities and partially to lack of proper management.

#### Food Processing

The food processing program was formulated as an adjunct to the agricultural program. It was felt that by processing foods such as peas, tomatoes, etc., these could be then stored for use during winter months. Three methods of processing were used; namely, pickling, canning, and dehydrating.

#### Pickling

As has been stated previously, the Japanese were very fond of pickled products especially pickled daikon. The pickling consisted primarily of placing the whole vegetables in a vat and adding salt. A weight was then added to keep the vegetables submerged under the liquid which was drawn from the vegetable by the salt. Fermentation was allowed to proceed to the point where the proper flavor was obtained--in other words, the processing used by the evacuees in pickling vegetables is identical to that used in making kraut with the exception that whole, rather than cut, vegetables are used. The pickling was as much a method of food preparation as it

was a method of food preservation, since many of the products were eaten as soon as they reached the desired flavor. Considerable quantities of vegetables were pickled at each of the centers. At some of the centers this was confined primarily to daikon while at other centers considerable quantities of cabbage, turnips, beets, cantaloupe, Japanese cucumbers, etc., were pickled. The supervision of the pickling varied considerably from center to center. In some places all the pickling was carried on in the mess halls and was under the supervision of the project stewards. At other centers pickling was done at the central point, and in most cases that done during 1943 was under the supervision of agriculture while that done in 1944 was carried on under the supervision of Mess Management.

#### Canning

The canning of vegetables, especially tomatoes, was recommended by the Washington Office. It was our belief that since tomatoes were especially desirable in the diet and could not otherwise be stored, canning had a very definite place in the program. Canning instructions put out by the War Food Administration for use in Community Canning Centers were distributed to all the centers. Several of the centers obtained steam retorts and other equipment necessary in canning. Some of this equipment, however, was never installed. Granada, Minidoka, and Rohwer each processed some products. This was only partially successful, however, since in most cases the work was improperly done, due primarily to the fact that

there was no one on the center who was competent to supervise the work. Heart Mountain had several thousands of cans of peas canned at a commercial cannery. This was very satisfactory.

As we look back at the canning program, it must be admitted that the program was not successful. We believe that there was a place in the program for canning, especially the canning of tomatoes, had this work been properly supervised. Since there was no one on the centers who was competent to supervise the work, preliminary arrangements were made to select someone from each center to attend a training school conducted by the War Food Administration for the training of supervisors of community canning centers. It seemed, however, that it was not possible to arrange for persons from the centers to attend these schools, therefore, the project failed due to the lack of competent supervision.

#### Dehydration

When the large commercial program was contemplated, it was anticipated that it would be necessary to construct dehydration plants to dehydrate large quantities of vegetables for use of the armed forces. Even after the program was reduced to subsistence requirements, some of the centers desired to dehydrate products for their own use. This activity was discouraged by the Washington Office since we felt that there was little, or no, justification for dehydrating vegetables for use on the centers. Gila River and Manzanar, however, built small dehydration plants while Minidoka

started the construction of such a plant but never finished it. Small amounts of a variety of vegetables were dehydrated at Gila River and Manzanar in 1943. The dehydrated products, while of fair quality, were not relished by the evacuees since under the conditions fresh vegetables could be obtained. Therefore, the dehydrated products were not consumed. No vegetables were dehydrated in 1944. We do not believe that a dehydration program was justified under the conditions existing in WRA. It especially was not justified at Gila River where fresh vegetables can be produced practically the year round.

#### Cost Accounts

In the beginning of the WRA program, it was recognized by the agricultural personnel that it would be desirable to keep cost account records on a number of the enterprises in the several centers in order that this information might be available for management purposes. For example, the comparison of the costs of producing the same vegetable at several centers might indicate whether it was desirable to produce a certain vegetable at one center for shipment to another center. Likewise the data on cost of producing a certain commodity when compared with the price at which this could be purchased from the Quartermaster would indicate whether it was desirable to produce this vegetable. Realizing the desirability of cost account data, the Agricultural Section, therefore, proceeded with plans for setting up cost account records. It was administratively determined

however, that complete cost accounts, including agriculture cost accounts, should be kept on all centers under the supervision of the Administrative Management Division. A somewhat complicated system was set up. Experience indicates, however, that the system was not applicable to agriculture cost accounts and consequently the data obtained were of but little value to agriculture from the standpoint of supervision of the agricultural work. It is still our opinion that cost account data obtained from certain agriculture enterprises would have been very desirable and would have greatly assisted in the administration of the agricultural program. It is our belief, however, that if data are to be obtained, the keeping of the records must be under the supervision of someone who is thoroughly conversant with agricultural cost accounts.

#### Conclusions

In general I believe it truthfully can be said that the agricultural program of the Authority was fairly satisfactory. While the program was not as large as that which was initially intended, we did produce a large percentage of the vegetables and meat which was needed for consumption on the centers thus reducing by that amount the quantity of food products which were purchased on the market in competition with the armed forces and the civilian population.

Probably one of the most important results of the program was its effect on public relations. At the time the Relocation Centers were established, there was a very strong feeling against

the evacuees on the part of many persons. In the beginning much publicity, unfavorable to WRA, was put out as to what it would probably cost to feed, and care for the evacuees. When it was made known, however, that the labor of the evacuees was being used in producing as large a proportion as possible of the food needed in their maintenance, the criticism subsided somewhat. On numerous occasions in personal conversation with friends, I found them of the opinion that the government was treating the evacuees better than they deserved. When I pointed out that the labor of the evacuees was being used in the production of vegetables, meat, hogs, and beef cattle, together with the production of feed for the feeding of livestock, the typical expression was to the effect: "Well, that puts a little different light on it. I am certainly glad to learn that the War Relocation Authority is trying to make them pay their own way." I feel that the public relations would have been much more difficult had it not been for the agricultural program.

The agriculture program was of considerable value from the vocational education standpoint. While many of the evacuees had been engaged in agriculture on the West Coast, they knew little, or nothing, about agricultural conditions in other parts of the country. They soon learned that many of the methods used in crop production on the West Coast would not work under the soil and climatic conditions in other parts of the country. It was thus necessary that they learn new methods applicable to the conditions on the centers.

Many of the evacuees while on the West Coast specialized in one or two crops and knew very little about growing other crops. On the relocation centers they thus had an opportunity of broadening their technical knowledge. Many evacuees who had been engaged in industry, commerce, or professional work on the West Coast now had an opportunity to obtain knowledge of agricultural production. This increasing and broadening knowledge of agriculture doubtless was of value to hundreds of individuals in relocation. Probably one of the most important values, however, was the psychological value in that it gave the evacuees confidence in their ability to adjust to meet new conditions. Since they had demonstrated that they could grow crops under conditions differing from those found on the West Coast, they realized that they could again be successful in growing crops under conditions differing from those on the West Coast or in the Relocation centers.

It is, therefore, believed that the agricultural program achieved its original objectives to a reasonably satisfactory degree and in many respects there were desirable byproducts which had not been anticipated when the program was initiated.

# MEAT AND DAIRY PRODUCTION

Center	BEEF PRODUCTION			PORK PRODUCTION			DAIRY
	Value used at center where produced	Value sold to other centers	Value sold on open market	Value used at center where produced	Value sold to other centers	Value sold on open market	Value of milk pro- duced
C. Utah	129,006.06	30,274.60	—	97,424.41	—	—	—
Colo. R.	—	—	—	47,502.50	—	—	—
Gila R.	268,516.00	129,922.00	201.00	152,294.00	4,914.00	8,108.10	63,099.34
Granada	136,357.20	4,094.64	25,510.74	105,865.00	—	5,447.00	1,847.00
Ht. Mt.	—	—	—	88,667.29	—	—	—
Jerome	—	—	—	75,000.00	260.00	—	—
Manzanar	23,560.23	—	—	67,288.00	—	720.00	—
Minidoka	—	—	—	186,470.16	—	—	—
Rohwer	—	—	—	98,147.50	5,445.00	—	—
Tule Lake	—	—	—	372,000.00	—	37,801.10	—
Total	557,439.49	164,291.24	25,711.74	1,288,858.86	10,619.00	52,078.20	64,946.34

NOTE: Final reports from all centers used as basis for assembling above data. Estimates were made where information included in reports was not complete. It appears from a search of the files that there is no complete record of beef and pork production that is more dependable than the data assembled here.

PREPARED BY: Reports Division with the cooperation of the Operations Division and Fiscal Section.

May 14, 1946

# VALUE OF POULTRY PRODUCTION

Center	POULTRY					TURKEYS
	Number birds slaughtered*	Value of meat produced*	Value of birds sold to open market	Dozen eggs produced	Value of eggs produced	Value of meat produced
C. Utah	9,198	9,520.76	—	82,734	34,440.70	6,571.00
Colo. R.	40,596	98,014.00	—	126,981	53,331.02	—
Gila R.	15,171	30,342.00	—	182,513	80,305.72	—
Granada	21,376	16,777.60	—	20,377	4,686.71	—
Ht. Mt.	8,150	12,238.65	—	94,867	30,015.61	—
Jerome	—	—	—	—	—	—
Manzanar	15,718	13,935.00	—	113,855	45,520.00	—
Minidoka	17,619	33,784.74	—	90,315	35,372.73	—
Bohwer	3,921	6,071.36	—	—	—	—
Tule Lake	1,654	1,141.26	14,318.65	129,595	11,838.00	3,111.95
Total	133,403	211,825.37	14,318.65	841,237	295,510.49	9,682.95

\*Difference in value of meat per bird slaughtered due to the slaughter of birds at various ages and variation in values used at the various centers.

NOTE: Final reports from all centers used as basis for assembling above data. Estimates were made where information included in reports was not complete. It appears from a search of the files that there is no complete record of poultry and turkey production that is more dependable than the data assembled here.

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May 14, 1946

TOTAL VEGETABLE AND FORAGE PRODUCTION ALL CENTERS\*

Center	Pounds of vegetables produced	Value of vegetables produced	Value of forage & grain produced	Value of vegetables shipped other centers	Value of vegetables sold on open market	Value of forage & grain sold on open market**	Value of forage grain sold other centers
		\$	\$	\$	\$	\$	\$
C. Utah	1,437,387	32,265.00	53,525.00	—	—	—	—
Colo. R.	7,237,620	368,721.41	19,311.50	—	—	—	—
Gila R.	43,986,912	1,319,517.36	278,652.00	359,350.91	6,456.36	88,335.72	—
Granada	6,051,661	181,519.83	379,751.00	40,818.30	9,541.38	17,261.00	—
Ht. Mt.	5,414,697	190,433.49	21,21,609.00	2,611.36	2,633.12	956.17	2,326.26
Jerome	147,973	44,129.19	3,892.80	1,135.26	856.05	—	—
Manzanar	7,747,201	217,228.00	4,550.00	25,438.80	—	—	—
Minidoka	4,932,872	162,645.30	7,357.59	13,735.74	—	1,035.61	—
Rohwer	3,493,064	203,398.25	9,758.79	6,055.56	1,369.00	—	—
Tule Lake	29,904,568	1,046,659.88	74,075.66	160,125.00	45,000.00	33,842.00	—
<b>Total</b>	<b>110,353,955</b>	<b>3,766,517.71</b>	<b>852,483.34</b>	<b>609,270.92</b>	<b>65,855.91</b>	<b>141,430.50</b>	<b>2,326.26</b>

\*Period of center operation, 1942 - 1945.

NOTE: Final reports from all centers used as basis for assembling above data. Estimates were made where information included in reports was not complete. It appears from a search of the files that there is no complete record of acres of land utilized for vegetable and forage production that is more dependable than the data assembled here.

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\*\*Includes rental received for pasturage.

LAND DEVELOPED AND UTILIZED IN THE WRA AGRICULTURAL PROGRAM\*

Center	Land subjugated by others	Land subjugated by WRA	Maximum acres cultivated	Maximum acres vegetables	Acres forage & grain	Irrigated or dry farming	Cost per acre WRA subjugated
C. Utah	2,918	2,000	4,918	340	4,578	4,918 irr	100.00
Colo. R.	-----	2,500	2,500	895	1,552	2,500 irr	157.50
Gila R.	6,977	40	7,017	1,940	5,077	7,017 irr	50.00
Granada	4,966	-----	4,966	531	3,922	4,966 irr	-----
Ht. Mt.	-----	1,844	1,844	818	733	1,844 irr	7.74
Jerome	90	630	720	655	66	30 irr 625 dry	-----
Manzanar	-----	550	550	440	110	550 irr	-----
Minidoka	10	1,166	785	488	297	785 irr	65.00
Rohwer	774.5	740	998.5	561	437.5	310 irr 1,514.5 dry	30.00
Tule Lake	3,102	-----	3,102	1,300	1,802	3,102 irr	-----
Total	18,837.5	9,470	27,400.5	7,968	18,574.5		

\*Period of time represented, 1942 through 1945.

NOTES: Discrepance in total acreages is due to lack of information regarding total land used. This includes miscellaneous tracts that were leased and miscellaneous pasture lands.

Represents maximum acres utilized during peak year.

Final reports from all centers used as basis for assembling above data. Estimates were made where information included in reports was not complete. It appears from search of files that there is no complete record of acres subjugated or utilized that is more dependable than the data assembled here.

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Name	Soil	Rain	Irrigation	Land already Subsided	Beef Cattle				Dairy	Hogs				Poultry				Mules	Horses	Wood- cutting	Vegetables & Feed				Shipped out		Fish Culture		Nursery	Seed Farm			
					Purchased	Value	Slaughtered	Begin		End	Par. chased	Slough- land	No. of pork	Begin	End	Par. chased	Laying flocks				Eggs (dozen)	Slough land	Varieties	Acres	Stock	Begin	End	Other outside			Outside	Begin	End
Mangana	Sandy- medium fertilizer	4 1/2"	✓	15 yrs ago	294	76	361	12/43	12/44	—	11/43	11/45	2,320	2,066	396,125	7/43	11/45	20,000	7,350	113,855	15,718	—	—	32	440	✓	✓	6/42	fall '44	\$ 22,895.	—	?	
Poston	fertile river sediment	5" ?	✓	none	—	—	—	—	—	—	1/43	5/45	4,075	3,292	667,180	10/42	8/45	121,846	?	126,981	40,596	—	—	28	2,500	—	—	6/42	?/45	—	Apr. '42 Fall '42	Artificial, trees, plants, etc.	
Topaz	heavy clay- alkaline	7.6"	✓	3835	1828	69	1,462	Fall/42	1/45	Minidoka 288	5,550,37	—	—	—	—	—	—	—	—	—	—	—	26	4,918	—	Some	11/42 ?	Apr. 45	none ?	—	Plants & landscaping		
Jerome	heavy clay, no drainage	50" ?	No	600-60 marginal	—	—	—	—	—	—	1/42	6/44	2,656	2,259(?)	375,500	—	—	—	—	—	—	—	29	630	Some	—	Apr/43	6/44	\$ 1135.26	\$ 856.05	—	?	
Rahwa	1/2 Jumbo 1/2 loam	50" ?	✓	774.6 Value 1 land imp. \$22,200.	—	—	—	—	—	—	6/43	?/45	2,680	1,947	412,552	1/44	?/44	12,200	none	none	13,522 lbs. 3,921 no.	60	40	775	—	1/43	12/44	\$ 1728.76	\$ 1369.	—	?		
Gila R.	sandy loam	10-15" ?	✓	✓ 6977	6015	672	4008	2/43	10/45	1940	—	134,475 gals produced 384 cows ?	1/43	10/45	6483	4,645	843,342	5/43	10/45	38,000	?	182,513	15,171	2	11	43 + 944 + 6977 united	✓✓✓	8/42	10/45	lakes	tanks	Flowers, shrubs, trees, bedding plants etc.	✓
Minidoka	fertile	10"	✓	10	—	—	—	—	—	—	—	5/45	—	—	563,637	4/43	5/45	29,000	?	90,415	?	—	—	33	785	✓	—	9/42	5/45	lakes	—	?	



Summary of  
Agriculture at  
the Center

(Estimates, with  
some blanks)