

ANNUAL REPORT
OF THE
COUNTY AGRICULTURAL AGENT
FOR
GREENLEE COUNTY
PERIOD
FROM DECEMBER 1, 1943 to August 31, 1944

BY
K.A. BOEVERS
COUNTY AGRICULTURAL AGENT
DUNCAN, ARIZONA

INDEX

	PAGE
Cover Page	
Index.....	1
Summary of Activities and Accomplishments.....	2-3
Changes in Extension Organization.....	4
Problems Determining Extension Program.....	5-6
Activities and Results	
A. Soils	
Cereals.....	7
B. Farm Crops	
Cotton Production.....	7-8-9
C. Horticulture	
Mixed Vegetable Production.....	9-10-11
Lettuce Production.....	11
Potato Disease Control.....	12
D. Rodent Control.....	12-13
E. Irrigation Practices.....	13-14
F. Poultry Production.....	14-15
G. Range Management.....	15-16
	17-18-19
H. Boys' & Girls' 4-H Club Work.....	19-20
I. Dairy Herd Improvement.....	20-21
J. Weed Control.....	21-22
K. Orchard Improvement.....	22-23
L. Farm Planning.....	23
M. Soil Conservation.....	23
N. Farm Labor.....	23-24
O. Miscellaneous.....	24
Outlook and Recommendations.....	25-26-27

III. SUMMARY OF ACTIVITIES AND ACCOMPLISHMENTS

A summary of the activities and accomplishments of the past eight months must, of necessity, center around the attempt to meet the severe water shortage, and labor shortage. Early in the winter, reports of moisture conditions on the Gila water shed began to cause farmers concern. By the first of March, it was evident that unless a miracle happened, farmers of the county would face one of the driest seasons in history. Accordingly, the agent stressed the use of gravity water while it was available, and the adjustment of the cropping plan to meet the reduced water supply. Circular letters were used to warn farmers of conditions, and the agent discussed the matter also, at every meeting held with farmers. As a result, winter irrigation was very complete. In addition, farmers adjusted their crops so as to require the smallest possible amount of water. Considerable land was not even planted, the water being transferred to other cropland. In this way, although practically no gravity water was available from the first of April to the first of August, crops over the valley have not suffered too greatly from lack of irrigation.

Work on cotton consisted of a campaign to establish Greenlee County as a one-variety district. This was accomplished, with the result that it will be much easier to prevent mixture of seed at the gin. Cotton fields were certified for fourteen farmers, while one field was registered.

Although the dry weather greatly handicapped both commercial and home vegetable production, the number of home gardens equalled last year's high record, and there was a slight increase in the acreage of commercial vegetables.

Poultrymen of the county carried out the most thorough culling in history, due to a campaign on the part of the Extension Service to induce poultrymen to cut their flocks to fit feed prices and conditions.

Fifty-six 4-H Club boys carried out 60 projects embracing poultry, gardens, pigs, rabbits, and calves. Club boys also performed a great deal of farm labor and in many cases, took the place of grown men in operation of farm machinery.

III. SUMMARY OF ACTIVITIES AND ACCOMPLISHMENTS (Cont'd.)

The permanent pasture program was continued, and four new variety tests were established. Much time was also given in an effort to keep range operators informed on butchering regulations, market trends, and other matters affecting livestock production. ✓

IV. CHANGES IN COUNTY EXTENSION ORGANIZATION MADE DURING THE YEAR TO IMPROVE REGULAR PROCEDURE OR TO MEET EMERGENCIES.

A continuation of responsibility for the Agricultural Labor Program, caused the Extension Service to continue giving this activity considerable time. Also, to meet the emergency caused by water shortage, the agent stressed the storage of ground water, and the use of pump water to such an extent that some other parts of the Extension Program were neglected.

Due to the confusion created by the misunderstanding of priorities, and also, due to the misunderstanding of many O.P.A. regulations affecting farmers, the agent set aside a very considerable part of his time for these matters, in an attempt to furnish accurate and correct information to farmers.

V. COUNTY EXTENSION PROGRAM

(1). Problems Determining Extension Program

In any program of education it is necessary to adjust the material to be presented, according to the needs of the individual being supplied information. Problems arising during the year, caused Extension plans to be adjusted frequently, and rapidly.

The poor outlook for gravity water caused the agent to warn people against planting those crops having a high water requirement, thus it was necessary to warn people against increasing their alfalfa acreage, even though there was a shortage of feed, and a need for much more alfalfa hay. Likewise, people were warned not to plant commercial vegetables unless they had access to plenty of pump water. The poor prospect for labor, the high cost of pump water, and the extremely high cost of seed were problems which caused the agent to warn farmers against any great increase in the acreage of commercial vegetables. Onion seed of good grade, for instance, was selling at from ten to twelve dollars per pound. This made it inadvisable to plant onions, as the prospect for ample water, and ample labor was not favorable

There continued to be a shortage of leaders for boys' 4-H Clubs. This made it necessary to curtail and adjust 4-H Club activities.

Poultry production was faced with a surplus of eggs, and a severe shortage of feed. This was complicated by a rapid rise in feed prices, and a drop in the price of eggs.

Range cattlemen were faced with a severe shortage of concentrated feeds suitable for feeding on the range, and also with price fixing, butcher regulations, and other matters, which tended to perplex them.

Not only the shortage of labor, but also the high cost of farm labor, threatened to put the cost of production above the market price of some vegetable crops. Labor shortage also affected the cotton acreage. Although cotton was well adapted to this county for production during a water shortage, the matter of cotton picking caused some farmers to hold down their cotton acreage.

V. (Continued)

(1). Problems Determining Extension Program

Many farmers were greatly perplexed during the early part of the year, for they could see little chance of making much income in the present year. The water shortage, high prices of field labor, and general overhead served to present a rather gloomy picture. Giving the farmer sound advice on how to plan his cropping and how to use the available water, proved to be the greatest problem of the year.

V. COUNTY EXTENSION PROGRAM

(3). Activities and Results.

(A). SOILS

CEREALS

An extremely cold, dry winter followed by late freezes and aphid attacks in the spring, caused many grain fields to yield very lightly. The agent advised the majority of farmers to use their fields for hay or pasture, due to the fact that it was difficult to obtain a combine for harvesting the crops, and also because the grain crop in many cases was very poor. During the winter, several circular letters were used, urging people to save expensive hay by pasturing their grain fields.

The matter of using Marketon Oats in preference to other varieties was discussed with a number of farmers. Due to the fact that the future use of oats will perhaps be mainly for pasture or hay, the agent is of the opinion that the Marketon variety might be important in this county. The variety has been grown in test plots, and apparently is very superior for hay or forage.

Farmers were warned to reduce their corn acreage in favor of the grain sorghums, as the available water supply did not seem adequate for corn. One variety yield test on corn and the grain sorghums was established on one of the Broughton Lunt farms, with the cooperation of Mr. Kenneth Lunt. Dr. Matlock, and Dr. Smith visited the county on June 7, and this plot was established in order to obtain information on the yield of June corn and hegari, as compared to some of the hybrid corns and Manko Milo. Yield data will be taken from this plot and interpreted under the direction of Dr. Matlock. Deep planting and treatment with Ceresan was recommended for corn. The acreage of Manko Milo was increased this year, with a corresponding decrease in corn acreage, due to the water shortage.

(B). FARM CROPS

COTTON PRODUCTION

Cotton improvement work was centralized on an effort to establish Greenlee County as a one variety district. 1517 Acala cotton had already proven itself

COOPERATIVE CORN (AND SOYBEAN) TEST
1944

GREENLEE COUNTY

COOPERATOR: Broughton Lunt

LOCATION: Duncan ELEVATION: 3500 feet

DATE: June 7, 1944

Irrigated land. Rows - probably 38 inches

SEED BED: Good, few weeds - Johnson grass principally

Row 1 East side	Row 2 & 3	Row 4 & 5	Row 6 & 7	Row 8 & 9	Row 10
Texas 7 W	Ohio C-92	Pioneer 313-D	K-1583	U. S. 35	Funk G-169
Texas 7 W	Ohio L-94	Mo. 47	Clark C-21	U. S. 13	Funk G-169
Texas 7 W	K-1583	Texas 18	Funk 244	Iowa 4020	Funk G-169
Texas DD-8	K-2234	Texas 12	Local	Texas 8	Funk 3411
Texas DD-8	Mo. 47	Ohio C-92	U. S. 35	Ohio L-94	Funk 3411
Texas DD-12	U. S. 13	Funk 244	Pioneer 313-D	Local	Funk 711
Texas DD-12	U. S. 35	Ohio L-94	K-2234	Texas 12	Funk 711
Texas TP-2	Iowa 4020	Local	Texas 8	Mo. 47	Funk 702
Texas TP-2	Texas 12	K-1583	Ohio C-92	Texas 18	Funk 702
Pioneer 304	Texas 8	U. S. 13	Mo. 47	Pioneer 313-D	Funk 707
Pioneer 304	Pioneer 313-D	K-2234	Iowa 4020	Clark C-21	Funk 707
Pioneer 300	Funk 244	Clark C-21	U. S. 13	K-1583	Mule hybrid
Pioneer 300	Duncan* white dent	Texas 8	Ohio L-94	Ohio C-92	Mule hybrid
Pioneer 332	Texas 18	U. S. 35	Texas 12	K-2234	Mexican June
Pioneer 332	Clark C-21	Iowa 4020	Texas 18	Funk 244	Mexican June

Check variety

Last two tiers on south end may be too sandy and too shaded to give good results.

V. (Continued)

(3). Activities and Results

(B). FARM CROPS (Continued)

COTTON PRODUCTION (Continued)

very superior in this county, both as to staple length, and grade. By stressing the superiority of this cotton at meetings, and by the use of circular letters, farmers were sold on the idea of planting the county to this one variety in order to obtain the advantages both in selling the lint, and also in keeping registered and certified seed. Farmers were impressed with the fact that if this county produced a pool of 1517 cotton, with no outside mixtures whatever, the lint would be uniformly long and of high grade, and the farmer would reap a benefit in the increased price obtained for such cotton under the government loan. By using circular letters, by stressing the matter at meetings, and by making numerous field trips, every cotton field planted in Greenlee County was planted to 1517 seed. The agent had contacted those farmers with seed for sale, and had arranged for sufficient seed to be kept in the county.

Dr. Matlock held two meetings with cotton growers in Greenlee County during the year. At both of these meetings proper irrigation and the handling of cotton so as to produce the best possible grade were discussed. Dr. Matlock was of great assistance to the new Board of Directors who obtained control of the Duncan Gin. Their intention is to handle the gin so that the best possible grade of lint is produced.

Fourteen farmers requested certification, and one farmer registration, of cotton fields. Dr. Matlock and party visited the county on July 13, and in company with the agent, inspected all of these fields. All were found to have isolation, and the proper history so the availability of a large amount of good 1517 seed is assured for another year. In addition, the agent began work toward the production of higher grade cotton seed in the county. For the past two years, the agent has taken samples of cotton seed throughout the season and compared the rate of germination of the different samples. Germination reports have proven that seed saved prior to a heavy frost, germinates much more rapidly than seed which is not picked

V. (Continued)

(3). Activities and Results

(B). FARM CROPS (Continued)

COTTON PRODUCTION (Continued)

until after severe frosts have occurred. Armed with this information, the agent has discussed the matter of a closing date for keeping registered and certified seed. Officers of the Cotton Improvement Association are highly in favor of this plan. This year, due to the unfavorable temperature, and high wind, only seed which germinated rapidly came up to a good stand. Officers of the Pure Seed Association are desirous of producing only the very highest quality of seed, and this germination data will be very useful to them in their future pure seed program.

(C). HORTICULTURE

MIXED VEGETABLE PRODUCTION

At the beginning of the year, the commercial vegetable outlook was rather confusing. Potato growers of Greenlee County had found their market seriously impaired during the last several years, by the great increase in the potato acreage of Maricopa County.

Onion growers had experienced some difficulty from the competition of low grade onions produced in Graham County. The Graham County deal was primarily a dehydration proposition, but some of the growers who had not contracted to the plant, proceeded to place a lot of very low grade onions on the market. These onions were not suitable for storage or for shipment, but they served to have a very depressing effect on prices.

The market for other vegetables gave about the same promise as in previous years. Morenci continued to be a fairly good market, and most of the surrounding towns within a two hundred mile radius were possible markets.

V. (Continued)

(3). Activities and Results

(C). HORTICULTURE (Continued)

MIXED VEGETABLE PRODUCTION (Continued)

The agent has attempted to place Greenlee County onion production in such position that it is not seriously affected by the production of inferior quality onions in near by areas. Farmers producing onions have been warned of the market trends and advised either to produce a rather early onion, or a rather late onion. Also they have been advised to plant onions only on the very best type of soil, with plenty of pump water available. In most cases they are able to use land which is very nearly dead level. In this way, with the advantage of plenty of water and good soil, they can make onions out-grow thrip. Thrip are a serious menace in all onion producing areas, and it is only the most efficient growers, equipped with good land and adequate water that can hope to stay in the onion business. Onion producers were visited individually and the onion prospects are very good. Two growers have already begun harvest. Due to the fact that it has been difficult to obtain good seed of recent years, several of the largest onion producers are now making bulb selection, and producing their own seed. The agent has carried on considerable variety test work during the past several years, with the result that farmers are still advised to stay with brown Valencia, Crystal Wax, and both white and brown Grano onions. These varieties are the best yielders, and also have the best keeping qualities. Crystal Wax has rather a limited place in Greenlee County, but it continues to be the best of the very early whites.

Tomato production circulars were sent to all farmers and many town's people of Greenlee County, in the late winter. The acreage of both tomatoes and cantaloupes is above average, as the agent felt justified in advising this increase. Acreages of sweet corn, string beans, water mellons, and bunch vegetables are about the same as last year. The usual stress was laid on home gardens with the result that, although water shortage has been a serious handicap, home garden acreage and numbers equalled last year. By taking the matter up with the local

V. (Continued)

(3). Activities and Results.

(C). HORTICULTURE (Continued)

MIXED VEGETABLE PRODUCTION (Continued)

drug store, it was possible to get this firm to put in a stock of the more practical insecticides for the use of home gardeners. Scarcely a day passes during the spring and early summer without having someone call at the County Agent's Office and request information on some phase of home gardening.

LETTUCE PRODUCTION

Due to the very great risk which accompanies lettuce production in Greenlee County, farmers were advised to plant only the lettuce acreage which they could afford to lose. Although lettuce production occasionally proves to be very profitable, there are many other times when the only value of the crop is its forage value for cattle. For this reason, lettuce production has dropped into the hands of three farmers. These men plant both spring and fall crops each year, and are careful not to plant above a limited acreage.

Lettuce varieties in use are the same as have been planted over the past several years. Number 152 and selections of this variety are used mainly in the fall. Rocco, a selection of number 152, is in more general use than the original number 152. Number 615 and number 152 are both used for spring planting. The farmers who produce lettuce have had sufficient experience in packing and grading to be able to do this work themselves. Their present system is to hire whatever local labor they can obtain, and the farmer and his immediate family perform the skilled labor of trimming and packing. In this way, the farmer is independent of the transient lettuce workers.

The spring crop of lettuce this year was of very high quality, but market conditions were such that only a small part of it could be sold. Farmers are making plans for the usual acreage of fall lettuce, and will have this lettuce available in case the market proves more favorable.

V. (Continued)

(3). Activities and Results.

(C). HORTICULTURE (Continued)

POTATO DISEASE CONTROL

Due to the fact that there are only a few commercial potato growers in the county, these men were visited individually. They were warned against the danger of bacterial ring rot, and also given the best possible picture of the price situation. Potato plantings were slightly below average, but due to excellent culture, and the use of a great deal of pump water, both the yield and the quality were very good. To date, most of the crop has moved at satisfactory prices.

In work on this project, the most important thing is to warn beginners and new comers of the danger of using inferior seed. All potato growers, also, must be warned that it is necessary to have plenty of pump water available at all times.

Due to the fact that no psyllids have appeared for two years, most of the farmers did not spray against this pest. Two farmers dusted with sulphur or sulphur compound to control leaf-hoppers.

(D). RODENT CONTROL

Weather conditions during the past year seem to have been favorable for the spread of pocket gophers. These pests were in evidence along a wide belt of range land adjacent to irrigated sections. It is virtually impossible to exterminate pocket gophers under conditions prevailing in Greenlee County, so work was directed toward a control of these pests, rather than extermination. A circular letter was used to warn people of the importance of poisoning early in order to have the poison grain in burrows when the gophers first became active in the spring.

Although, due to shortage of funds, free poison grain was no longer available from the Biological Survey, the Greenlee County Board of Supervisors, and also the Division of Grazing supplied the Extension Service with free grain for distribution. In this way, it was possible for farmers to obtain poison grain free of charge at any time. The policy has been to distribute

V. (Continued)

(3). Activities and Results.

(D). RODENT CONTROL (Continued)

this grain in small amounts, advising the farmer to return whenever more is required. In this manner, there is no excess amount of poison grain left over where livestock might get it.

During the year, 57 different persons used 58 quarts of poison grain to protect a total of 1,314 acres of farm lands and dwelling sights against rodents.

The Extension Service continued to cooperate with the Fish and Game Department in the control of predators. Most of this work was carried on with range operators. The agent assisted range operators in contacting trappers and in furnishing information to the State Office, regarding the needs of protection of the various range operators and farmers.

(E). IRRIGATION PRACTICES

From the beginning of the year it was very evident that a shortage of gravity water was in store for farmers. Beginning in January, the agent used a series of circular letters urging farmers to store as much gravity water as possible in their soils during the winter months. Farmers were advised to irrigate land immediately after plowing, and to store water to be drawn on in the later months. The adobe soils in the Franklin area are especially suited for this practice, and farmers took advantage of this, thereby putting a larger amount of ground in crops than would have been possible had they not carried out the practice of winter irrigation.

The drag line owned by the Soil Conservation District, was not available for ditch repair this year, but the agent met with the canal boards and discussed canal repair with what labor and equipment there was available. Farmers used the practice of sluicing, and this saved a great deal of expensive labor.

V. (Continued)

(3). Activities and Results.

(E). IRRIGATION PRACTICES (Continued)

Although the irrigation pumps were used to the fullest extent, shortage of irrigation water caused a considerable acreage to be left fallow this year. By discussing the problems of each farm with its operator, in many cases water was so used as to obtain the greatest possible advantage. The use of crops with low water requirements such as cotton and grain sorghums was stressed throughout the year, and farmers were advised not to plant much corn, commercial vegetables, or additional alfalfa unless they had access to a privately owned pump.

(F). POULTRY PRODUCTION

Due to the rapid increase in feed cost, and the small amount of animal protein contained in the available mash, the agent launched a campaign in December to use skimmed milk and green feed to the fullest extent. Poultry growers also were urged to cull their flocks continuously. They were assisted in working out feeding programs, which used government wheat to the fullest extent, as this grain was the most economical poultry feed.

In February, farmers were urged to purchase the usual number of baby chicks, but to purchase chicks of the best quality, and to take the best possible care of them. To off-set this chick purchase they were urged to cull their laying flocks very heavily, as everything pointed to low egg prices for late February, and the months of March, April, May and June. A majority of the poultry producers in the county followed this advice and went through the period of high feed prices and low egg prices in very good shape.

Two of the largest poultry producers in the county purchased additional milk cows early in the year for the purpose of obtaining additional skimmed milk as poultry feed. These people use grain pasture as feed for their cows, sold the butter fat, and used the skimmed milk as a supplemental protein. They were able to obtain very good production through this procedure.

V. (Continued)

(3). Activities and Results.

(F). POULTRY PRODUCTION (Continued)

Mr. Van Sant spent one day in the county going over poultry problems with the agent, and making farm visits. His assistance was confined to poultry sanitation and economic adjustments.

(G). RANGE MANAGEMENT

Range management work during the year was tied up quite closely with the Association. A meeting of Directors was held in early January, whereat various matters concerning the relationship of the livestock business with Federal Grazing agencies was discussed.

The agent visited the hereford show in Tucson during the month of February, contacting many cattlemen of Arizona and New Mexico, and obtaining much valuable information regarding the production of bulls for range use. The agent was able to assist several Greenlee County men in the selection and purchase of cattle at this show. The agent also visited the quarter-horse show held in Tucson at the same time, and assisted two Greenlee County men in selecting quarter horse stallions.

The regular spring meeting of the Association was held later than usual, so the spring sales of cattle were not arranged for at this meeting. As in years previous, however, the agent was able to assist cattlemen in organizing their spring sales, and on this particular year, due to general outlook and the present livestock population, advised removal of all salable stock. During the past year the agent has attempted at all times to keep cattle population and market figures before the cattlemen of Greenlee County.

Mr. Armer and Dr. Pistor were obtained for the June meeting, and were able to give Greenlee County cattlemen information on the dipping work which the University of Arizona has begun in certain counties. Ranchers with open type range are interested in this matter. In August, Mr. Armer returned to the county for a further survey of possible work

V. (Continued)

(3). Activities and Results

(G). RANGE MANAGEMENT (Continued)

along this line in Greenlee County. At the present time, Mr. Armer questions the possibility of moving all cattle on a large ranch to one central dipping vat. He is studying the possibility of a portable dipping vat, and considers it much more practical than a spray. Cattle lice, spinose ear ticks, and grubs are the three most serious insect pests affecting cattle in Greenlee County, and it is toward a control of these parasites that the dipping program is being directed. The agent is confident that a number of Greenlee County men will start dipping as soon as some convenient and practical method is worked out. Nearly one-third of the range area of Greenlee County is open type country where cattle lice are a serious pest. Dipping ordinarily is not too difficult in this type country, and it is the opinion of the agent that if the proper ground work is carried on, the practice of dipping will become general among these ranchers.

During the year the agent had occasion at some-time of other to discuss herd improvement with practically every rancher in Greenlee County. On a number of occasions he spent one day or more riding with ranchers, discussing various ranch problems and making suggestions in regard to livestock improvement. During the last eighteen years there has been an almost astonishing change in the grade of cattle produced in Greenlee County, as well as in general range practices. There is still room, however, for improving the grade of cattle, and it is towards this end that the agent has continued to work during the past year. Quality and hardness of bone, quality of hair, general fleshing, and type of head still need to be stressed among ranchers. The cattlemen of this county, also, should make an attempt to obtain more uniformity of type, as it will mean dollars and cents to them when they pool their cattle for sale. One of the greatest difficulties has been teaching range operators to work for quality of bone, fleshing, and body type, rather than to go on color. There is still a tendency for some ranchers to select breeding stock mainly on color, and the agent has had great difficulty in getting ranchers to drop this practice.

V. (Continued)

(3). Activities and Results

(G). RANGE MANAGEMENT (Continued)

At the present time, Mr. Ivan McKinney, located on Eagle Creek, is producing some of the best hereford cattle grown under range conditions in Arizona. He has been a splendid cooperater in all livestock improvement work, and as these cattle and their increase are gradually dispersed throughout the county, the general run of range cattle will show still further improvement.

Irrigated pasture, although entirely a farm proposition, has been carried under range management, due to its importance to range cattle production and cattle feeding. At present there are approximately 25 irrigated pastures of various sizes in Greenlee County. These pastures run from small plots of one or two acres, up to the size of 30 acres. Beyond any possibility of doubt, the original rye grass mixture should still be the basis for the average permanent pasture in the Duncan area. This mixture has been adjusted so as to include meadow fescue, and the amount of perenial rye grass has been decreased. Sweet clover has been decreased, and in many cases some dallis grass is added. Annual rye grass, burr clover, and alsike clover continue to seem indispensable in this mixture. Meadow fescue, included in this mixture, may prove to have great value in time, but it seems to start very slowly as compared to the rye grasses, and at the end of the first year it still is not as well established as rye grass. It seems to be more heat resistant, and drought resistant than rye grass. The study of pasture mixtures has proven to be very fascinating. The red clover, commonly grown in the corn belt, when sown in with the pasture mixture seems to survive heat and harsh atmospheric conditions of Greenlee County. Where the mixture has been properly watered, the clover continues to survive and thrive. Another interesting thing is that on adobe soils, dallis grass is practically indestructible. It survives over grazing, drought, and every other type of abuse, and the agent believes it has an important place in the grazing mixtures of Greenlee County.

V. (Continued)

(3). Activities and Results

(G). RANGE MANAGEMENT (Continued)

This year, additional work was done in an attempt to find a mixture which would survive periods of a month or more during the summer when irrigation water was not available. Giant panic grass, dallis grass, and weeping love grass were planted on various plots between May first, and July first. Rye grass, and burr clover will be sown in these in late August or September. The purpose of these tests is to work out some useable mixture for tracts of land so located that water is often unavailable for periods of a month or more in June or July. It is the opinion of the agent that the dallis grass and giant panic will continue to make a good growth, even when the ground is dry and the other varieties have stopped growing.

Dr. Matlock, Mr. Lewis Hamilton, and Mr. Frank Fanning have all cooperated very closely in all pasture work in Greenlee County, furnishing seed for tests, and furnishing valuable advice in regard to the characteristics of the pasture plants being used. The agent is of the opinion that this work is only in its infancy, and that it has possibilities as great or greater than any other work being carried on in Greenlee County. Several years back, considerable work was done with Mr. Ivan McKinney on Eagle Creek. The elevation at this point is about 5,000 feet. Varieties used included smooth brome grass, western wheat grass, weeping love grass, blue gramma, and several of the sweet clovers. Due to a lack of gravity water, and severe hopper damage, many of the more palatable grasses were thinned out, and the sweet clover crowded out everything else. At present, Mr. McKinney plans to put in a well and pump unit, making it possible to irrigate this ground properly. He also plans to fallow and kill out the sweet clover, as sweet clover is very dangerous at this elevation, and produces considerable bloat. Whenever Mr. McKinney prepares to make his next pasture seeding, he will consult the Extension Service in regard to this mixture, as he is very desirous of obtaining a mixture safe for cattle at that altitude.

V. (Continued)

(3). Activities and Results

(G). RANGE MANAGEMENT (Continued)

The greatest difficulty experienced in irrigated pasture work is to impress upon people the fact that a pasture is a crop, that it must be properly irrigated, properly treated, and the grass harvested in the proper manner at the right times, if the pasture is to prove satisfactory. Indifference in regard to regularity of irrigation has been a greater handicap than lack of information in regard to varieties. Those farmers and ranchers who have irrigated their pastures properly, and handled them carefully, have obtained very gratifying results.

(H). BOYS' & GIRLS' 4-H CLUB WORK

Boys' and girls' club work was seriously handicapped during the year by lack of leaders, and the press of emergency work upon Extension workers. Miss Billingsley was able to conduct girls club work very nearly on the same lines as in the past, but boys' club work was rather neglected throughout the year. The loss of the annual 4-H Club Round-up, and the 4-H Judging at the winter stock show, has removed considerable incentive from 4-H Club work in Greenlee County.

Mr. McKee spent two days with the agent, assisting in the achievement work carried on with the girls and, also assisting in checking over the boys' work, as it stood to date. Girls were given pins, as practically all girls work was completed, but so few of the boys had completed their work, that the pins will not be given until late in the year.

Mr. James Lovette conducted a Poultry Club with twenty-five members very successfully. These boys met with Mr. Lovette during the last school period. Mr. Doug Brubaker, Grade School Principal, started work with the boys Handicraft Club, and although handicapped by lack of equipment and tools, they made a very good start, and the boys were very much interested in this work. The agent met with the boys of both these clubs whenever possible, and also met with a separate group of boys taking varied projects.

V. (Continued)

(3). Activities and Results

(H). BOYS' & GIRLS' 4-H CLUB WORK (Continued)

The brightest spot in the 4-H Club picture is the interest in club work demonstrated by the boys, and the excellent records which Greenlee County boys made in years past, when conditions were more favorable for club work. Many of the farm boys are now so busy with the general farm work, that it is difficult for them to carry on special projects.

(I). DAIRY HERD IMPROVEMENT

Due to considerable publicity requesting people to increase dairy production, Greenlee County experienced considerable increase in dairy production in the year 1943. During the past eight months, however, this served as something of a boomerang. Very high prices for both alfalfa hay, and grain, along with the loss of much of the local whole milk market, and also an unfavorable cream shipping situation, served to take all profits out of the dairy business during 1944. It was only by the use of government wheat and grain pasture that dairy men were able to keep their feed costs down to the point that they could operate. The removal of 8,000 prisoners of war from the Lordsburg Camp, and the removal of between four and five thousand workers and their families from the Morenci district, so affected the whole milk market in Greenlee County that several of the larger dairy men were forced to cut down, and to put their production in new channels. Further O.P.A. regulations also made it difficult for these people to use their milk for the manufacture of certain commercial dairy products, and proved to be a very serious handicap to local dairy men.

Much skimmed milk has been used for poultry, calves, and hog feed. Dairy men have attempted either to ship their cream to the Webster Dairy at Phoenix, or to sell it as cream or butter locally.

Dairy production is gradually adjusting to these new conditions, but there has been considerable financial loss on the part of some dairy farmers, and also the sacrifice of some very good dairy cattle. During the year, circular letters were used constantly, urging dairy farmers to use government wheat as a concentrate,

V. (Continued)

(3). Activities and Results

(I). DAIRY HERD IMPROVEMENT (Continued)

to make the greatest possible use of grain pasture, and permanent pasture, and to consult the Extension Service for information on feeding problems.

Three different farmers are now following the constructive breeding of holstein cattle. Two of these were assisted with the purchase of registered breeding stock during the year. Mr. Van Sant spent one day in the county in August, assisting dairy men with feeding and sanitation problems, and also discussing constructive holstein breeding with the two largest holstein breeders. Mr. Van Sant gave these men some extremely valued assistance, and dairy men of the county expressed their desire that he return to Greenlee County as often as possible, in order to assist them with their problems. The matter of sending a few of the younger dairy men to a herdsman school, where they could pick up information on sanitation, feeding, and livestock breeding problems, was discussed with local dairy men, with the result that several young men are desirous of attending the Graham School whenever possible.

(J). WEED CONTROL

Further check carried out on the plots where bind weed was treated with carbon-di-sulphide in 1942 seemed to show that the carbon-di-sulphide is a complete control for bind weed in this locality, providing the chemical is applied properly. Plots established on the Horace Moffett farm and the R. D. Williams farm in 1942 were the first plots ever chemically treated in Greenlee County where a complete kill was obtained. On June 17, plots were treated in the Billingsley garden in the town of Duncan, and on the Viri Lunt farm. The carbon-di-sulphide was furnished these farmers free of charge by another agency, and the agent merely applied it in accordance with the directions used in control of bind weed. The cost of this chemical, however, is too great for use on any but very small plots of bind weed.

V. (Continued)

(3). Activities and Results.

(J). WEED CONTROL (Continued)

During the year, numerous farmers were warned against weeds poisonous to livestock. It is the opinion of the agent that stock is occasionally killed by the practice of feeding hay containing whorled milk weed. This weed is prevalent along ditch banks in parts of the county, and occasionally some of it gets into hay. It is a powerful poison, and if stock eat it, they are quickly affected by the plant.

An Army veterinarian assisted in diagnosing several cases of poison hemlock deaths in April. The animals affected were work horses. They had been previously kept in a corral, and fed dry feed and grain. When they were turned on the river bottom, with no other green feed than poison hemlock, they soon took to eating this weed, and were affected almost immediately. It seems impossible to exterminate these two dangerous and poisonous weeds from all grazing areas in the county, but the agent has attempted to keep farmers informed concerning the appearance of these weeds, and the symptoms of stock which have eaten them.

(K). ORCHARD IMPROVEMENT

Numerous inquiries come to the agent regarding the kind of fruit trees to purchase. These people making the inquiry are informed that unless they have an exceptionally well protected location, it will be best for them to plant only vine fruits and a few of the hardier varieties of plums, pears, and peaches.

Test work with pecans is not convincing that even the hardier varieties can be produced in Greenlee County. Pecan grafts made years ago are just beginning to bear now, and present evidence is not conclusive. Grafted pecan trees purchased during the last several years have gone semi-dormant in almost every case.

V. (Continued)

(3). Activities and Results

(K). ORCHARD IMPROVEMENT (Continued)

The agent is of the opinion that money spent on peach, plum, grape, and boysenberry stock has a greater chance of returning dividends. Although there may be a few favored spots in Greenlee County where the pecans will thrive, there is little evidence toward that conclusion to date.

The hardy varieties of plums bear almost every year, and plums, pears, and vine crops seem to be best adapted for fruit production in most of the county.

(L). FARM PLANNING

High overhead costs of pumping, high labor costs, and a general shortage of water, caused many farmers to attempt to adjust their farming plans. It is a very common practice for farmers to come to the Extension Office, and request assistance in choosing the entire cropping system on the farm they are operating.

The fact that the guarantee on cotton prices continues, has led many farmers to depend on cotton almost entirely as a cash crop.

(M). SOIL CONSERVATION

During the year the agent continued to work with the Soil Conservation Service in the problems of river control, land leveling, and dike construction. In discussing irrigation with farmers, the agent has always discussed land leveling, as much of the Greenlee County farm land has still too much slope for proper water penetration. The Soil Conservation Service has carried on experimental work in Graham County to determine the effect of washing tight and alkaline soil, and the principle discovered in this test work should be applied in Greenlee County.

(N). FARM LABOR

Beginning in December the agent spent considerable time in making arrangements for having Italian prisoners of war available for canal repair in Greenlee County.

V. (Continued)

(3). Activities and Results

(N). FARM LABOR (Continued)

The various irrigation canal boards, however, failed to make use of this labor. This was caused by bad weather, and other matters which arose.

During the spring and summer, a close check was kept on labor conditions on the farms. Although there was an occasional shortage of unskilled labor, the shortage was not great enough at any time to justify hauling in a crew of prisoners of war. Recently, work has been begun to obtain a supply of prisoner of war labor for cotton picking. The plans under way are to secure this labor from a side camp to be established at Lordsburg, New Mexico. Under this arrangement, permission must be obtained from the commanding officer of the two command areas, to cross the state line. It will also be necessary for the labor committee to arrange for the purchase of a bond, equivalent to placing a sum of money in escrow, which would guarantee payment to the Army for labor. If obtained, these prisoners will again be transported to and from work by civilian trucks.

(O). MISCELLANEOUS

Matters pertaining to the priority of equipment and supplies necessary for farming, and ranching, called for the greatest amount of time of any matter listed as miscellaneous.

Farm transportation, butchering regulations, home food preparation, agricultural financing, and livestock disease and injury also required considerable attention.

A brief review of a tabulation of office calls during the first eight months of the year, shows that farmers made 288 office calls requesting information on O.P.A. rationing, and twenty-one regarding farmers' income tax. Fifty-seven office calls were made concerning fuel for tractors, twenty five in regard to farm financing, twenty regarding farm machinery rationing, and seventeen in regard to farm leases and rentals. These figures are used to show the number of people requesting information regarding these widely varied subjects.

VI. OUTLOOK AND RECOMMENDATIONS

In leaving this county, the agent wishes to make the following recommendations regarding work which he considers of importance, and also wishes to make suggestions regarding certain changes in projects.

Although present prices for agricultural products are very high, the irrigation situation in Greenlee County has been such that many farmers have been forced to operate on a very small margin of profit for the last eighteen months. For this reason, much depends on the outcome of the present situation, as it affects irrigation. Although more wells are put down each year, many of the farmers are situated on the higher bench land, and pump water is available to these farmers only after it has been carried down many miles in a canal. Percolation, evaporation, and loss in water distribution make this pump water very expensive for those farmers who must transport it over two or three miles. The agent is of the opinion that until more gravity water is available, or until cheaper pump water is available, it will be very difficult for farmers on the bench land who are located some distance from the pumps, to show much profit from their farm operations. Those farmers who are fortunate enough to have irrigation pumps on or near their farms can use this pump water very successfully. It is the opinion of the agent that the Extension Service could warn farmers to proceed carefully, and attempt to hold down on operation costs until more gravity water is available. The Extension Service should continue to urge winter irrigation at the time that gravity water is available, in order to store moisture in the land. Farmers should be urged to level their land so as to prevent run-off, and to obtain better penetration. Until such time, however, as greater amounts of water are available at less expense, farming on much of the land in Greenlee County can not be very profitable. This year, much of the land lay idle, and land which received more than the regular allotment of water per acre, still suffered for lack of water.

Increased soil fertility decreases production costs. Therefore, soil fertility should be stressed constantly. The use of silt laden river water, of green crops that can be plowed under, and even the use of chemical fertilizer in some cases, are desirable. If the same yield can be obtained from half the acreage, it is very evi-

VI. OUTLOOK AND RECOMMENDATIONS (Continued)

dent that there is a great saving in water, in labor, and in general production costs. Several onion growers have proven this. By fertilizing their very best ground they have built it up to a point where, after receiving enough water, it will double the yield of onions produced on the choicest ground several years ago. This has been an important factor in keeping down production costs.

The marked success of the cotton improvement program in Greenlee County is sufficient proof for believing that this program should be continued, and given all possible help by the Extension Service. The production of pure seed and the sale of lint of superior quality are bringing very good returns to Greenlee County farmers. Sufficient time should be set aside for this project to assure its successful continuation.

Potato acreage varies, and those few farmers who specialize in potato production have a good chance of finding it a successful business. Work on potato disease control and insect control should be kept up to date.

Onion growers in near by districts have come and gone, but Greenlee County onions continue to be the best Arizona produced onions. If local farmers can be induced to keep up the quality of the onions produced in this county, there will be no lack of market for the Greenlee County onion crop.

Boys' and girls' club work must receive greater attention as soon as possible. There is an excellent opportunity for really good club work in Greenlee County, and as soon as the emergency work of the war program allows it, the agent should greatly increase the amount of time spent on club work, and also begin using trips.

Predatory animal control is a matter closely affecting the Cattle Growers' Association, and the agent should at all times work closely with the Association, and the Division of Predator Control, of the National Wild Life Service. Rodent control should also be carried along as in the past.

VI. OUTLOOK AND RECOMMENDATIONS (Continued)

The three farmers who are now improving their herds of cattle by the selection of improved dairy bulls should be encouraged in this, and should receive information to help them make wise selections in the choice of bulls. Their herds have reached the point where a certain amount of line-breeding should greatly improve their dairy stock, and assistance in this matter should be very helpful to these men.

The egg price situation, and the feed price situation govern conditions in the poultry business. Educational work on the handling of eggs has brought about great improvement in egg grades. This must be kept up, however, and there is also need for further work on poultry sanitation and the economical feeding of poultry. Very few poultry men in Greenlee County take full advantage of the possibilities of green feed.

The Cattle Growers' Association is of tremendous help to the Extension Service in all livestock programs, and all future attempts at livestock improvement programs should be carried on through the Association. The Extension Service should assist the Association in every possible way, and also continue to work with cattle men in herd improvement and in the orderly marketing of cattle from this county. At the present time this county has one of the most smooth working sales systems used anywhere in the state.

Range reseeding trials and range improvement work should be continued. The agent considers permanent pasture work on irrigated land of very great importance. Additional test work should be carried on in cooperation with Dr. Matlock, Mr. Hamilton, and Mr. Fanning.

The Farm Labor Program calls for immediate attention. At the present time, the Extension Service has the power to be of great assistance to the farmers of this county on labor matters, and this program should be given right of way. In addition, in a small county such as Greenlee, there are a tremendous number of minor matters wherein the Extension Service can perform important educational work. The matter of keeping governmental regulations before the farmers, the matter of assisting in leases and rental contracts, assisting in food preparation, assisting in livestock sanitation, and a great many similar matters, should be given such attention as the condition requires.