

ANNUAL REPORT

OF

K. K. HENNESS                      COUNTY AGRICULTURAL AGENT

PINAL COUNTY

DECEMBER 1, 1951 - FEBRUARY 5, 1952

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## SUMMARY

The final 1950 average short cotton yield was 911 pounds per acre, by far the highest average ever made in this county. Contributing to this high yield was a good cotton year, almost universal use of commercial fertilizers, chiefly nitrogen, an adequate dusting program with good dusts, deep tillage of much acreage which in the past has produced low yields, and the adequate watering of acreage planted under a control program.

This year the cotton situation is somewhat different. The acreage, without controls, increased from 130,000 to 215,000, and many farmers planted beyond the capacity of their water supply to furnish water during late July and August, when requirements are highest. To add to the difficulties was the fact that water supplies on the San Carlos Project were the lowest of record. Some late volunteer acreage, irrigated when summer flood water came, must be counted as cotton acreage but will produce little cotton. Generally insect counts were low, fertilizer supplies ample, and farming as good as in the previous year, so the estimated drop in average yield this year, somewhere in the vicinity of 150 pounds of lint per acre, must all be charged to inadequate irrigation which resulted in "burning" of some crops and "crazy top" appearing in many fields.

We have continued our cotton fertilizer test demonstration work and shortly will have further information on efficiency of fertilizers. Further information is also available through our tests in grain fertilization. Our insect control program continues to function well, based as it is on regular weekly field counts, which surveys are reported to farmers each week through our farm column and over the radio, with circular letters supplementing our information program whenever needed.

All cotton growers receive, through membership in their improvement association, free classing of their cotton, which assists them in their marketing. There is some criticism of the new Arizona varieties, Acala 28 and Acala 44, but a survey of opinion seems to indicate there will be little demand to return to the old P-18 Acala. Sufficient good planting seed of the new varieties will be available.

The county is well on its way toward the production of a considerable amount of northern adapted alfalfa seed. While production of Certified grain sorghum seed was low this year on account of the greater interest in cotton the program is well organized and this production will continue to be shipped out and will lower the market pressure upon feed grains. Ample supplies of Certified Arivat barley seed are available, and fields for the production of the improved wheat strains have been planted.

Our 4-H Club program is well organized. We lost some possible enrollments through the decision to take this work out of schools but hard work and some good luck in finding leaders is helping to make up the difference. A leaders' training meeting has been held, our 4-H Club Council is active in promoting the program, and plans are already under way for a good 4-H Club Fair. For the first time we have a well-organized and enthusiastic group of 4-H Club members organized in the Winkleman area, which during the year provided for themselves a 4-H Club Center.

An estimated three hundred mechanical cotton pickers will soon be working in our fields. The work of the Specialist, through meetings held by dealers to train farmers and operators in the proper operation, adjustment and care of these machines, has been helpful.

Our information program is well organized. During the year we prepared one hundred and ninety-eight news stories, mostly carried in our regular farm column, ALONG THE FARM FRONT, in the four weekly valley papers. A regular weekly radio program, PINAL COUNTY FARM AND HOME HOUR, has been carried on throughout the year. Circular letters are prepared and sent out as needed.

Our pocket gopher control program is again well financed by the two cooperating districts.

Dairy herd improvement work continues in combination with Pima County. The Association is full and dairymen are making good use of their herdbooks in their breeding and production program.

Through the Pinal County Health and Sanitation Committee local forces are making improvement in health standards in our farm labor camps.

Farm Bureau membership has increased to 425 and plans are now underway to increase this to 500 or more. Six locals meet regularly and are helpful to this office in enabling us to reach more people in our work.

## I. SITUATION

Changes in the general Pinal County agricultural situation during the past twelve months include the expansion in total cotton acreage from approximately 130,000 in 1950 to 215,000 in 1951, the development of much new desert land which is still continuing, a severe water shortage on lands of the San Carlos Project, the halving of both the winter grain and grain sorghum acreage, and a reduction in the acreage of alfalfa and hay production.

This all-out cotton production has been accompanied by a severe strain on underground water resources, and in the face of difficulties of power change-over, shortage of pumps and parts and other equipment. During the year many farmers were forced to take time out from their pumping in order to extend their pumps deeper with consequent delay in irrigation and deterioration of their crops.

The present water situation on lands of the San Carlos Project is bad, with Coolidge Reservoir dry. Unless there is heavy winter run-off few of the 100,000 acres of project lands will be farmed in 1952. Many project pumps have been overhauled and some wells deepened, but their ability to deliver water is considerably reduced owing to the declining water table. Pump acreage in many areas is still well off, although in some spots pumps were delivering little water at the end of the 1951 cotton irrigation season.

We can see no reason why supplies of electric power and natural gas for pumping should not be adequate in 1952. The changeover from 25 to 60 cycle power which was taking place a year ago has been completed.

"Crazy top" has appeared in a number of cotton fields, mostly in the Stanfield, Maricopa, Casa Grande and Toltec areas. Since this disorder is brought about by a combination of declining soil fertility and water stress, much of it can be traced to over-extension of water supplies in a year when cotton was not under acreage control, or to breakdowns of pumping equipment which resulted in inadequate watering. In some cases land is producing almost no cotton this year where it produced two bales or more per acre last season. Our suggested solution for this situation is to keep the cotton planted acreage within the water supply, and to plant lands which have been badly "crazy top" to alfalfa for the purpose of building up their organic matter and nitrogen content. Some farmers are inclined to believe their "crazy top" condition is due to nitrogen fertilization, but we have seen no evidence that this helped in any way to bring the condition about.

It is apparent that average cotton yields for the county will be at least 150 pounds to the acre less than in 1950, but at the present time it looks like prices may average higher. With cotton so profitable it is expected that every acre possible will be planted in 1952.

Farmers who watched their fields of Acala 28 and Acala 44 growing all summer and putting on little fruit have been discouraged with these varieties even though our variety tests have shown them to be higher yielding than the old P-18 Acala. There has been some talk of returning to the old strain, but we have made a survey of this sentiment and feel that there will be little desire to change after the results of picking and marketing are in.

Help for the cotton harvest is scarce, and wide use is being made of mechanical pickers. The work of the Specialist has been helpful in training farmers and machine operators to properly use these pickers. A meeting of the ginners and gin managers was held and latest methods of gin operation and equipment discussed by representatives of the Cotton Ginning Branch Laboratory at Las Cruces, New Mexico. A recent USDA bulletin giving latest information on gin operation and adjustment was furnished to all ginners.

Work in the conservation of water continues, with a majority of the money allotted by PMA being used for concrete lining of irrigation ditches. The payment made by the PMA is equal to about forty percent of the cost of these ditches, so the actual amount of money spent in soil and water conservation in cooperation with the PMA during 1951 amounted to approximately \$450,000. To this should be added about an equal expenditure to cover similar work done without Government assistance.

Practically all cotton, other than that planted on lands plowed out of alfalfa, was fertilized this year. While a considerable amount of mixed fertilizers were used most farmers used nitrogen in amounts from 75 to 125 pounds per acre. We expect similar wide use of fertilizers in 1952. Our cotton fertilization demonstrations have shown the efficiency of high nitrogen applications, and wide use has been made of our mimeographed circulars giving the results of our field tests. Four cotton fertilizer test demonstrations were established this year, all on heavy types of soil, since previous work had mostly been on the lighter soils. Harvesting of these is proceeding but is not complete so no reports are prepared. Yield data on two barley fertilization demonstrations has been written up and a copy is included in this report.

The year was outstanding insofar as 4-H Club Work was concerned. We held a fine 4-H Club Fair which was well attended, and a splendid auction of fat stock. Numbers enrolled and completions reached an all-time high. Following a meeting with the Specialists in charge of 4-H Club Work, it was decided to take the work out of schools. It is apparent now that we will lose a good deal in one area, but through hard work and organization we have extended the work in others, with the result that the net loss in enrollments will not be as large as anticipated. Recently about twenty-five boys and girls have secured and begun feeding their 4-H Club calves. All members are now busy with their projects.

Our Herd Improvement Association continues to function on a well-organized basis, in cooperation with Pima County, and under the guidance of the Specialist. Production of poultry and eggs continues about as last year and there is need for greater production if the needs of the county are to be supplied.

Three additional plantings of Ranger alfalfa for seed production were made this fall, making a total of five. Seed was harvested from the Bianco Brothers and Sam Teal plantings. Our field test of clovers for seed in the Santified area was lost on account of bird damage which happened in the isolated area where the planting was made before we were aware of it.

We reorganized the Pinal County Acala Cotton Improvement Association, with 520 members, under which all growers receive free classing of their cotton. The adopted variety is Acala 44, and our survey showed approximately 160,000 acres planted to this variety. Most of the balance was Acala 28, with a small amount of the old P-18 Acala and of course some 3,000 acres of long staple, mostly Pima 32. This survey showed that the average cotton grower of Pinal County has slightly in excess of 400 acres of cotton.

Losses from insects in 1951 were the lowest that we can recall. Our well organized program continued, with field counts each week in forty-eight selected fields in all parts of the cotton growing area, regular reports to growers through the four valley papers and each Friday afternoon over the radio, and frequent visits by the Specialist. This year we arranged a demonstration attended by fifty-eight representatives of concerns selling dusts and sprays. An illustrated article telling of this demonstration was published by the Extension Service Review and is included in this report.

A very definite improvement has been made in health and sanitation of cotton camps. At the top has been the State Board of Health which has set forth certain minimum requirements and are requiring growers to live up to them. Through a committee organized among growers and others interested work is being done in the educational field so that those who live in the camps are taught to recognize the dangers of lack of sanitation, and to keep the camps in good condition.

Note: Herewith is added changes in the situation that have developed during the period covered by this report.

A decision of the Arizona Supreme Court holding that underground waters may be appropriated as are gravity waters has thrown the county's agriculture, as well as business, into an uproar. The unsettled condition has lead farmers to question whether or not finances will be available for 1952 production. The final outcome of this situation cannot now be foreseen. There seems no doubt that there will be severe curtailment in water pumped which will reduce production and the volume of business. Certainly it will increase interest in water conservation and this office can be helpful in conservation programs.

The water situation on the San Carlos Project has improved materially. On December 1st the Coolidge reservoir was dry, or approximately so. At the date of the writing of this report there is in excess of 120,000 acre feet of stored water, with expectations of 150,000 within the next few days. It is still early in the rainy season and storage could be sufficient, with other storms, to permit the farming of all project acreage in 1952. If this develops, probably most of the project lands will be planted to cotton.

Some difficulties have been encountered in our 4-H Club Work in the Winklemen area, and results will not be as satisfactory as had been hoped for earlier.

## II. ORGANIZATION

Our County Agricultural Extension organization consists of a County Agricultural Agent, an Assistant County Agricultural Agent in charge of 4-H Club Work, an Itinerant County Agricultural Agent who assists in all phases of the work, a Home Demonstration Agent, and a stenographer. Personnel changes during the year included the resignation of the Home Demonstration Agent and appointment of a successor, and the promotion of an Itinerant County Agricultural Agent to Specialist in Agricultural Engineering, he being in turn succeeded by another Itinerant County Agricultural Agent.

Our cooperating agency is the Pinal County Farm Bureau, which has locals at Valley Farms, Coolidge, Casa Grande, Stanfield, Maricopa and Winkelman. The Eloy farm bureau is now inactive. These bureaus hold regular monthly meetings, with the exception of the Valley Farms local, which meets twice each month. 4-H Club Work is sponsored by the Pinal County 4-H Club Council, made up of leaders of the many clubs.

This office cooperates with the local farm bureaus in planning their programs, in arranging for speakers, and frequently workers of this office appear on their programs. The County Agricultural Agent also meets regularly with the board of directors of the Pinal County Farm Bureau and assists them in formulating their program. Most local farm bureaus discontinue their regular meetings during the three summer months, but special meetings are called when such are necessary.

We have no local commodity organizations but most growers are members of one or more of such organizations which are set up on a state-wide basis and headquarter at Phoenix. Included in these are the Arizona Cooperative Cotton Growers' Association, the Arizona Cottonseed Distributors Association, Central Arizona Cattle Feeders' Association, and the Arizona Cattle Growers' Association. Some honey producers are also affiliated with their state organization. Recently local cattlemen affiliated with the association which includes cattlemen of Pima and Santa Cruz counties. The few producers of wool are affiliated with the Arizona Wool Growers' Association.

Note: changes that have taken place since the writing of the foregoing include a change in farm bureau membership where all dues are paid to December 31st. Membership dropped to some eighty members which had been collected prior to December 31st. Two membership meetings have been held by the Pinal County Farm Bureau, both attended by the Agent, and plans for membership have been worked out. There are now approximately two hundred and fifty members paid up for the year 1952, and plans call for a total membership of not less than five hundred.

## III. PROGRAM PLANNING

We follow a regular practice each December of setting forth in outline form our plans for the new year. Included are the several projects, number of communities in which work will be done, the number of demonstrations, and a brief description of the work to be done, including specialist help. This plan of work is based upon the needs of the agriculture of our county as we see them, and back of it is the thinking of the officers and directors of our farm bureaus as well as the thinking of members of our County 4-H Club Council. Work not outlined in our plan of work is carried on as Miscellaneous Work and done as the need for it arises. If work on some

miscellaneous subject becomes of sufficient importance it is written up and carried on as a project.

Project work is carried on through leaders who assist us in our work.

Where possible we attempt to use local, State and Federal Agencies in assisting in carrying out our program. An example is our Cotton Insect Control program, where both state and Federal workers are used.

Since the farm bureau is our cooperating agency, we assist in planning the activities of that organization. During the year we have furnished help in planning their membership campaign, and in the organization of one new local farm bureau at Maricopa.

Out of the organization and work of the Winkleman Farm Bureau has come success in the securing of electrical power for some 120 farm and ranch homes. We have worked with them for over three years in this project. Also cooperating with this bureau we have been able to establish both boys and girls 4-H Club Work on a basis which we think will make a sound and continuing program. One feature of their work has been a community project for the remodelling of an old residence into a 4-H Club Center, the second center in the county.

The Stanfield and Maricopa locals have been active in developing both a road and drainage program, which go together in those areas.

#### IV. INFORMATION PROGRAM

During the year we have continued our weekly farm column, ALONG THE FARM FRONT, which is published by the Florence Blade-Tribune, the Coolidge Examiner, the Eloy Enterprise, and the Casa Grande Dispatch, all weekly papers serving the agricultural area of our county. The following is a breakdown of news stories by subjects, for the period covered by this report.

4-H Club Work, 33; Horticulture, 8; Livestock, 8; Dairy, 4; Poultry, 6; Agronomy, 37; Irrigation, 5; Engineering, 5; Entomology, 27; Soils, 2; Rural Sociology, 18; Agricultural Economics, 23; Community Activities, 8; and Miscellaneous, 14.

A sample of one of these weekly columns is included in this report.

During part of the year we contributed to a publication known as Pinal County Farm Life, published in Coolidge, and a copy of one of our articles is included in this report. This bi-monthly magazine suspended operations during the year. One news story was prepared for publication in the Extension Service Review, and it is included in this report. One article was published by the Arizona Farmer, the state farm paper, and we pointed out various items of farm interest to their reporters who usually call twice each month.

We have maintained a regular weekly 15-minute radio program, PINAL COUNTY FARM AND HOME HOUR, over Station KCKY-Coolidge, throughout the year. Subjects discussed on these programs were as follows:

4-H Club Work, 14; Horticulture, 2; Livestock, 6; Dairy, 3; Poultry, 2; Agronomy, 19; Irrigation, 5; Engineering, 8; Entomology, 15; Soils, 3; Rural Sociology, 12; Agricultural Economics, 10; Community Activities, 6; and Miscellaneous, 8.

Our Home Demonstration Agent uses one period a month on this broadcast, and her activities will be reported in her Annual Report.

Fourteen circular letters, a total of 2,086 copies, were prepared and mailed during the year. This does not include circular letters which may be termed notices of meetings. A copy of a sample circular letter is included with this report.

County mimeographed circulars prepared during the year include three reporting cotton fertilization and one on barley fertilization. Some 4-H Club material, including the Premium List for the 15th Annual 4-H Club Fair, were mimeographed in circular form. Drafts of a circular on winter grains and another on summer grain sorghums have been prepared but have not as yet been mimeographed.

Beginning in May, we started the revising of our mailing list, and now have signed requests for various types of information from approximately 270 farmers. Circulars and circular letters distributed through our mailing list, written inquiries and office calls totalled 4,992 during the year.

Our visual aid equipment consists of a slide projector and screen and a moving picture projector with sound attachment. Wide use has been made of both, examples being the use of the slide projector in insect control meetings and 4-H Club meetings, and the use of the moving picture projector at farmers and 4-H Club meetings, as well as meetings of civic clubs.

Note: News stories prepared and published during the period of this report include the following:

Ditch-lining, 2; Cotton irrigation, 3; Dairy, 1; Cotton varieties, 1; Cottonseed treatment, 1; Cotton growing, 4; Underground water, 1; Refrigeration, 1; Population, 1; Agricultural Economics, 5; Barley, 1; and Cotton insects, 1;

Subjects discussed over our radio program during the same period include Agricultural Economics, Insect control, Cotton growing, Fruit Growing, and Marketing.

## V. PROJECTS

### 2 - 4-H Club Work

During the period since November 30th we have constantly worked to make up the increase in 4-H Club membership lost through the decision to take the work out of the schools. Enrollments are not completely in at the date of the writing of this report. We will show some loss but not as much as was

expected.

On December 20th the Agent attended a meeting of the Tractor Maintenance Committee, for the purpose of working out a plan for building up interest and establishing 4-H Club projects. Joining with the Home Demonstration Agent the Agent mailed a copy of a circular letter to all thirty-seven of our 4-H Club leaders giving an interpretation of "boosters" in 4-H Club Work. He also conducted one training meeting for the purpose of training livestock judging to our boys and girls who would represent the county at the Phoenix Livestock Show. The team placed poorly in judging. One boy, Freddie Nussbaumer, showed the Grand Champion fat steer and another member, Thomas Wilson, showed a steer to third place. Two boys entered each received calves in the Calf Scramble.

### 3. Horticulture

Miscellaneous questions such as care of ornamentals, propagation of cuttings, and others were handled. A pruning demonstration was held at the Fred Jones ranch in Coolidge, and a talk on landscaping given by the Specialist. Eighteen attended this demonstration. The Agent and Specialist inspected the Walter D. Moore Estate pecan planting and gave instructions for its rehabilitation. Inspection of the new Casa Grande Community Hospital was made and the Specialist is preparing a landscaping plan. A home demonstration club sponsored a landscaping demonstration at the Quarelli home in Winkleman, where last year the Specialist held a demonstration and a planting was made. This demonstration included a talk on landscaping and pruning of the plants put in the ground last year. Plans were made for two similar demonstrations in February.

### 4. Livestock

#### A. Range Livestock Improvement

No work has been done on this project.

#### B. Livestock Feeding

Work has consisted in discussing feeding and feeding problems with cattle feeders. No organized work has been planned as yet.

### 5. Dairy

One news story on the use of Herd Improvement Association records in feeding and breeding better cattle was prepared and published in our farm column.

### 6. Poultry

No work has been done on this project.

### 7. Agronomy

The Agent arranged a joint meeting of the Stanfield and Maricopa Farm Bureaus and there was held a panel discussion of cotton problems. Appearing on the program were E. H. Pressley, who discussed the new varieties as compared with the old P-18 strain of Acala; Robert Peebles of the Sacaton Station, who

discussed "Crazy top" in cotton; Charles C. Ellwood, who discussed Cotton Fertilization; and Wilbur Wuertz, who discussed pure seed supplies. Forty-five farmers attended this meeting. After each had given a short talk the meeting was thrown open for questions, the Agent acting as chairman and directing the question to the proper specialist. Question took up about one and one-half hours, showing the interest in the various subjects.

Plans for a similar meeting have been arranged for a meeting of the Coolidge-Florence Farm Bureau.

A circular letter encouraging farmers to burn or clean out fence rows and ditch banks and other weedy and grassy areas on the farm, in order to destroy overwintering insects, was mailed to all cotton growers on our mailing list. Arrangements were made for the Specialist to meet with the Coolidge-Florence farm bureau and discuss cotton insect control, using a new film and slides. Plans call also for similar meetings with all the local farm bureaus. Emphasis should be placed on thrip control this year.

#### 8. Irrigation

##### A - Land Levelling and Preparation

No work done on this project.

##### B - Improved Cotton Irrigation

A talk on the value of deep plowing in reclamation of "tight" or "slick" soils was given over the radio. Thru a radio talk and news stories the Agent encouraged early preparation of land, and on project lands irrigation with flood or normal flow water if such should become available. This practice is particularly valuable on deep-plowed lands which usually require about two acre feet for the pre-irrigation.

#### 9. Engineering

Copies of new circulars on concrete-ditching were mailed to all farmers who had requested such information.

#### 10. Entomology

Work that falls under this heading has been previously reported under "7 - Agronomy".

#### 11. Soils

##### A - Improved Conditions on Tight Lands

Work on this project has been previously reported under 8B - Improved Cotton Irrigation.

##### B - Crop Fertilization

Harvest of three of our four cotton fertilizer test demonstrations was completed. One was lost because of difficulty in securing pickers in sufficient amount to get it picked out within a couple of days. The Itinerant County

Agricultural Agent is now working up the material which will be published in mimeographed form. This will make seven such mimeographed circulars on cotton fertilization available in our office.

Previously mentioned is the talk on cotton fertilization given by the Specialist at the joint meeting of the Stanfield and Maricopa farm bureaus, and plans for a similar discussion at a meeting of the Coolidge-Florence farm bureau.

## 12. Rural Sociology

No work was done on this project. We consider work in this field of most importance and trust that someone will shortly be appointed to take the place of the former Specialist.

## 13. Agricultural Economics

One news story was prepared and published on the cotton crop outlook. Another was published giving certain sections of the Outlook Report. A third news story was prepared and published urging farmers to record acreages and yields with the PMA in order to insure accurate information in future years when there may be control programs.

## V. COOPERATION WITH OTHER FEDERAL AGENCIES

We have cooperated with the local office of the PMA in developing a scrap iron and steel salvage program in which members of our 4-H Club are collecting scrap to help finance their 4-H Club activities.

## VI. MISCELLANEOUS

Work has continued in building up our mailing list. Every name on it is current, that is, request for information has been made since May 1, 1951.

The period December 4-7 was spent in Tucson at the Annual Conference of Agricultural Extension Workers. Some time was spent during the early part of December in preparing the annual report for the year ending November 30, 1951.

The Agent attended a meeting of the Winkleman Farm Bureau at the D. O. Shartzler ranch, and assisted in working out an arrangement where that area will be represented by a committee in PMA work. The moving picture, "Waves of Green" was shown at one farm bureau meeting.

Soil analysis reports on lands operated by Freeman Brothers of Mammoth were secured and forwarded to them with our recommendations for soil treatment.

The period February 6 to 15 was spent on Annual Leave.

Work began on preparation of the Premium List for the 16th Annual Pinal County 4-H Club Fair.

## VII. OUTLOOK AND RECOMMENDATIONS

We begin the new year with a further decline in the underground water table and great concern regarding its future impact upon our agriculture. On lands watered from the Coolidge Reservoir the situation at present is bad, and unless there is run-off in considerable amount few of the project lands will be farmed in 1952. As we predicted a year ago, farmers went all out for cotton, in some cases planting beyond the capacity of their supplies of irrigation water. Some crops suffered from lack of water, and the county average acre yield will be 100 pounds or more less than the 911 pound average made in 1950. Prices of cotton lint are near the ceiling, but seed prices are about thirty percent below last harvest. Generally cotton growing will prove extremely profitable.

There seems to be no reason to suspect that supplies of electric power and natural gas for pumping will not be adequate in the new year.

Mechanical pickers are rapidly increasing in the area, with an estimated three hundred at work in the fields. The labor supply has been and still is short, but much labor is now reported coming into the county. We need to continue our work in studying the adaptability of mechanical pickers to our cotton harvest, and meetings of growers and operators should again be held in order to stimulate more effective use of these pickers.

Due in part to the activity of the State Board of Public Health, and to farmers' desire to improve health and sanitation in their farm labor camps, we are seeing rapid improvement in these facilities. Work needs to be done in the education of the people who live in these camps in order that they will develop a better appreciation of health and sanitation and will take better care of facilities provided by the farmer. The Pinal County Health and Sanitation Committee continues to be of great help in this program.

Almost all farmers used commercial fertilizer, principally nitrogen-carrying compounds in amounts up to one hundred pounds of nitrogen per acre, on their cotton. Our field test demonstrations have shown the value of heavy nitrogen applications as side-dressings at chopping time, and the four such demonstrations, as yet not harvested, which we carried on this year will be of further help.

Plans are made for at least four cotton fertilizer test demonstrations in the new year. We expect also to conduct two demonstrations in the fertilization of grain sorghums.

Our cotton insect control program is well organized, and will continue on the same basis as last year. Already work has begun in a clean-up program where farmers clean out their fence rows and ditch lines and other weedy areas in order to destroy over-wintering insects. This work is handled by neighborhood leaders in the various communities.

Work with the two farmers' organizations sponsoring increase of pure seed will be continued, with the view of furnishing an adequate supply of Certified seed for all needs. Three additional plantings of Registered Ranger alfalfa were made, making a total of five such plantings which should produce Certified seed in the new year. No cotton variety tests will be established, but we will have result demonstrations where farmers growing Acala 44 can compare it with Acala 28, or vice versa.

Our 4-H Club Work is well organized and quality of project work is improving. Our decision to take the work out of schools created a problem in one area but through increased enrollments in some clubs and organization of new clubs in other areas total membership should approximate that of last year. One new 4-H Club Center has been established, making the second for the county.

There is wider interest in weed and grass control through spraying, and plans call for this office to conduct demonstrations in this field in the coming season.

Dairying continues on about the same basis as a year ago. Cooperation with the Pima-Pinal Herd Improvement Association will be continued, and we shall continue our program of improved feeding and parasite control. An active drive is planned early in the year to increase interest in home flocks of laying hens.

Our sponsorship of "deep plowing" has resulted in the general adoption of this practice by farmers who have lands where it is needed, and deep plowing has in many instances made the difference between almost crop failure and two bale to the acre cotton crops. We shall continue to emphasize the value of this practice. We have a few farms where alkali constitutes a problem, and the Specialist will work with us in attempting to improve this situation.

With constantly diminishing water supplies it is more important than ever to conserve water. We shall continue to encourage building of concrete-lined ditches, better levelling, laying out of rows where necessary across the direction of the least fall, and irrigation practices that will result in a minimum loss of irrigation water through its running off the farm.

Note: The period included in this report has brought about certain changes in the situation which should be mentioned. We have already written of the problem brought about by the decision of the Arizona Supreme Court as regards water. No one can tell at this time what will develop out of this situation. We have mentioned also the improved water situation on San Carlos Project lands, and further improvement in the water supply may mean that all lands can be farmed in 1952. Farmers will no doubt plant all the cotton that they are able to, and if the recent decision does not bring about a change in 1952 we may have the largest cotton acreage ever. There seems to be no possibility of any

great improvement in the supply of farm labor, so wider use will probably be made of mechanical pickers in the 1952 cotton harvest.

We shall have a drop in 4-H Club enrollments, the extent of which cannot be estimated at this time. Hard work needs to be done to build up membership, and the greatest problem is the finding of satisfactory leaders.

No further suggestions are made as to the program of work for 1952.