

ANNUAL NARRATIVE REPORT

of

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County Agricultural Agent,

APACHE COUNTY, ARIZONA.

from

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to

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I. STATUS OF COUNTY EXTENSION ORGANIZATION

1. Form of Organization

The county extension organization is known as the Apache County Farm Bureau. It is of the form and type prescribed to meet the requirements of the Arizona Code for co-operative extension work with state and federal extension organizations and agencies. The Bureau has the usual corps of executive officers, who hold office one year, or until successors are elected. The Constitution provides for community organizations with their respective sets of officers. A county executive committee is provided for to be composed of the county executive officers together with the chairmen of the various community executive committees. An advisory council is also provided for to be made up of the members of the executive committee and the chairmen of the county project committees.

Extension work is carried on through community organizations and project committees. Community project chairmen are selected by the community executive committees, or, in the absence of a community organization, by the County Bureau President. The community project chairmen compose county project committees in their respective lines of endeavor, and these committees may call for meetings, demonstrations, etc., for the purpose of furthering their work.

2. Objects and Policies

The objects of the Farm Bureau organization are to promote profitable types of agriculture in the county along the lines of both farming and livestock production. It fosters and encourages those conditions and related businesses and industries that will contribute to better agriculture and better general living conditions on the farms of the county. The policies of the Bureau are to promote better agricultural methods, to be generally on the defense of the agricultural interests.

3. Present Condition

The central or county organization is active. Some of the community organizations are active, particularly with reference to community project activities. Due to a shift in agricultural conditions in a number of communities of the county, no formal organization is maintained at the present time, but committee representation is kept up in connection with all the projects that affect those communities.

II. PROGRAM OF EXTENSION WORK

1. Factors Considered and Methods Used to Determine Program

Some of the factors considered in developing the program for this year were: ~~xxx~~

1. Work already under way, but not yet completed.
2. The need for information or more information along lines of

future possibilities and difficulties of certain agricultural enterprises.

3. Losses from insects, rodents, weeds and other hampering factors
4. The need for home markets.
5. The need within the county for improved seed and foundation stock.
6. Adverse economic conditions affecting the farmers and stockmen of the county.
7. The need for training coming generations of farmers, as well as the one on the farms.
8. The need for conserving the agricultural resources of the county for the future.

In determining what work was to be included in the program, consultation was had with Farm Bureau officers and committeemen, leading farmers and extension specialists to determine what new work would fill a real need. Such parts of the program from last year were continued as was felt would show further progress.

2. Project Activities and Results.

a. Cereals.

The first object in the work with cereals has continued to be to control as completely as possible losses to grain farmers from grain diseases, principally smuts. This work has been carried on for a number of years before, and among most of the farmers of the county the methods of prevention are well known. On account of a general shortage of funds, however, many farmers have not treated their seed grain. Personal interviews, circular letters and newspaper publicity have been used to show that treating grain seed constituted real economy. Results of last year's checks were used to make comparisons; also, previous year's figures. The amount of seed grain treated, however, has not increased much, if any, over last year, and apparently about the same group of farmers treated, indicating that future progress along this line will have to be made through a stronger appeal directed more to the individuals who are standing back. These constitute probably about 40% in numbers with 20 to 25 percent of the grain acreage. On account of drought conditions and the fact that much of the grain was harvested this year as hay, or did not even joint, no counts were obtainable. The County Agent assisted in getting in materials for treating and in passing around equipment for treating.

The second goal in the work with cereals was to continue the variety testing of grains in connection with the Agronomy Department of the University of Arizona and the Bureau of Plant Industry to finally arrive at a fairly definite set of conclusions as to the relative merits of the different varieties and to get seed production started from some of the most promising varieties for registration. One farmer planted a small plot of Hope wheat, but drought conditions prevented maturity. A great deal of interest has developed from the results of the Variety Nursery last year, and it now seems likely that the results will materially affect the varieties grown in the Nutrioso locality where the nursery work is located.

b. Potatoes, Irish.

The first objective continued to be to secure the planting of as good seed as possible and as wide use as possible of treating materials to combat disease in potatoes, with particular reference to scab and rhizoctonia and similar skin diseases of vine and tuber. To enable farmers to treat seed potatoes the County Agent assisted in getting materials ordered and on the ground for use at planting time. About 50,000 lbs of seed potatoes were treated under the direction of the County Agent. Two small consignments of certified seed were purchased from Colorado through the Agent's office. About 80% of the potatoes planted in the county were treated. The treatment given was the acidulated corrosive sublimate treatment. Results showed that close to 100% control was obtained where the soil had not previously become contaminated. Due to the fact seed stock of questionable origin is widely used, untreated fields showed a very high percentage of infection, especially of rhizoctonia.

The previous season practically the entire potato crop in the county was lost through a combined outbreak of early blight and psyllid yellows. Since both diseases were found in almost every part of the county and in such abundance that very few plants escaped attack, a great deal of uncertainty was felt by farmers as to whether or not to risk seed, time and labor on potatoes this year. Since no very great fund of information had been developed about the yellows, a question arose as to whether this was an entirely new disease that would always remain a decidedly limiting factor unless artificially controlled, or possibly something that has probably been present before the outbreak but became so destructive on account of climatic or other conditions. To help decide this practically all the fields of the county were kept under observation through the latter part of the growing season. Valuable assistance was given by Mr. Draper, Extension Horticulturist. Psyllids were found in every field examined, except two, and they were found in the vicinity of those two, but they were so very scarce that in every case some difficulty was experienced in locating them. There would seem to be some indication at least that the numbers of psyllids present must depend upon some factor or set of factors, possibly climatic conditions. Blight infestation was very limited, also, in spite of the production the year before of extremely large numbers of spores in every section of the county.

Drought conditions caused a yield this year much smaller than usual.

c. Home Gardens.

Due to lack of space and water, as well as other causes, many of the Mexican families of the county and more especially around St. Johns do not raise gardens. This year the garden work was continued among this class of families. As in previous years, arrangements were made to secure water and land for Mexican gardens. In the case of a very few families some definite results were obtained in getting a larger variety of vegetables planted. On account of an acute water shortage, not nearly so many garden setups were obtained. Fairly adequate gardens are almost always found as a part of the farm lay-out among the white families.

d. Fruits.

Work with fruits was confined this year to a continuation of the general survey and gathering of information as to varieties and production in the different parts of the county, together with an occasional individual demonstration of pruning methods. Five such demonstrations were given. The information gathered to date seems to indicate that fruit production in the past has been decidedly marginal, due to uncertain frost conditions. In some localities, such as Concho with low-grade lands and a fair water supply, it is likely that home orchards of well selected varieties will pay more than the uses to which the land is ordinarily put, provided, however, that equipment and proper methods are used for disease and insect control. An increased planting of small fruits will probably pay in most parts of the county.

e. Rodent Control.

The work in rodent control has in the past centered largely around prairie dog eradication with a less amount of work on kangaroo rats and gophers. Work with prairie dogs and rats has been carried on in co-operation with the Bureau of Biological Survey. The state appropriation which has furnished funds for this work was not renewed for this biennial period. Due to lack of funds this work has not been carried on in the areas off the national forests in the south part of the county. In the spring of this year it appeared for a time that a C. C. C. camp might be established to take care of both rodent and loco eradication. In order to collect necessary information for this, a survey was made of amounts and exact location of infestation areas. The C. C. C. work was continued on the Forest, and that part of the survey information that pertained to forest areas was turned over to the supervisors of that work, thus enabling them to find a large number of areas that had not been located otherwise. The County Agent has the promise of both the newly-elected members of the State Legislature that they will support this work when it comes to appropriations for the work for the next two years.

f. Insect Control.

The work in insect control was carried as a major project, the purposes of which were to have information at all times, as far as possible, about threatened insect outbreaks and keep farmers informed in time to organize to combat such outbreaks and to otherwise assist in preventing insect damage to crops and ranges. The worst difficulties have been experienced the last two years with grasshoppers and cutworms. A very serious outbreak of grasshoppers occurred over practically all the cultivated areas of the county, except in the Alpine and parts of the Round Valley communities, where intensive poisoning programs last year seems to have completely eradicated them. Surveys made during the fall of last year and rechecked during the early spring of this year indicated fairly accurately just where these outbreaks were to be expected. An adequate supply of government poison materials was obtained from the Bureau of Entomology and distributed through Farm Bureau committees to the various sections of the county. The material was put out under the direction of the County Agent. Dem-

onstrations were made of mixing and scattering to all groups of farmers who were not previously familiar with those operations. Very good results were obtained, and it was estimated by the committees that probably 4000 acres of crops were saved from destruction and serious damage was prevented on 2000 more acres.

Cutworms have presented a considerably less problem this year than last. Most of the areas that were infested last year were cleaned up in August under the County Agent's direction and no damage to this year's crops occurred, but a number of fields not under cultivation last year were planted this year and due to last year's weed growth had large numbers of cutworms. Most of these were cleaned up in August of this year to prevent further difficulty next year. On account of drought, however, a number of fields were abandoned to weed growth, and these fields may present their owners with worm troubles next spring unless they are taken care of early in the spring.

Blister beetles, following grasshoppers principally in the Vernon and Bannon areas, have caused a considerable amount of damage to beans, potatoes, and other broad-leaved plant crops. Some assistance was given by the County Agent, but lack of equipment makes the eradication of this particular insect very difficult. Some assistance was given with a small armyworm outbreak at Eagar, and about twenty-five farmers were given assistance in handling garden pests. Besides the individual assistance given, some of the most common pests were discussed in a circular letter, and control methods suggested.

g. Poultry.

The poultry industry has shown some advancement this year from the standpoint of numbers, therebeing about about 25% more chicks brought in than last year. The larger part of these were for egg production. The broiler situation has not improved and due to a scarcity of feed the number of broiler chicks brought in has decreased about 50%. The County Agent has endeavored to keep poultrymen informed about market trends and possibilities in poultry. Disease conditions have been considerably better this year. A part of this improvement may be accounted for by the fact that a somewhat better grade of chicks has been purchased on the average, due in part at least to assistance given by the Extension Service in getting orders placed with reliable hatcheries and for the better grades. The County Agent, in addition, has tried to keep poultrymen informed on sanitary and health problems. Two general circular letters were distributed on the questions of disease control and control of parasites.

Turkey production has remained about as it has been, which does not attempt to more than supply local markets. Work toward obtaining a local dressing station has not been successful on account of lack of numbers. On the other hand, it seems difficult to induce farmers to raise more turkeys until a definite outlet for them is assured.

h. Dairying.

The work in dairying has continued to be directed toward obtaining a market for dairy products. Since the price of milk pro-

ducts continues to be so low that milk or cream cannot be shipped to a distant market, this market would seem to have to be a local market. In view of the fact that the local market for butter and cream is supplied by outside sources to a great extent, it would seem that the two situations ought to work together. The relatively small supply of milk and the limited local market seem to limit the economy of a local plant. A shortage of local capital has prevented the organization of a local company, although a number of people are interested. Last winter we were able to interest a creameryman of Phoenix in the proposition of putting in a small cheese plant, it to be enlarged as the supply of milk increased. Early last spring he came up and looked into the proposition in detail and later made a proposition to the farmers of Round Valley and surrounding country. Apparently, the price offered for milk was not what the farmers expected, for only about ~~the~~ half the required number signed up, for lack of volume the proposition failed to materialize. The drought has eliminated almost entirely any attempt to produce milk for market, except by a few people who have a local whole milk trade to supply. The County Agent has been of assistance in working out economical drought rations and arranged for one set of milk tests. One purebred bull was located and placed.

i. Range Livestock.

Range livestock work and improvement has received more attention this year than previously, because it is recognized that the livestock side of agriculture is in many respects the most important one in Apache County. A range livestock improvement project and a number of related projects and activities have been carried in this year's program.

Actual improvement of the livestock itself has been fostered through assistance to ranchers in obtaining and selecting good purebred sires for their herds, through encouraging them to dispose of poor grade bulls and replacing them with purebreds, and through convincing producers that there was economy in disposing of poorly bred and off-colored cows and replacing with better type heifers even at a sacrifice of a certain amount of income in this year's business. As the result of this work three cow outfits have definitely begun to eliminate their poorer bulls and cows. One community forest allotment has disposed of its last grade bull this year and even culled their purebreds.

Along with the improvement of cattle themselves, work has been begun in range improvement. A great deal of the range of the county has been badly overgrazed, and the sod has been destroyed or badly damaged. Work has been started in finding suitable plants to fill in on these places. Trial plots are being planted on the different types of range to see what success can be had at reseeding different plants on these types. This work was begun with crested wheat grass, a supply of which was purchased by the County Agent. On account of drought moisture was not sufficient to bring up the plants this year, but it is hoped that results may still come next season.

Another activity more or less connected with the improvement of livestock conditions has been work on loco poison control. This work has taken the form of keeping in touch with loco conditions

to determine eventually about what may be expected of it over a period of years in the different parts of the county and under different conditions of moisture and climate and determine, if possible, something of its damage to livestock under different sets of conditions. In addition any indication of a means of offsetting the effects of the poisoning are carefully looked into. A plot~~x~~ has been grubbed each loco year in that vicinity and the plants counted to see what time and work will be necessary to "wear out" a stand of loco. That plot was included partly in a gravel pit, which will spm~~al~~ the work on it except for general indications, which were that the digging was showing definite results after three times over. Another plot has been selected under more nearly range conditions as to size and possibility of extending it. This plot will be extended by the owner to a range of several sections and having loco ranging from a very bad infestation in a few spots to almost none over a large part. It is intended by the owner to keep both counts and cost records on this range, so far as practical.

j. Agricultural Engineering.

Under this head most of the work this year has been along the line of laying out and revising irrigations systems and drains. This work was begun in previous years. Much of the irrigation of land in this county has to be done on rolling type of land, which washes badly if water is not applied carefully. The tendency of many of the farmers is to run water through too long sets, permitting it to over soak the top of the ~~land~~ run and under water the lower part. Too, this permits water to gather up the farther it runs and wash the fields badly. Much water is wasted, also, because much of the land has an impervious subsoil, and when the water has penetrated the top soil, any further application of water only follows along the subsoil and comes out farther down as seepage. Many systems have been worked over with ditches run on contours comparatively short distances apart, so the grade is almost flat. This permits the water to be spread thinly enough that washing is negligible. Any waste water may be caught up and respread, and water may be moved along as quickly as the topsoil is saturated. A head of water may be made to go much farther, as well eliminating damage, under these conditions. In addition to the above type of work, two proposed drainage lines were laid out at Springerville. Five reservoirs were laid out for range watering and flood water irrigation. A set of terraces were surveyed to show the owner the general scheme and probable effect. Grades were set for two hay barns.

k. Miscellaneous.

A large number of veterinary calls have been taken care of during this year. There is no veterinarian in this part of the state, and service along this line is almost required.

A project in weed control with particular attention to bindweed or wild morning glory has been continued this year. Most of work has been done to arouse attention to the seriousness of this problem. Around 225 acres, mostly in small areas, but rapidly gaining in size, is known to exist in the county. These areas are found in every part of the county. Spraying demonstrations have been continued, using calcium chlorate. A small amount of spraying has been done by more progressive farmers, but most of them

seem hesitant about attempting to eradicate their weeds when their neighbors and irrigation streams and roadways are re-seeding them faster than they can rid themselves of it. The only solution seems to lie in organized effort, starting at the head of the valleys and cleaning each place as its turn comes.

Assistance was given about thirty ranchers in getting materials for predatory animal control.

A considerable amount of the County Agent's time the last half of the year was taken up in work in connection with the drought. On account of early rains the season started off well for range conditions. When the rainy season should have started in July, however, sufficient rains failed to materialize. Almost no rains came in August. The County Agent made brief surveys of drought conditions weekly, trying to determine the prospects for wintering livestock through. In the latter part of August and the first part of September it became evident that all of the county would be extremely short on feed. Meetings were called and representation made, asking to have Apache County included in the drought relief area. In response to the petitions and meetings, the county was included the first of October, but no funds being available, no cattle could be bought for drought relief after a set-up had been made. Finally, however, the sheep-buying program got under way. It was not complete at the end of the extension year.

As was true the two previous springs, a great deal of the Agent's time had to be used in crop loan applications. This work coming at the time spring work is opening prevents the County Agent from accomplishing much needed work when he has no office help for it and has to write out the applications for the farmers himself.

A considerable amount of time was used in getting out information for various surveys being made by different governmental agencies.

III. OUTLOOK AND RECOMMENDATIONS

1. Organization.

The Farm Bureau central organization is active and functioning. Most of the community organizations are not particularly active, except as special work comes up. Probably more active community organizations is one goal to be striven for.

2. Cereals and Legumes.

The variety tests have been valuable in the community in which the nursery has been located. To the extent that time and co-operators can be found, it is recommended that this work be extended to other communities, since in this county each community has a set of conditions that differ materially from those in other communities. Work should be continued in control of cereal diseases, probably with more emphasis on loose smut. It will undoubtedly prove profitable to most farmers in the higher valleys to improve their soils by rotating to include legumes. Indications are that a small amount of phosphate will supply a need in many of the older fields.

3. Potatoes.

Indications seem to be that the blight and psyllid yellows

are not likely to entirely limit the production of potatoes, but in view of the extremely heavy losses of last year, it seems probable that losses will occur occasionally similar to it. It is entirely likely also that it will be found that some loss occurs each year, although to degree not always noticed. It is recommended that work be continued in keeping watch for these disease conditions and an effort be made to secure power sprayers in each community to control these difficulties promptly when they appear.

4. Fruits.

Fruit-growing on a commercial scale does not seem at this time to be a likely industry, but much improvement can be made in the handling of home orchards. It seems important at this time to stress the possibilities of small fruits.

5. Truck Crops.

With improved transportation facilities truck crops promise to be important in most parts of the county. Much work will be needed to begin with in varieties, as well as in working out market procedure. As the raising of truck crops begins, cultural methods must receive a great deal of attention.

6. Rodent Control.

The outlook for having an appropriation for rodent control made by the incoming legislature seems favorable. This work is extremely important, and should be continued as a major project.

7. Insect Control.

The grasshopper situation is much more favorable, apparently, than for several years before, but outbreaks of other insects may cause much damage. This work has been of much value to the farmers, and it is felt that it ought to continue this year as a major project.

8. Weed Control.

The interest in control of noxious weeds is increasing rapidly, and the work along this line should be continued as a major project until concerted action can be had to exterminate, or at least hold in check the more important weeds, such as bindweed.

9. Poultry.

Poultry raising could be extended much farther without exhausting its possibilities in this county. Turkey raising in particular will undoubtedly find a much larger place as soon as marketing facilities are developed so that the birds can be dressed and packed in some more or less local center.

10. Dairying.

With truck lines or some other cheaper form of transportation dairying may possibly be able to carry on and market at distant points, but under present conditions of feed prices and transportation costs, no profit can be shown. More economical production and the development of local processing are probably the best lines of attack at this time. In view of other more important work, it does not seem best to continue this work as a major project.

11. Range Livestock.

Work on the improvement of range livestock and livestock ranges should be continued as a major project. Much work is needed.

Valuable work can be done along the lines of better sires, classification for marketing, culling of females, and more economical transportation. Closely related lines that need much attention are range rotation and conservation, erosion control, moisture conservation on ranges, checkdams for water, and loco control.

12. Agricultural Engineering.

In this field the improvement of irrigation systems to save soil and irrigation water, contouring and terracing to save soil and moisture are very important and should be continued for work. Many floodwater systems could be developed to improve range feed conditions. Work of this sort should continue to be emphasized.

13. Program for Next Year.

It is intended to carry the following projects as major projects:

| | |
|------------------------------|---------------------------------|
| Organization | Commercial Egg Production |
| Rodent Control | T. B. Cattle Testing |
| Pure Seed Work with Potatoes | Loco Poison Control |
| Weed Control | Insect Control |
| Terracing of Land | Improvement of Range Livestock. |

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF ARIZONA
—
TUCSON

UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE AND
U. S. DEPARTMENT OF AGRICULTURE
COOPERATING

AGRICULTURAL EXTENSION
SERVICE