

ANNUAL NARRATIVE REPORT  
of  
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APACHE COUNTY, ARIZONA.  
from  
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to  
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## ANNUAL NARRATIVE REPORT

### I. STATUS OF COUNTY EXTENSION ORGANIZATION

#### 1. Form of Organization

The county extension organization is the Apache County Farm Bureau. It is an organization of the general farm bureau type, and in form it meets the requirements of the Arizona Code for co-operative work with state and federal extension organizations and agencies. The county Bureau has the usual corps of executive officers, elected at the annual meeting. The county organization is divided into organizations with their respective sets of officers. A county executive committee is composed of the county executive officers together with the chairmen of the various community executive committees. An advisory council is made up of the members of the executive committee and the chairmen of the county project committees.

The County Bureau carries on its work largely through the community organizations. For furthering community activities in various lines of agricultural endeavor, 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 shall compose county project committees in their respective projects or lines of endeavor, and these committees may call meetings, demonstrations, tours, etc. for furthering their work.

Community and county officers hold office one year, or until successors are elected.

#### 2. Objects and Policies.

The objects of the County and community organizations are to promote agricultural and livestock production and conservation within the County and to foster such conditions, business, and allied industries as will contribute to the betterment of agriculture and general living conditions within the County. The policies of the organization are those of general helpfulness in the promotion of better methods and in the general defense of agricultural interests. The organization takes no part in partisan politics.

#### 3. Present Condition.

The central organization is active. Most of the community organizations had become inactive before the beginning of the present year. Steps have been taken toward a re-organization of most of the old centers and possibly one or two new ones. Most of the interest is still present; if it can be centered on constructive endeavor, a great deal more can be accomplished.

## II. PROGRAM OF EXTENSION WORK

### 1. Factors Considered and Methods Used to Determine Program

The present county agent, coming onto the job at the beginning of the calendar year with only a general knowledge of the work already done, found it necessary to make a review of the work of preceding years and to make a general survey of agricultural conditions in the different parts of the county before setting up his program. Frequent consultation was had with Bureau leaders, extension workers, and leading farmers. An attempt was made to incorporate a certain amount of needed new activities without departing too far from the program of work already begun.

Some of the more important factors considered in developing the program for this year were:

1. Work already begun, but not yet completed.
2. Apparent future possibilities or difficulties of certain agricultural enterprises, and the need for more information.
3. The presence of certain hampering factors, such as rodents and insects, noxious weeds, etc.
4. Changing local conditions, such as improved transportation facilities into most parts of the county, loss of local markets for certain products, etc.
5. Temporary economic conditions affecting all or most of the farmers of the county.
6. Economic conditions in general affecting, temporarily or otherwise, the status of certain agricultural enterprises.
7. The need for training the oncoming generation of farmers, as well as the present generation.

### 2. Project Activities and Results.

#### a. Cereals.

The principal goal in the work with cereals was to secure as nearly 100% eradication of smuts as possible. This work had been well introduced in previous years, and the methods were well-known. Posters, newspapers, and personal conferences were employed to remind the farmers of the necessity of continuing this work. Results were only fair. Many farmers, not having the means to purchase materials conveniently, took chances on their seed. A few others were not convinced that freedom from smut in previous years would not necessarily prevent it in subsequent years. However, approximately 70% of the grain sown was treated, and some interesting data were collected for use next year. Counts taken showed that bunt of wheat was almost entirely controlled by the copper carbonate dust treatment; while untreated samples showed losses up to 11%. Reliable counts were not obtained on oats, but apparent losses in untreated fields ran up to 15%. Shattering from hail prevented these counts from being accurate, however. No treating for loose smut of wheat was done on account of difficulty of getting together equipment for this rather difficult and tedious operation. Two co-operators will treat next spring, if equipment can be found.

The Agent was of assistance to about twenty farmers in obtaining seed for planting

b. Potatoes, Irish.

The first goal set up in the work with potatoes was to secure a group of co-operators who would treat their seed potatoes for disease, this set of farmers to form nuclei in their respective communities for future work. Records were to be obtained for comparisons. Twelve co-operators were secured for the treating. The County Agent assisted by means of demonstrations, personal conferences, seeing that materials and equipment were available. About 45000 lbs. of seed potatoes were treated with corrosive sublimate, which included practically all of the commercial planting except on one farm where the seed potatoes had been grown from certified and treated stock the preceding year. This grower used the organic mercury treatment as an added precaution. One other farmer having similar seed did not treat, but he used fresh soil for his planting. Checking was done on seed stock suspected or known to have disease before treating. On three such checks, two were found free from scab and one had less than half of one percent. The untreated field mentioned above had a small amount of scab, but no exact counts were available. Potatoes from two garden patches planted with untreated seed were found to be worthless at digging time from scab. Rhizoctonia was not completely eradicated, but weeds were suspected of holding the disease over, because diseased weeds were much more prevalent in and around the fields than diseased potatoes.

The second goal was to secure co-operators in each of the potato-growing sections of the county to hill-select seed potatoes for next year's planting. Three such co-operators were assisted in this work at Nutrioso, but an early storm rushed digging in other communities, and no selection was possible. The same co-operators who were to have done this will attempt this work next year, however.

The third goal was to encourage wider planting of potatoes to replace some of the grain planting and to form a marketing organization to assist in placing the crops after they are produced.

Two farmers went into potatoes on a commercial scale this year. Their results have been very satisfactory in the main.

The storage cellar at the left is on farm of Wallace McDonald at Greer. It is the first large storage cellar in the county

It will hold about three carloads of potatoes, when it is full, and it is arranged so that provision for driving into it with trucks can be made easily. The storage cellar of Schnepf Brothers in Milligan Valley is somewhat larger and is arranged for driving into for loading and unloading. The entrance to this cellar is shown in the accompanying photograph.

A tentative organization of a small group of farmers at Nutrioso has been effected for the purpose of securing seed, machinery, supplies, and marketing advantages co-oper-

atively. It is hoped that this will be the beginning of a much better organization.

#### c. Home Gardens.

This work was not conducted as a definite project, for home gardens are planted by almost every white family in the county, but a program of encouragement was carried out with the Mexican population in the spring to secure planting of more gardens, and a certain amount of instruction was given, also, in this connection. This work was made possible through the assistance and co-operation of Mr. Senito Gonzales of Springerville and Mrs. Amelia H. Garcia of St. Johns and of various others in interpreting letters and messages, as well as with advice in matters of procedure. Some assistance was given farmers by demonstrating the mechanical features of tin can sealers in the canning of vegetables.

The results of the home garden work were very satisfactory. A number of gardens were planted by Mexican families who had not had gardens before. Others enlarged their plantings. A start was made in the use of tin can equipment in the county, three families making purchases of this equipment. Most of the credit for work in this field properly belongs to Miss Bouton and Miss Brown, however.

#### d. Fruits.

Assistance was given about a dozen farmers in the care of trees, proper planting, and diseases. Mr. Draper gave two very effective demonstrations of pruning methods to groups at St. Johns and Eagar. Some survey work has been done toward a definite project in fruit culture another year.

e. Rodents.

The work with rodents has been directed more largely against prairie dogs, and it is a continuation of work carried on for several years in this county in co-operation with the Bureau of Biological Survey. A great deal of credit is due Mr. Isaac Rogers, Rodent Leader, for the effectiveness of this work in the field. The work of the County Agent has been to secure co-operators, assist in distributing materials, make individual demonstrations, and be generally useful in furthering the work. Co-operators were secured by general publicity and individual conferences.

The work was carried out along three lines, mainly; viz, to check back over areas previously treated intensively and see if infested spots have been overlooked or if spots have become re-infested and clean out all such spots, second, to enlarge the dog-free area, and, third, to reduce the dog population in all areas to where the damage to crops is negligible. The areas in which this work was done are shown on the map--page 5a.

The work was originally begun in a systematic way in the area along just under the mountains in the vicinity of Springerville. This was the worst infested area in the county at that time, and on account of the rough type country was the most difficult to work. Each year the area has been enlarged. It now comprises roughly about seventeen townships. Infestation in other areas has been reduced, also, until it has been estimated by ranchers and others familiar with conditions in former years that there is probably not more than one tenth the dog population that formerly existed in the south end of the county.

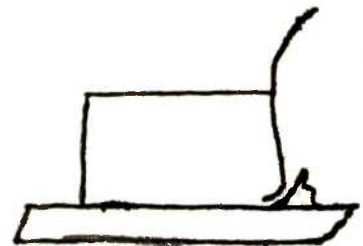
This year's work was done with 205 cooperators; 4,809 pounds of poisoned grain and 3,800 quarts of carbon bisulphide were used; and 47,115 acres of land was treated.

f. Insects.

The work with insects was not conducted as a definite project. However, severe outbreaks of grasshoppers and cutworms and light outbreaks of armyworms made necessary a considerable amount of work. Outbreaks of grasshoppers occurred at Alpine, Vernon, Nutrioso, St. Johns, and Eagar, the worst being at Eagar. Poison baits were first used, but the difficulty of securing materials made this method both too expensive and impracticable for many of the farmers. Catchers of the hopperdoser or oil pan type were devised by the County Agent and were used on three farms with success, but they were useless on the rougher farms. The assistance of Dr. Ball of the University of Arizona was then secured. He suggested and helped build and demonstrate two other types of catchers. The first type consists essentially of a large bag of muslin, or other light but strong material, with the mouth held open by a framework making an opening into the bag of about two by nine feet. To operate, the catcher is drawn along over the infested ground at a rate of about ten or twelve miles per hour by rope attached to a saddle horse or a boom off the side of a car. This works very

effectively on ground that has a covering of vegetation, such as alfalfa or young grain, but on bare ground it tends to pick up sticks, stones, dirt, etc. Three farmers used this catcher with very good results. One of these, Mr. M. J. Wiltbank of Eagar, caught about 1300 lbs of hoppers from 10 or 12 acres of alfalfa.

The second type of catcher suggested by Dr. Ball is illustrated below. It consists of a bright metal screen held erect and having at its bottom a trough with an opening along its full length that leads back of the screen into a screen cage. The screen is about 30 inches high and curved so that a hopper, striking it, will fall or slide down it into the trough at the bottom and thence through



Front View of Catcher

Diagram of  
Section

the opening into the cage. The screen can be twelve or sixteen feet in length. It is mounted on low runners and is drawn by horses at each end of the catcher, preferably hitched to bars two or three feet beyond the end of the screen, so that the horses scare the hoppers over into the path of the catcher. Once in the cage of the catcher, the hoppers try to escape through the screen wire and do not clog up the opening leading into the cage. After a few hoppers are caught they soon gum each other over until they mass of hoppers can be shoveled out into sacks without loss. This type of catcher operated very successfully on the Northern Arizona Land Co. Farm west of Eagar where more than 2500 pounds of hoppers were taken from a rough field. Two other farmers operated small catchers of the same type over very rough fields. This type of catcher will operate over most ordinary fields. The cost of materials is from eight to twelve dollars, but the first cost is the only cost, except for labor, provided care is taken of it, and around fifty acres a day can be covered readily. Emphasis should be laid on the necessity of the front screen's being of bright metal, because a hopper's eyes are such that he will jump toward a bright screen in the same way that he will jump toward the sky; otherwise he will jump away from it.

### Back View of Catcher

Cutworms were controlled to a certain extent by the use of poison baits. Reducing next year's infestation was provided for by work on weeds which feed the August brood, and by urging fall disking of ground to be cultivated to crops next year. Two small outbreaks of armyworms were controlled by vigorous application of weighted brush drags. One outbreak of army cutworms was combatted with harrows followed by irrigation water. This was in the early spring and on alfalfa lands. The water at near freezing temperature seemed to kill the worms at once.

### g. Agricultural Engineering.

The principal project in this field was one having to do with the drainage of a small swamp at the edge of the town of St. Johns. Work on this project had been begun before this year. Mr. Watenpugh, Irrigation and Agronomy Specialist of the University of Arizona Agricultural Extension Service had made extensive moisture surveys of the soils in the vicinity and throughout the swamp area. Tentative plans had been drafted for the drain. Interest had lagged, however, on account of the probable cost. It was possible to revive the interest in the spring and in April the first ditching work was done. Due to the fact that most of the path of the drain was under water to various depths, it was necessary to use dynamite to open the ditch to the required depths. Buying the dynamite and securing the services of an experienced powder man made an expense of approximately \$1600. The raising of this fund was accomplished largely through the efforts of the Lions Club of St. Johns. About one and a fourth miles of ditch was opened to a depth of five feet. Another half mile of ditch of less depth was opened to divert drainage water into the ditch and to give the drainage water a getaway at the lower end of the swamp.

Following the opening of the drain through the swamp, the County Agent and extension specialists have made a number of ob-

Two Views of Work on Drain. Top: A Blast  
in Action. Bottom: The Work done by the Same Blast.

servations on conditions in and around the swamp. Most of the surplus water has been carried out of the swamp proper. The soil of the swamp area is drained to sufficient depth to permit resumption of agricultural operations in the immediate vicinity of the drain where surface water has been diverted from flowing across the land. Apparently all of the land will be cleared just as soon as landholders cut in lateral drains. Apparently, also, the walls of the drain ditch will need to be sloped and smoothed and the ditch deepened in most of its length to bring its bottom below a gravel stratum that will provide underdrainage to carry out alkali deposits in the lands above the swamp. The extra depth will give more

slope to the lateral drains when they are made. Co-operators have been secured for a small amount of crop planting on the reclaimed soil to test and if possible to demonstrate the ability of the soil to produce crops. This will be done next summer.

The work done this year is only a start on this project, but it is a good start, because it gives us material of a concrete sort upon which to work out data necessary to convince the landholders that the large body of land below the town of St. Johns is capable of being reclaimed for cultivated agriculture.

#### h. Poultry.

The poultry work in Apache County has been very discouraging from some angles, and it has been very encouraging from some other angles. The regular project work in this line has been in the direction of commercial egg production. The drop in egg prices came at just the right time to have cancellations made on 8000 of the chicks which the County Agent had laboriously secured orders for. 1400 more chicks were destroyed in two poultry plant fires during the brooding period. However, as the market began to improve in the spring, enough small orders went into various hatcheries to just about balance off in numbers those cancelled in the winter. Unfortunately, many of these chicks got off to too late a start for profitable egg production. Many of them have been, or are being sold for friers and realizing a small profit in that way. Three poultrymen had had considerable difficulty with range paralysis due to tape worm infestation. We have been able to eradicate most of this, but not all, through the use of the flock lye treatment, supplemented by occasional individual capsules.

One poultryman, Mr. H. W. Heap of St. Johns has been able to develop a special and more or less continuous frier market. He has been able to market something over 8500 head of the heavier breeds. This is a limited market, and the Agent has been careful not to encourage over-production. Two other poultrymen have marketed about 1000 head in a like manner.

The poultry industry has used in the neighborhood of 17000 chicks in this county this year. Egg production is still much below requirements, however. There is a great deal of interest in egg production, and the tendency is to watch economic developments that affect the industry. A certain amount of expansion is expected for next year.

The turkey industry has taken an upward turn in numbers this year, and many more birds have been saved for next year's breeding flocks than have been saved before. Exact numbers are not available at this time. One factor that has helped to make this true is the need for some natural assistance in the insect control.

#### D. Dairying

Milk production, except where special markets have been developed, has almost ceased on account of low butterfat prices plus comparatively high transportation costs. Most of the cows have been

Farm flocks of turkeys are increasing in Apache County.

A new poultry house under construction on the farm of W. S. Brown.

turned to pasture. Work has been started on a program of weighing, testing, and culling to eliminate the low producers and breed up and select herds of high enough producers to carry over with a profit, even with the odds against them. Economical, but well-balanced rations are being worked out to go along with the other work, for, obviously, the feeding is just as important as the breeding.

Some work has been done this year in getting together data for determining the feasibility of pushing the establishing of creamery or cheese factory stations, or plants themselves, in this county. Reports so far have not been very favorable toward the plants, considering our low dairy cow population. Some of the data would indicate that possibly a central plant somewhere in Northern Arizona

which would serve two or three counties might prove worth while. Silos are proving their worth, evidently, for while some of last year's users did not fill their silos this year, enough new silos were constructed to keep the number up. Data collected from the farms of Apache County show that in most cases the silage is the cheapest feed in its class that is available to the farmers.

Filling a Silo on the J. E. Butler Farm, Eagar.

Filling a Silo on the W. S. Brown Farm, Eagar.  
Cheap Power from a Model T.  
(Note power take-off from truck in next view)

The Dairy and Poultry Specialist of the Extension Service has been of great service to the farmers in these two lines the past year. The County Agent has depended upon him for a great deal of guidance outlining and carrying out the program in these fields.

j. Other Livestock.

A condition of general fluke infestation on much of the mountain cattle and sheep range has been the object of a general survey of the streams and parks in this area to determine the exact extent of the infestation. This survey has not been completed, but some infestation has been found on about all of the principal sections of the mountains in Apache County. Some work has been started to see if any assistance can be had from the Forest Service in eradication, but we have had no encouragement from that organization. The principal help that we have been able to give has been to give the condition publicity among the stockmen and encourage the use of carbon tetrachloride when animals are found to be affected. Practically every stockman has been contacted on this program.

k. Club Work.

The original goals set up in this project have not been accomplished, partly on account of factors which were not under the control of the County Agent, but partly, too, on account of faulty organization. The clubs were organized as community clubs, rather than as project clubs, which arrangement has worked satisfactorily in other years, it seems. The loss of three leaders at a busy season made it impossible to get in all the records and get a check on the work. Nineteen completions were made, but most of them were late. A partial corps of leaders has been arranged for next year.

l. Miscellaneous

A project having to do with weeds, with particular reference to the wild morning glory or bind weed, has been carried through the year. A survey of this particular weed condition shows that there is an acreage of approximately fifty acres in the county. Most of this is in rapidly spreading spots. It has been found in most of the

farming communities of the county. Demonstrations have been conducted, using Atlicide weed killer, with very good success in each instance. Some work has been done toward getting funds appropriated by the Board of Supervisors to carry out a vigorous program of eradication, and unless shortage of funds prohibits, this is practically assured. Satisfactory results seem to come from using the same weed killer on the whorled milk weed, but this will need to be checked further before making any recommendations.

The County agent has spent parts of several days in taking care of veterinary difficulties, there being no veterinarian in this section of the state.

Through the co-operation of a number of agencies, a soil survey was finally secured for the area around St. Johns. The survey was very ably carried out by Mr. Poulsen of the Soils Bureau.

Some Scenes at the Big Club Picnic in  
the Mountains above Eagar.

### III. OUTLOOK AND RECOMMENDATIONS

#### 1. Organization

As was stated above, the central organization of the Farm Bureau is active and functioning, but the community organizations are largely non-functioning, if even existing in some cases. Some work has been done, and the outlook for bringing most of these back into action is good. It is particularly desirable to have every local committee working that is possible, so that a great deal of detail work can be taken care of through committees, leaving more of the County Agent's time and the time of the Bureau officers for constructive work. It is expected that a local leader will be appointed for every project that affects a particular community.

#### 2. Cereals and Legumes.

Some data are available, and it is recommended that more stress be laid on the desirability of treating seed grain. Some provision should be made for treating to obtain seed wheat free from loose smut. Work in the growing of certified pure varieties for seed is desirable right at this time, because of the generally mixed condition of seed on most of the farms of the county. It is particularly recommended that the growing of legumes be encouraged in each locality and on each farm for the double purpose of soil improvement and better balanced rations on the farms. Much more of the crops grown on most of the farms of the county ought to be fed back to the soil through livestock of some kind.

#### 3. Potatoes, Irish

In some parts of the county potatoes, one year with another, seem to offer more possibilities than grain as a cash crop, provided better marketing facilities and cheaper cultural methods can be worked out. Work should be continued along this line.

#### 4. Fruits

No regular project work has been attempted in fruits. There seem to be possibilities in this field that ought to be investigated further and developed, if feasible, in small fruits as well as in tree fruits.

#### 5. Truck Crops

Summer-grown truck crops, such as head lettuce, carrots, etc. have been demonstrated as being easily grown. The development of dependable markets should be worked upon as rapidly as better transportation facilities develop.

#### 6. Rodents and Insects

The rodent work is really producing results that are tangible. The prairie dog can be completely exterminated if the work can be continued along the lines already begun. This should be kept as a major project.

Grass hopper outbreaks are possible and likely in some of the parts of the county. Information on these and other insects should be gotten out to the farmers at correct times to be of value.

### Soils.

There is no prospect of much being accomplished in the way of soil improvement the coming year, but work should be started on this. Investigational work for data gathering ought to be started in each community on fertilizers. Feeding for soil improvement and crop rotations to include a legume should be actively encouraged from now on.

### Agricultural Engineering

The drainage work at St. Johns is just begun. Additional data on cropping the reclaimed soil will probably be secured this coming year. The work this next year should be directed toward ditching into the drain already constructed and keeping attention and sentiment alive on extending the drainage system to include all the agricultural lands below town and developing an organization to construct and maintain such a system.

In all parts of the county there are lands that could be improved and water conserved through terracing and contouring. co-operators have already been found for a beginning of such work. It would seem desirable to push this as a major project.

### Poultry

Farm and commercial poultry raising can be carried considerably farther without exceeding the economic limit. Work along this line should be continued.

### Dairying

The dairy industry in this county can go much farther, provided the economic factors be stressed. Correct feeding, culling by test, breeding along high production lines, and marketing problems ought to be given a lot of attention.

### Other Livestock

The fluke control work probably will not show much advancement another year, but information should be kept before the stockmen, and all possible chances for eradication watched and taken advantage of.

A lot of work is needed along the lines of improvement of range stock through the use of purebred and improved sires. There is a good opportunity now to get in some good opening blows in such a campaign.

### Weeds

The work with noxious weeds is well begun, and ought to be pushed along to the complete extermination of the worst of them.

Club Work

Club work with farm boys is in need of much more attention than has been given it. The County Agent has a set of good leaders for this work partly arranged for, and it should go along in much better shape the coming year.

These are the fellows upon whom the future of agriculture depends; that future is bright only to the extent that they are given correct training and proper perspectives as they approach ages and positions of responsibility.

Program for Next Year

The following projects from this year's program to be carried forward as major projects:

Organization.	Organization for Marketing Potatoes
Commercial Egg Production.	Alkali Soils
Rodent Control	Improvement of Dairy Cows
Boys Club Work	Cereal Smuts
Treating of Seed Potatoes	Loco Poison Control
Hill Selection of Seed Potatoes.	Weeds.

The following new projects to be carried as major projects:

Insect Control	Fruit Production
Soil Improvement	Terracing Work
Pure Variety Work with Cereals	Improvement of Range Livestock.

#### IV. SUMMARY OF ACTIVITIES

No change in the status or form of organization, but work begun on getting more activity of community Bureau centers, in which organization has not been kept up in every instance.

Program was developed largely upon work already begun and economic needs of present year.

Approximately 70% of grain planted was treated for smut. Data collected for further work along this line.

Work well begun in treating seed potatoes for disease, about 45000 lbs being treated with corrosive sublimate. Work started in hill selection of seed potatoes. Commercial raising of potatoes well under way, and potato marketing organization set up among small group of raisers.

Small amount of home garden work begun among Mexican population to relieve economic stress.

Prairie dog extermination extended over much larger area. Work carried on with 205 co-operators and over 47,115 acres.

Successful emergency work done against grasshopper and other insect outbreaks. Two new type grasshopper catchers devised and demonstrated and put into use through suggestions and assistance of Dr. Ball.

First actual drainage work done on swamp below St. Johns. About one and a half miles of drainage ditch blasted out. Cropping demonstrations arranged for on reclaimed land.

Not much advancement along the lines of egg production, but turkey and frier production increased to limited extent.

In dairying, work is well begun in weighing and testing for culling low producers. Improvement along economic lines is started. Data collected for manufacturing plants to improve dairy marketing. Use of silos helped through construction of six new silos.

More data were collected this year on the extent of fluke infestation on ranges.

Club work was not up to hopes this year. Lines of improvement have been partially worked out for next years work

A soil survey was finally obtained for the area around St. Johns.