

ANNUAL NARRATIVE REPORT
OF
D. W. ROGERS
COUNTY AGRICULTURAL AGENT
APACHE COUNTY
ARIZONA

December 1, 1937 to November 30, 1938

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SUMMARY

The production of poultry in this county is profitable to industrious farmers because we produce fewer eggs than we use and more grain than we normally consume. Three different rations were worked out for our poultrymen in different localities. Out of 3,000 chicks which we shipped in from Liggett Hatchery at Phoenix, our poultrymen only lost 3%.

The Agent spent six days on rodents and cooperated with the Biological Survey in every way possible. Largely through the efforts of the survey 45,920 acres were treated for rodents and the bubonic plague was discovered in our prairie dogs.

Our club work consisted of nine clubs with sixty-three club members starting and thirty-nine completing their club work. We held sixteen club meetings with an attendance of two hundred forty-three. We took eight club members, one club leader, to the Roundup at the University, where we took 1st place in Junior Demonstration and 1st and 2d in Livestock Judging. Franklin Miller won the Santa Fe railroad award, which was a trip to Chicago.

Even though we have a good climate for the production of potatoes, yet many of our farmers do not produce as many as they should. George Crosby, farmer, produced two-hundred bushels per acre of both Katahdin and Cobbler, but the Katahdin produced more marketable potatoes than any other variety. Demonstrations were given on treating potatoes with the New Zealand Treatment.

Most of the 1200 dairy cows that we have are used for home use, although as a result of cheese making demonstrations, one farmer produced 6,000 pounds of good commercial cheese, and we expect to have other farmers do the same next year. 70% of our dairy cows were treated for T. B.

Cereal Smuts, the dread of every farmer, caused a loss of \$2,000.00 in the past year. 3,200 acres of wheat, oats and barley are planted annually by farmers in this county

Mr. A. B. Ballentyne, Rural Sociology Specialist, gave six lectures to one hundred sixty-one farmers. The subject of his lectures were: "Taxation" and "The Ever Normal Granary."

Work which was done concerning range Livestock in Apache County consisted of:

1. Judging Demonstration for the purpose of educating our cattlemen in the selection of bulls.
2. Testing samples of forage and blood of animals to determine the chemical deficiency of forage on our ranges.
3. Classifying poison plants which had caused the loss of cattle.
4. Supplying rations for range feeding of calves and for feeding steers in the feed lot.

Our Horticulture work consisted of spraying one hundred fifty trees three times for ten farmers, and securing 90% good fruit.

Seed Corn was selected by four farmers this year.

On the range program the County Agent pointed out to the operators the value of using the means provided for by the A.C.P. in developing stock water on his range. By proper distribution of water, the operator is enabled to better control his livestock and to properly utilize grazing land that heretofore was inaccessible to his animals.

Numerous meetings were held in Apache County in each and every community in the past year, at which various phases and benefits of the program were discussed. The farm program for 1938 was not of too much benefit to the small operators in this county. This was due to both an extremely dry summer and a shortage of water for irrigation purposes.

The balance of our miscellaneous work consisted of the signing of farmers for R.E.A. project; attending a scarifying demonstration at Navajo County; working co-operatively with the Rural Rehabilitation in aiding farmers to secure loans; giving two hopper control demonstrations, as a result of which two hundred fifty acres were treated for hoppers; working with a University representative on weed experiments with farmers on control of bindweed, nut grass, whorl milkweed, blue weed, puncture vine and cuckle bur; arranging for two meetings for the President of the University of Arizona, at which he gave a short lecture on topics of interest in today's current events; co-operating with Water Facilities Representatives attempting to initiate an irrigation project for Vernon, Arizona; attending flood control meeting at Holbrook, Arizona.

ANNUAL NARRATIVE REPORT

COUNTY PROGRAM OF WORK:

Factors Considered and Methods Used in Determining Program of Work:

In determining our program of work we took into consideration surveys which were made in the past, conversation with the farmers, and past experiences. We appreciate the fact fully that we didn't work on all projects which we should have worked on this past year, but we did work on the projects which we considered of most value.

Project Activities and results:

(a)

COMMERCIAL EGG PRODUCTION

A few years ago the survey made in this county showed that 41,000 dozen eggs were shipped into Apache County, and according to a brief survey made with some of the merchants this year, 20,000 dozen eggs are shipped into Apache County at the present time.

We produce annually in Apache County on an average of 64,782 bushels of oats, barley and wheat. Therefore, in order to take care of our local egg demand, as well as to help market our grain which we produce in this county, it would seem that poultry could be expanded with profit to the farmers of this county.

We have recommended that for the last few years our poultrymen receive their chicks in April in order to get their poultry into production at the proper time of the year so that the most money can be made from them. However, some people seem to pay little or no attention to our suggestions, and as a result of this, two of our poultrymen this year got their chicks in June, which made it impossible for them to get their pullets into production before January 1st. We think, however, that this will not happen again, since it proved very unprofitable for them to do this.



Fig. 1 Mr. and Mrs. Jim Warren, farmers
of Vernon, 71 And Not on Relief.

Due to meetings held with our farmers, 8,000 chicks were ordered this year in April from Liggett Hatchery at Phoenix, Arizona.

During March, April and May Clarence Jepson was getting 60% production by feeding hulled oats and milk with a little grain for scratch. Emil and Alcid Rothlisberger secured 52% production as a year average by feeding one hundred pounds of ground barley, one hundred pounds of ground oats, one hundred pounds ground grain, to which was added sixty pounds of meat scrap. This feed cost them \$1.50 per one hundred pounds last spring. This fall the same ration is costing them \$1.25 per hundred pounds.

In October we found that Edward Schuster's chickens were not laying as they should because he was advised by an outside man to hold back the development of his chicks during the summer when they were growing so well. We, therefore, are strongly recommending in the future that development of chicks which our people secure in April should never be held back during any of the growing season. We recommended to Edward Schuster that every thirty days he feed his chicks hot bran mash at the rate of three pounds of bran to every one hundred hens. We also recommended that he put burlap sacks over the front of his coops and in various other ways keep out the drafts.

To the people who happen to have a great variety of feed we recommend the following ration:

Mash

30 pounds yellow corn-meal	
10 pounds ground barley	
10 pounds ground wheat	
10 pounds wheat shorts	
10 pounds ground oats	
15 pounds meat scraps	
5 pounds dried milk	
6 pounds alfalfa leaf meal	
2 pounds limestone	
1 pound bone meal	
1 pound salt	(Total) 100

Scratch
25 pounds barley
20 pounds oats
25 pounds wheat

In visiting Clarence Jepson of Alpine, Arizona, we recommended that he feed his chickens a mash consisting of thirty pounds of each barley, oats and wheat ground thoroughly together, mixed with fifteen pounds of meat scrap. We recommended also that when possible, feed them as much milk as he could. We did not recommend the feeding of dry skim milk because the price was too high.

We also found that Price Nelson was doing very well on his chicks which he received October 8th. No recommendations were made for poultry feeding since he was feeding a commercial mash.

For Mrs. Fern Brown's flock we recommended the following ration for her chicks:

Mash
30 pounds ground barley
30 pounds ground oats
20 pounds ground wheat
7 pounds ground alfalfa
2 pounds ground limestone
1 pound salt

Scratch
25 pounds barley
20 pounds oats
25 pounds wheat

Also feed the birds all the sour milk that they will take. If milk is not available, add fifteen pounds of meat scraps per one hundred pounds of mash.

At Nutrioso we gave a demonstration on the proper methods to be used for dressing turkeys for market.

Baby Chick Diseases

Records were completed of our baby chick diseases in this county this year, and found that the loss, due to chick diseases, ranged from two to six percent. The great majority didn't lose over 3% of their chicks. We consider this a very excellent record for our poultrymen, which shows that they understand their business very well.



Fig. 2 Round Valley 4-H Club inspecting ruins near Springerville.



Fig. 3 Alpine 4-H Club at monthly club meeting.

The following records were received on baby chick diseases:

A. D. McConaughy, Springerville, Arizona
No. chicks purchased-250, Extras received-6,
Breed-White Leghorn, From whom purchased-Pioneer
Hatchery Co. Petaluma, California, Date of
purchase-March 29th, Age when this report made-
72 days, Number lost to date-25.

M. J. Wiltbank, Flag, Arizona
No. chicks purchased-100, Extras received-2,
Breed-White Leghorn, From whom purchased-West
Hatchery, Date of purchase-April 16th, Age
when this report made-35 days, Number lost to
date-2.

Emil Rothlisberger, Flag, Arizona
No. chicks purchased-300, Extras received-3,
Breed-White Leghorn, From whom purchased-
Pioneer Hatchery, Petaluma, California, Date of
purchase-May 19th, Age when this report made-
21 days, Number lost to date-5.

Price Nelson, Springerville, Arizona
No. chicks purchased-400, Extras received-12,
Breed-B. R., From whom purchased-J. Albert
Liggett, Date of purchase-October 8th, Age
when this report made-5 weeks, Number lost to
date-20.

Testing Turkeys for Pullorum

In connection with our Dairy Poultry Specialist
C. F. Rowe, this year we gave a demonstration to
twenty people on how to test turkeys for pullorum.
The main purpose in giving this demonstration
was to be sure that our poultry were free from
pullorum which we were going to use for breeding
purposes.

The Agent this year on this project spent thirty-
eight days and made two-hundred two farm visits
and had three office calls. The specialist
worked eight days in this county this year on
this project.

In this county we produce more grain than we
feed to our present livestock. By the use of
poultry, we can consume a great deal of grain in
the production of eggs for local markets, as well
as for shipping out. Therefore, I recommend that
this project should continue on in the future, and
the outlook is good.

(b)

RODENT CONTROL

The Agent this year spent six days, made seventeen farm visits and had five office calls in connection with this work. He co-operated in every way possible with the Rodent Control Specialist, Isaac Rogers, in helping put this program over, although this work was independent of the Agent. However, during the year the Biological Survey was successful in treating 45,920 acres for rodents. Also this year we discovered in many places that our prairie dogs were dying in considerable numbers, which was reported by the Biological Survey. As a result of this there was some gossip in this county that we had bubonic plague in Apache County. The following was taken from a letter by J. D. Dunshee, State Superintendent of the Arizona State Board of Health, which explains this situation rather clearly. This is put in for the information of the public that are interested in bubonic plague.

Because of the known spread of bubonic plague among small animals over most of the states west of the Rockies, and particularly in California, Nevada, Utah and New Mexico, it was felt desirable to determine if this infection had extended into Arizona. For the purpose of making necessary investigation, a Field Survey crew in the service of the Public Health Service Plague Laboratory in San Francisco, and the Pest Control Division of this Service, was sent into Arizona some time ago, and is spending this winter in making a survey over the entire state.

The Northeastern part of the state was worked over first, before cold weather causes aestivation of these animals. Plague infection was found in prairie dogs in an area about seven miles south of St. Johns. It has not seemed desirable to give wide publicity to this fact. The danger which exists in areas where this infection is found to be present lies mostly in picking up dead animals on which fleas still persist, or in hunting or trapping such animals and handling them with the consequent risk of being bitten by plague infested fleas infesting them.

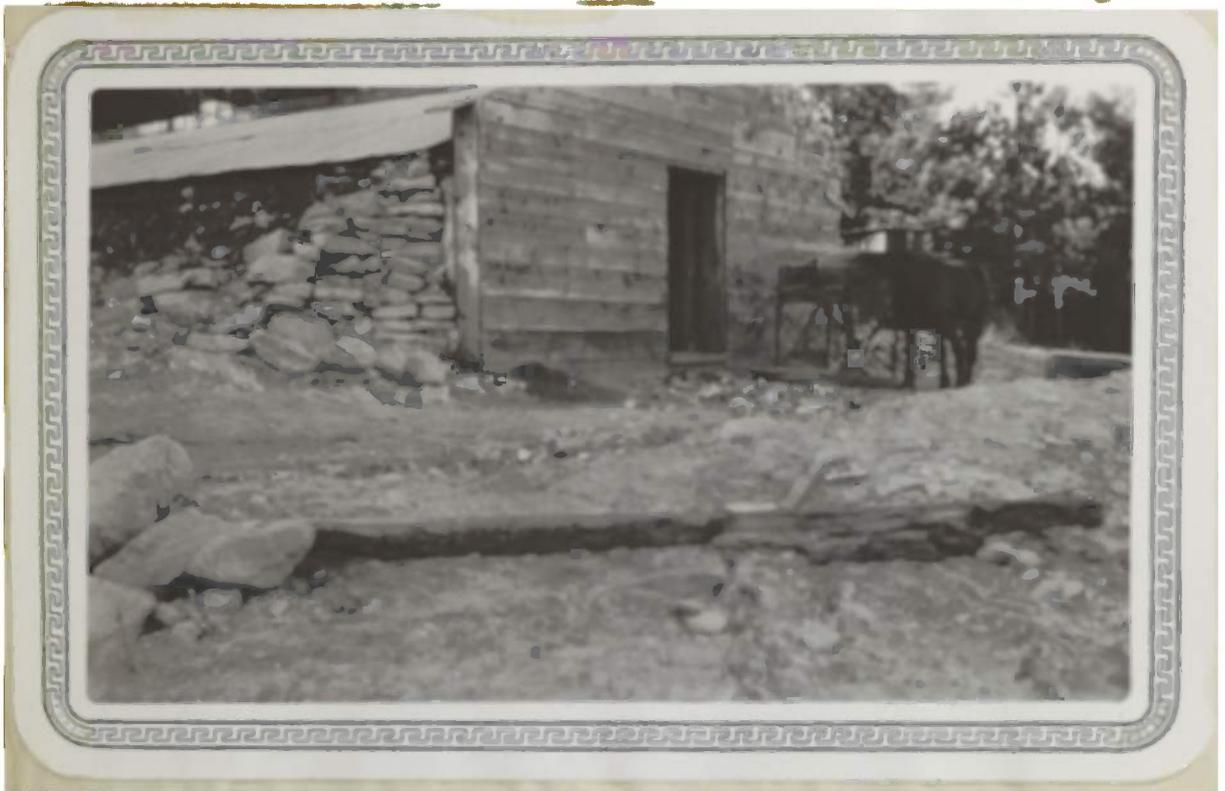


Fig. 4 **View of potato pit at George Crosby's
at Greer**



Fig. 5 **Garden and ranch home of Walter Jackson
at Vernon**

I would suggest that such a warning be given to the people living in that area, and that in the future any appearance of illness or unusual number of deaths among this small animal population be noted and reported, as such occurrence is often due to plague.

Because of the fact that the Agent estimates that we still have fifteen to twenty townships infested with dogs, this work by all means should continue on in the future.

(c)

BOYS' & GIRLS' CLUB WORK

We picked our club leaders in March, at which time we gave them as much instruction as possible concerning our club work.

In April we visited all of our club leaders and organized all of our clubs. At that time we had seventy-seven club members and nine clubs. We held club meetings every month with every club in the county. Some months, however, we did not have many club members out, but did a lot of good by holding these meetings. In the county proper we held sixteen club meetings, with a total attendance of two hundred forty-three present. At Tucson at the roundup two meetings were held with five hundred-sixty present, or a total of eighteen meetings with an attendance of seven hundred-three. Of the sixty-three members which we had in our club at the end of the year, thirty-nine completed their projects.

We were successful in having one demonstration team go to Tucson. This team won 1st place in the Junior Demonstration contest. We also had two livestock judging teams at Tucson, which took 1st in Poultry Judging and 2d in Livestock. We took one club leader to Tucson and in the party we had eight club members and one club leader. We were also successful in winning one Santa Fe trip to Chicago for Franklin Miller from Springerville, Arizona. He won this trip as a livestock club member.

Our goal as set in our annual plan last year was to have five clubs in the county and since we had nine, we exceeded our goal by four clubs.



Fig. 6 Hand-made corn cutter at Hugh Richey's
St. Johns

The Agent feels that due to the interest which is shown by the club members in this county, that the outlook of this work is very encouraging for future years.

(d)

TREATMENT OF POTATO SEED FOR DISEASES

We have approximately two hundred farmers who grow potatoes for either home or commercial purposes. However, not many are producing more than they use themselves or can trade to someone locally. We do have a few farmers who produce enough to justify them looking for markets outside of the county.

We have an excellent county, however, for the production of potatoes, as the climate and length of growing season are suitable to the production of potatoes. What we need probably more than anything else is to educate the farmers to the technique of producing and marketing potatoes.

As to varieties of potatoes which do well in this county, the Katahdin has proved to be the best commercial variety we have. However, bliss triumph, cobbler and the early Ohio's do well here.

George Crosby of Greer, Arizona, rogued his potatoes this summer for virus diseases, such as Mosaic, Leafroll, Spindle Tuber, Curley Dwarf, Giant Hill, Wilding Heart Leaf and the like. As a result of Mr. Crosby's good work with his potatoes he received the following results:

Katahdin	200 bushels per acre
Cobbler	200 bushels per acre
Chippwa	140 bushels per acre
Green Mountain	160 bushels per acre

We consider this a good record of production for this county especially since the average for the county was only 25½ bushels. It was very interesting to note that practically all of the Katahdin potatoes produced were good size, and, therefore, they all sold for a good price. While Mr. Crosby secured as good a production of Cobblers as he did of Katahdin,



Fig. 7 Making sorghum-molasses at E. R. DeWitt's at St. Johns. Not enough sorghum is made to supply local demand.



Fig. 8 Stacks of grain of George Eagar's at Eagar. Most people in Apache now thrash their grain direct from the field.

yet he did not have as many potatoes that he could market as he did with his Katahdin, since 30 to 40% of his Cobblers were off-type, whereas only 5 to 10% of his Katahdin were off-type. It was our observation that the Katahdin produced much better during this last year when it was so dry than any of his potatoes.

This year the Agent gave two demonstrations to two individual farmers on the treatment of potato seed for diseases.

We also had a potato 4-H club consisting of eight members at Alpine. All of our boys in this club treated their seed for disease and learned to detect these diseases as they developed on the vines in the field. This we considered real information for these boys, since they will be very efficient in helping to fight potato disease in Alpine in the future. The treatment that we used for our potato diseases is known as New Zealand Treatment, which consists of the following:

Water	20 gallons
Mercuric Bichloride (corrosive sublimate)	2 ounces
Concentrated Concl. Hydrochloric acid	16 ounces

This treatment permits our farmers to treat their potatoes in a very short time, as it only takes five minutes for each batch of potatoes that are dipped in this solution. Since the Mercuric Bichloride attacks metal, it is very important to use wooden or earthen vessels when using this treatment. When the solution which is left over is disposed of, care must be exercised to see that no livestock drink this as it is deadly poisonous.

Our plan was to have five farmers treat their potatoes for diseases and otherwise follow instructions as to the best methods of producing potatoes, but we were only successful in securing two cooperators who did very much with this work.

Because we have a good climate and soil for the production of potatoes, as well as a good market, we feel that this project should be continued.

(e)

IMPROVEMENT OF DAIRY COWS

According to the T.B. test records of 1935 we had 1200 head of dairy cattle in Apache County, the majority of which were being used for family use. We had in 1935, one hundred fifty-two owners that had one to two cows, eighty-nine owners of three to nine head, twenty-three owners of ten to nineteen head and eleven owners of twenty or more. We ordinarily ship into Apache County 15,000 pounds of cheese and 25,000 pounds of butter.

Our problem, therefore, apparently in this project is to increase the production of cheese and butter to take care of local demands and some to be shipped out.

Our goal last year was to have five farmers produce butter and cheese on a commercial scale. We only succeeded in getting Glenn Hamblin to produce 6,000 pounds of commercial cheese. Although many people sold a limited amount of butter, yet none produced a standard grade of butter which was marketed throughout the year.

Last March Mr. C. F. Howe, our Dairy and Poultry Specialist from the University of Arizona, gave a cheese making demonstration in Round Valley. In June the Agent took five people from various parts of the county to Alpine for the purpose of observing Glenn Hamblin make cheese.

In co-operation with Dr. Lee, Federal Veterinarian, about 70% of our cows in this county were tested for T.B. this year, and we only found six head of T.B. cows in all that we tested.

The Agent spent twenty-four days, made one hundred twenty-six farm visits and had twenty-four office calls on this project.

Because of the fact that we can produce good cheese and butter in this county and find a ready home market for a limited amount, as well as a good export market in New Mexico and on the Railroad, the future prospects for this project are comparatively good and should be continued.



Fig. 9 Thrashing beans at Vernon, using touring car for power. This is a real cash crop for our dry land farmers in this district.



Fig. 10 Harvesting beans at Vernon

We expect, therefore, next year to have some experiments on better legume home grown feeds and introduction of better sires.

(f)

CEREAL SMUTS

We annually produce 64,000 bushels of oats, barley and wheat from 3200 acres planted. Our estimate of figures are that the farmers are losing 5% of their grain from smuts which is 3200 bushels annually.

The Agent spent four days making twelve farm visits on this project, trying to get a few farmers who last year had as much as 10% smut, to treat for this. As a result of this work, four farmers who had not treated for smut in the past did so. However, we still have some farmers who don't seem to care about the amount of smut they have. With those farmers who do have a lot of smut, we expect to spend some time with them this next year.

Because we are losing about \$2,000.00 annually from smuts, we feel that this project should be continued.

(g)

RURAL SOCIOLOGY

With the help of A. B. Ballantyne, Specialist in Rural Sociology, three meetings were held in February, with a total attendance of one hundred seventeen. At these meetings Mr. Ballantyne gave lectures on our system of taxation, giving some suggestions as to ways that might be put into practice to make tax reductions. In October we held four meetings, with forty-four present. The subject of these meetings was: "The Ever Normal Granary", which was well discussed by all who attended the meetings. We consider both of these subjects very important and timely, since they deal with every day problems of the farmers in each county, as well as the present and future national legislation, which will directly effect these people.

We feel that these educational meetings should be continued next year, because whether our N.A.A. program continues or not, will depend on the understanding that the people have of this project.



Fig. 11 Judging demonstration at White Mountain Hereford Ranch at Springerville. Director Chas. U. Pickrell with white hat near cattle giving demonstration.

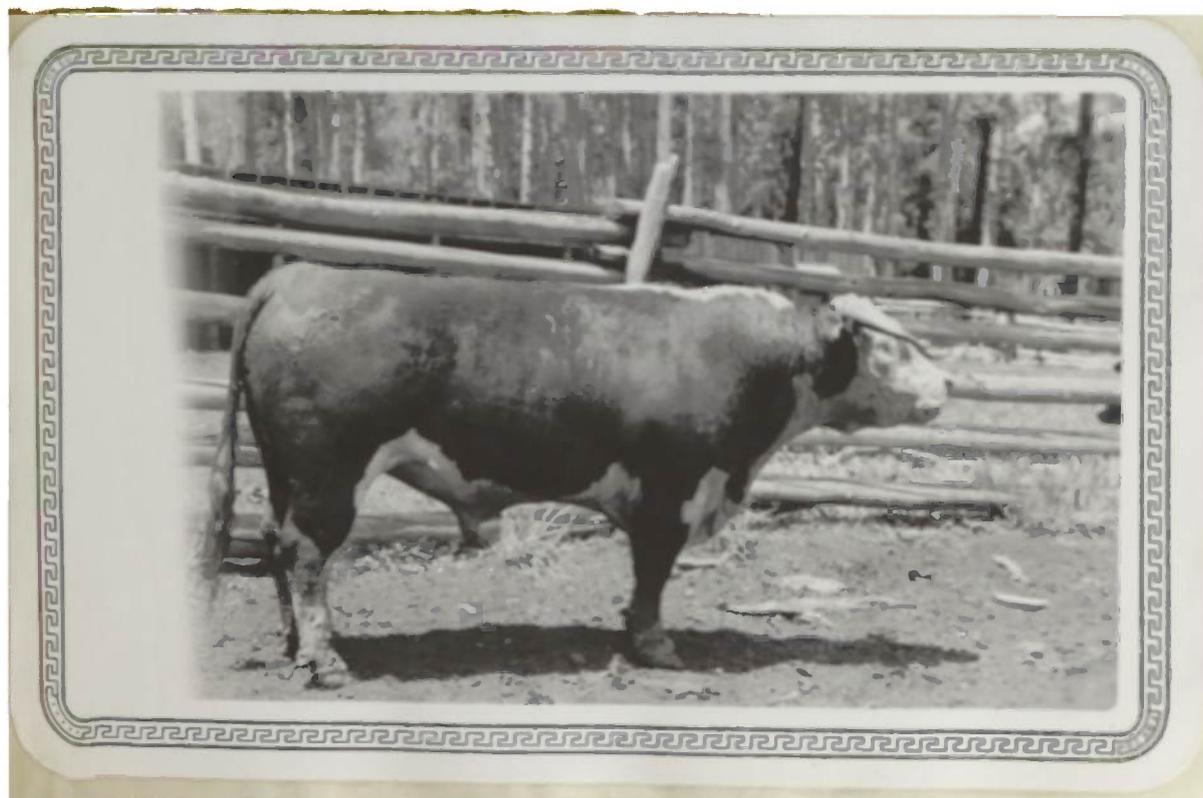


Fig. 12 One of Dan Thornton's range bulls at Springerville

(h)

RANGE LIVESTOCK

According to the data compiled a few years ago, as well as estimates made this year, we export out of Apache County annually approximately 14,000 head of cattle. We also export some sheep, but data on that is not available.

According to the 1935 census, we had 65,319 head of horses, mules and cattle in Apache County, besides approximately 60,000 head of sheep. This gives us some idea as to the amount of money involved in our livestock enterprises.

This year we used the Dan Thornton ranch for the purpose of giving livestock judging demonstrations. This was an excellent opportunity, since Mr. Thornton has four or five hundred head of very good purebred cattle. At this demonstration we had two hundred thirty-five people present. We used the different grades of cattle of Mr. Thornton's for this demonstration work. Chas. U. Pickrell, Director of Extension Service, and Charley Cochran, County Agent at Large, were the judges in this work, who explained the fine points of judging good range bulls. We feel a great deal of good was accomplished at this demonstration, and we hope to follow up this work in the future.

For the purpose of studying the chemical composition of forage plants eaten by range cattle, samples of forage plants were collected from the ranges twice this year and blood samples of cattle were taken twice. The Agent co-operated in this work with Dr. Pistor from the University of Arizona, and, therefore, since this work will continue for several years, no data can be published on this project at this time.

On March 9th, David Pulsipher of Eagar, Arizona, purchased some hay which was produced by Fred Nielson of Richville, Arizona. This hay Mr. Pulsipher fed to fifteen head of range cattle



Fig. 13 Judging demonstration at White Mountain Hereford Ranch being given by Director Chas. U. Pickrell, who may be seen in center of picture near cattle, at Springerville.



Fig. 14 Cattle of the White Mountain Hereford Ranch ready for livestock judging demonstration.

and the next day two of these cows had died. They continued to die for the next four or five days until he had lost ten out of the fifteen head. We found in the hay parts of the broad leaf milk weed (*Asclepias speciosa*). In July in co-operation with Dr. Pistor and Professor Stanley, we made an investigation of Mr. Nielson's farm, collecting all possible species of poison plants, which were taken to the University and studied by the Department of Botany. The following is a report which we received from Dr. Pistor on this subject:

Whorled milk weed (*Asclepias galloides*). This is very poisonous either in the green or dry condition. Rather small amounts of the weed is poisonous. The lethal dose to kill varies from 1 to 5 pounds. This varies because of the condition of the paunch and will not always be the same. If the paunch is empty smaller amounts will kill. It is dangerous in hay and in the dry stage frequently less than one pound will be toxic. The symptoms usually appear about 12 hours after the animals eat the plant but may occur sooner. They become dull and stagger around. They may fall and have spasms, and just before death usually they go into convulsions. They usually die after about 24 hours.

Broad leaf milk weed (*Asclepias speciosa*). Purple flowers same as at Inornton's. Poisonous in green or dry stage. Dose about the same from 2 to 5 pounds. The symptoms are those of dullness and difficult breathing and appear usually from 3 to 24 hours after eating the plant. Animals affected with the poison live longer and have a diarrhea, show signs of pain and grow weaker. Some of them get better but it takes a week or more.

(*Asclepias latifolia*). broad leaf with yellow flowers picked up on the mesa at Richville. This is the same as *Speciosa*.

(*Lactuca scariola*) wild lettuce. This is not a milk weed and is not toxic. This is the one with the small spines on the leaves.



Fig. 15 Alfred Goesling with a bunch of his bull calves ready for market.



Fig. 16 Bulls of Bert Colter's at Springerville.

The other one Anocymen viride which looks like willow, is toxic but it requires a lot of the plant. This is of little danger.

This year we fed four hundred head of steers in St. Johns district. H. J. Platt, who fed one hundred seventy-five two-year old steers started feeding his steers silage at the rate of thirty to forty-five pounds per day for the first two weeks. Then he added cottonseed meal, feeding one pound for the first day and added a pound each day until he was feeding eight pounds of meal per animal per day. He fed them this ration for about twenty days, and then he added to this ground alfalfa at the rate of ten to twelve pounds per day. He fed them this ration for about thirty days, then he added to this grain, consisting of half barley and half oats, five pounds per animal per day. He started feeding his cattle on December 9th and quit June 20th. The steers averaged when they went into the feed lot six-hundred seventy-six pounds. At the time these steers were sold they averaged nine-hundred forty pounds, or making a gain of two-hundred sixty-four pounds. The ration which Mr. Platt was feeding at the end of his feeding period when he was on full feeding consisted of the following:

43 pounds Silage
 4 1/2 pounds cottonseed meal
 3 pounds grain
 9 pounds ground hay

We have recommended, however, to our steer feeders the following ration for our 600 pound steers:

	<u>1st Mo.</u>	<u>2d Mo.</u>	<u>3d Mo.</u>	<u>4th Mo.</u>
Silage	25 lbs.	23 lbs.	20 lbs.	20 lbs
Barley	6 "	8 "	10 "	10 "
Cottonseed meal	1 "	1 "	1 "	1 "
Alfalfa hay (ground)	5 "	5 "	5 "	5 "

If barley or wheat straw is on hand, it could be substituted for most of the alfalfa hay by adding another one pound of cottonseed meal to the ration.

Cattle should be brought on to these feeds (grain) slowly, reaching the top for each period in about twenty days.



Fig. 17 Dr. W. J. Pistor with white shirt, back to camera, demonstrating how to cure cancer eye at the Dan Thornton ranch at Springerville



Fig. 18 Some of Dan Thornton's purebred cows on his mountain ranch during the summer of 1936

For feeding calves we recommended for Julius Becker of Springerville, Arizona the following:

For calves that weigh 325 pounds we recommended the following ration to feed to these calves daily:

2 2/3 pounds of corn and cob meal
6 2/3 pounds of cane fodder
2/3 pound of cottonseed cake per animal per day

We recommended that his calves would get the best result if the cane was given to them first alone for two weeks, and then gradually feed them the corn and cob meal, and in about twenty days they could feed them 2 3/4 pounds per animal per day. Mr. Becker agreed to weigh these animals so that we can tell what progress he is making this winter and next summer.

Mr. Ward Heap of St. Johns, Arizona is also feeding some calves this winter. We recommended the following ration for him:

8 pounds Silage
3 pounds Wild Hay
2 pounds barley
1/2 pound Cottonseed meal

This year we had a rather serious outbreak of Encephalomyelitis with our horses in the St. Johns district. In order to combat this disease we held a meeting at which time sixteen were present, and at which time Dr. Crump, Federal Veterinarian, explained rather in detail the history of this disease and how to vaccinate to stop its spread. One hundred eighty-five horses, as a result of this recommendation were vaccinated for this disease. It has been estimated that six head of horses died as a result of Encephalomyelitis this year.

In co-operation with Dr. Kemper, Federal Veterinarian from Albuquerque, and with Mr. Ewing, Forest Supervisor from Springerville, the Agent spent some time this year investigating the liverfluke in this county. The flukes were found, but nothing so far as we know has been done to eliminate this pest.



Fig. 19 H. J. Platt feed yards. Mr. Platt figures that due to cold weather and the price of feed, that it costs ~~10¢~~ a day more to feed cows in St. Johns than in Phoenix.



Fig. 20 Joy B. Patterson feeding range cattle cake in the spring of 38, which is a common practice.

We feel, therefore, that we should increase the quality of our range livestock by the introduction of better bulls and better range practices and feeding.

(1)

HORTICULTURE

We have in this county 4,300 apple and pear trees which are infested with woollyaphis and codlin moth, therefore, it will be impossible for us to ever produce quality fruit without fighting these diseases.

This year we were successful in training two men, one in Round Valley and one in St. Johns, to spray fruit trees, but because it froze in Round Valley before the spraying was done, we didn't do any work in Round Valley. However, we did spray in St. Johns one hundred fifty fruit trees three different times during the season for ten different people. As a result of this work 90% of their fruit was free from worms.

Since we do have over 4,000 fruit trees which need this work and since we do produce high quality fruit, we feel that this project has much room to be improved upon.

(2)

SEED CORN SELECTION

The Agent this month spent five days, made thirty-nine farm visits, and the Specialist spent two days trying to get people to select a better grade of seed corn. We were able to have four co-operators work with us on this project, all four of them selecting better seed than they had done before.

However, in St. Johns district where a great deal of corn is used for silage, we have advised our farmers to plant Mexican June corn, the seed of which is always shipped into this county, and, therefore, seed corn selection isn't so important here as it has been in the past. However, for Vernon, Round Valley and Nutrioso district, seed corn selection is very important.



Fig. 21 Putting up silage at E. I. Whiting's at St. Johns. A good trench silo.



Fig. 22 Digging trench silo at Albert Brown's at St. Johns using mules and scraper which he had handy on the ranch.

Miscellaneous Activities

(a) AGRICULTURAL CONSERVATION ASSOCIATION

The Agricultural Conservation work this year which was carried out under the supervision of the county committee for both the range and farm under the management of one committee. These committeemen were elected from the chairmans of the community committeemen from the Railroad district, St. Johns, Vernon, Round Valley, Nutrioso and Alpine district.

1. Range

The amount of the work done on the Range Program in 1937 under the Agricultural Conservation Association program amounted to \$31,977.73 paid to 76 ranch operators who participated in the range building program in Apache County. The average payment on each ranch was \$420.76. These payments were completed by July 1, 1933.

For the 1933 Range Program 83 operators made application for work under the A.A.A. program. A total of 1,402,305 acres of eligible range land was entered in the program. Of this amount 164,039 acres represent new land that has never been entered in the program heretofore. Compared with 1937, this represents seven additional operators.

The total animal units allowed for Apache County was 31,343. This is an average of 44.7 acres per animal.

It is estimated that 82% of all range land that is eligible for participation is entered in the 1933 A.A.A. range improvement program. It is expected that for 1939 the percentage will be increased nearly 10%.

Among the practices listed in the program only four were practiced to much extent. These were: deferred grazing, development of stock water, drilling of wells and erosion control.



Fig. 23 Group of people who attended the Arizona Livestock Association tour while they were visiting the Dan Thornton Ranch.



Fig. 24 Mr. and Mrs. Dan Thornton, Mrs. Keith, and other officials of the Arizona Livestock Association

Of the 83 operators, 16 participated in deferred grazing, representing 143,380 acres which is an average of 30% of the total rangeland possessed by these 16 operators. More operators would have participated in deferred grazing, but due to regulations, those that possessed forest grazing permits were ruled ineligible. In the past three years the A.A.A. range program has enabled much land to be properly grazed and utilized the year round through development of stock water, which otherwise would have laid unused except during wet seasons. Because of this, land that has been carrying a full load, or even overstocked, has been given a chance to rest and reseed. Apache County is now actually carrying on the whole less livestock than has been allowed by grazing capacity determinations.

2.

Farm

In the spring of 1933 there was paid to 196 farm operators a grand total of \$11,432.98 for compliance on the 1937 A.A.A. Farm Program. This constitutes an average of \$58.58 per farm operator.

For the year of 1933 on the A.A.A. Farm Program a listing sheet was prepared on which were listed 293 farm operators with a total of 16,090.2 cropland acres. Wheat allotments were awarded to 50 farmers with a total of 621 acres. The average yield per acre is 13 $\frac{1}{2}$ for Apache County according to A.A.A. records. However, due to the nature of the program as applicable to this county plus a dry spring and summer, it has been impossible for more than 67 operators with a total of 4,713 cropland acres to comply with the specifications. In addition to an exceptionally dry summer, the water supply in Lyman Dam was insufficient to meet the demand. Therefore, less water was available to the operators for use on their cropland.

Of the numerous practices listed under the 1933 A.A.A. farm program, only three were practiced to any extent in Apache County. These were:



Fig. 25 Mr. Parker at Vernon produced the feed above under dry land conditions and stored it for winter in shocks. Silos might be a better method of storing his feed.



Fig. 26 Atlas Sorghum produced for silage at E. I. Whiting ranch. This may prove to be better than corn in the future for silage.

Application of superphosphate to the farm land, growing of alfalfa and clover, and the renovation of year-old alfalfa.

(b)

RURAL ELECTRIFICATION ADMINISTRATION

The Agent spent six days this year on this project, had ten voluntary local leaders helping out with the work, and held one meeting with representatives from Navajo and Apache County in trying to put over the R.E.A. project.

We have the people signed up for this work and some of the maps made, but haven't been able to have all of the people who have been signed up spotted on the map. This necessitates the spending of about \$75.00 which hasn't been easy to secure.

(c)

SCARIFYING

In April the Agent attended a scarifying demonstration at Winslow, Arizona, at which time the Soil Conservation Service in cooperation with County Agricultural Agent, John McLernon of Navajo County, gave a demonstration on scarifying and artificial seeding of range land as a means of developing our western ranges. It is my opinion that this work under many range conditions will be a good thing for our people, if after this work has been done, our stockmen will intelligently take care of the range.

It is our present plans to have some of these demonstrations in Apache County next year.

(d)

RURAL REHABILITATION

The Agent this year worked co-operatively as much as possible with Don Metcalfe, Rural Rehabilitation Administrator for this county. The Agent spent three days at this work, held one meeting, made thirteen farm visits and had ten office calls.

It is the Agent's opinion that this work in this county is being very efficiently managed and doing our people a great deal of good.



Fig. 27 Water hole which was made under the A.A.A. Program, with cattle surrounding at Gilbert E. Greer's at St. Johns.



Fig. 28 Water tank built for stock purposes under the 1933 A.A.A. Program at Joy B. Patterson's, St. Johns.

e)

HOPPIES

This year we held two method demonstrations on grasshopper control. The Agent spent seven days on this project, visited fifty-five farmers. The bait formula for grasshoppers is as follows:

100 pounds bran

1/2 gallon sodium arsenite

We distributed poison over two hundred fifty acres. Our results were good, and we figure that we got 80% of the hoppers killed on the land treated. This fall Mr. C. I. Frazier from the United States Department of Agriculture, made a survey in Round Valley, Nutrioso, and Alpine alone and in St. Johns with the Agent. From these findings it would indicate that we had killed the majority of our hoppers on the land treated.

f)

WEEDS

Chas. Homer Davis from the University of Arizona, carried on some experiments on the best methods for eliminating bindweed in this county. As yet no remedies for eliminating weeds has been discovered, and, therefore, no report can be made at this time. However, the Agent spent ten days, made one hundred thirteen farm visits, and had two office calls on weed eradication in this county.

The farmers for the most part are interested in weed eradication, but when they are informed that we do not as yet have any cheap chemical method of destroying weeds, their interest in weed eradication is not as much as it was before they understood this.

Among the weeds which we have in this county are: Bindweed, Nut Grass, Wild Oats, Dodder, Russian Thistle, Whorl Milk Weed, Blue Weed, Puncture Vine and Cockle Bur.

Apparently the only practical method to date that can be recommended for bindweed eradication is planting winter wheat in the fall of the year and cultivating all summer after the grain is harvested.

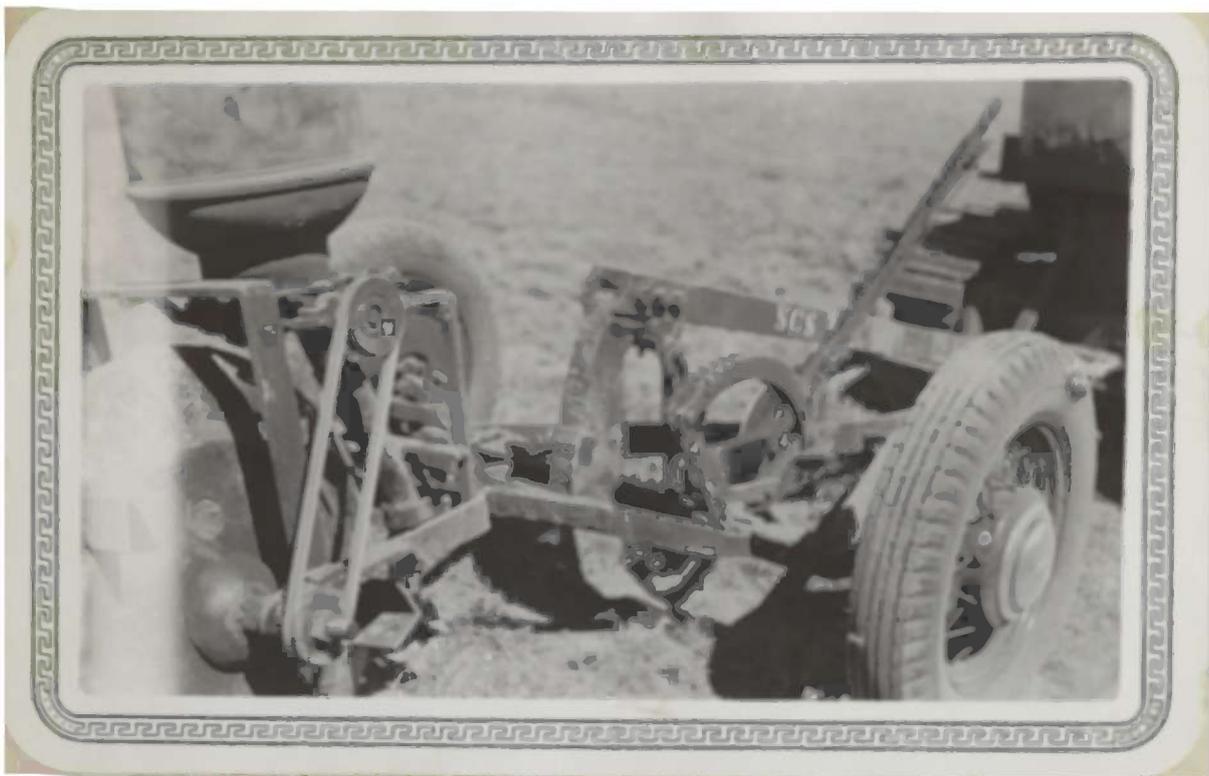


Fig. 29 Scarifying and seed planting machine which was used by the government in reseeding range



Fig. 30 Group of people who attended the scarifying demonstration near Winslow.

However, Jake Neal of St. Johns, Arizona when he is hoeing his corn instead of hoeing bindweed, will always pour sodium chlorate on every bindweed plant he finds instead of hoeing it up. In this way Mr. Neal has his field in good condition and has no worries whatsoever about the bindweed. It is my opinion that bindweed will be eliminated when each farmer takes the same attitude that Mr. Neal has.

g)

LECTURES BY PRESIDENT OF U. OF A.

This year Dr. Alfred Atkinson, President of the University of Arizona, accompanied by Director Chas. U. Pickrell, gave two lectures in this county, one in St. Johns and one in Round Valley. He made an excellent impression on the people here, as they all felt that he represented a very high type educator. M. V. Gibbons, Principal of our local school, said of this lecture which was similar of many others. "Best I have ever heard, could have listened to him for several hours."

It is the Agents recommendations that it would be a good thing for our people if the President of the University could come up more often and get acquainted with our people.

h)

WATER FACILITIES

In October this year the following men from the Water Facilities Division of the government, upon the recommendation of Mr. Steenbergen, spent the day looking over some possible irrigation projects at Vernon, Arizona, and Concho.

Frank Armer, J. G. Hamilton, Wm. A. Steenbergen, F. E. Webb, F. W. Slattery, W. B. Elinendorf, J. A. Waldron, Philip Greisner, Don Metcalfe, Roscoe E. Bell, Chas. Whiting, Robt. V. Boyle, Chas. M. Sloke, J. J. Turner and Charles Homer Davis.

The project at Vernon during this visit was tentatively approved by these men, and since that time some surveying has been done to see if the reservoir could be established.



Fig. 31 Digging well under A.A.A. Program at Bert Colter's, Springerville.



Fig. 32 Mixing poison grain at Eagar for hopper eradication.

(1)

FLOOD CONTROL

Several proposals to curb floods on the Little Colorado river and turn the waters to profitable agricultural use were advanced at a hearing conducted by a board of army engineers in Holbrook, Arizona this year.

Delegations from Navajo, Coconino and Apache counties and from Gallup, New Mexico, attended, as well as several state officials from Phoenix, Arizona.

Representatives of Holbrook offered a program designed to give protection from floods such as the one which almost washed away the town ten years ago. It provided for installation of 15,000 lineal feet of jetties and excavation of 45,000 cubic yards of rock to straighten the channel of the river near the city.

The Round Valley Water Users Association of Springerville presented a project calling for a canal twelve miles long, as well as four reservoirs, the water to be diverted into the Round Valley system.

Another Apache County delegation, representing the Lyman Irrigation District, proposed building three dams across the stream south of the Lyman Dam at three-mile intervals. The delegation declared the project would irrigate 6,000 acres and stabilize agriculture in the district.

Engineers have estimated the total annual runoff of the river at 600,000 acre feet, with 200,000 acres of land which could be brought under cultivation if water were available.

George E. McDevitt of Gallup advanced the belief that erosion control from the Rio Puerco and Aztec wash near Gallup would check the flood waters.

Arthur Hipkoe, representing the Atchison, Topeka and Santa Fe railroad, proposed seven dams in the Salt Creek drainage area near Winslow, to provide irrigation in that district.



Fig. 33 Charles Homer Davis, U. of A.,
killing weeds with carbon bisulfide
at St. Johns, which method was good,
but too expensive for the farmers to
use.

Maj. Theodore Wyman, chief of army engineers, Los Angeles district, conducted the hearing. In his party were Lt. H. Milvit, military assistant of the Los Angeles district; Guy Bebout, E. E. Lareux and H. W. Walters.

Governor Stanford was represented by his executive secretary, Dr. Junius Gibbons. Others attending from Phoenix were Swan A. Erickson, State Dam Engineer; Jesse C. Wanslee, water commissioner, and Edwin T. Stewart, water engineer.

The meeting was called to order by Judge John P. Clark, who first asked Harold Maryott, Navajo County Engineer to outline the Little Colorado river basin drainage area.



Fig. 34 Picture of Water Facilities Officials when they were investigating an old reservoir dam site at Vernon.

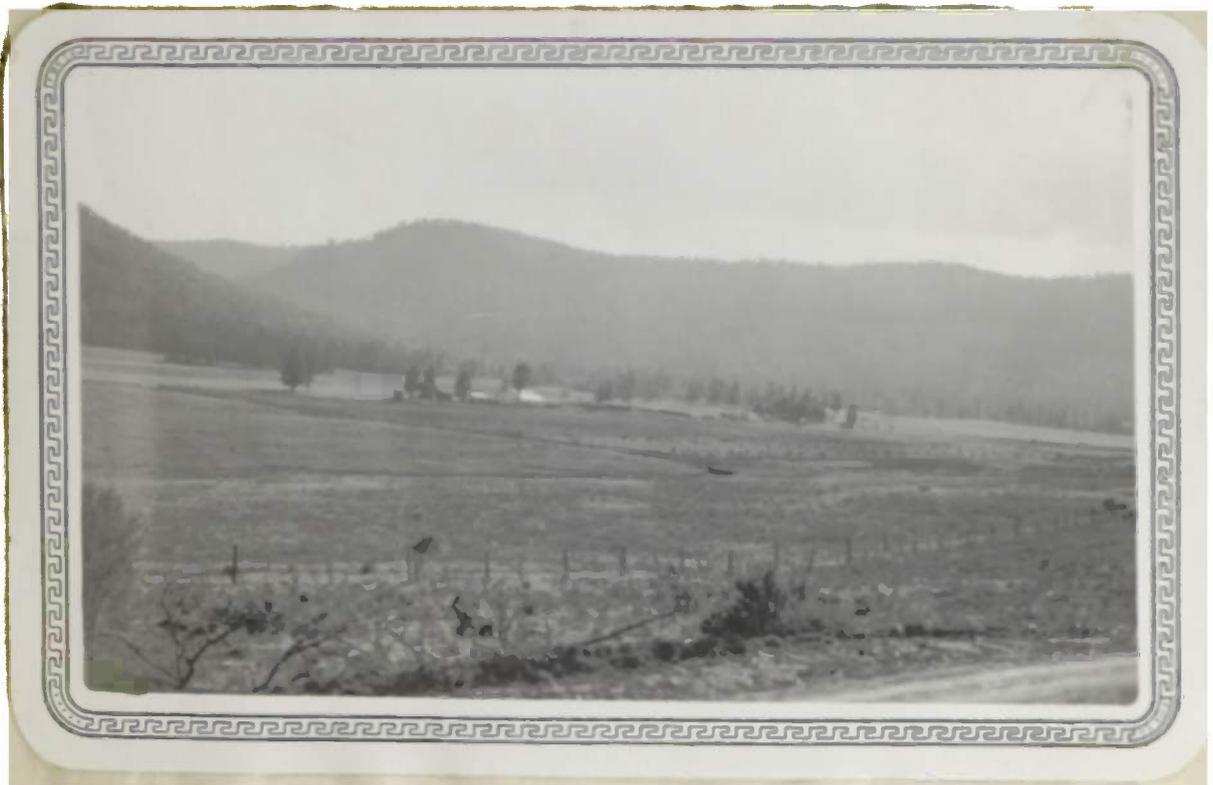


Fig. 35 Lynn Lockheart ranch at Nutrioso with grain shocked ready for thrashing.