

A N N U A L N A R R A T I V E R E P O R T

December 1, 1948

to

June 30, 1949

by

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County Agricultural Agent

Agricultural Extension Service

COCONINO COUNTY

ARIZONA

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SUMMARY

This mid-official-year report brings to a close almost twenty years of service of the writer as County Agricultural Agent in Coconino County. Since a summary of the detailed but brief report hereto attached would merely be a rebriefing, and then be largely a repetition of what is given in the summary of the last annual report, it would seem better at this time to catalogue the more important achievements during the last twenty years.

The writer was the first in Arizona to find and report the potato psyllids and the potato bacterial ring rot. In 1933 as never before the potato vines in all the fields in the county suddenly appeared diseased. None of the old time farmers nor staff members at the college contacted had the answer. Consequently the writer made a trip on his own initiative and expense into Colorado to study fields reported as injured by psyllids. Soon after returning the college authorities agreed that the psyllids were responsible. In the meantime and within a very few weeks, a \$100,000 potato crop had been totally destroyed. Control measures initiated prevented a recurrence of such losses in subsequent years.

It was not such a surprise when the potato ring rot was first found here in 1941. In less than ten years time it had come from Germany to Canada and had been reported in thirty-five states. It was present in our neighboring states. We were on the lookout for it for several years, and then found perhaps the first infected lot. It is the most highly infectious of all potato diseases. It is of a common occurrence now. Constant vigilance and fight against it are necessary.

Still another of our outstanding achievements was learning how Washington and Oregon, by biological control, were mitigating or entirely preventing apple woolly aphid injury and planting or establishing a beneficial parasite from Washington into orchards in Oak Creek Canyon. This was accomplished in 1936 and since then has saved Oak Creek orchardists many thousands of dollars in both labor and chemicals. The tiny wasp-like insect, barely visible to the eye, punctures the back of the aphid and lays its egg. This hatches into a worm which destroys the vitals of the aphid. Next it goes into the pupal stage and emerges as an adult to lay more eggs into the backs of more aphids. This is effective control, is cheap, and incidently is interesting.

Domestic and stock water had been a controversial subject in Doney and Black Bill Parks for years. Attempts to secure outside financial aid had met with failure. No opportunity was neglected to bring to, and further acquaint the late Director Ross with this situation. Then there came the opportune time when he could appoint Jim Waldron to the agency now known as the Farm Home Administration,

and secure sympathetic consideration from him for our problems. Whole hearted united cooperation on the part of those to be served was not essential. It was the writer's lot to bring this about. Old and deep-rooted difficulties were overcome. United effort secured a federal loan with which to build a reservoir and lay pipelines to the farms. Now gravity water flows to the farm outbuildings and houses which formerly had to be bought and hauled from Flagstaff. Since then the farmers are liquidating their indebtedness and are doing it at a substantial saving of what water formerly cost, to say nothing of the labor saved and the convenience.

The County Agent was the original soil conservator. From the beginning he used every teaching means employed by the Extension Service to stimulate thought and action in preventing and controlling soil erosion. Seven hundred and sixty-five (765) acres of farm land was terraced before the SCS moved in and took over this phase. The value of strip cropping, contour tillage, and deep tillage had been demonstrated successfully. Some of these things, especially the original terracing, will continue to stand as a permanent achievement.

Of lesser significance, though important, are the following: By means of our small grain experimental or nursery plots, new varieties of oats, wheat, and barley have been tested for adaptability. Consequently most of the oats, wheat, and barley grown in this area are of varieties found to be superior in our nurseries and subsequently increased.

None of the potato varieties grown here in recent years were grown twenty years ago. The newer varieties first proven in our experimental plots and then increased, greatly out-yield the earlier varieties.

One, or possibly two, new strains of pinto beans out of nine from agricultural experimental stations in Colorado, New Mexico, and Nebraska, grown here the last few years, may take the place of our so-called native pintos. The San Juan, developed by the Colorado station, is said to be drought and disease resisting, heavy yielding, and fairly early. We have grown it here one year. From our observation it seems to possess the above-mentioned desirable characters. If it does, it will mean more money in the pockets of bean farmers in years to come. Ike and Russell Fleming think they are sold on it and are growing it more extensively this year.

As stated in the beginning, the foregoing constitutes only the more important achievements of the writer during his years of service here in Coconino County.

ORGANIZATION

The County Agent attended the annual conference in Tucson in December. H. K. Baker, Assistant Director, sent us suggestions for planning the year's program. We endeavored to embody those suggestions into our planning and work.

During the deep snow in winter we made more than usual use of circular letters to send out information. The snow lay 5 feet deep for about a month. It lay deep for a much longer time.

William Brechan arrived in Flagstaff May 16 to acquaint himself for taking over the responsibility as County Agricultural Agent, July 1, at the date of the retirement of the writer.

FARM CROPS

BEANS

Hazards

Pinto bean growing is the most important farm activity in Coconino County. It has proven to be the most profitable and is made with comparatively little labor. However, it has its hazards: Frost at the beginning and at the end of the growing season may reduce the crop as it did in the past two years. Rains immediately after planting can so crust the top soil, as it did this year, that farmers have difficulty in securing a stand. They have done some scratching or harrowing of the top crust and in some instances have had to replant. Root rot, in years past, has occasionally reduced the crop. It was first observed in 1940, then again in 1944, and again in 1946. Consequently we have endeavored to stimulate bean growers into treating their seed. Two circular letters were sent out this year to that end, the one emphasized the importance of treating, and the other the method of treating. Both these matters could have been treated in one letter but we separated them to give us two opportunities to stimulate our growers into treating the seed. We discussed this matter at one meeting with farmers where 17 were present.

New Varieties

P. E. Butler is again growing New Mexico bean 295. It is his opinion that it is superior in yield to our native variety.

The Fleming brothers are again growing the four Colorado varieties we furnished them a year ago. They are definitely of the opinion, and it would seem so to the writer, that the San Juan is superior to the other three varieties and to our natives. Colorado claims that it is drouth-resistant and high-yielding. It was that with us last year. John Gunzenhauser is continuing to grow this Scotsbluff pinto bean which we came to grow at the suggestion of Dr. R. B. Streets, Plant Pathologist, University of Arizona.

Professor Bryant handed us a few pinkish-black beans to grow to see if they had characteristics adapted particularly to this area. In case it possesses one or more such characteristics, Dr. Bryant wants to use it in his breeding program. We hope that he may make a contribution in developing a new, early, drouth-resisting, high-producing pinto.

BEANSNew Varieties (Cont'd)

A circular letter was sent to all the bean growers giving figures on the production and price tendencies.

Mr. Fletcher, of the Soil Conservation Service, proposes that the bean farmers use a vacuum machine designed by the Engineering Department, University of Arizona, for picking up scattered beans at harvest. He claims the loss was so great that he was able, by hand harvest method, to recover 13 to 16 sacks of pinto beans where the farmer was harvesting only 8. We feel that his figures may well be taken with a grain of salt since we know of no farmer who would claim that he obtained as much as 8 sacks of pinto beans during the last two years.

POTATOESAcreage

Only a few years ago 800 acres of potatoes were grown in the Flagstaff and Williams areas. The heyday of the potato industry was in the early '20's when over 200 acres were shipped out in one year, this in addition to what is locally marketed. Last year less than 50 acres of potatoes were grown, and this year perhaps not over 25 acres.

Diseases

All of our locally-grown potatoes were infected with ring-rot the past year. Consequently we were asked to locate a source of healthy seed. Rod Graves and Gene Donovan planted 40 sacks of Minnesota certified Katahdin. The writer helped one day cutting the seed. Not a trace of ring rot was found. Later another shipment of the same variety from Denver was badly infected with ring rot.

Seed

We secured three sacks of good certified Pontiac seed from Martin Jackson, Dolores, Colorado, for Andrew Pringle. In addition to this, Mr. Pringle had six sacks of Pontiac potatoes grown from seed we furnished him last year. One circular letter was sent out to all prospective potato growers regarding production and marketing trends.

SMALL GRAINS

Varieties

We take pride in the fact that most of the small grain grown in the county is of varieties proven in our small grain nursery plots. Such a plot was again planted this year.

Test Plot

Bill Warfield and Charlie Adams prepared a plot of ground for us for planting of a small grain nursery. The rows of wheat, oats, and barley are all 16 foot long, running from east to west and beginning on the south, all in order as follows:

<u>Oats</u> (5 reps., May 21)	<u>Barley</u> (5 reps., 1st 3 on May 19, last 2, May 21)	<u>Wheat</u> (3 reps. May 24)
1. Bannock	1. Conipana	1. Baart 38
2. Bridger	2. Ezond	2. Carlton
3. Brunker	3. Gem	3. Federation
4. Clinton	4. Clacier	4. Lemki
5. Colo. 37	5. Hannchen	5. Newthatch
6. Markton	6. Moore	6. Pilot
7. Vicland	7. Vaughn	7. Stewart
8. Colo. Coll. 37	8. Velvon 11	8. Thatcher
	9. Trevi	

Treat Seed

At a meeting with 12 farmers present the writer took the opportunity to discuss the importance of treating seed. Two circular letters were sent to 63 giving reasons and methods for treating small grain.

Seed Sources

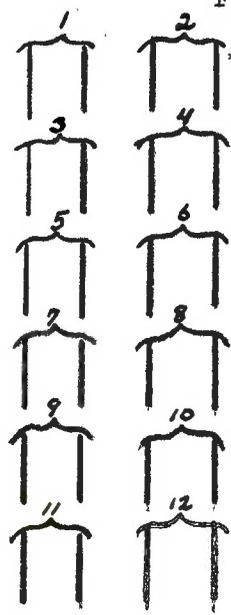
Truckloads of seed oats were brought from Colorado. One of our farmers who had an unusually good crop of Markton Oats which he has been growing for years was assisted in finding a local market.

CORN

Test Plot

A hybrid variety corn test plot was planted on May 11. We received the seed on May 9. This was planted east of and joining Joe Lawson's corn which he planted a week earlier. Two replications of corn in four rows are as follows beginning on the north:

First Replication



Numbers indicate the varieties as follows:

- 1. W-464
- 2. W-692
- 3. W-701A
- 4. W-32
- 5. W-595
- 6. W-641AA
- 7. W-606
- 8. W-531
- 9. Minn-500
- 10. Minn-800
- 11. United 41 (14?)
- 12. United 39

Second replication in same sequence as first

Lawson's White Dent

Joe Lawson has grown what we have designated as Lawson's White Dent for years. His father received the original seed from Mountainair, New Mexico. He selected for seed type and uniformity. His son Joe, since his father's death, has continued this.

FORAGE CROPS

Canadian Field Peas are again grown this year by R. B. Roundtree. He has grown these for years and has found them to be a soil builder. He feels he can increase his potato crop following the peas of from 30 to 50%.

Austrian Winter Peas were grown by Clyde Etter and Cleon Etter in Oak Creek Canyon. We invited the fruit growers in Oak Creek to visit these two demonstrations hoping that more might be induced to grow these peas as soil builders.

Pellett Clover was planted on Frank Gold's place in Oak Creek by Dr. A. J. Mackey, Dr. ReO. Raymond, the writer, and others. We have found that it will maintain itself in this area in winter and also in the Oak Creek Canyon. It is hard to obtain seed and propagation is from vegetative material.

Chamiza Seed, furnish Walter Drye, was planted. To date we have had no report.

Alfalfa we have never recommended in dry land farming excepting that we have tried to induce someone to try it in row plantings as is done in Southwest Colorado.

ORCHARDING

INSECTS

Mite

Since the mite, or red spider, has been so difficult in Oak Creek Canyon, a circular letter was sent in December urging upon the fruit growers Dr. Roney's recommendation, the use of lime sulfur and oil. The mite population had increased greatly in April; consequently we sent a second letter urging the use of lime sulfur spray for the control of the mite. In May, Dr. Roney visited the orchards and strongly recommended Parathion. This we followed with another circular letter and with Dr. Roney's bulletin on fruit insect control.

Thrips

Thrips were no problem this year in the apple blossoming time.

Codling Moth

The codling moth was no problem in Oak Creek Canyon this year where good orchard spray programs were carried on.

Woolly Aphis

The woolly aphis are no problem thus far. There is some fear, however, that the parasite which we introduced in 1936 may have been destroyed by the use of some of the newer spray chemicals.

NEW ORCHARD SPRAYER

Frank Pendley has something new in an orchard sprayer. He sprays it from the seat of the tractor, sprays on both sides, uses a little more material than with the hand boom but does a better job.

RODENTS

Rodents, at times, damaged fruit trees under heavy snow; consequently we sent a circular letter when the snow was deep last winter urging fruit growers to check this hazard, and where necessary, institute control measures.

HOME-COOKED LIME SULFUR

Frank Pendley has again returned to the practice of cooking his own lime sulfur. By his own method he is able to produce in

HOME-COOKED LIME SULFUR (cont'd)

45 minutes time 50 gallons of 32 to 33 baume. Oak Creek growers were invited to visit Mr. Pendley's demonstration of cooking lime sulfur. It is much cheaper than he can buy it and we believe it is much more effective than commercial powdered lime sulfur.

SOIL

Humus and cover crops are encouraged in orchards. The winter peas demonstration we hope might help to that end. We hope, too, that the Pellett Clover might be found useful in this. Frank Pendley consulted with us regarding the use of sheep manure which he hauls over 100 miles. We secured analyses of it for him by the Soil Chemistry Department.

MARKETING

A circular letter was sent all orchardists regarding production and price trends.

SOILS

CONSERVATION

Farmers complain that their land is not as productive as it has been. It is easy to understand when you consider the amount of wind and water erosion, and sheet and gully erosion. The Soil Conservation Service stimulated many into terracing, strip cropping, and contour planting. Farmers might well be stimulated into another practice, that of growing crops to plow under to replenish soil humus. Bean farmers experienced difficulty in getting beans up this year due to top soil baking. Abundant humus should help to relieve this difficulty. We are experimenting with two kinds of peas--the Canadian Field Peas on the higher dry farming areas, and the Austrian Winter Peas in Oak Creek Canyon for the purpose of building up soil. Frank Pendley and Walter Jordan in recent years have hauled a great deal of barnyard manure into their orchards in addition to the use of chemical fertilizers.

E. W. Pieper, who farms in Hay Lake, conferred with us regarding his soil problems. We sent soil specimens to the Soil Chemistry Department, University, and to Mr. Turville at Presdott, but to date have not had time for a report.

Some gardeners have consulted with us regarding the making of compost. Dr. Raymond has an experiment of his own. Waste from the kitchen goes into barrels. Months later he puts this in a pile from where he disperses it to plants where needed. This is interesting and perhaps worthwhile.

LIVESTOCK

RANGE CATTLE

During the winter we learned that 17,000 range cattle in Coconino County were dipped for lice in accordance with directions furnished by the Extension Service. A circular letter on the subject prepared by Walter Armer, accompanied by a circular letter of our own, was sent to 80 stockmen. Another circular letter by Dr. Roney on lice, tick, and warble control was sent with a letter prepared by ourselves in February.

We were asked for information regarding Brahma cattle. We have no literature but know only what we have seen from observations. Two stockmen who formerly had Brahmas have given them up. A third one thinks they have a place in our scheme. It is claimed that Brahmas will stand a second winter in this altitude much better than the first.

DAIRY CATTLE

A circular letter on barble, lice, and tick control was sent to all dairymen. Another circular letter was sent on securing feeds and feed costs. Still another circular letter on the subject of dairy health and breeding was sent out. Information in the form of a circular letter was also sent the dairymen regarding the treating of cattle starved in the snow storm.

HOGS

We corrected one feeder who was proposing to cook his hog feed. Bulletins were given out on the subject of butchering. A circular letter was sent to hog raisers on market trends.

POULTRY

Comparatively few flocks of poultry are in evidence. Other activities have proved more profitable. Most of the poultry is being raised by newcomers who are stimulated into it because of high prices of food.

We have had a number of requests for assistance with sick chickens.

4-H CLUBS

During the six months of which this is a report, six 4-H clubs have been organized and are very active in Coconino County. There are now clubs in Fredonia, Parks, and Sunnyside, as well as the two clubs at Sedona and the one at Doney Park which had already been organized the years previous.

In December, the Cinder-Hill Billies 4-H Club at Doney Park, under the leadership of Mr. & Mrs. Fred Manning, had a Christmas party for the parents and younger children in the families of the club members. Aside from being a nice event, it was also a good publicity stunt, and brought club work to the attention of children who will be eligible in a few years.

Although club activities were reduced to a minimum around Flagstaff during the heavy snows, Charlie Glaspie, a Junior Leader of the Doney Park club, came in the office at various intervals to plan 4-H club work for the time when the snows would again allow meetings. During the winter, only the Doney Park club and the girls' club at Sedona organized for 4-H projects.

The home demonstration agent and the writer prepared and compiled 4-H publicity material to be used during the National 4-H Achievement Week, March 5-13. Articles were prepared and sent to the local newspaper telling about National and local 4-H work.

The Flagstaff radio station was good enough to dedicate a 15-minute musical program to the 4-H members and leaders of Coconino County. We prepared scripts to be presented each evening during that fifteen-minute interval, concerning the work of the local 4-H clubs, national 4-H news, and a personal message from the writer and Miss Hughes to the 4-H leaders and members.

The Cinder-Hill Billies 4-H club assembled items made by the members of the club for a display in a downtown window during 4-H week. This display attracted considerable attention of the townspeople.

At a conference of the agricultural agents on the Navajo Indian Reservation at Window Rock. Mr. Mc^Aee discussed 4-H work with the Indians. This meeting was attended by the county agents of Apache, Navajo, and Coconino Counties, as well as Reservation county agents.

The 4-H films, "Where the Road Turns Right," and "Shy Guy," were shown by Miss Hughes and this agent to the combined clubs of Doney Park and Sunnyside. There were 35 in attendance at this showing, which was presented at the Flagstaff High School on April 28.

4-H CLUBS (cont'd)

On April 30, a meeting of representatives from each 4-H club in the county was held in this office. The purpose of this meeting was to discuss the awarding of a calf to 4-H boys and girls of the county. A Sears & Roebuck Foundation is making this award possible. The awards were finally made to Billy Rowland, Doney Park; Walter Van Deren, Sedona; and Robin LaRue, Parks.

RODENT CONTROL

It is strange, but we had inquiries for gopher and mice control in mid-winter. We gave a number of Demonstrations during this half-year on placing poison for gophers.

WEEDS

Jack Heckathorne sprayed loco weed in Big Park with 2,4-D. It is an experiment he wished to carry to see if he can eliminate that weed from his winter range. The Soil Conservation Service is largely taking over weed control work in the county and it seems as if they may do some good.

BUILDING

Walter Jordan asked for and received information regarding installation of lightning rods. Carl Shore received information on building a poultry house. Haley Gonzales asked for plans of dairy barns and other buildings, including a residence. He is moving his dairy to a new place where all the buildings have to be built. Steve Weining asked for plans for rabbit hutches. Bob Klinkner, one of our people in the country, designed an excellent hutch layout and demonstrated that to a number of interested prospective builders.

MARKETING

Circular letters were sent out to bean growers, potato growers, fruit growers, and hog raisers, giving them statistical information regarding production and marketing trends and possible price prospects.

MISCELLANEOUS

We furnished information to Sam Spitalny about ornamental plantings at his farmstead near Williams which he is trying to develop into a show place.

A mailing list was prepared and sent to the University.

We met with the local representative of the State Employment Service and with farmers to work out a plan through which our farmers could secure Indian labor when needed.