

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

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December 1, 1951

to

November 30, 1952

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by

William M. Brechan

County Agricultural Agent

Agricultural Extension Service

COCONINO COUNTY

ARIZONA

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## HIGHLIGHTS

The winter of 1951-52 was one of our wettest seasons in several years. This naturally put the ranges and farmlands into excellent condition for the spring. The range lands had a wonderful supply of feed all year and ample water supply. The last part of the summer saw exceptionally heavy rains and this enabled the range grasses to continue growth somewhat later than usual. Cattle were in perhaps the best condition when fall came than they had been in many years. The cattle market began to go down in September and October. Cattlemen were offered twenty-five cents (25¢) to twenty-six cents (26¢) for their calf crop in September and early October but most refused to sell. These same calves had brought thirty-six cents (36¢) and thirty-seven cents (37¢) a year earlier. By late October and early November the market had still dropped and cattlemen were being offered twenty cents (20¢) to twenty-two cents (22¢) and buyers were very scarce. By late November these were still 60 - 70% of the calf crop still unsold. The market was still weak and was likely to level off at about twenty cents (20¢). Many cattlemen at the end of November were planning to feed their calves all winter and put them on the market in the spring of 1953.

One of the best small grain crops in several years was raised in 1952. Good winter snows and summer rains gave ample moisture. Winter wheat yields ran as high as twenty-two (22) cwt per acre. Spring oats yielded from twenty (20) - twenty-five (25) cwt per acre. The pinto bean farmers had the best crop prospect in many years but a severe killing frost on September 12 and 13 cut yields on an average of 50% and in many fields 90%. Only two fields of Idaho 111 varieties escaped the frosts. This variety which is about ten (10) days earlier had already been cut and shocked for several days when the frosts came. This variety yielded about twelve (12) cwt per acre.

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Annual Doney-Blackbill Community Program Planning Meeting

Annual Parks-Williams " " " "

Doney-Blackbill Program Planning Meeting Notice

Parks-Williams " " " "

Doney-Blackbill Program Planning Meeting Summary

Parks-Williams " " " "

Halogeton, Livestock Poisonous Weed

Small Grain Seed Shortage

Grasshopper Control Recommendations

Agricultural Practices

Soil and Irrigation Meeting

National Farm Safety Week

## I. THE AGRICULTURE OF COCONINO COUNTY -

Coconino County is the largest county in Arizona and the second largest in the United States. It is located in the northern part of Arizona and borders the state of Utah. Most of the land is either Indian Reservation or National Forests. In 1952 there were 1,508,691 acres classified as grazing land and 13,121 acres as other land. Only 27,033 acres are classified as dry farming land. This is, however, a 2,851 acre increase over 1951. Although all our farming land is classified as dry farming we do have some irrigated land in Fredonia, Oak Creek and Hay Lake. Farming in Coconino County is done in altitudes ranging from 4,000 - 8,500 feet elevation. This altitude range naturally gives the county a wide variation in crops. The largest farming areas are in the 7,000 feet elevation. The main crops in this area are pinto beans, small grains, forage crops and some vegetables.

The approximate acreage of crops planted in 1952 are as follows:

Pinto beans	6,000 acres
Small grains	11,000 "
Forage and pasture	8,000 "
Vegetables	300 "
Orcharding	500 "
Idle land	1,233

The approximate yields of the crops raised in 1952 were as follows:

<u>Crop</u>	<u>Individual Yield</u>	<u>County Average</u>
Pinto bean (recleaned)	4-12 cwt/acre	5 cwt/acre
Winter wheat	15-20 cwt/acre	18 cwt/acre
Spring wheat	8-12 cwt/acre	9 cwt/acre
Spring oats	15-25 cwt/acre	19 cwt/acre
Oak hay	1-2 ton/acre	1½ ton/acre
Alfalfa hay	2-3 ton/acre	2 ton/acre
Alfalfa seed	150-350 lbs/acre	225 lbs/acre
Apples	20-35 boxes per tree	25 boxes per tree
Other orchard crop	Excellent yields	

Coconino County is one of the largest grazing counties in Arizona. Most of its grazing land, however, is in the higher elevations and it is therefore chiefly a summer grazing area for cattle and sheep. As stated earlier there are 1,508,691 acres classed as grazing land in Coconino County. The cattle and sheep come into this

area in early spring as soon as the snows have gone. This is usually late April or early May. They will remain until early November if weather and feed conditions permits. In the summer of 1952 there were 37,870 range cattle in this county. This was an increase of 1,617 head over 1951. Feed conditions were excellent all summer. The number of sheep in this county was 27,152 head which was an 4,189 head increase over 1951.

Dairying in Coconino County has become a very minor industry. There are only three dairies in the county. Two of these dairies own a few head of cows but ship most of their milk into the county from the Verde Valley and the Phoenix area. The third dairy ships all its milk into the county. In 1952 there were but 227 head of dairy cows. The severe winters and difficulty in pasturing their cows in the summers places an exceptional high feed cost on keeping cows. Experienced dairy-men state it is much cheaper to ship milk into the county rather than produce it by owning their own cows.

Poultry is also following the dairy industry very closely. In 1952 the total birds decreased 2,508 which left about 4,716 birds still in the county. This figure represents hundreds of very small backyard flocks. Poultry products are always in good demand but weather conditions and feed costs have prevented anyone from going into the business on a large scale.

This county like all other counties have a great many problems. Some of the most important ones are as follows:

1. A satisfactory weed control program.
2. A sound and practical soil management program.
3. Certified seed source for pinto beans and grains.
4. Marketing and storage facilities for all crops.
5. Crop and orchard insect control program.
6. Possible new crops for this county.

## II. ORGANIZATION -

### A. Extension

#### 1. Annual Extension Conference.

The County Agent left this county on December 3, to attend the Annual Extension Conference at the University of Arizona in Tucson.

This year's conference was a very well arranged meeting. The use of the new Student Memorial Building for our meetings helped a great deal in making it a great success. Many outstanding speakers were heard. One outstanding point that made the conference a success was that fewer subjects were discussed and more time given to each subject. The banquet and entertainment were outstanding. By holding this banquet the first evening of the conference and it being such a success, definitely stimulated the enthusiasm among the Extension staff. The selection of very timely subjects for discussion also contributed a great deal to the success of the conference.

#### 2. District County Agents Meeting.

A High Elevation County Agents' District meeting was held in Holbrook on May 1 and 2. Agents from Cochise, Gila, Apache, Navajo, Yavapai and Coconino Counties were present. Also present were Mr. Howard R. Baker, Assistant Extension Director; Howard Ray, Extension Soil Specialist; James Middleton, Extension Irrigation Specialist; and Charles Ellwood, Extension Agronomist.

The two day meeting covered work in Soils, Irrigation and Field Crops. Mr. Ray discussed work in soils covering tillage, seedbed preparation, fertilizers and soil sampling. Irrigation practices and requirements on different soils and crops was discussed by Mr. Middleton. Mr. Ellwood discussed various crops for high elevations and attempted to arrive at a recommendation by suggesting different counties to plant demonstration plots of small grain, corn and forage crops. From the discussion among the Agents present, it appeared that Buffalo and Ranger alfalfa were perhaps the most successful varieties for high elevation plantings.

#### 3. Extension Range Management School.

The County Agent left this county on September 8, to attend a two day Range Management School at the University of Arizona. This type of school has been needed for some time. The County Agents have been receiving numerous inquiries concerning the cattle raising industry. Mr. Walter Armer, Extension Animal Husbandman, had worked a

lot on this particular subject and had gathered considerable information for us. Almost every phase of range management was given to the group by persons having direct contact with that particular subject.

4. Personnel Changes.

Mrs. Rogene Gaddis, office stenographer resigned on August 21. On September 22, Mrs. Maxine Wiley was employed as office stenographer.

B. Farm and Ranch Groups

1. PMA and SCS Meeting.

On January 28, the County Agent attended a joint meeting of the SCS and PMA in Flagstaff. This was one of the three meetings these federal agencies had held over the state. The purpose of the meeting was to try and encourage closer cooperation between the PMA and SCS so a greater agricultural production goal could be reached in 1952. PMA committees from Yavapai, Mohave, Apache, Navajo and Coconino counties were represented. SCS members were also represented from all the above counties.

2. Arizona Cattle Growers Meetings.

This County Agent attended the 48th Annual Convention of the Arizona Cattle Growers Association that was held in Prescott on February 14, 15, and 16. The program of speakers were outstanding for the convention. Perhaps the outstanding address was presented by Mr. Alan Kline, President, American Farm Bureau Federation. Dr. Phil S. Eckert, Dean of the College of Agriculture, University of Arizona, also gave a very outstanding address on "The Outlook for the Cattle Industry in the Year Ahead."

The Agent also attended the first quarterly meeting of the Arizona Cattle Growers that was held in Flagstaff on June 14. The Agent had on display for the group of a number of mounted poisonous plants. Each specimen had a brief explanation where it was found and to what type of livestock it is poisonous.

3. Arizona Wool Growers Meeting.

The County Agent attended the annual meeting of the Arizona Wool Growers that was held in Flagstaff on July 8. The Agent displayed a number of poisonous plants that had been collected in this county.

4. County Fair.

The 1952 County Fair was held on October 17, 18, and 19, at the Flagstaff Armory. This year the three fair commissioners, Melton Flowers, Charles Ray Galespie and Albert Thompson, were all new and it required considerably more of the Agent's time in preparing for the fair. The Agricultural Department was not as large as the 1951 fair, however, the exhibits were much nicer. The small grain exhibit was especially outstanding. The livestock, poultry and rabbit exhibits were good considering this being the first year these departments have been in the fair. The Women's Department was again very nice and possibly a little larger than the 1951 fair.

5. State Fair.

Coconino did exceptionally well at the 1952 State Fair held in Phoenix, November 7 - 16. The county won first on their booth and also a gold loving cup for the Best and Most Complete County Booth. The county won fifty-one (51) firsts, thirty-three (33) seconds, and seventeen (17) third places on the various agricultural exhibits.

6. Out-of-County Farmer Meetings.

This Agent was requested by a group of farmers from Moccasin and Short Creek, Arizona, which is in Mohave County, to assist them in some of their agricultural problems. Special permission from the state office was secured and visits were made in May and July.

Short Creek is a small Mormon Community located about thirty (30) miles west of Fredonia on the Utah border. Their farming and home life is very obsolete and old-fashioned. One would believe he was living on a farm of 1925. The Agent met with the key farmers of this community and discussed many problems. Soil fertility and irrigation seemed to be their two main problems at the present time. Many soil samples were taken and the Agent gave each farmer an explanation and recommendation on his farm when the soil analyses were returned. Many bulletins were given to the farmers in this area.

Moccasin is also a small Mormon Community about ten (10) miles west of Fredonia on the Utah - Arizona border. This area had many farming questions, especially in orcharding and alfalfa raising. The community consists of about 450 acres of irrigated land. Most every type of fruit and berry is raised. The Agent assisted several farmers in their livestock problems. Most of the farmers also have cattle that they range in Arizona and Utah.

### III. PROGRAM PLANNING -

Program planning was started in this county in 1950 in the Doney - Blackbill Park Community. In 1951 it was extended to the Parks - Williams Community. In 1952 there were no new communities added but meetings were held in the two communities already organized.

The fourth annual program planning meeting was held in the Doney - Blackbill Park area on Monday evening, August 18, in their Community Building. A wonderful pot luck supper was served prior to the business meeting. An exceptional high attendance of fifty-one (51) persons gave excellent response and interest to the evening's program. Miss Lucinda Hughes, County Home Demonstration Agent, gave her report on the past year's accomplishments and discussed possible projects for the coming year. The County Agent gave his report on accomplishments for the past year and showed a number of colored slides of result demonstrations he had worked on in 1952. The group gave the Extension Service a number of projects to work on in 1953. The following day the Agent summarized the meeting in a circular letter and listed all projects given to the Extension Service and mailed it to everyone who attended the meeting.

The second annual program planning meeting was held in the Parks - Williams Community on Tuesday evening, August 19, at the Parks school auditorium. Here, too, the attendance was very high - twenty-four adults - which represents about 85% of the farmers and ranchers in that area. The Home Demonstration Agent and County Agent gave their reports on project accomplishments for 1952. The County Agent also showed the colored slides of result demonstrations to the group. The group listed several projects to be worked on in 1953 by the Extension Service. This meeting was also summarized the following day by the Agent in form of a circular letter and was mailed to all who attended the meeting.

#### IV. INFORMATION PROGRAM -

##### A. Newspapers

In March the County Agent began his weekly news column "Keeping You Posted" for the Flagstaff and Williams papers. The articles were continued through November. These columns appear each Thursday in the Flagstaff Arizona Daily Sun and The Williams News. This column is written primarily for home gardeners and city people. Timely subjects in landscaping, gardening, insect control, safety programs, etc. are discussed. This enables the County Agent to have more free time to work on other agricultural problems.

##### B. Magazines

Several news stories for the Arizona Cattlelog were written this year. This is the monthly publication of the Arizona Livestock Association. The stories contained information about the conditions of farming and ranching in this county.

##### C. Radio

In January the County Agent began his weekly radio broadcast "Your County Agent Reports" over radio station KCLS in Flagstaff. The program is broadcast direct from the County Agent's office from 8:45 - 9:00 o'clock each Monday morning. Throughout the year many guests have appeared with the Agent and several special programs were presented. The response from this program has been very good and it is felt that many homes are reached with our information that otherwise would not be.

##### D. Circular Letters

The circular letter was used a great deal in 1952. All special meetings and county or national programs were announced by the circular letter. The Agent uses animated figures a lot on his letters. It is believed such drawings will hold the attention of the reader. The Agent also tries to make the circular letter as brief and to the point as possible.

##### E. State Circular Distribution

The past year has seen the bulletin board in the County Agent's office used considerably more. The public has recognized the opportunity this assortment of bulletins gives them on the many agricultural subjects. The County Agent has reminded the people about this bulletin board all year in his weekly radio programs and newspaper columns.

This year has also seen perhaps the greatest amount of new or revised bulletins written by the Extension Service. All of these bulletins were badly needed and were in great demand once the county received their supply.

The policy of this office is to keep about ninety (90) bulletins on the board and to keep rotating some of the less popular ones. This enables the Agent to display many more than the above figure during the year.

F. Visual Aids

The work in this field was again very limited in 1952 as this county is without cameras or projectors. The Agent did use a movie projector belonging to the Fredonia schools to show several educational films at a community meeting.

Mr. Joe McClelland, Information Specialist, spent some time in this county in 1952 and the Agent was able to make quite a number of colored slides on result demonstrations. The pictures were taken only during one part of the season which really didn't give a clear picture of the demonstrations. These slides were used at program planning meetings.

V. PROJECTS -

3. Horticulture

A. Orcharding -

1. Chemical Spray Fruit Thinning.

In 1951, chemical spray thinning of apples and pears was first introduced in Oak Creek Canyon. Elgetol was used and was applied to the fruit trees during full bloom period. Two orchardists conducted this work, Frank Pendley and Tom Anderson. The results were very good in 1951, especially on the pears. The apple bloom of 1951 was not good so even though the results appeared satisfactory no definite conclusions could be made.

In 1952 these same orchardists were planning to use elgetol on all their apples and pears that showed a good bloom. Full bloom was expected about Easter Sunday, April 13. Cool weather delayed bloom and it appeared we would have full bloom about a week later. When the trees were in the full pink stage rains started and continued the rest of April. This caused a further delay in bloom and at no time were the trees in a really full bloom. With this weather condition during the bloom it was very uncertain as to what type of pollination was secured. The Agent felt like it would be a great risk to use elgetol on the blooms under this uncertain condition and recommended that these growers do not use elgetol. The Agent suggested if a good fruit set was secured then the growers could use naphthalenacetic acid about seven (7) to ten (10) days after petal fall. This is also a hormone spray and is used in many apple regions as a thinner.

All orchardists in Oak Creek Canyon secured an exceptionally heavy set of all kinds of fruit. The Agent recommended that the orchardist use naphthalenacetic acid to thin their apples and pears. Only two growers decided to use this hormone. They were Frank Pendley and Tom Anderson.

On May 13 and 14 these growers sprayed all their trees showing a heavy set of fruit with naphthalenacetic acid. Unsprayed trees were marked and several heavily set trees were left unsprayed as checks. On all self-pollenating varieties 20 ppm was used to one-hundred (100) gallons of water. On all non-pollenating varieties 10 - 15 ppm was used to one-hundred (100) gallons of water. The trees were thoroughly covered using about twelve (12) to fifteen (15) gallons of spray per tree. The weather was ideal for the spraying - still, clear and warm. At the time of spraying the fruit set on trees that were sprayed showed from three (3) to six (6) apples per fruit cluster.

Pears were also sprayed the same time using 10 ppm to each one-hundred (100) gallons of water. The same saturation per tree was given as on the apples. Fruit set was also heavy at spraying time. Most fruit clusters had three (3) to five (5) pears already set.

In June results of the chemical thinning began to show up very well. The Starking Double Red Delicious varieites that had 10 - 15 ppm of the hormone spray applied showed remarkable results.



The above picture taken in mid-June shows how well spaced the apples are and that no doubles remained. The apples are also about one-fourth ( $1/4$ ) to one-third ( $1/3$ ) larger this time of year than they normally are which shows that by stopping the growth of the majority of the apples when they are about pea-sized enables the tree to give more food to the remaining apples.



The same results were secured on the non-pollenating varieties such as the Golden Delicious that had 20 ppm of the hormone. The above picture clearly indicates the nice spacing of these apples and also no doubles.



On the check trees a much different picture was observed. The picture at the bottom of page 12 clearly shows that these apples are too close, several doubles are visible and the fruit is not as uniform or large as the chemically thinned fruit. This picture was taken the same time and is of the Starking Double Red Delicious.



The above picture taken of a Golden Delicious variety that was chemically thinned shows how this hormone stops the growth of all apples that are to be thinned. The chemical apparently kills the pollen bearing stamens of the self pollinating varieties and prevents fertilization. Only the king blossom fruit normally sticks. This is explained by the fact that this king blossom appears two (2) to four (4) days before the other cluster blooms. This enables this blossom to fertilize and to have the passage to the ovary closed before the spray is applied. When spraying is done seven (7) to ten (10) days after petal fall all blossoms with the exception of the king blossoms still have the ovary passage partially opened and allows this chemical to penetrate, thus stopping the development of the fruit. The above picture shows a small apple that has been "killed" still clinging to the cluster where the king blossom fruit is well on its way to maturity. These small apples do not draw food from the tree once the spray hits

them. They may hang onto the cluster for several weeks after spraying but their growth definitely has been stopped. There are still many unanswered questions on this hormone spraying that cannot be answered.

No trees that were sprayed, either apples or pears, had to be hand thinned. This naturally is a tremendous saving to the grower. The fruit upon maturity was of an exceptionally high quality. Growers were more than satisfied with the results. It is hoped that good apple crops can be had every year by the use of the hormone thinning. This has been the case in the Pacific Northwest apple regions. In Oak Creek, prior to the use of hormone thinners, a good crop of fruit could only be expected every other season. Additional work in 1953 may answer this question.

## 2. Commercial Fertilizing.

Commercial fertilizing of apple orchards in Oak Creek has been practiced many years. The rate of application has been quite small. In most cases about seven (7) to ten (10) pounds of ammonium nitrate (33.5-0-0) was applied to the trees in the early spring. Little or no phosphate was ever applied.

This Agent in late 1951 recommended a much heavier application of fertilizer to these mature apple trees. The Agent had made extensive studies on different amounts of applications of fertilizers to orchards all over the west and northwest before this recommendation was made. The recommendation was to apply thirty (30) pounds of ammonium nitrate (33.5-0-0) and twenty-five (25) pounds of treblesuperphosphate (0-46-0) to each mature apple tree in early December of 1951. This was to be followed with an additional fifteen (15) pounds of ammonium nitrate about thirty (30) days before bloom or about March 1. These applications were to be scattered around the drip line of the trees and either disced or irrigated into the soil.

In December 1951, Walter Jordan of Sedona agreed to fertilize part of his apple orchard and follow our recommendations. One section of his orchard he applied thirty (30) pounds of ammonium nitrate and twenty (20) pounds of treblesuperphosphate per tree. The additional fifteen (15) pounds of ammonium nitrate in March was not applied.

Frank Pendley was unable to apply any fertilizer until April 3. This was quite late and the Agent recommended he apply fifteen (15) pounds of ammonium nitrate and twenty (20) pounds of treblesuperphosphate per each mature tree. This was to be applied around the drip line of each tree and disced into the soil and irrigated immediately.

In June a remarkable response could be seen in both

orchards from the fertilizer. The fertilized trees had a much deeper green leaf and fruit seemed to be larger, especially in the Jordan orchard.



The above picture shows the 1951 growth between the two fore fingers compared to the 1952 growth. The new growth was from two (2) to four (4) times as great even though this picture was taken only in late July. All trees with a heavy fertilizer application appeared more vigorous and did not suffer as much insect damage as unfertilized trees. Later in the season the fruit on fertilized trees began to show a deeper red color than unfertilized trees.

There was no weight yield record kept on fertilized and unfertilized trees. The growers and Agent were thoroughly convinced that a high yield and quality apple was received from the treated trees. What the growers are trying to achieve is a yearly fruit crop rather than a biennial one. The Agent believes that the heavy application in December of each year will enable the tree to draw on this food supply during the winter and be in a vigorous condition to handle its bloom and fruit set. This will enable the tree to still be in a vigorous condition when the fruit buds are set in June for the following year's crop.

In November of 1952 the Agent sent individual letters to each orchardist and recommended different applications of commercial fertilizers. A heavy December application and a light March application was recommended. Orchards that were heavily fertilized in 1951 or the spring of 1952 did not receive as heavily recommended application as orchards that had never been heavily fertilized. This was done because too much excessive growth year after year is very likely to encourage more fire blight.

### 3. Insect Control

In the last few years one true insect, the codling moth, and two spider mites, the red spider and two-spotted mite, have caused considerable damage to the orchards. The codling moth has not been much of a problem, however, the two spider mites have given a great deal of trouble in finding a satisfactory control.

The codling moth which appears in early summer and deposits its eggs on the small fruit can be controlled very well by the use of 50% Wettable DDT. This spray is followed all summer at regular intervals and has given about a 99% control. Orchardists who do not apply this spray regular has had a high percentage of wormy apples. One grower this year failed to follow the recommended schedule and had about an 85% worm infested apple crop.

The red spider has been satisfactorily controlled the past three years by orchardists who apply a dormant lime-sulphur spray in December and again in March. These two sprays kill most all the adults and eggs that are in the cracks and under the bark of the trees. The past season saw this recommendation quite abused. One grower applied the spray in late February, one in late March and one not at all.

Walter Jordan who applied his in late February had only a few red spider show up in the early season. In mid-summer to late summer quite a number of red spider began to appear. This could be from two causes, however. First, because of the late lime-sulphur application, and secondly, because a new miticide was used on the two-spotted mite this year that did not control the red spider as well as the miticides used in previous years.

Frank Pendley who applied lime-sulphur only to his delicious varieties in late March also had more red spider than usual. Their populations did not build up too heavy until late summer. This was probably due to the late spraying and also only spraying part of his orchard. The new miticide to control the two-spotted mite was also used on this orchard and it may have helped the build-up of the red spider.

Tom Anderson who did not use lime-sulphur on any of his orchard really had a problem with the red spider. They appeared early in the summer and was never fully controlled. They did considerable damage to the leaves and in a few instances damaged the fruit.

The two-spotted spider mite has been by far the most serious insect in Oak Creek Canyon. Last season, 1951, parathion was used mostly and did not give a satisfactory control. It appeared the parathion killed everything, including the beneficial insects that help control these mites. In orchards that used aramite in 1951, it appeared this miticide did not kill the natural enemies and both they and the miticide gave a fairly good control.

In 1952 the County Agents office recommended the use of aramite and not parathion. Sulphenone was also recommended as it too gave fairly good results in 1951. A newer miticide, Malathon, was also tried by Frank Pendley. All three of these miticides are supposed to control the two-spotted mites and not kill the natural enemies of these mites.

In late May and early June the two-spotted mite began to appear in sufficient numbers to warrant spraying. Aramite was recommended at a rate of one and a half ( $1\frac{1}{2}$ ) pints to one-hundred (100) gallons of water. This spray was supposed to have a good residual action. Sulphenone and Malathon was also applied on different parts of apple orchards to control the two-spotted mite. These miticides are slower killers than parathion and it was three (3) to five (5) days after the spraying before a good kill could be noticed. It did give an excellent kill. The two-spotted mites did not appear again in damaging numbers until about ten (10) to fifteen (15) days after the spraying. A second spraying was given and this time it was even a longer period before another spray was necessary. Sulphenone worked the very same but Malathon seemed not to give the control and the growers quit this about mid-summer and went to aramite. By the end of summer some growers were going twenty-one (21) to twenty-five (25) days between sprays when using aramite. The trees were in perfect condition and apparently the miticide and natural enemies were doing a good job in controlling this two-spotted mite. There was one thing that did show up, however in using aramite. This miticide apparently does not control the red spider as well as the parathion. In mid-summer growers who were using aramite and going about fifteen (15) to twenty (20) days between sprayings, found the red spider to build up considerably. It appeared that in order to control the two-spotted and red spider mite it would be necessary to spray about every fourteen (14) days. This also brought out the importance of the use of lime-sulphur spray in the winter to control the red spider. It is hoped this new miticide, aramite, will be the answer to the mite problem but only time will tell.

Aramite will again be recommended in 1953 with experimental use of some other new miticides.

Another insect, the wooly aphid, has given considerable trouble to some orchards, especially the roots of apple trees. In early April, Dr. J. N. Roney, Extension Entomologist, and this Agent put out a result demonstration using nicotine sulphate to control the wooly aphid in the root zones. This was mixed with water and injected into the soil by a special pressure gun. About fifty (50) to seventy-five (75) separate injections around each mature tree was done. This placed about ten (10) to twenty-five (25) gallons of this liquid in the root zones of these trees. The fumes from this nicotine sulphate spreads and kills the wooly aphid that is attached to the roots. The trees that were sprayed all were inspected before spraying and found to be heavily infected with wooly aphids. Later in the summer these trees were inspected and no live wooly aphids could be found on the sprayed trees. Check trees were still heavily infected. This spraying if done about every two (2) to three (3) years should give excellent control of the wooly aphid.

#### 4. Disease Control

One mature apple orchard in Oak Creek Canyon has had a disease appearing since early 1947. Some work has been done on trying to identify this particular disease. The County Agent has sent diseased roots from these trees to various places hoping to identify it, but no definite conclusion could be made.

In 1952 the Plant Pathology Department of the University of Arizona said they would work in this orchard and put out some demonstrations in hopes of identifying the disease. On July 18, Dr. R. B. Streets, of the Plant Pathology Department, and Harvey Tate, Extension Horticulturist, began work in this orchard. One tree that had the disease and was in a very weak condition was treated with liquid lime-sulphur. A large basin was dug around this tree and the solution placed in this basin. This tree will be checked next spring to see if the tree responded to the treatment and will start growing again.

A second demonstration was started in this orchard. Dr. Streets treated places where diseased trees had been removed with larvacide. This was injected into the soil in many places and it is hoped it will kill any trace of this disease that might still be in the soil. New trees will be planted in these treated areas next spring.

Vegetable gardens in Coconino County suffered terribly in 1952 from Curley Top disease. This disease being of a virus nature and spread by a leaf hopper, is very difficult to control. The usual

migration of this insect from lower and warmer areas to the higher and cooler areas occurs in June and early July. This year however, the weather remained cool until very late summer and this insect apparently did not fully migrate but stayed in all the areas most of the summer.

About 85-90% of the tomatoes in the Oak Creek, Flagstaff and Williams areas were killed by Curley Top. Other vegetables such as cucumbers, squash, beans, cantaloupes, beets, and peppers all suffered from this disease. The Agent recommended the use of DDT-Sulphur dust on some of these vegetables to repel this insect but not too much success was secured.

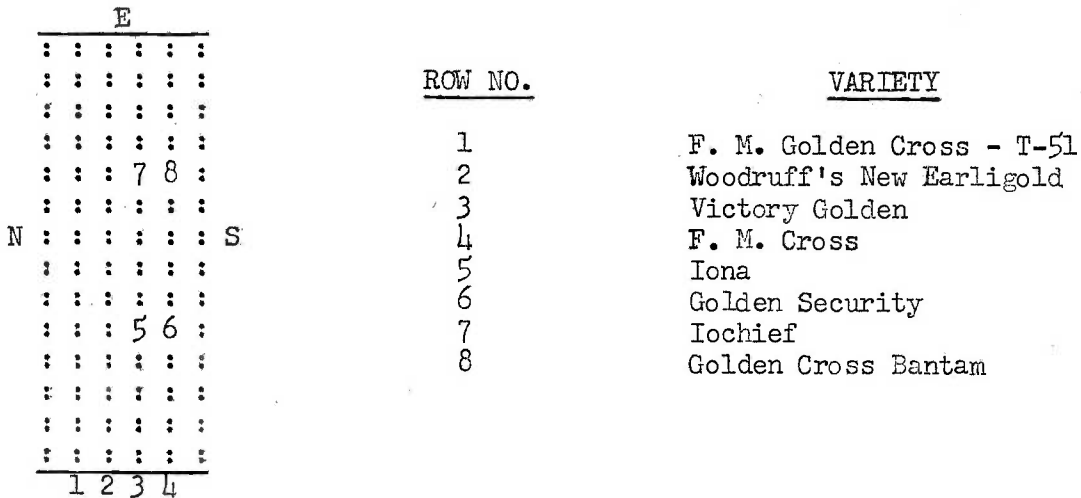
B. Sweet Corn -

1. Variety Tests -

In 1951 a sweet corn variety test was planted but severe drouth conditions caused a complete failure. The Agent secured seed again this year and another variety test was planted.

On May 26, this variety demonstration was planted. Eight varieties of sweet corn were planted with a regular field two-row corn planter. The soil moisture was in excellent condition at planting time.

The following is a diagram of the field planting and the varieties planted:



An excellent stand was secured on all varieties, but varieties 4, 6, and 8 were destroyed accidentally by the cooperator. Exceptionally good rains in late July and all of August made growing conditions ideal. Killing frosts in September 12 and 13 stopped all growth of this demonstration.

The F-M Golden Cross - T-51 variety started to mature in late August and lasted until the first part of September. The ears were not too large but a very fine quality. The stalks were short, about four and a half ( $4\frac{1}{2}$ ) feet and each stalk had at least two ears and some as many as four. Several people commented on the sweetness of this variety. It's freezing quality is good.

The Woodruff's New Earligold variety was about two weeks later than the above variety. The first mature corn was picked about September 8. This corn was just coming on good when the frost killed it on September 12. This variety had larger and longer ears than the F.M. Golden Cross. The stalks were much higher, about six (6) feet tall. The quality of the corn was good and it also froze very well.

The Victory Golden variety just started to mature at frost. Hardly any mature ears were harvested. The stalk was tall, about six (6) feet.

The Iona variety also was killed by frost before it hardly matured an ear. The stalk was about five (5) feet tall.

The Iochief was killed also by frost before it matured any ears. It's stalk was about five (5) feet tall.

In briefly summarizing this demonstration it would appear that most of these varieties would mature under normal conditions. The extra heavy and late summer rains this year delayed maturity in all crops about two to three weeks.

## C. Home Gardening -

### 1. Insect Control

The spring and summer of 1952 was an exceptional bad year for garden and flower insects. The heavy snows in the winter gave an excess amount of moisture in the spring and the heavy late long summer rains made an ideal warm humid condition for insect reproduction.

The cut worms were very common from early spring into mid-summer. Vegetables and flowers were both attacked by this insect.

The Agent recommended the use of DDT-Sulphur dust on the soil which worked very well.

Leaf hoppers which are always present caused some damage this year. They were especially numerous and did not tend to decrease after summer rains started. The use of DDT-Sulphur dust was also recommended on this insect and it gave excellent results.

Aphids were especially damaging this year. The humid weather made ideal conditions for this insect to reproduce. Most every type of vegetable and flower was infested with the aphid. The Black-Leaf 40 with household ammonia gave good results in most cases. One and one-half ( $1\frac{1}{2}$ ) teaspoons of each to one gallon of warm water was recommended.

#### D. Home Landscaping -

The County Agent throughout 1952 had a great number of inquiries on landscaping of new homes. The Agent's radio broadcasts and news articles which often discussed this work evidently stimulated interest in this work.

The three mimeographed circulars on trees, shrubs and flowers that were written in 1951 by this Agent and Mr. Harvey Tate, Extension Horticulturist, were given to hundreds of people. These circulars discuss plants that will grow in this high elevation.

Lawns was also a very popular project in 1952. More people are realizing that lawns need much care in order to furnish a good green turf all summer. They are also becoming aware to the fact that only the Kentucky Blue Grass will withstand the severe temperatures this area has each year. The "Lawns For Arizona" bulletin has proven very popular.

Mr. Tate and this Agent visited many homes during the summer to take pictures and data on flowers, trees and shrubs that were growing well in this area. A special survey of this type was made in August during rose blooming period. It is hoped that permanent bulletins on these plants can be written in 1953. A need for these bulletins has been great for many years. The circulars are serving quite well but do not contain all the information that should be placed in a bulletin.

The County Agent spoke to a college class in Flagstaff on home landscaping this year. The Agent also appeared as the main speaker at the Annual Williams Flower Show. The Agent in both instances discussed all phases of home landscaping.

4. Livestock

A. Beef Cattle -

1. Permanent Pastures

The past few years the cattle industry has been very profitable. This has naturally interested many new people into going into the cattle business and also has given the present cattlemen capital to improve their present ranches. The last three years has seen a great increase in establishing permanent pastures. No accurate recommendation could be given as there has never been too much work done on this particular project.

In 1952, this Agent and Mr. Walter Armer, Extension Animal Husbandman, worked with several cattlemen in settling up permanent pasture mixes.

In May this Agent and Mr. Armer, visited the Mike O'Hoco ranch in the southeastern part of Coconino County who had requested assistance on establishing permanent pastures. Mr. O'Hoco requested assistance on determining a suitable permanent pasture for several small homestead areas that lie inside his range.

Two of these areas he had planted Michaels Rye in early spring and had a very good stand. His idea was to plant some grass in with these rye fields to insure a good permanent pasture. It was recommended that he try two or three of the wheat grasses and the smooth brome. The recommendation was that he try intermediate wheat grass and brome in one mixture and crested wheat grass and brome in another mixture. About eight (8) to ten (10) pounds of the wheat grasses and about six (6) pounds of the brome grass for each acre was recommended. It was also recommended he graze the rye off heavily just prior to summer rains in late July and then broadcast this seed. To cover the seed and yet not damage the rye it was suggested to drag a light harrow or even brush over the field. Mr. O'Hoco was cautioned not to plant any large acreages of permanent pastures until a satisfactory mixture had proven itself for his locality.

Mr. Tom Pollock of the Grapevine Canyon Ranch in the southern part of the county requested assistance in preparing a permanent pasture mix for an irrigated area near his headquarters. This place is known as the Morgan Place and has about one-hundred and fifty (150) acres of land that can be irrigated from a small lake that catches the over-flow from Kinnikinick Lake. Mr. Pollock plans to divide this place into three fields and use them as holding pastures for his breeding stock. The Agent consulted Mr. Armer and the following three pasture

mixes were recommended to Mr. Pollock:

1. Orchard Grass - 6 lbs.            )  
    Smooth Brome - 6 lbs.            ) 13-14 lbs. per acre  
    Ladino Clover - 1 to 2 lbs.)
  
2. Alta Fescue - 15 lbs.            )  
    Black Medic - 3 to 4 lbs.) 18-19 lbs. per acre
  
3. Intermediate Wheat Grass - 6 to 8 lbs.)  
    Perennial Rye - 6 to 8 lbs.) 15-20 lbs.  
    Black Medic - 3 to 4 lbs.) per acre

It was also recommended that the planting be done in late July just prior to summer rains. Mr. Pollock did not get the land prepared in time to do this but did plant in September. The moisture condition was exceptionally good and since then good moisture has fallen. Results of these plantings cannot be determined until the summer of 1953.

2. Poisonous Weeds

Poisonous weeds were again very plentiful this year after a very wet winter. Several livestockmen suspected livestock losses were from poisonous weeds. Mr. John O'Hair of the Es Pee Ranch, 30 miles west of Red Lake had cattle losses last year and also some this spring. He asked if we could assist in helping determine the cause of these losses. He suspected poisonous weeds. Mr. Walter Armer, Extension Animal Husbandryman, and this Agent spent one day this month on the Es Pee Ranch surveying the poisonous weeds. Many miles were covered on the ranch and several suspicious weeds were collected to be identified. Some barestem larkspur, loco and lupine was found but hardly enough to become suspicious. One plant that was found in the area where three animals had died was identified as golden corydales and Dr. W. Pistor stated it has and will cause death to livestock. This plant was fairly common around the water tanks and had been reported by other cattlemen in that area as very common this year.

The County Agent collected more poisonous weeds in 1952 to add to the mounted collection in his office. This collection helped many cattlemen in 1952 to identify weeds in their areas and also educated them into being able to identify many of the poisonous weeds.

B. Sheep

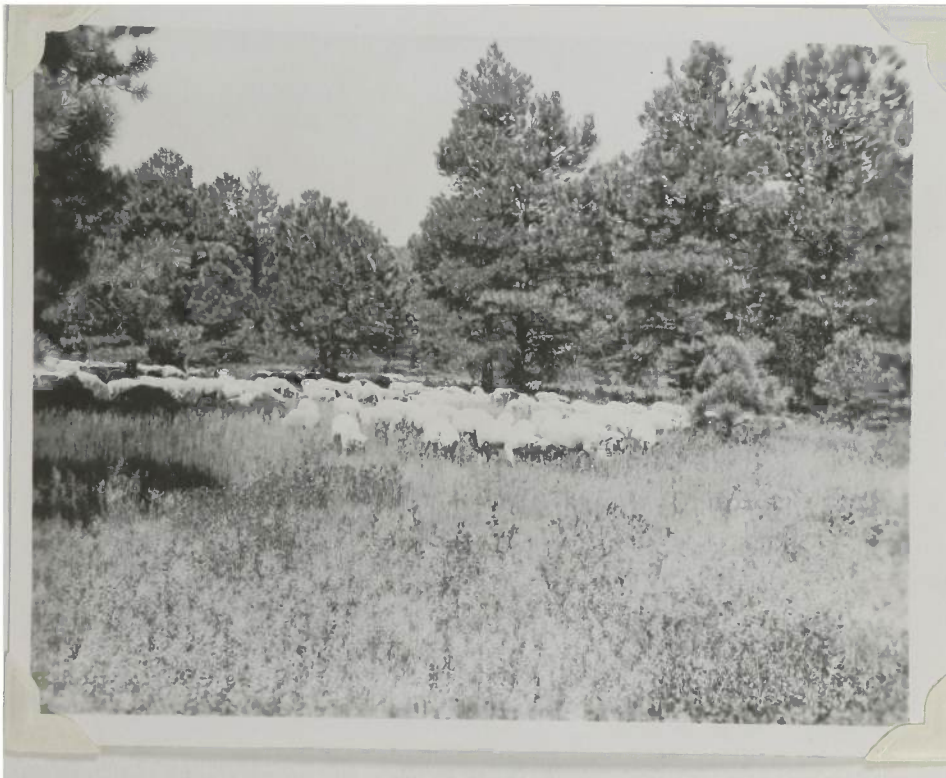
1. Poisonous and Noxious Weeds

The heavy winter snows and rains caused an excessive growth of all grasses and weeds in 1952. Sheepmen driving their flocks

from the lower elevations to the higher country encountered a new menace this year. The foxtail, which is a noxious grass, was very heavy this year. This grass is found in the lower elevations. As the sheep were coming through this area the awnes on this grass were dry and they covered the sheep. These awnes work their way toward the skin. The faces and chest of these sheep became covered with these awnes and in many cases penetrated to the skin where they pierced the skin and caused an infection. This caused the sheep to lose weight, become very nervous and not eat. The County Agent was consulted on this and he contacted Dr. W. J. Pistor, of the Animal Pathology Department, at the University of Arizona. It was recommended the herders shear the faces of the sheep and the brisket area if necessary. It was not recommended to shear the entire body as the sheep would soon be in the six-weeks grass area and their awnes are more serious in short wool than long wool. Some animals were lost but most of them came out with only losing weight.

Poisonous weeds did not cause too much trouble this year in Coconino County to the sheep industry. One sheepman, Mr. Bert Babbitt, was very observative all year and brought many plants to this office for identification, none of which proved to be poisonous. Mr. Babbitt lost quite a number of sheep in 1951 because of poisonous weeds.

The picture below and the one on page 26 shows the large amount of grass and weeds the sheep grazed in around the Mormon Lake area.





7. Agronomy

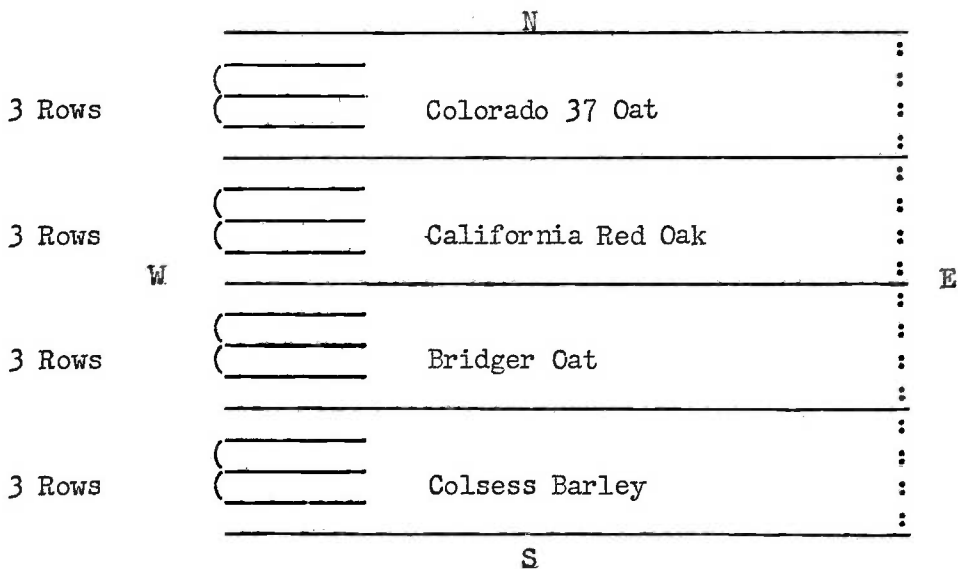
A. Small Grains -

1. Small Grain Nursery

A small grain nursery has been planted for many years in Coconino County. There is a need to find new varieties of small grains that will equal or surpass the present varieties. In 1951 the results were very poor because of the growth conditions and the farmers requested we continue this work in 1952.

Twelve small grain varieties were planted on the County Farm north of Flagstaff on May 21 by this Agent. A new planting procedure was used this year because the method used in 1951, which was with the Planter Jr., failed to place the seed in soil moisture and poor stands resulted. This year the grain was planted with a regular twelve (12) foot grain drill. The Agent fixed the drill so that the first two spouts were closed and the next three spouts were open, next two closed, next three open, etc. A different grain variety was planted through each of the three open spouts. The three rows of each variety was planted through the entire field. This made the twelve varieties planted the length of the field, about one-thousand (1,000) feet, with a two spout spacing between each variety. By planting this way the seed was put into the soil moisture the correct way and the variations of soil and topography can be considered when final inspection and seed yield is made.

The following is the diagram of the small grain planting:





Bridger Oats - Crop has exceptionally heavy stem and leaf. Heads are large. Maturing satisfactory.

Colsess Barley - Crop is maturing well but because of being a beardless variety birds are severely damaging the heads.

Markton Oats - Crop is maturing well. Heads are large. Stalks are smaller than Bridger, Colorado 37 or Bannock.

Beecher Barley - Crop mature in late August. Heads are large but stalks fairly short.

Trebi Barley - Crop mature in late August. Heads and stalk large. Appears to be excellent yield.

Reward Wheat - Crop maturing satisfactory. This is also beardless variety and birds are severely damaging the head.

Baart Wheat - Crop maturing satisfactory. Heads and stalk fine. Yield appears to be good.

Bannock Oat - Crop maturing satisfactory. Large heads and good stem and leaf.

Kubanka Wheat - Crop maturing satisfactory. Is latest variety of wheat. Very tall, about four (4) feet. Large head.

The nursery was harvested on September 24, by this Agent and Mr. Charles Ellwood, Extension Agronomist. Twenty-four feet of the center row of each variety was harvested in three different locations. This made twelve square feet in each replication and thirty-six square feet for each variety or .0008264 acres. Three varieties were not harvested. The California Red Oats was not mature. The Colsess barley and Reward wheat were completely destroyed by birds. The yields on the remaining eight varieties were as follows:

<u>Grain Variety</u>	<u>Yield Per Acre</u>
Bridger Oat	3,460 lbs.
Colorado 37 Oat	2,773 "
Bannock Oat	2,052 "
Markton Oat	1,851 "
Kubanka Wheat	1,931 "
Baart Wheat	1,186 "
Trebi Barley	4,327 "
Beecher Barley	2,011 "

## 2. Weed Control

Weed control has been a serious threat to farmers for many years. When 2,4-D was first put on the market it appeared this weedicide was the answer to control wild morning glory, which is the most serious, and many other annual weeds. After several years of using this, it has been found the control is not satisfactory and the wild morning glory continues to spread.

The Fredonia area in 1952 asked the County Agent for assistance in eradicating the wild morning glory and also hoary cress, another weed equally as serious. They had been using 2,4-D but did not secure satisfactory results. This Agent secured information about carbon bisulphide that has been used in California to control both of these weeds. The Fredonia area purchased a fifty-five (55) gallon drum of this liquid and a pressure gun to inject it into the soil. A demonstration plot was set up in a field completely covered with hoary cress and wild morning glory. An excellent kill resulted on all weeds on this plot. By the end of summer no further weeds had begun to grow. This plot will be checked again in the spring of 1953. It is hoped this will solve their problem. Its application, however, is a very hard job and takes considerable time. This one factor may prove to be its greatest disadvantage.

Another demonstration plot using borascu, a product of the Pacific Coast Borax Company, was used in the Fredonia area. Two (2), one-hundred (100) feet square plots were marked and this granular mixture was spread at a rate of ten (10) pounds per one-hundred (100) feet square on one plot and twelve (12) pounds per one-hundred (100) feet square on the second plot. Water was then applied to these plots to dissolve this into the soil. By the end of summer very little kill could be noticed but it will be next spring before conclusive results can be made.

In November another demonstration plot was set up using Polybor-chlorate, a product of the Pacific Coast Borax Company. This demonstration was put on the Scholz ranch in Garland Prairie. Wild morning glory is the weed that is being treated. The plots were ten (10) feet square. Four (4) plots were treated with Polybor-chlorate, one with sodium-chlorate and one was a check. The Polybor-chlorate was put on in form of a spray while the sodium-chlorate was put on dry. Plots one, two, four and five received three (3), four (4), five (5) and six (6) pounds of Polybor-chlorate, respectively. Plot six received two (2) pounds of sodium-chlorate and plot three is a check. Results of this will not be known until next summer. Further demonstrations will be set up next spring and summer.

Some farmers sprayed their winter and spring wheat with 2,4-D to check the weed growth this year. Good results were secured. Many farmers still sprayed wild morning glory with 2,4-D in the ester form but only a temporary kill was secured in most cases. Most farmers now conclude 2,4-D is not the answer to eradication of wild morning glory but it does check the weed enough to let the crops get ahead and then it keeps the weed shaded down.

### 3. Insect Control

Crop insects were more damaging this year than they have been in the past few years. The stink bug was very common and caused considerable damage. The wheat crop in Fredonia was completely destroyed by the stink bug. Growers did not have the equipment to spray the insect and almost every kernel of wheat was pierced by this insect.

The lygus insect was also quite damaging in the Fredonia area. Alfalfa fields that were going to produce seed were checked by this Agent and Dr. J. N. Roney, Extension Entomologist, in July. Very heavy lygus populations were found in most all alfalfa fields. It was found the growers were not using a strong enough concentration of toxephene. Correct recommendations were given the growers and control was satisfactory the rest of the summer.

A grasshopper infestation of the Doney-Blackbill Park areas started in July. Aldrin was recommended and was used; one-half (1/2) pint of the concentrate which would contain two (2) ounces of the actual aldrin, to six (6) to eight (8) gallons of water. It was sprayed at a rate of six (6) to eight (8) gallons per acre. A very poor kill resulted from this treatment. The amount was then increased to one (1) pint to six (6) to eight (8) gallons of water and a better kill resulted but not like it was anticipated. Dr. Roney then visited the area and upon his return to his office had several gallons of aldrin sent to this office for experimental purposes. This aldrin was put on under the supervision of the County Agent. Some was used at one (1) pint to six (6) to eight (8) gallons of water and it still gave only a fair kill. The remaining aldrin was mixed with wheat bran and scattered in the fields as a poison bait.

The mixture was one (1) quart of the aldrin to each one-hundred (100) pounds of bran. No sawdust was recommended. This gave excellent kill. Sawdust and bran of equal parts was used in one mix and this too gave a good kill. The farmers were still reluctant in buying aldrin and expressed desire to purchase or locate sodium florosilicate. This Agent informed them this poison was now unavailable and all had been shipped out of Arizona. This information had been

given this Agent by Dr. J. N. Roney in a telephone conversation. The farmers were still hesitant in going ahead and using aldrin. At the end of July the grasshoppers were increasing and it appeared a heavy infestation was only days away.

A severe grasshopper infestation occurred the first part of August that required immediate control measures. The County Agent contacted Mr. Tom Schmitt, Grasshopper Control Supervisor for the U. S. Bureau of Entomology, of Phoenix, and was informed that a sizeable amount of sodium florosilicate and bran was stored in Apache County and that the local farmers could have this poison by going after it. The Agent then contacted Dave Rogers, County Agent of Apache County, and found out the exact location of this material. Four local farmers immediately secured this material. On Tuesday and Wednesday, August 5 and 6, this bait was mixed and spread over about five-thousand (5,000) acres in the Blackbill and Doney Park areas. The County Agent was asked to supervise the mixing and spreading of this poison bait which he did. The grasshoppers were mostly large adults and were quite difficult to control. About a 45-50% kill was all that resulted from this poisoning. By reducing the grasshopper population by this much, however, it seemed to reduce their damaging of crops to a minimum. There will be further work continued on this project next spring because it is quite sure another infestation will occur because of the late control on this year's grasshoppers.

The picture below shows the damage the grasshoppers did to the Charlie Adams oat field in Blackbill Park. This was a perfect stand of oats about two feet high when the hoppers hit.



#### 4. Summer Fallowing

The past three years this Agent has been encouraging farmers to practice summer fallowing. It is believed this is one practice that will build the soil up in this area.

Oscar Ryberg of Garland Prairie agreed to summer fallow some of his land in 1950 with the County Agent supervising the work. One field consisting of about twenty-five (25) acres was fallowed after the winter wheat crop was removed in July of 1950. This field was left fallow the remainder of 1950 and until September of 1951 when it was planted to winter wheat. An adjoining field was replanted to winter wheat in the fall of 1950 and also the fall of 1951. A third field was worked for the first time in the fall of 1951 and planted to winter wheat. The results of this demonstration were remarkable.

The picture to the right shows what the crop of winter wheat looked like just before harvest in July on the cropped soil. The next picture shows the same crop on the summer fallowed soil. The third picture shows the same crop on the virgin soil. The yields were 2,000 lbs. per acre on the virgin soil, 1,800 lbs. on the fallowed soil, and 1,000 lbs. on the cropped soil. This definitely shows that summer fallowing will justify itself in this area.





## 5. Pure Seed Growing

A good source of small grain seed is becoming more difficult each year for the farmers in this area. Most seed that has been grown locally has not shown good germination because of the very poor crop years the past few seasons. Many farmers have been getting seed from Colorado but freight rates are so high it makes the price of seed very high by the time it is delivered to Flagstaff. The Agent has been trying to get some farmers to grow seed under the Arizona Crop Improvement Association rules and regulations so good seed may be available. In 1951, Andy Matson planted sixty (60) acres of Colorado 37 Oats under this program but drowth conditions caused the crop to be a failure.

In 1952, two farmers, Andy Matson of Flagstaff and George McNelley of Red Lake, planted oats under the Arizona Crop Improvement Association rules and regulations.

Mr. Matson planted sixty (60) acres of certified Colorado 37 Oats. This seed was purchased from the Farmers Seed and Supply of Durango, Colorado. The Agent secured permission from the association for Mr. Matson to re-certify this seed as no registered seed could be located. This seed was planted in late May and harvested in late September. The grain yielded about two-thousand pounds per acre and was stored in a grain bin until next spring. A germination and purity test will be made of the seed this winter and if it passes, tags will be made to place on the grain next spring when Mr. Matson will reclean and sack the grain. It is Mr. Matson's intention to continue to grow pure seed every year.

Mr. George McNelley of Red Lake area which is north and east of Williams, planted fifty (50) acres of Colorado 37 Oats and one-hundred and fifty (150) acres of Markton Oats. The Colorado 37 Oats was secured from the same source as Mr. Matson's, and was certified seed. It too would be re-certified if it passed germination and purity tests. The Markton Oat seed was secured from the Quick Seed and Feed Company of Phoenix, Arizona, and was registered seed. Both of Mr. McNelley's crops were planted in early May and harvested in late September. The Colorado 37 grain was hit by a hail storm when the grain was in head and this shattered a considerable amount of the grain. Only about one-thousand and two-hundred (1,200) pounds per acre was threshed from this variety. It is stored in a bin for the winter and if the seed passes germination and purity tests the seed will be recleaned and sacked next spring. The Markton Oats also yield quite low. Rains were late and the grain did not stool out. About one-thousand (1,000) pounds per acre was threshed and stored for the winter. Germination and purity tests will be made this winter on this grain and if it passes, the seed will be recleaned and sacked next spring.

B. Pinto Beans -

1. Variety Tests

The plant pathology department at the University of Arizona has been working on blight resistant bean varieties for several years. This year Dr. Paul D. Keener of this department furnished this Agent with a small sample of seven of the bean varieties. They were planted on June 9, on the Russell and Ike Fleming farm. They were planted with a regular four-row field planter. A very good stand of all varieties was secured by the end of the month. The varieties planted were as follows:

		E		
		:Terrace	:	
		:	:	
	1.	:Red Mexican, UI 34, Certified Seed 1951	:	
		:	:	
	2.	:Pinto, UI 73, Twin Falls 1951	:	
		:	:	
	3.	:Red Mexican, UI 3, Foundation, Twin Falls 1951	:	
N		:	:	S
	4.	:Pinto, UI 111, Certified Seed 1951	:	
		:	:	
	5.	:Great Northern, UI 31, 1951	:	
		:	:	
	6.	:Pinto, UI F8, Certified Seed 1951	:	
		:	:	
	7.	:Great Northern, UI 16, 1951	:	

W

These varieties were hand pulled by the Agent in October and stacked in the field for curing. The beans were then packed into burlap bags to be sent to the University of Arizona for threshing this winter. The two Red Mexican varieties were lost but the others appeared to yield good. These varieties will again be planted next summer on a larger scale. It is hoped a variety can be established that will be suitable for this area.

This Agent located three-thousand six-hundred (3,600) pounds of certified Idaho 111 pinto beans this spring in Colorado for three farmers who agreed to plant this variety for demonstration purposes. Mr. Mark Ferrell planted three-thousand (3,000) pounds or about one-hundred (100) acres; Mr. U. S. Crisp planted five-hundred (500) pounds or about twenty (20) acres; and Mr. P. E. Butler planted one-hundred (100) pounds or about five (5) acres. This bean is about ten days earlier than the Colorado pinto that is planted here. Excellent

stands were secured by all farmers. The beans were checked all season by the Agent and cooperators and it was found that they did not bush out as much as the regular Colorado pinto but appeared to set as many beans. Beans were ready for cutting by late August but rains prevented cutting until the first few days of September. The beans were in shocks and curing when the killing frost hit September 12 and 13. The beans were sufficiently dry and did not suffer from frost. None of the Colorado pinto beans had been cut and suffered tremendously. The Idaho lll beans were threshed in October and yield about one-thousand and two-hundred (1,200) to one-thousand and three-hundred (1,300) pounds per acre. None of these beans had any frost damage. Mr. Mark Ferrell secured one-hundred and thirty-thousand (130,000) pounds of seed from his one-hundred (100) acres but lost the entire crop in a fire the last of October. Mr. Crisp secured twenty-four thousand (24,000) pounds from his twenty (20) acres and will have this seed to replant and sell next spring. Mr. Butler secured five-thousand (5,000) pounds from his five (5) acres and will have this seed for replanting in 1953.

After the disastrous frost on September 12 and 13, many farmers expressed their willingness to plant part of their bean crop in 1953 in the early Idaho lll. The Agent has been trying to convince the farmers this would be a good practice but until this year most farmers planted their own bean seed.

## 2. Commercial Fertilizing

Commercial fertilizing of pinto beans was first discussed to the farmers by this Agent in 1949. In 1950 some work was done on this project. The equipment for applying the fertilizer was not satisfactory and also the severe drowth conditions gave us no results that could be taken as conclusive. In 1951, Mr. P. E. Butler of Doney Park fertilized some of his beans and got fair results. It appeared commercial fertilizer did have a place in this area and more work on this project was recommended by the farmers.

In 1952, the County Agent arranged for a result demonstration on commercial fertilizers on the P. E. Butler farm on pinto beans. Mr. Butler was going to fertilize some of his beans anyway and agreed to set up demonstration plots using different kinds and amounts of fertilizer. Mr. Butler was going to use ammonium phosphate (16-20-0) and the Agent secured two-hundred (200) pounds of 10-20-10 which included minor elements. The fertilizer was to be applied with a regular fertilizer attachment Mr. Butler owned. The following is a chart showing the different amounts applied and how check rows were set:

		W		
8 Rows	:	16-20-0 at 45 pounds per acre	:	
8 Rows	:	Check	:	
8 Rows	:	10-20-10 at 150 pounds per acre	:	N
8 Rows	:	Check	:	
8 Rows	:	10-20-10 at 200 pounds per acre	:	
8 Rows	:	Check	:	
		E		

The beans were planted and fertilized on June 10. An excellent stand was secured. Rainfall in early July was heavy and response was soon noted. By late July a very pronounced difference could be seen on the fertilized rows. The forty-five (45) pound application of 16-20-0 showed equally as well as the one-hundred and fifty (150) and two-hundred (200) pound application of 10-20-10. The picture below and the one at top of page 39 definitely show the more greenish color and large plant on the fertilized rows over the check rows.





When the beans began to set on the bush a difference began to show on the three plots. The forty-five (45) pound and one-hundred and fifty (150) pound application rows set beans sooner and they were maturing faster. The two-hundred (200) pound application rows were still showing greater growth but not setting beans as soon. By early September the two-hundred (200) pound application rows had far more beans than either the one-hundred and fifty (150) pound or forty-five (45) pound application rows but they were not as mature. The same was true on the one-hundred and fifty (150) pound application rows over the forty-five (45) pound application rows. On September 9, 10, and 11, severe winds almost completely defoliated all the beans and then the killing frost on September 12 and 13, killed all growth and severely damaged all the beans. These plots were cut and threshed, although about 50% or more of the seed was damaged by frost. The following are the results:

<u>Fertilizer</u>	<u>Application Per Acre</u>	<u>Yield Per Acre</u>
16-20-0	45 lbs.	1013 lbs.
10-20-10 + minor elements	150 lbs.	1093 lbs.
10-20-10 + minor elements	200 lbs.	1000 lbs.
Check		840 lbs.

No conclusion could be arrived at from this demonstration. It does show that commercial fertilizers will increase the yields. It shows that perhaps a forty-five (45) pound application would be as good as a one-hundred and fifty (150) or two-hundred (200) pound application which is not usually the case in most commercial fertilizer work. This work will be continued in 1953 to see if a definite kind and rate of application of commercial fertilizers can be arrived at for pinto beans.

### C. Field Corn

Requests were made to this office last fall for a recommended variety of field corn suitable for ensilage. Most field corns do quite well in this high altitude but the plants do not grow to any height, therefore, very little ensilage per acre can be cut.

John L. Peppard, Jr., co-owner of Peppard Seed Company of Kansas City, came by this office shortly after this request for ensilage corn. Mr. Peppard suggested two hybrid varieties, G-53 and G-91 as good possibilities for this elevation. One bushel of G-53 and about eighteen (18) pounds of G-91 were sent to this office for demonstration purposes. In addition several other hybrid varieties were sent in small amounts for trial plantings.

Mr. George McNelly of Red Lake, planted the most of the G-53 variety and also the G-91. Soil moisture was very good in this area and the corn was planted the week of May 5th.

Mr. Willie Scholz of Garland Prairie, planted varieties G-50 and G-77. This was planted in the latter part of May.

Mr. U. S. Crisp of Doney Park, planted varieties G-50; G-77A; G-16A; G-16A; G-99; G-79; G-95 and G-91. This was all planted the latter part of May and planted in cinder type soil.

This Agent planted five (5) hybrid varieties on the County Farm north of Flagstaff. This was planted on May 26 by a two-row planter attached on a tractor. The rows are about one-thousand (1,000) feet long. The remainder of the field was planted with G-114R, that



Friday night. It was impossible to get any weight figures under these circumstances. It appeared however, that under normal conditions all of these varieties would have matured enough for silage in this area. This particular area does have a good heavy soil and a little more rainfall than the other areas.

The other varieties, G-50, G-77, G-77A, G-1GA, and G-16A, all were killed by the frost on September 12 and 13 before the farmers had a chance to harvest them. These varieties were grown on cinder soils. They all reached a good height but failed to mature enough for silage when the frost killed them. The ears of none of these varieties set any amount of kernels. In the same fields Lawson's White Dent did set good ears and matured seed. From this it appears that the hybrids would not be recommended for cinder soils.

Briefly summarizing all these varieties it appears most of them would be satisfactory for silage if planted in a good soil and if we had normal summer rains. If they are planted in any areas where the soil is not too good or where there is likely to be need for moisture during the summer it appears they are likely not to mature enough for silage before frosts and that varieties such as Lawson's White Dent, Minnesota 13 and Lemki's are better varieties to insure a good crop for silage.

8. Irrigation -

A. Irrigation Practices

There is very little land in the county that is irrigated. The largest area is the Fredonia district that irrigates its one-thousand and two-hundred (1,200) acres from Kanab Creek.

The Agent spent some time with the farmers in Fredonia this year. Their present irrigation system isn't at all satisfactory. Their dam across Kanab Creek is almost completely filled with silt, much of the water is seeping around their present dam, and their ditches are not laid out to give them the most efficient use of their water. The area was looked over and plans are now made to run the main ditch from their dam a different direction. This will make it possible to irrigate more land that has not been irrigated because the present ditch runs uphill to this land. Plans are also made to improve their present dam site so more water can be secured the year around rather than having it all during summer rains.

Mr. James Middleton, Extension Irrigation Specialist, and this Agent worked with the Fredonia farmers also on water penetration problems. Mr. Middleton gave a demonstration on water penetration on various types of soil at an evening community meeting. A soil tube was used in the fields to see how far the farmers were getting the water into their soils. The penetration varied from six inches to four feet which was a great surprise to most farmers. Methods of securing a deeper penetration of water in the soils were outlined for the farmers.

11. Soils -

A. Soil Management

A good soil management program in this county is very essential if the farmers are to receive a profitable return from their lands. This Agent since 1949 has tried to get some kind of a soil program working. Each year more farmers are beginning to practice this Agent's recommendations.

In the early part of 1952 this Agent sent a circular letter out to all farmers in this county discussing the soil problem of this county. The letter discussed the use of commercial fertilizers, new equipment and summer fallowing. Many farmers followed one or more of these recommendations during 1952.

Mr. Howard R. Ray, Extension Soil Specialist, worked very closely with this Agent during 1952. Some time was spent in Fredonia. Mr. Ray gave a demonstration in Fredonia to a community meeting on the different types of soil and how organic matter would influence the soil in its water holding capacity. Many soil samples were taken in the Fredonia area and the rest of the county. Each of these sample analyses was carefully studied and the Agent sent letters with the analysis explaining its interpretation and in many cases gave recommendations how to correct deficient soil food conditions.

Many farmers set a small acreage aside and summer fallowed it as suggested in the circular letter sent out by this Agent. The results of these fallowed lands will not be known until 1953. This Agent and the Soil Specialist will continue to try and get a suitable soil program working in this county.

12. Rural Sociology -

A. Farm Safety and Fire Prevention

Farm safety and fire prevention is encouraged through this office the entire year. The Agent uses his weekly radio program and newspaper articles to bring these subjects before the people. National Farm Safety Week and National Fire Prevention Week were both observed by this office in sending out special circular letters to everyone on the mailing list. The radio programs and news articles for those particular weeks were given entirely to that subject. Different posters are displayed the entire year in the County Agent's office on these two subjects. The Agent will continue to stress these two safety programs hoping to be able to reduce the great property damage and loss of life that the farmers suffer each year.

ANNUAL  
DONEY--BLACKBILL COMMUNITY  
PROGRAM PLANNING MEETING  
AUGUST 18, 1952

1952 RECOMMENDATIONS AND ACCOMPLISHMENTS

AGRICULTURAL EXTENSION SERVICE

COCONINO COUNTY

William M. Brechan, County Agricultural Agent  
Lucinda E. Hughes, Home Demonstration Agent

## F O R W A R D

On October 11, 1951, the Agricultural Extension Service held their 3rd Annual Program Planning Meeting in the Blackbill-Doney Park Community. Program Planning is a system, whereby, the rural people present their problems to the Extension Service in order of importance. We of the Extension Service then work on these specific problems or projects. The Extension Service believes this is the most efficient way for their personnel to serve you.

We of the Extension Service wish to acknowledge the fine cooperation given us by all of you and especially the following organizations in helping make our first three years of Program Planning a success: San Francisco Peaks Local Farm Bureau; San Francisco Peaks Soil Conservation District Supervisors; Cinder-Hill Homemakers; Cinder-Hill-Billies 4-H Club; and the Doney Park Improvement Association.

We are looking forward to working with you in 1953 on your problems.

*Lucinda E. Hughes*

Lucinda E. Hughes  
Home Demonstration Agent

*William M. Brechan*

William M. Brechan  
County Agricultural Agent

The following is a very brief summary of the accomplishments made on your problems presented to us in October, 1951.

#### INFORMATION ON TAILORING DRAPES

Progress Bulletins were sent by H D A to those requesting assistance.

#### UPHOLSTERING AND CLEANING OF RUGS

Progress Special interest classes in upholstering were conducted. Ten women participated and each upholstered a chair. No rug cleaning work was done.

#### INFORMATION ON LAMP SHADES

Progress No work done on this project.

#### DRY CLEANING METHODS

Progress No work done on this project.

#### CLEANING OF PYREX UTENCILS

Progress No work done on this project.

#### BREAD MAKING

Progress Two demonstrations given. One on bread making and one on fancy rolls. Results were highly satisfactory.

#### HIGH ALTITUDE IRRIGATION

Progress The County Agent and Extension Irrigation Specialist met with the person requesting this information and worked out his problem satisfactorily.

#### PERMANENT PASTURES FOR CINDER SOILS

Progress Several permanent pasture mixtures were recommended and results are still doubtful but look promising.

#### CERTIFIED PINTO BEAN SEED

Progress The County Agent located certified seed and 3,600 pounds were planted by three farmers.

#### CERTIFIED GRAIN SEED

Progress The County Agent located certified grain seed and about 300 acres of grain is being grown under the Arizona Crop Improvement Association rules this summer.

#### GRASSHOPPER CONTROL

Progress The County Agent and Extension Entomologist recommended the latest insecticides to use and secured several gallons of Aldrin for experimental use. The County Agent also located a sizeable amount of bran and poison that the farmers received free of charge. The County Agent helped supervise and spread some of this poison in Doney Park.

#### RODENT CONTROL

Progress The public has been kept informed on latest recommendations on rodent control by letter, newspaper, radio and personal contact.

#### MOISTURE RETENTION

Progress No additional information was found on this project.

#### CHANGES IN THE COUNTY FAIR

Progress A countywide meeting in the spring of 1952 was called. A later fair date was set and three new departments -- Poultry, rabbits and beef were added to the premium books for 1952.

#### VARIETY TESTING OF PINTO BEANS

Progress Idaho 111 and New Mexico 295 are being grown on a large scale basis this summer. Seven other varieties are being grown on small scale basis.

#### FERTILIZER TESTS ON PINTO BEANS

Progress Different kinds and amounts of commercial fertilizers are being used this year by the County Agent on acre plots of pinto beans.

INFORMATION ON MIXING YOUR OWN COMMERCIAL FERTILIZERS

Progress This information was given by the County Agent to farmers requesting such information.

LABOR SHORTAGE

Progress The County Agent and State Employment Service met twice since October, 1951. A maximum amount of Indian labor will be secured if farmers will cooperate in notifying the Employment Service in advance of their labor needs.

On behalf of the Extension Service, we would like to express our appreciation to everyone who has given their cooperation in making this new type of work successful in Coconino County. We will welcome your suggestions or criticisms on this work at anytime.

Very truly yours,

*Lucinda E. Hughes*  
Lucinda E. Hughes  
Home Demonstration Agent

*William M. Brechan*  
William M. Brechan  
County Agricultural Agent

ANNUAL  
PARKS--WILLIAMS COMMUNITY  
PROGRAM PLANNING MEETING  
AUGUST 19, 1952

1952 RECOMMENDATIONS AND ACCOMPLISHMENTS

AGRICULTURAL EXTENSION SERVICE  
COCONINO COUNTY

William M. Brechan, County Agricultural Agent  
Lucinda E. Hughes, Home Demonstration Agent

## F O R W A R D

On October 10, 1951, the Agricultural Extension Service initiated Program Planning in the Parks-Williams Community. Program Planning is a system, whereby, the rural people present their problems to the Extension Service in order of importance. We of the Extension Service then work on these specific problems or projects. The Extension Service believes this is the most efficient way for their personnel to serve you.

The first year of this new phase of work has proven very interesting and we believe very practical. We believe all the projects recommended by your group have been worked on to the best of our ability and in most cases satisfactory results were achieved.

We of the Extension Service wish to acknowledge the fine cooperation given us by all of you and especially the following organizations: Parks Local Farm Bureau; Sitgreaves Soil Conservation District Supervisors; Maverick 4-H Club and the Parks C B A.

We are looking forward to working with you in 1953 on your problems.

*Lucinda E. Hughes*

Lucinda E. Hughes  
Home Demonstration Agent

*William M. Brechan*

William M. Brechan  
County Agricultural Agent

The following is a very brief summary of the accomplishments made on your problems presented to us in October, 1951.

#### HYBRID CORN VARIETIES

Progress The County Agent secured several varieties of hybrid corn seed that was planted in 1952.

#### SUMMER FALLOW

Progress The County Agent, by circular letter asked all farmers to leave some of their land fallow this summer. A few farmers did. Results of other fallow work will be shown to you tonight.

#### GRAIN VARIETIES

Progress A small grain nursery was planted by the County Agent this summer.

#### GRAIN FERTILIZER TESTS

Progress No commercial fertilizers used this year because of insufficient equipment to apply fertilizers.

#### BINDWEED ERADICATION

Progress County Agent secured latest and most satisfactory practices for bindweed eradication. Some experimental plots will be set out this fall and next spring.

#### WOMEN'S ORGANIZATION

Progress Personal contact was made by H D A with several women in regard to this organization but so far no concrete results have been obtained.

#### GREEN MANURE PRACTICE

Progress County Agent contacted some farmers on this but no results have been obtained.

#### TYPES OF TILLEAGE AND SEEDBED PREPARATION

Progress Several farmers were personally contacted by the County Agent on this project.

SOIL SAMPLING

Progress Very little work was done on this project  
by the County Agent.

Very truly yours,

*Lucinda E. Hughes*

Lucinda E. Hughes  
Home Demonstration Agent

*William M. Brechan*

William M. Brechan  
County Agricultural Agent

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

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

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK



Dear Friend:

The Cinder-Hill Homemaker's Club and San Francisco Peaks Local Farm Bureau are sponsoring our 4th Annual Agricultural Extension Program Planning Meeting this year. The meeting will be held on Monday, August 18, at the Doney Park Community Building. We hope all of you, yes, the whole family, will come out to this meeting.

This is your chance to voice your opinion on the Extension Service in your county and also to tell us what particular projects you would like us to work on during the next year.

Miss Hughes and I have a number of colored slides to show you on some of the work we have done the past year. I know these will interest you.

The best news is always saved for the end. There will be a potluck supper served before the meeting. We start eating at 6:30 SHARP!



Won't you come out and have an enjoyable evening with us?

Sincerely yours,

*Lucinda E. Hughes*  
Lucinda E. Hughes  
Home Demonstration Agent

*William M. Brechan*  
William M. Brechan  
County Agricultural Agent

LEH:WMB:arg



DON'T MISS IT!

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA  
—  
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COLLEGE OF AGRICULTURE  
U. S. DEPARTMENT OF AGRICULTURE  
AND COCONINO COUNTY COOPERATING

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK



Dear Friend:

The Parks Local Farm Bureau is sponsoring our 2nd Annual Agricultural Extension Program Planning Meeting next Tuesday evening, August 19, at 8:00 o'clock. The meeting will be held at the Parks School Auditorium.

We hope all of you, yes, the whole family, will attend. Miss Hughes and I have some interesting color slides of some of our work we have been doing the past year that we know you will enjoy. We will also have a report on the projects you listed for us at your last meeting, of which we have worked on during 1951-52.

Remember, this meeting is like an election, it is your opportunity to tell us of the Extension Service what you would like us to especially work on during the coming year.

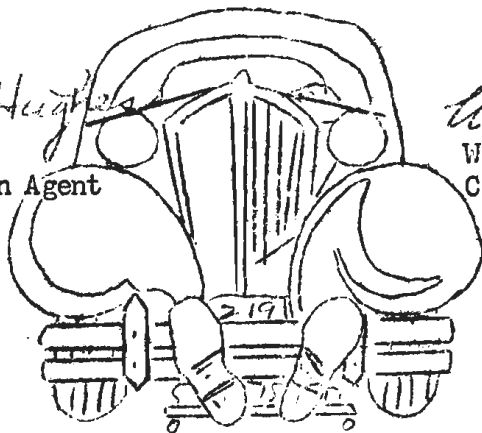
Won't you come out and have an enjoyable evening with us?

Sincerely yours,

*Lucinda E. Hughes*  
Lucinda E. Hughes  
Home Demonstration Agent

LEH:VMB:arg

*William M. Brechan*  
William M. Brechan  
County Agricultural Agent



NO MATTER WHERE YOU ARE  
COME TO THE MEETING —

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA  
—  
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COLLEGE OF AGRICULTURE  
U. S. DEPARTMENT OF AGRICULTURE  
AND COCONINO COUNTY COOPERATING

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK

August 29, 1952

Dear Friends:

On Monday evening, August 18, your 4th Annual Agricultural Extension Program Planning meeting was held in the Doney Park Community Building.

We can truthfully say that this is the largest group meeting we have ever had the pleasure of attending in your community. We are very grateful for your splendid cooperation.

We owe a special thanks to the San Francisco Peaks Local Farm Bureau and Cinder-Hills Homemaker's Club for sponsoring this meeting and serving such a grand potluck supper prior to the business meeting.

You will find attached to this letter, the projects you listed with us for your Extension Service to work on in 1952-53. We hope the coming year will be even more successful than 1951-52.

Sincerely yours,

*Lucinda E. Hughes*  
Lucinda E. Hughes  
Home Demonstration Agent

*William M. Brechan*  
William M. Brechan  
County Agricultural Agent

LEH:WMBarg  
Enclosures

The following are the projects you asked us to work on the coming year. A brief comment will be made on each project.

#### HOME ECONOMICS PROJECTS:

1. Dry Cleaning Methods - The H D A will contact you on this in the near future.
2. Hooked Rugs - The H D A will discuss this with the women.
3. Shirt Tailoring - The H D A will discuss this with the women.
4. Tailored Drapes - The H D A will discuss this in the near future.
5. One Dish Dinners - The project will be worked out by H D A in the near future.
6. Children's Garments, Made Over - The H D A will arrange for this project.
7. Slip Covers - This work will be arranged by the H D A

#### AGRICULTURAL PROJECTS:

1. Weed Control - The County Agent will treat some areas this fall and next spring with new chemicals. Also all other latest information will be gathered and applied if practical.
2. Bean and Grain Commercial Fertilizers - The County Agent will continue work on this as the 1952 demonstrations look very good.
3. Egg Marketing - The County Agent will assist in organizing the egg producers in this area.
4. Pinto Bean Variety Testing - This work will continue as results for 1952 look promising.
5. Small Grain Nursery - This work will continue under the same plan as 1952.
6. Permanent Pastures - The County Agent will continue to keep up-to-date on latest information on permanent pastures.
7. Grasshopper Control - The latest recommendations will be made available if an infestation of grasshoppers occurs next spring.
8. Seed Treatment - The County Agent will secure latest information on all types of seed treatment and make it available in early spring.

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA  
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AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK

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Sincerely yours,

*Lucinda E. Hughes*  
Lucinda E. Hughes  
Home Demonstration Agent

*William M. Brechan*  
William M. Brechan  
County Agricultural Agent

LEH:WMBarg  
Enclosures

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA  
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U. S. DEPARTMENT OF AGRICULTURE  
AND COCONINO COUNTY COOPERATING

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK

August 29, 1952

Dear Friends:

The 2nd Annual Agricultural Extension Service Program Planning meeting was held last Tuesday evening at the Parks School. We wish to thank all of you for your splendid attendance and response at this meeting.

We wish to especially thank the Parks Local Farm Bureau for sponsoring this meeting for us. We hope our work in your community will be even more successful this coming year, 1952-53.

You will find attached to this letter a list of projects you asked us to assist you in for the coming year.

Sincerely yours,

*Lucinda E. Hughes*  
Lucinda E. Hughes  
Home Demonstration Agent

*William M. Brechan*  
William M. Brechan  
County Agricultural Agent

LEH:WMB:arg  
Enclosures

The following are the projects you asked your Extension Service to work on in 1952-53.

**HOME ECONOMICS PROJECTS:**

1. Organization of Rural Women - The H D A asked that all women meet on Thursday afternoon, August 28, at 1:30, at the Parks School Auditorium.
2. Upholstery - The H D A will arrange for this project at your meeting on Thursday.

**AGRICULTURAL PROJECTS:**

1. Weed Control - The County Agent will put out some demonstration plots this fall and next spring using new chemicals. All other new practices or chemicals that look practical will be recommended.
2. Summer Fallowing - The latest information on this practice will be made available to all farmers.
3. Commercial Fertilizers of Grains - The County Agent will keep the latest information available to farmers at all times.
4. Poison Weeds - The County Agent will keep the latest information on poisonous weeds available to the farmers and ranchers at all times. A collection of poisonous weeds will be in the Agent's office at all times.

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA  
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AND COCONINO COUNTY COOPERATING

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK

February 20, 1952

Dear Friend:

I am enclosing a new circular on our newest poisonous livestock weed, Hologeton. You have perhaps heard and read of this plant. At the recent Arizona Cattle Grower's Convention in Prescott it was mentioned. I feel that all of you should become familiar with the characteristics of this plant. It has been found in southern Utah but not in Arizona to this date. Be on constant lookout for this plant while you are on your farm or range. If you see a suspicious plant bring it to my office for identification. This plant could become very serious on our ranges so let's prevent this from happening by being thoroughly familiar with this latest poisonous plant.

I have more copies of this circular if you have a friend who did not receive one.

Sincerely yours,



William M. Brechan  
County Agricultural Agent

WMB:arg

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA  
—  
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U. S. DEPARTMENT OF AGRICULTURE  
AND COCONINO COUNTY COOPERATING

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK

January 12, 1952

*Act Now!!*

Dear Friend:

Many of you realize that there is a shortage of good seed grain and it is likely to become more severe by spring. Prices on seed grain have also increased from 10-25% since last fall and is likely to increase still more before planting time this spring.

I would like to urge everyone to realize this and sit down now and figure out what your seed grain needs will be this spring and to locate your grain right now. By doing this you will be assuring yourself of having the grain and most likely in saving yourself quite a sum of money. If you wait until April or May to start locating your grain I am very much afraid you will not find any available.

I will be more than happy to assist you in locating your seed. I now have sources of oat and wheat seed.

May I caution you on one thing. Be sure the seed you buy or plant has had a germination test. I will be glad to run this test for you at my office.

Sincerely yours,

*William M Brechan*

William M. Brechan  
County Agricultural Agent

*SAVE \$'s*

WMB:arg

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA  
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AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK

July 15, 1952

Dear Grain and Bean Farmers:

Grasshoppers have been causing considerable damage to some grain and bean fields in the Blackbill and Doney Park areas this year. It is very possible they may increase still more. The past years the poison bran mixture was used, however, that has been discontinued. It is now recommended you use Aldrin, which is an insecticide in emulsion form. Mix 1 pint or 4 ounces to 6 to 8 gallons of water and spray 6 to 8 gallons to the acre. Any pressure sprayer will work. This poison kills on contact and also by having the grasshopper eat the grain or bean that was sprayed. It has a residual period of about 15 days.

For any additional information please feel free to call on me.

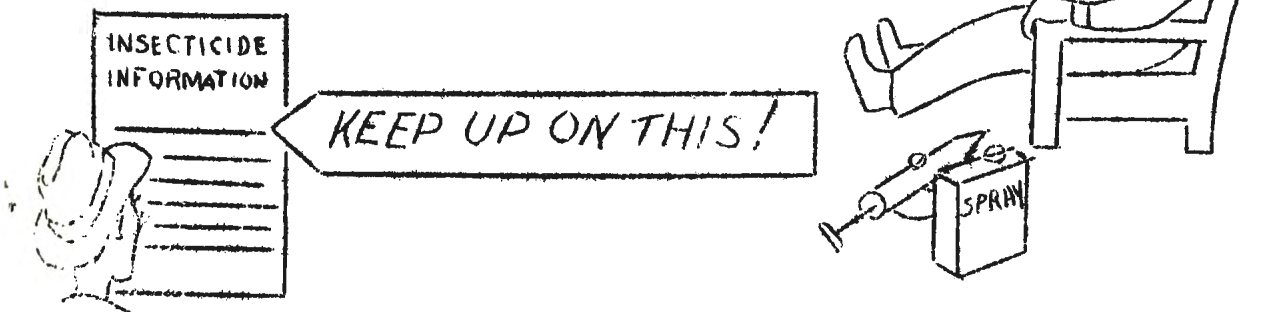
Very truly yours,

*William M Brechan*

William M. Brechan  
County Agricultural Agent

Don't wait  
too long!!!

WMB:arg



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

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

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK

Dear Friend:

The great development in Agricultural practices the past several years is making it more difficult for farmers in certain areas to carry on a profitable farming business. The uses of commercial fertilizers, modern machinery and more efficient irrigation practices have enabled the majority of the farmers to keep pace with this trend. You farmers in this county, however, have been unable to benefit by the use of these practices because of many good reasons. However, I am quite certain if you are going to remain in the farming business and maintain a profitable return from your crops in the years to come you must do one thing. Increase your per acre yield! How can you do this? I believe you have three choices of practices that will increase your yields. First, the use of commercial fertilizers. I have been doing some work on this the past three years and will be very happy to discuss it with you if you feel you would want to try commercial fertilizing. Secondly, the use of deep plowing or renovating. By deep I mean 18-30 inches. This will mean new equipment and quite an extra expense per acre but I am sure it would justify itself. Thirdly, by summer fallowing or green manuring part of your land each year. This last one I believe you all can do with no extra expense assessed on your land. I am so convinced that this will work that I want to ask everyone of you to do something for me to prove to yourself that this practice will work. Will you leave at least one acre of your farm fallow this year or grow at least one acre of a green manure crop and plow it under in August? Do this and you will see an increase in yield on this land in 1953.

I will be very glad to help you decide and set up any of these practices on your farm for 1952. Don't fool yourself and say you can't afford to do this. Can you AFFORD NOT TO DO IT?

Sincerely yours,

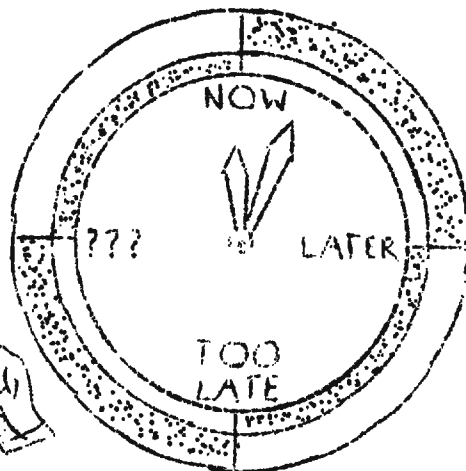
*William M Brechan*

William M. Brechan  
County Agricultural Agent

WMB:arg



SOMETHING TO  
THINK  
ABOUT

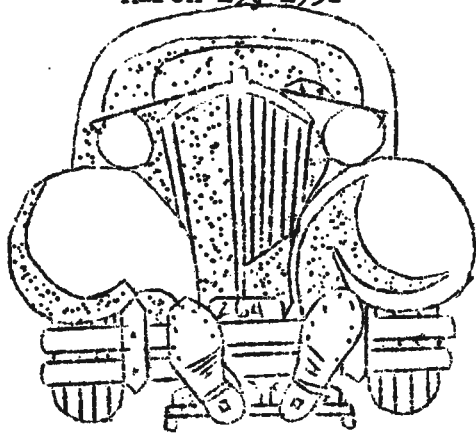


COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA  
—  
FLAGSTAFF

March 19, 1952

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

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK



NO MATTER WHERE YOU ARE  
COME TO THE MEETING -

TO ALL FARMERS & RANCHERS IN "THE ARIZONA STRIP:"

On Wednesday evening, March 26, at 7:30 at your High School there will be a meeting you can't afford to miss! Mr. Howard Ray, Extension Soil Specialist, Mr. James Middleton, Extension Irrigation Specialist and I will be in your community to work with you on your problems on March 26, 27 and 28. On Wednesday evening we would like to become acquainted with all of you and see what are your problems. Then on Thursday and Friday we will work in the field with you. Mr. Ray will give you two short but important demonstrations, Wednesday evening on "Effect of Barnyard Manure on Soil Aggregation" and "Water Holding Capacities of Different Textured Soils." Mr. Middleton will give you a demonstration on "Water Penetration in Different Soil." These will be very interesting and educational. We will also have two very good films on soils and irrigation. Won't you please set this evening aside and come out and meet with us.

MARK THE DATE!



Sincerely yours,

*William M. Brechan*

William M. Brechan  
County Agricultural Agent

WMB:arg



P. S. Please publicize the meeting all you can so everyone knows about it.

DON'T MISS IT!

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF ARIZONA

FLAGSTAFF

KEEP AWAY  
FROM BARN

AGRICULTURAL EXTENSION SERVICE  
COUNTY AGENT WORK

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

July 18, 1952

Don't  
smoke  
around  
the barn.

Dear Friend:

National Farm Safety Week is July 20-26. Take time out this week and do a little checking up on your farm, about your home and in your automobile. Millions of dollars in property damage and thousands of lives are lost each year because they did not take time to check up. Don't YOU be included in those two figures in 1952 -- check up NOW and practice SAFETY ALWAYS.

Very truly yours,

*William M. Brechan*

William M. Brechan  
County Agricultural Agent

WMB:arg



*Dry clean outdoors.*



*Know and obey all traffic laws.*