

ANNUAL NARRATIVE REPORT

OF
JOHN L. SEARS
COUNTY AGRICULTURAL AGENT
IN CHARGE

Graham County
Arizona

From December 1, 1957 to November 31, 1958

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HIGHLIGHTS OF GRAHAM COUNTY EXTENSION WORK FOR 1958

Graham
County
Farmers'
Day

Two hundred farmers jammed the meeting room at the Elk's Club, Safford, Arizona on Monday, February 3, 1958, to attend the fifth annual all-day farmers' day meeting. They heard talks on dairy cattle feeding, fertilizer tests, cotton, insect control, sorghum production, S-1 cotton production, and the soil bank program. The meeting wound up with a stalk shredding and plowing demonstration as it should be done for the control of pink bollworm. This was held across the street on the Pollock Farm.

4-H
Calf
Sale

The top calf sold at the 4-H calf sale held on Main Street in Safford on June 14, 1958, sold for 52¢ per pound. Seven calves from the Bonita Community 4-H Club were sold at auction. Mr. and Mrs. Tom Monzingo are the club leaders.

4-H
Winners

For the second year in the history of extension work in Graham County a 4-H boy won a trip to Chicago to the National 4-H Congress. Gene Kempton was named the Arizona tractor champion. Don Lundell, last year's trip winner to both Chicago and Washington, D. C. won the state leadership contest. Maryleen Nelson of the Thatcher Fashion Girls' 4-H Club also won a trip to Chicago in 4-H home economics.

A 4-H team from Graham County was the high team at the Angus Field Day held in December, and they were the high team at the Arizona National in January.

Annual
D.H.I.A.
Meeting

Pot luck dinner and dairy products, including lots of ice cream, were served to Graham County D.H.I.A. members and guests attending the annual banquet held at the Solomon School cafeteria on February 19, 1958. Dr. Viril Smith, University of Arizona Dairy Department Head, was the principal speaker.

During the year the entire D.H.I.A. program was changed to the I.B.M. system.

Pruning
and
Landscaping
Demonstra-
tions

Better homes and better looking communities should be the result of the pruning and landscaping demonstrations held in the county during February. One home was completely landscaped in one day. Mr. Harvey F. Tate, extension horticulturist from the University of Arizona assisted in all of the demonstrations. A special session on rose pruning was the feature of the pruning demonstrations.

Stilbestrol \$50,000 a year was added to the income of the
Implants Safford Packing Company as the result of a stilbestrol
implant demonstration conducted by the agent in cooperation
with the extension service animal husbandman from
the University of Arizona. Cattle implanted gained
3/10 of a pound a day over the control.

Graham-
Cochise Ruskin Lines, a Graham County cattleman and Judge of
Cattle- the Superior Court was elected President of the Graham-
growers' Cochise Cattlemens' Association in March at the annual
Meeting meeting held in Bisbee, where more than 200 persons
were attending.

Demonstra- One of the most effective tools of extension is the use
tion of demonstration plots. Plots were set up this year in
Plots cooperation with local famers on fertilizers, cotton
varieties, cotton spacing, Coastal Bermuda pastures,
grain sorghums, and silage sorghums. Demonstrations
were also established with cattle sprays.

Pink The extension service joined the State Department of
Bollworm Entomology and Federal agencies to combat the pink
Campaign bollworm. Meetings were publicized, demonstrations
were held, and special newspaper articles and radio
programs were used to put the program over.

National National Farm-City Week was November 21-27,1958. On
Farm Tuesday November 25, 1958 the agent was in charge of
City the Farm-City Week program for the Safford Rotary Club
Week and made arrangements for Gene Kempton, a state 4-H
winner to talk to the club. Gene talked about 4-H club
work and his plans for the future. Ted Larson and Seth Mattice
young local dairymen told the 60 Rotarians how they are
running their business.

Agent on 180 farmers and others heard the agent give the fine
Safford points on planting, growing, and harvesting Coastal
Experiment Bermuda grass at the Safford Experiment Station Field
Station Day on September 26, 1958.

Field The Experiment Station and Extension Service staffs
Day combined to put on a lunch for all those attending -
plus the Safford Rotary Club (farm-city meeting).

I. SITUATION

Livestock Graham County agriculture is divided between livestock and irrigated farm crops. The livestock industry is comprised of approximately 30,000 head of cattle, most of which are of the Hereford breed. These Hereford cattle are practically all on the range. Irrigated pasture grass mixtures are being used for the grazing of these beef cattle. During the winter months many farmers with irrigated land ship in feeder cattle to graze off cotton stubble and in alfalfa fields.

Hogs and sheep have never been very extensively raised in this county. Hog prices held fairly steady at 18¢ during 1958. A few more men in the county are now interested and are raising swine, using cross bred Durocs and Tamworths.

Until this year the drouth conditions on the range have been the most serious of livestock problems. This has been partly met by building of water tanks and reservoirs so that cattle can be scattered over a wider range. This condition has also been partly offset by the use of supplemental feed, especially the meal and salt mixture. This is usually fed at the rate of two parts of meal to one part salt, according to local conditions.

The control of livestock diseases and external parasites has also been a problem confronting the livestock industry. The Extension Service in past years has given demonstrations on control of cattle grubs and lice through spraying. This year as outlined in the project section of the report, some new work was done along these lines.

Dairying The number of dairy cows in the county has increased about two-fold during the past ten years. This is due to high prices being received for raw milk. Graham County farmers ship raw milk to Globe, Miami, Phoenix, Tucson, Clifton, and Morenci. Because they sell whole milk the dairies have been inspected oftener by the health officer, and there has been a large increase in the construction of more up-to-date dairy barns, and more improvement in the facilities for the handling of milk. The project section on dairying will indicate other advancement Graham County dairymen have made in their business.

One of the most important problems still remains to be accomplished. There is room for improvement in feeding practices and in caring for young calves. There is still

too much loss of young calves from scours and pneumonia. Some of our dairymen also do not pay enough attention to the raising of dairy heifers so that they make the greatest amount of growth before coming into production. There still could be much improvement in the feeding of dairy cows.

Since October of 1955 Graham County dairymen have joined other dairymen of Central Arizona in a Federal marketing order in hopes of stabilizing the price of milk in Arizona. This it has certainly done.

Poultry Poultry production in Graham County has changed in the last six years from small family flocks to large commercial cage system operators. This does not mean that all of the small family flocks have disappeared. There are still a number, but they are not paying operations. Most of these flocks are kept for family use and limited sales.

The market for eggs in Graham County has improved in the last few years, due chiefly to an improved market. The Arizona Egg Company has a regular route three times weekly between this area and Tucson. The poultry business is not a paying proposition unless the operator can handle at least 1500 birds by himself. Twice this many can be handled by one man with the cage system.

There are a few people who have been and are yet producing fryers for market but the price is low and there is competition by those which are shipped in in large quantities for cold storage in our locker plants. Graham County farmers are still not particular enough regarding where they buy baby chicks, especially with reference to whether or not they are free of pullorum. For that reason a considerable number of chicks die.

One cage system at Pima with 4,000 birds is doing a good business and has a good local market for eggs and birds in Safford.

As reported in the project section, several new poultry operations have opened and are doing well. The cage system operators are doing the best job of culling, controlling cannibalism, feeding, and general care of their chickens, therefore their profit is the greatest.

Farm Crops Since the major crop in Graham County is cotton, with 17,918 acres planted in 1958 much attention must be given to the production of this crop. Graham County farmers need a short staple cotton which will withstand verticillium wilt. Wilt

ordinarily causes loss of many thousands of dollars each year. Insect pests on cotton also cause many thousands of dollars of loss. Most prevalent are the lygus fly, aphid, stink bugs, and the 2-spotted mite. For several years there has been some thrip damage early in the season. Root rot also reduces our cotton income every year. During the early part of 1958, due to cold weather, and too frequent irrigations, a good portion of the cotton was damaged by "sore shin". A chart is included in the project section which shows the relationship of Graham County to other counties in cotton diseases.

In 1957 1,228.7 acres of cotton land were placed in the soil bank. This year 1,025 acres went into it. Last year there were 10,335 acres of Pima S-1 long staple planted, and 9,086 acres to short staple. This year 7,838 acres went into Pima S-1, and 10,020 acres of short staple. The short staple varieties used this year were principally 1517C - 80% and WR-44 about 20%.

Most of our farmers have been growing the Chilean or common alfalfa. This Chilean is still recommended because of its hardiness unless the farmer is not interested in keeping a stand very long. African alfalfa is recommended for farmers who are not interested in keeping their stands over a long period of time, and if they are willing to take chances on early spring freezes. African is a good producer and will make an extra cutting of alfalfa most years. In the project section of this year's report are suggestions about new varieties that are being tried in this area.

Some aphid resistant Moapa will be planted this year. One of these plantings is a one-acre demonstration plot at Geronimo established by the county agent.

Soils and Irrigation

The application of commercial fertilizers on small grains should be tried out in some more field tests, as our yields have not been as high as they should be. We have also had considerable trouble with aphid on grains; possibly application of fertilizer would make the grain grow more thriftily and overcome some of the aphid damage. In 1958 nitrogen applications on grains really paid off. Grain that was not fertilized just didn't yield.

All, or practically all, of our corn has been Mexican June. This is a good silage corn. However, it is believed that the yield on corn on the cob would be increased by the use of some of the newer hybrids. Some field tests have already been made which have shown this to be true.

For several years the soils of Graham County have been getting more alkaline, and many pump wells seem to be increasing in salt content. Work is going on at the Safford Experimental Farm in an attempt to find a remedy that is economical and efficient. Work needs to be done to remedy damage done by alkali water to the soils over a period of several years. Extension Service has been acquainting farmers with the conditions of the soil, and sending samples of water and soil for analyses. Some tests have been made with the use of gypsum on alkaline soils. Work has been started to try to find remedies for hard spots in alfalfa fields. A number of experiments with various commercial fertilizers have been started to find an answer. Records are being kept and check plots will show results.

More and more farmers are realizing the value of manure. There is now a bigger demand for it than the supply. Some demonstrations have been given on the cement lining of irrigation ditches for the purpose of saving water and eliminating ditch cleaning. There is a great loss of water in our irrigation systems, even in the canals. More emphasis has been given to ditch lining in 1957 and 1958, and also to ridding ditches of weeds and brush.

Horticulture

Graham County has many pecan groves; possibly 200 acres. The problems for the past several years have been controlling aphids, supplying sufficient water and fertilizer, and the marketing of the product. One local problem has been lack of facilities to spray small orchards for pecan aphids; now, however, there is a commercial firm that will do some custom spraying. Large orchards are successfully sprayed by plane.

Another problem of the home orchard grower has been chlorosis, particularly in peach trees. Root rot has been a factor in reducing a number of home orchards and it appears that it will continue to be a problem. Efforts have been made to control chlorosis by using iron. Some beneficial results have been obtained, but more work needs to be done on this. It is believed that some of the chlorosis of our peach trees has been due to too much salt water and it is thought that the small nuts produced in some of our pecan groves may be due to excessive amounts of salt over a period of years. Experiments

using iron chelates on peaches were carried out last year and the results were not too consistent, and we still rely on iron sulphate.

A recent Extension Service bulletin on "Pecans in Arizona" has proved to helpful to both home and commercial growers.

Having a market in the Gila Valley Nut Company has provided an incentive for more prople to take an interest in growing pecans.

Weed

Control

The big weed problem in Graham County in the irrigated areas for a number of years has been the control of Johnson grass, Bermuda grass, and bindweed. On the range the problem has been with Jimmy weed, milk weed, larkspur, and Russian thistle. During the past several years Russian thistle on the range has increased tremendously. In many instances from one to three miles of fences have been shoved down by tumbleweed being pushed and piled against the. Besides this damage, range grasses are being crowded out by Russian thistle. A method to get rid of this noxious weed has not yet been developed.

On the irrigated farms Bermuda and Johnson grasses on the ditches are being partially killed by pasturing. In the cultivated fields these two weeds have required a great deal of hoeing. Oil sprays have also been tried on Johnson grass along ditches and they have given fair success there when repeated sprayings have been made during the entire season. Bindweed has been sprayed with various 2-4-D mixtures with only partial success. Several are now experimenting with the amine form of 2-4-D. During 1957 Butane weed burners became quite popular. Dalapon, a new weed killer, is proving quite effective for the control of Johnson grass and Bermuda grass on ditch banks. This year several farmers tried spot treatment of weeds in cotton with Dalapon, using a special hand sprayer, and this resulted from information furnished by the county agent. Suggested amounts and methods were provided to those attending the district cotton conference in El Paso in March, and the agent was able to pass this information on to local cotton farmers.

Rodents

In previous years considerable work has been done in poisoning jack rabbits and gophers and in the trapping of gophers. This work was mostly done by giving demonstrations, making surveys of the extent of infestation, and writing newspaper articles on control measures. The State Fish and Wildlife Service has always given good cooperation in assisting with demmonstrations and in mixing poison and providing it at local points for sale. For several years they have had

an excellent demonstration at the Graham County fair. At that time, too, they furnish material on trapping and poisoning for the public to take with them. This has increased popular interest in how to get rid of gophers.

The office continues to get many calls about poisoning rats and mice, and at some times during the year there are calls about ridding various warehouse buildings of bats.

Some years jack rabbits cause considerable damage to irrigated fields near range land. Other years the damage is very slight; the need for this work is sporadic.

Agricultural
Economics

The county office has had an increasing number of requests for various statistical information. The following pages show estimates worked out by the county agent for a few of these cases.

SURVEY OF AGRICULTURAL INCOME FOR GRAHAM COUNTY

FURNISHED TO THE BUREAU OF RECLAMATION, Creede J. George, Soils Scientist

by JOHN L. SEARS, COUNTY AGRICULTURAL AGENT

APRIL, 1957

COTTON, SHORT STAPLE	<u>Acres</u>	<u>Bales</u>	<u>Average</u>
1952	12,243	15,345	1.25
1953	12,662	13,535	1.07
1954	12,779	22,577	1.77
1955	10,367	15,511	1.50
1956	<u>9,818</u>	<u>17,610</u>	1.79
	57,869	84,578	

84,578 bales @33¢ per lb.\$13,955,370.00

Gross Income - yearly average 2,791,075

COTTON, LONG STAPLE	<u>Acres</u>	<u>Bales</u>	<u>Average</u>
1952	12,215	11,530	.94
1953	14,965	10,821	.72
1954	3,828	5,203	1.36
1955	4,771	5,067	1.06
1956	<u>4,709</u>	<u>5,389</u>	1.114
	40,488	38,010	

38,010 bales @63¢ per lb.\$11,973,150.00

Gross Income - yearly average 2,394,630

INDICATED NORMAL YIELDS FROM STATE A.M.S. STATISTICIAN ARE AS FOLLOWS:

FOR BASE YEARS 1951 - 1955: Upland Cotton - 715 lbs.
 Egyptian Long staple 533 lbs.

Page 2 - Survey of Agricultural Income for Graham County

ALFALFA	Acres	Produced Tons	Value
1952	6,000	30,000	\$30.00T.\$ 900,000
1953	5,000	25,000	750,000
1954	8,000	40,000	200,000
1955	10,000	50,000	1,500,000
1956	10,000	50,000	\$35.00T.1,750,000

Figured at average rate of 5 tons per acre per year

SMALL GRAINS

1952	6,542	\$ 392,520
1953	4,373	262,360
1954	12,393	1,487,160
1955	11,862	1,423,440
1956	12,473	1,496,760

Figured at average rate of 3 tons per acre per year

DAIRY PRODUCTION: SALE OF GRADE A MILK

Cows

1952	700	8,000 # milk @ \$5.00 per 100	\$ 280,000
1953	800	8,300 " " " "	332,000
1954	1,000	8,700 " 5.50 " "	478,500
1955	1,200	9,000 " 6.00 " "	691,200
1956	1,300	9,500 " 6.00 " "	741,000

ESTIMATED GROSS INCOME PER YEAR FOR: - 1956 -

Vegetables	100 acres	40,000.00
Pecans		20,000.00
Swine		26,000.00
Beef		500,000.00
Sheep		28,300.00
Miscellaneous		410,700.00

ESTIMATES

FOR: MR. FRANK SHELTON

APRIL 23, 1958

Furnished by John L. Sears, County Agent, Agricultural Extension Service
University of Arizona

Representing estimates for the year 1956; to go with those also furnished
as shown on attached sheet dated April 1957.....

LIVESTOCK IN TRADE AREA

COWS (beef)	\$ 800,000.00
COWS (dairy)	200,000.00
Calves	<u>100,000.00</u>
	1,100,000.00
Sheep	30,300.00
Goats	500.00
Hogs	30,000.00
Poultry	20,000.00

II. ORGANIZATION

The agricultural agent's plan of work is made in cooperation with the home agent where applicable. Radio programs, as well as some community meetings are planned and given together.

This year a county agricultural agent was added to the staff to be in charge of 4-H club work and the D.H.I.A. dairy program in the county.

Organizations of a rural nature in Graham County are the Farm Bureau and the Graham-Cochise County Cattlemen's Association. And a recently formed Sheriff's Posse works in close association with these organizations and with extension service. The Farm Bureau continues to take an active part in the support of the 4-H club program, often providing funds for trips for our 4-H boys and girls. The Gila Valley Soil Conservation District assisted in sending our 4-H'ers to State 4-H Club Roundup in Tucson again this year.

The Farm Bureau has also established an agricultural, home economics scholarship for which our 4-H boys and girls may compete with FFA and FHA boys and girls.

Both of the local banks - the Valley National and First National - assist the 4-H program by presenting awards and extra incentives at fairs and other events.

III. PROGRAM PLANNING

No new communities have been organized in Graham County for several years.

Besides interviewing farmers and ranchers throughout the year in an informal way, to find out what their real problems are, so that the extension program can be built around their needs, formal planning is done with the officers of the Farm Bureau and the Cattlegrowers' Association. Most of the time they do not have much to offer, but when suggestions are made as to possible problems, they then realize that something should be done.

In planning for the year's work the agent enlists the cooperation of the extension specialists. Developments current at the Safford Experimental Farm are coordinated with the agent's field and office program. This year's planning included demonstrations worked out with Experiment Station personnel and specialists at the Cotton Research Center.

The plan of work is drawn in a flexible manner so that it can be changed to meet any new conditions.

IV. INFORMATION PROGRAM

1. Newspaper

a. Weekly

Graham County Guardian - located at Safford, the County seat, This is the only weekly in the county and carries all news provided by the county agents relative to meetings, timely information on crops, gardens, insect pest control, livestock, dairying and poultry. Pictures are used as often as possible to illustrate successful projects, or participants in 4-H events. A new process introduced at the plant a few years ago enables the paper to publish better pictures than formerly.

The agent furnishes to the editor each week a column entitled "Your County Agent", carrying his picture at the top of the column. In addition to new factual material about helps to farmers, the agent endeavors to pick up interesting bits about "Jim" or "Joe" and their experiences in farming, dairying, and such. Reference is made to new bulletins which are available, and this device has shown the agent how many people follow the column regularly. Office and telephone calls can be readily traced to comments in this column. A sample of the regular column follows this report section. See the separate 4-H Annual Report for examples of especially good picture and story use. Also examples are shown for most project sections of this report.

b. Daily

There are no dailies published in the county. Both Tucson and Phoenix dailies do come into the area, and there is sometimes an attempt to provide local coverage. However, there is not as much of this now as there has been in the past when a regular full-time reporter was maintained in residence.

2. Magazines

The agent is now and then interviewed by a representative of the "Arizona Farmer", the principal farm magazine of the state. At such times as these farm editors have outstanding Safford valley stories, they are glad to furnish copies for our use in publicity.

Once in a while a district farm editor for a national farm magazine comes into the county and asks for guidance in finding stories of interest for our local farmers.

There are samples included in this report to show the kind of articles the agent often submits to the "Cattlelog" published by the Arizona Cattlemen's Association.

3. Radio and Television

Television reception has increased considerably in the valley the past four years, but there are no facilities for originating programs in this area. Some local people will benefit from the programs which come in from Mesa and Tucson. However, for several years now the agent has worked with the home agent, and various specialists as they are in the county, to prepare recordings for the regular weekly program over Station KGLU. This is called "Stepping Along with the Extension Service", accompanied by a lively marching theme song. The time is always on Saturday, but varies a little around the noon hour depending upon other radio station commitments. For the past several months it has been scheduled for exactly nine in the morning.

In the past it has been the custom of the Graham County agent to invite the agent from Greenlee County to share in these broadcasts. However for the past year or so the Greenlee County agent has had his own program over the Station KCLF in Clifton.

4. Circular Letters

Graham County relies somewhat more on newspaper and radio for informational service than on the circular letters. A few are used to inform farmers of new practices, or to call attention to items in new bulletins which they have requested. But essentially the circular letter is used in the farm safety program. Since figures nowhere else appear, the following represents the volume for the past few years:

1954	46 letters	4,815 copies
1955	54 "	3,326 "
1956	63 "	2,811
1957	40 "	1,978 THROUGH JULY
1958	30 "	3,769

During the year one or more of the circular letters is done in color; either one color with the black and white, or two-color. Representative samples of the mimeographed letters follow this report section, and also are included in sections pertaining to projects to which they apply.

5. County Circular

Graham County does not use circulars.

6. Circular Distribution

The county office distributes circulars published by the Department of Agriculture, the Experiment Stations, and the University of Arizona. The bulk of this distribution is to those who call at the office for information. At times, based on farmer requests in the office, a new pertinent bulletin is sent to all those on the special mailing list, such as those which supply information on cotton, livestock, or poultry. This year approximately 600 bulletins were mailed.

When county-wide meetings are held, or large field meetings, bulletins are furnished to those who want the, covering the subject under discussion.

Mention of new circulars in the weekly column of the agent in the local paper, increases the demand for any new bulletins. The agent and the public have been very much pleased with the new bulletins coming out from the experiment station and extension service this year. This office quite often furnishes bulletins to people from other counties passing through Safford. Instructors and teachers in agriculture and home economics make excellent use of our bulletins with their classes.

7. Visual Aids

As often as possible in both adult and 4-H club work the office film and slide projector is used to show colored slides. The state information specialist has been invited to help take pictures whenever special events are being held. Our slides could be used to better advantage if the projector were more powerful, showing to larger groups.

Movies have a universal appeal, and the use of the extension movie sound projector this year has been very helpful, especially in 4-H club work. Specialists in the county have used the projector to show films to service clubs, and these have been very well received. This is a valuable contribution to the community by service clubs in cooperation with the extension service.

V. PROJECTS

#3 - Horticulture

A. General

Orchard production in Graham County is limited to two commercial orchards for the production of fruit. Both of these orchards are on the Graham Mountain. Pecan orchards are more numerous. Pecan production is quite profitable since the new shelling plant has been established in Safford, providing a good local market.

There is no large producer of vegetable crops in Graham County.

Graham County, and particularly Safford, is noted for fine homes and shrubbery. Work with shrubbery and other yard problems takes considerable time and presents many problems. The agent is called on for this type of work constantly. Radio talks, newspaper articles and demonstrations help to lessen the burden of this work.

B. Diseases - Situation

Root rot is the disease that gives homeowners and orchard operators the most trouble. Sunburn has bothered some roses and ornamentals that cannot stand very much sun. Pecan "rosetting" and chlorosis in ornamentals and peach trees are quite prevalent.

History - Considerable work by the University of Arizona on root rot shows results in some cases but it still is a real problem. Chlorosis can be controlled with iron sulphate, and "rosetting" of pecans can also be controlled by the use of zinc sulphate.

Roses suffered very badly during the month of July. The office received numerous calls on burned leaves of roses. Every case checked by the agent was the result of hot, dry weather, and the high salt content of the soil.

Chlorosis of peach trees and curly top virus in tomatoes hit very hard in July and many calls were made to consult on these problems.

Curly top virus continued to hit the tomato crop very hard; in fact some entire plots only had one or two plants left by the end of

June. The agent suggested that the owners replace with new plants because now the danger of getting the disease is past.

Mildew on shrubs and roses continued. Mildew also showed up at the Angle Orchard on Mt. Graham. Karathane was included in the regular spray mixture of DDT and Malathion and gave good control.

Hot weather and the use of heavy amounts of water resulted in considerable chlorosis of fruit trees, strawberries and shrubs. Iron sulphate and the chelated iron were used for control.

Each month a report of plant disease is sent to Dr. Ivan J. Shields, extension plant pathologist of the University of Arizona Field Station.

C. Insect Pests

Situation: Insect pests are on the increase despite all of the new insecticides on the market. Warm winter weather and good environment for hibernation in the surrounding range land areas, bring in many insects.

The grape leaf skeletonizer was again at work. The agent checked several vineyards and it was working in all of them. Rotenone was used as the control.

Aphids and thrips hit the ornamentals early in the season and the heavy use of Malathion became necessary to have flowers at all. The desert grasshoppers and crickets made several invasions and control measures were necessary in some areas.

The Angle Orchard on Mt. Graham is one of the top commercial orchards in the county. This orchard is located on the slopes of Mt. Graham, and produces very good apples, but they have had considerable trouble with insect damage.

Dr. J. N. Roney, extension entomologist of the University of Arizona Field Station was in Graham County on April 27, 1958.

The survey of orchard insects was made at the Angle Orchard on Mt. Graham, and a spraying schedule for the 1958 season was set up. The survey indicated that the dormant spray applied during the winter did a good job of controlling red spider.

On June 11, 1958 Dr. J. N. Roney, extension entomologist, again visited the county. The Angle Orchard was checked once more for insect control and the spraying schedule rearranged to suit conditions. Plans were made for the use of Guthion - a new insecticide.

Guthion was used for the fifth cover spray for the entire orchard and when mixing instructions were followed, it caused no trouble in clogging, as reported when it was not properly mixed.

Another survey of this orchard made in October by Dr. Roney and the agent indicated that the Guthion did a good job of controlling red spider and mites. The stink bugs did heavy damage after the last spray. The principle damage was done to the apples on the lower limbs because the stink bugs traveled between the lower limbs and heavy grass under the trees.

The apples were all marketed locally and the first apples brought 18¢ and later apples 12¢. It was a very good crop but the late insect damage did spoil some of the apples.

D. Pecan Production

1. Marketing Pecans

Marketing the pecans grown on the 200 acres of pecan orchards in Graham County has always been a major problem. Some years it has been almost impossible to sell them anywhere.

Two years ago a pecan shelling operation was set up at Pima; later it was moved into Safford. Buyers paid 35¢ a pound for number one pecans. This was the first time that pecan growers had a market in the valley for their pecans. This may encourage more plantings.

The pecans are shelled and shipped to Los Angeles and Salt Lake City to wholesalers. The owners hope that by another year they will be able to sell directly to distributors. They have invested about \$8,000 in machinery to set the plant up. If this enterprise is successful, it will certainly help local growers to market their pecans and will encourage people to put out more trees. Pecans do well in the Gila Valley and could become quite a source of income. Two growers are now packaging pecans, selling them in gift packages. Pecan production has long been one of Graham County's noted industries, but the problem of marketing has held back any substantial gains.

For the past two years with our own shelling plant 125,000 pounds of pecans have been processed. Only about one-third of the pecans came from Graham County this year. Most of the pecans are sold in the Salt Lake City area to candy companies, bakeries, and such.

When Mr. Ken Bowyer of the ARIZONA FARMER AND RANCHMAN visited the county on March 19, 1958, a write-up was made on the pecan shelling operation and the pecan industry.

2. General Production Problems

Most of the pecan production problems stem from lack of water, need of fertilizers, and lack of zinc. Perhaps with a better outlook for a market, the orchard owners will be willing to invest in more water, apply zinc when needed, and use more fertilizer.

Considerable time was spent during the year by the agent with produce men and others interested in commercial lettuce production in Graham County. These companies are now operating in the Willcox area.

F. Pruning and Landscaping Demonstrations

Fifty persons witnessed Mr. Tate pruning various types of roses and fruit trees at the L. L. Maloy home on Relation St., Safford, Arizona on February 11, 1958. Besides demonstration pruning, Mr. Tate explained cultural methods and recommended practices for the management of shrubs and fruit as the demonstration progressed. Throughout the remainder of the month the agent held numerous pruning demonstrations with more than 50 persons in attendance.

The days of January 6, 7 and 8, 1958, were spent attending a pruning school for county agents at the Experiment Station, Mesa, Arizona. The school was taught by Mr. Harvey F. Tate, extension horticulturist for the University of Arizona. This was a workshop type of meeting. Everyone had a chance to actually prune peaches, apricots, apples, plums, grapes, and rose bushes. Mr. Tate also went over the cultural management of each type pruned.

Also during January Mr. Tate visited the county, and a pruning demonstration was held at the Angle orchard. Ten persons were in attendance. The entire orchard was checked over for fire blight control and management practices.

Twenty-five persons attended landscaping demonstrations held at the Spalsbury home, the Richardson home and the Jack Reay home in Safford.

The principal demonstration was held at the Spalsbury home on Relation St. in Safford. Mr. Ray Morris of the Safford Nursery furnished the shrubs and Mr. Tate described each shrub and put it in the proper place around the home. Emphasis was put on putting proper shrubs in the proper places in so far as sun and shade are concerned. The other two homes were follow-up work and advice on landscaping, rather than a complete result demonstration.

During the spring a survey was made of the Angle Orchard on the Graham Mountain to determine results of pruning done in that orchard this past spring. The trees were in very good condition. Mr. Tate demonstrated the need of thinning and showed the manager and employees how and where it was to be done.

Some landscaping work was finished at the Claridge home in Safford, and a demonstration flower bed project was established at the Fred Turner home on the Bowie Highway.

Also homes we had used for landscaping demonstrations this past spring were visited to see how they were progressing.

At the request of the President of the Safford Garden Club, which was holding the state convention here, 100 copies each of the following were furnished:

Extension Circular 237 - Planting and Pruning Roses
Experiment Station Report - 166 on Landscaping
Arizona Homes

G. Home and Yard Improvement

The agent attended both Safford Garden Clubs during the year and gave talks.

One of the meetings was on plant diseases, and Dr. Shields, extension plant pathologist from the University of Arizona Field Station showed slides of plant diseases in this area.

Thirty Garden Club members and their husbands watched the agent show slides and explain the culture of the flowers shown at a dinner meeting of one of the Safford Garden Clubs during July 1958. Mr. Harvey F. Tate, extension horticulturist of the University of Arizona furnished the slides.

H. Orchard Management

There are only two commercial orchards in Graham County. Both of these orchards are located on Mt. Graham at a high altitude. There are lots of fruit trees in the Gila Valley, and elsewhere in the county, but they are confined to home use.

This year a great deal of work was done by the agent and extension specialists on the Angle Orchard. This orchard had been badly neglected for several years, and when the original owner got it back, he requested help of the county agent's office. This year he continued to consult with the agent.

With the help of extension horticulturist Harvey Tate a pruning, thinning and fertilizer program was carried on in the Angle Orchard this year.

Dr. J. N. Roney, extension entomologist assisted the agent in setting up a spraying schedule early in the spring and in checking the results throughout the year.

Guthion was used for the last two cover sprays. The Guthion did a very good job of controlling mites and red spider. Stink bugs did some damage late in the season. These bugs were harbored in the tall grass under the trees. A late spraying under the trees would have controlled these insects, but the owner did not want to spray after picking had started.

In the spring it looked as though the Cluff Orchard would have a poor year, but the frost just hit enough to do a good job of thinning and they came out with a good apple crop.

V. PROJECTS

#4 - Livestock

A. Beef Cattle

1. Feeding Beef Cattle

Situation - Most of our beef cattle are raised on the range by big operators. All the range land is occupied. In past years considerable work has been done by various government agencies in developing the range. Efforts have been made to prevent soil erosion, to develop watering places, to reseed the range, and to fence individual holdings. The extension service has given demonstrations on spraying for grub control, and fly control.

The Graham-Cochise Cattlemen's Association does much to encourage the improvement of range conditions, and to sponsor legislation regarding the cattleman's interests. Extension Service has assisted this organization in securing speakers for their programs.

During recent years a trend has developed towards growing more range cattle on irrigated ground. This has brought more calls to the office for information regarding the growing of year-around irrigated pastures.

Cattle feeding is on the increase. More and more farmers are feeding out from 100 to 200 head of beef cattle on their farms.

Cotton acreage allotments in 1959 will mean more feed available for feeding, and cotton farmers will be looking for additional income from other sources. Feeding cattle could well become one of the leading enterprises of Graham County.

A large commercial feeding operation has been developed at the Safford Packing Plant, Safford, Arizona. Custom feeding was started in 1955 and may develop into a

large enterprise. Its feed lot provides a ready market for beef cattle, hogs, sheep, hay, sorghum, silage, and small grains. It is a great asset to the farmers of the Gila Valley.

The Sierra Bonita Ranch started up their feed lot three years ago for the first time in several years. They are now feeding out their own cattle. Assistance in management and feeding was given by the agent.

2. Production

Two-hundred members of the Graham-Cochise Cattlemen's Association met at the Elk's Lodge in Bisbee on March 17, 1958 for their annual meeting. The following comments were published in the agent's regular column in the GRAHAM COUNTY GUARDIAN:

Congratulations to Ruskin Lines for being elected president of the Graham-Cochise Cattlemen's Association for 1958.

The folks down Bisbee way sure know how to make you feel at home when you visit their fair city. I attended the 46th Annual Cochise-Graham Cattle Grower's Association meeting at Bisbee on Saturday March 17. About 200 cattlemen, guests and their wives turned out for the meeting.

I saw a number of people from Graham County, but there should have been twice as many there. I might have missed some of them but I saw Mr. and Mrs. Bruce Bosley of Bonita; Mr. and Mrs. Bill Hughes and Mrs. Hooker of Bonita; Mr. and Mrs. Stansberry of the 76 Ranch; Mr. and Mrs. Claude McNair of Klondyke. Others were Mr. and Mrs. Ray Claridge, Safford, and Mr. and Mrs. Ted Lee of Thatcher. Other Safford people were Leslie and Reed Ellsworth, Mr. and Mrs. Dee Jernigan, and Mr. and Mrs. Burwell Hatch. Delbert Rapier of Duncan was there too.

Some people were elected to office who were not there. That will teach them to attend meetings!! I understand some of them got stuck in the mud and couldn't make it, and that's unusual in Arizona.

A good many interesting talks were given. Our extension economist Dr. George W. Campbell, Jr. gave a money-saving talk on income tax. He pointed out that many ranchers are not taking advantage of the deductions they rightfully have coming to them. We have a mimeographed sheet on Dr. Campbell's talk in our office, and it's yours for the asking.

On December 17, 1957 a stilbestrol implant result demonstration was started at the Safford Packing Plant, Safford, Arizona. Mr. Al Lane, extension animal husbandman from the University of Arizona, assisted the agent with the demonstration.

PROCEDURE: 100 steers (cross bred-Brahma-Angus, and Hereford-Brahma crosses) weighing about 750# were divided into two lots by just running one into one lot and one into another as they came off the car. This was a true randomized sampling. The one lot of 50 will be the control lot. Each animal in the other lot was implanted with 36 mlg. of stilbestrol in the ear. The animals were all weighed three days after the implanting and they were weighed every 30 days for the 120-day period. The demonstration was completed on April 15, 1958.

All feed which was fed in each lot was weighed and the cost of gain was calculated for each lot in the final figures.

Reason for this demonstration: the Safford Packing Company has the largest feed lot in Eastern Arizona. To date the packing company was not sold on stilbestrol implanting. They agreed to run a demonstration test - and if it was successful they would use it on more cattle. In a great many feed lots in Arizona implanting is a standard procedure because their gains have been so much greater and of course the profits greater too.

The Safford Packing Company stilbestrol implanting demonstration was completed and the results of carcass grades and actual advantage over the non-implanted is shown in charts following. The results were so gratifying that the packing company is now implanting all of their cattle on feed and pasture.

According to Al Lane, extension animal husbandman, of the University of Arizona, this could mean from \$50,000 to \$60,000 a year additional increase in one year to this company alone.

The grading was all done by a government grader at Los Angeles, and the implanted actually had higher grades than the non-implanted. We were very happy with this because it has often been said that implanting lowers the grade of cattle.

SLAUGHTER RESULTS OF IMPLANTING DEMONSTRATION
 (Conducted at the Safford Packing Company)

120 day feeding period - 100 steers - 50 implanted - 50 control. Graded by Government Grader at Swift and Company Packing Plant, Los Angeles, California - April 22, 1958.

	<u>Implanted</u>	<u>Control</u>
Choice	32 animals	32 animals
Good	17	15
Commercial	0	1
Yield	61.1%	61.2%

FINAL SUMMARY

STILBESTROL IMPLANTING DEMONSTRATION
 UNIVERSITY OF ARIZONA: EXTENSION SERVICE

IN COOPERATION WITH
 SAFFORD PACKING COMPANY

100 Head of cattle - Two 50-head lots - Fed for 120 days - Date of Implanting December 20, 1957 - Al Lane, Animal Husbandman
 John L. Sears, County Agent

Lot No.	Number of Animals	
	50 - 36 milligrams Stilbestrol	50 - Control
Initial weight - pounds	36,168	37,695
Final weight - pounds	50,256	49,987
Total gain in pounds	14,088	12,292
Gain per animal (total lbs.)	282	246
Daily gain per lot lb.	117.4	102.4
Daily gain per head lb.	2.35	2.05
Feed per animal - pounds (total)	4,571	4,538
Feed per day per animal lb.	38.09 #	37.82 #
Number of pounds of feed to make one pound of gain	16.22 #	18.45 #

FINAL WEIGHTS ON IMPLANTED CATTLE

(50 HEAD)

<u>POUNDS</u>	<u>NUMBER OF HEAD</u>
5500	5
5140	5
4770	5
5500	5
5500	5
4600	5
6160	6
5660	5
5260	5
4260	4

(4% off for shrinkage)

April 21, 1958

CATTLE GRUB CONTROL DEMONSTRATION
Safford, Arizona

On November 25, 1957 with the cooperation of Dr. J. N. Roney, extension entomologist of the University of Arizona, a grub control demonstration was established at the Safford Packing Company feed yards in Safford, Arizona.

A true random sampling of 15 heifers were sprayed with "Co-Ral". Fifteen heifers were treated orally with boluses. The heifers weighed about 700 pounds so they received 2 boluses each. Each bolus contained 15 grams. The rest of the lot were used as control.

Fifteen of the animals were slaughtered on January 24, 1958, and checked by Dr. W. Hartnell, meat inspector, John L. Sears, county agent, and Vance Cluff an insecticide dealer.

The following are results of a random spraying of 5 animals out of each lot of 15:- with "Co-Ral":

Red spots on carcass

No. 7 - no grubs)	
20 - few grubs)	
20 - few grubs)	- - - - all grubs were found dead
4 - 2 grubs)	
10 - 5 grubs)	

Bolus treatment

No. of red spots on carcass

8 - 3 grubs)	
1 - 1 ")	- - - - - all grubs found were dead
15 - 5 ")	
3 - 0)	
1 - 0)	

CONTROL:

No. of red spots		
30 - 20)	
1 - 1)	
10 - 8)	- - - - grubs were all alive
25 - 25)	
15 - 15)	

CONCLUSIONS: The spray and boluses helped to control the cattle grubs. It reduced the number present in each animal and killed the grubs. The bolus seemed to do the best job; this might be because it is difficult to get an even covering of spray. It was the opinion of the inspectors that an early treatment (September) would control the grubs. All of the grubs found in the treated animals were dead.

Al Lane, extension livestock specialist and Dr. Dewhirst, parasitologist of the animal pathology department of the University of Arizona assisted Dr. J. N. Roney, extension entomologist and the county agent in putting on a grub control and internal parasite control demonstration at the Safford Packing Company on September 3, 1958.

LIVESTOCK DEMONSTRATION
(Cattle Grub Control & Internal Parasite Control)

Place: Safford Packing Company, Safford, Arizona

Date: September 3, 1958

Number of cattle involved - 75 steers. 75 steers cut in 3 lots of 25 each randomized selection - gate cut - 25 sprayed with "Co-Ral" using:

25 gallons H₂O Rate 4# gallons H₂O
(Bob tails)

25 treated with Trolene - 2 boluses per animal (Branded)

25 control - no marking

Dr. Dewhirst, University of Arizona parasitologist, took feces samples on all animals.

LOT WEIGHTS (September 3, 1959)

<u>Treatment</u>	<u>Weight of 25</u>
Co-Ral	17870 #
Trolene	18200 #
Control	16900 #

About December 1, 1958, cattle will be slaughtered and checked in the killing floor for rate of gain, grub control and parasite control.

COOPERATORS:

Al Lane
Dr. Dewhirst
Dr. J. N. Roney
Safford Packing Company
Fammin's - Vance Cluff
John L. Sears, County Agent



Scott Pace, Solomon, Arizona spraying
Brahman mixed cattle with "Co-Ral" as
a cooperative demonstration for control
of screwworms

Report on Co-Ral Demonstration - Scott Pace Farm

240 head of mixed cattle from Mississippi weighing about 250 pounds each were sprayed with Co-Ral during the last week in June following dehorning, castration and branding. These cattle were put right into a feed lot and 21 days later showed no sign of screwworms. This material was applied at the rate of 8 pounds to 50 gallons of water.

B. Swine

Hog prices were pretty steady during 1958 and farmers went in for swine production. Graham County will never be a real swine producing area, but we do produce a large percentage of the hogs raised in Arizona. Graham County has a ready market for hogs at the Safford Packing Company located in Safford, Arizona.

The agent arranged for the purchase of two purebred Tamworth boars to cross on Duroc sows for two local swine breeders. Both of these cooperators are doing a good job of swine production and this cross showed a result of much longer bodied meat-type hogs that might be the desired type in this area. If this is the case, more farmers will become interested in swine production.

C. - Range

1. Management

As a result of the agent's attending the University of Arizona this Fall and taking several courses in range management and particularly in range ecology and range grasses identification, a number of range surveys were made with ranchers. Range plants were identified and given forage values and grazing plans were talked over. These are good practical courses for county agents working with ranchers.

During April the agent made a trip to the Bruce Bosley Ranch, at Bonita, Arizona to observe his range management work and reseeding practices on the range.

Mr. Bosley threshes and reseeds his range with Lehmann's Lovegrass. A good many range management people have said there is a danger of Lehmann's Lovegrass taking

over the range from the native grasses, but Mr. Bosley isn't worried about this because a fenced-in area, non-pastured, on his ranch did not produce native grass over a 10-year period. Mr. Bosley sows the Lovegrass at the rate of one pound per acre in June, after working the range up with an off-set disc. The planting is done with a seeder on a double culti-packer affair.

Mr. Bosley's cattle do well on the Lehmann's Lovegrass and he has transferred an annual range over to a good perennial range.

A demonstration plot of range re-seeding using Lehmann's Lovegrass was established this year on the Weddle range at Ft. Thomas, Arizona.

During October the agent visited the Bruce Bosley ranch to check on the growth of the Lehmann's Lovegrass. The agent and Mr. Bosley decided not to combine the grass because the plants were not very heavily loaded with seed. The Lovegrass looked very good, however, and the cattle were doing real well on it. There was very little if any feed available. The agent identified several other grasses and weeds present on Mr. Bosley's ranch for him.

In cooperation with Mr. Gerald Foote ten pounds of Lehmann's Lovegrass seed were planted on the Foote Ranch nine miles north of Bowie in Graham County on June 26.

The agent and Mr. Foote selected sites for the planting because of soil and moisture conditions based upon past experience in this area. An off-set disc was used to make corrugations and the seed was sowed at the rate of one pound per acre and brush dragging behind the disk was used for covering.

Another planting will be made soon of Arizona Cottontop seed, to see what it will do in the same area.

The agent and Mr. Foote went over the entire range and identified all grasses and the agent gave Mr. Foote the feeding value of each.

On March 11, 1958 Dr. William J. Pistor, Animal Pathologist of the University of Arizona, called the agent and requested him to take a weed survey of the Fort Grant area where it

was reported some cattle had died on the range. The agent checked the cattle and made a complete collection of weeds in the area and sent them to Dr. Pistor for examination. The following is the report received:

"The plants sent in were identified by Dr. Mason as follows:

- #1 - *Descurainia Sophia* (Tansy mustard)
- #2 - not possible to identify because it is too immature
- #3 - *Phacella Arizonaica* (no common name)
- #4 - *Cryplantha Sp.* (no common name)
- #5 - *Draba Cuneifolia* Cruciferal (no common name)

"The only plant in this group that possibly could be poisonous is the tansy mustard. The New Mexico station has done work on this plant and report it as poisonous under certain growing conditions and on certain types of soil. They have not identified the poison. We have had isolated trouble with this plant but in most cases another plant was responsible. We cannot overlook the possibility of this plant as the cause of your trouble. Apparently after the plants are more mature or start to dry up, there is much less danger.

"The other plants, as are many weeds, are growing rapidly. This rapid growth frequently makes an unbalanced feed, high in nitrates. These nitrates are converted to nitrites in the paunch and can cause sudden deaths. This is similar to careless weed or *Amaranthus*. Again these plants, after they become more mature balance out so that the nitrate content is below 1.5% of safe....." Dr. Pistor stated - "I can only say that possibly the cause of your losses was from the tansy mustard or high nitrates in the rapidly growing weeds."

Poison weeds were also responsible for the loss of some cattle on the Ray Claridge ranch north of Safford. Weeds were sent to Al Lane, animal husbandman at the University of Arizona, and this is the report received on them:

"The yellow flowered one is *SENECIO MONOENSIS* and is a poisonous plant and probably was the one that caused Ray's critter to turn up his toes. However, this is not the same plant that we commonly call golden eye, which is a summer annual having a different leaf formation and shows up in full bloom usually in late August. So far as I know, there is no common name for this particular annual."

This weed is now being eradicated from the Claridge range. Ranchers appreciate the quick action and good reports in such cases as these.

2. Cattle Prices

The agent attended the first cattle sale of the fall season at Calva on Wednesday, October 22, 1958.

Top prices on Hereford cows and calves sold at \$300.00. Top dehorned yearling steers went at \$28 or \$29 per 100. The sale held a week later (October 29) was poorly attended by buyers and some good steer yearlings (Hereford) went for \$24.00.

Each week during the year the county agent makes a report on range and cattle conditions to the U.S.D.A. Statistician.

D. Sheep Production

Sheep raising is not a large industry in Graham County. Five or six small flocks make up the entire sheep population. Sheep production is becoming more popular, however, because of greater interest on the part of F.F.A. boys and 4-H members in sheep production. The Safford Packing Company is a ready market for them.

The Thatcher Cowboys 4-H club members have a number of nice sheep projects. Sheep make a very good 4-H project. Sheep in small farm flocks are on the increase in Graham County.

V. PROJECTS

#5 - Dairying

A. - Situation in this county

The dairy industry is growing in Graham County. This year dairy manufacturers from Silver City, New Mexico, Duncan, Arizona, Globe, and Tucson, Arizona were buying milk in the Gila Valley. Two large dairies in Tucson are the principal buyers of Grade A milk.

Dairymen have had to cull heavily and keep good records to stay in business, because of the high price of feed. Alfalfa averaged over \$30.00 a ton throughout the year.

B. - Dairy Herd Improvement Association

Graham County dairymen had another fine dinner and meeting at the Solomon cafeteria on February 19th. Pot luck dinner with all the trimmings - everything to go with it that you could eat.

Dr. Viril Smith, head of the Dairy Department of the University of Arizona, Tucson, was the principal speaker. Dr. Smith outlined the present dairy program at the University and the plans for the future. Mr. W. R. Van Sant, extension service dairyman, presented the high butterfat record certificates.

On December 19, 1957 Mr. Freeland Moody, the Supervisor for the Graham-Greenlee D.H.I.A. was hurt in an automobile accident while returning from testing the dairy herd at Fort Grant. This office assisted the board of directors in making arrangements for finishing the testing and contacted Mr. Ralph Van Sant, extension dairyman at the University of Arizona, in regard to getting someone to take Mr. Moody's place. The agent assisted Mr. Moody in checking his insurance, and Social Security benefits, and any other benefits he might have coming to him.

During the month of December the Graham-Greenlee D.H.I.A. was incorporated under the state laws of Arizona and publication was made in the local county paper, the Graham County Guardian. This has been something the dairy extension specialist and the county agent have been working on for the past four years, and it was finally accomplished.

Mr. Armand Gluff was hired in January to become the new tester for the Graham-Greenlee D.H.I.A. Mr. Ralph Van Sant and Mr. Lynn Fitsimmons, county extension agent, changed the association over to a complete 100% I.B.M. Association. The two largest herds in the county were already on I.B.M.

During November, 1958, Mr. Armand Cluff resigned and Mr. Freeland Moody took over the testing duties.

Mr. Van Sant worked up some supplemental records to be used as life-time records for individual cows. Many of the dairymen complained that the machine records didn't give a lifetime record of the individual cow in one place.

C. - Artificial Insemination

Seth Mattice and Ted Larson started in October of 1958 to use a regular artificial insemination service of frozen semen. This will primarily be used on their own herds.

Ted Larson and Seth Mattice both attended an artificial insemination school held February 5-7, 1958 at the University of Arizona.

D. - Dairy Equipment and Marketing

Close contact with the tester and the extension office was maintained at all times. A survey to determine what type of barns, machinery, milking parlors were most popular was made by the extension service in cooperation with the local tester.

The dairy industry is changing fast. A survey of D.H.I.A. members in Graham County indicates most dairymen prefer to feed green chopped feed, like the two-level milking parlor, and most of them have a direct milk line system which runs into a tank. This is quite a change from the old stanchion type of barns and hand milking.

Milk is hauled by tank trucks to Tucson, and in cans to Globe and Duncan. The greatest market for Grade "A" milk is in the Tucson area. Dairying in the Safford valley will increase as the Tucson area grows.

The Federal milk marketing order that went into effect three years ago has helped to stabilize the dairy industry throughout Arizona.

E. - Fly Control

On May 12, 1958 there were 80 circular letters on fly control sent to all dairymen and livestock owners in the county. Malathion and Diazinon were recommended.

V. PROJECTS

#6 - Poultry

1. Diseases

Situation- - Each year in Graham County there is some poultry disease. In the past there have been outbreaks of Newcastle disease, but through extension education this disease has not been heard of in the county since 1950. Most of the large producers now vaccinate. A new vaccine now on the market should make this operation a whole lot simpler. The vaccine is applied in the form of a spray.

This year the extension office worked with poultrymen very closely on diseases. Several outbreaks of chicken pox, coccidiosis, pullorum, and bronchitis were encountered, but were quickly remedied with some of the new antibiotics and booster feeds.

Two fryers from the flock of Robert Goodman, of Safford, were sent to the University of Arizona animal pathologist for examination.

Mr. Goodman had been losing two or three fryers each day for some time. The examination revealed a vitamin B deficiency. The ration was changed and no more losses were encountered and the chickens picked right up in their feed and weight gaining.

This laboratory service given by the University of Arizona is a great help to county agents.

The disease problems in poultry flocks in Graham County this year were numerous but they all ran along certain lines, for the most part. About half of the problems were intestinal infection and the other half were the run-down condition of hens that had started to lay last summer and were still laying this spring.

Soluble auremycin was recommended in both cases and seemed to do a good job of clearing up the condition. It was not necessary to send any chickens in for examination.

A continual problem of cannibalism in small chicks and older hens brought a good many calls to the extension office. The usual recommendations such as green feed, red light bulbs, etc., do not seem to work. Debeaking seemed to be the only thing that really worked.

Mr. Art Boswell, a cage poultryman from Pima noticed a great many of his hens were becoming thin and wasting away. One of the typical hens was taken to the poultry pathology laboratory at Mesa for examination. The examination revealed no disease present, but termed it "cage fatigue". The agent recommended that hens getting in this condition should be taken from the cages and put on the ground for a while until they started to eating again.

Two different sets of hens were sent to the University of Arizona Animal Pathology laboratory for examination.

It is very difficult to tell poultry disease just by looking at the chickens. We have a number of products on the market now that can be given at once, such as the sulfas and antibiotics, but we really should know what we are working with so it's a good idea to get a lab check on these diseases.

Even though the sickness seems to be general it is often hard to get a typical case, so we try to send at least two birds .

Extremely hot weather brought on considerable trouble among flocks with older hens.

On January 6, 1958 the agent took two diseased hens from the flock of Mr. Walmsely, Pima, Arizona, to the animal pathology laboratory at Mesa for diagnosis of disease. The disease was first diagnosed as fowl laryngotraicheitis, but later was changed to fowl pox when their birds innoculated came down with the pox.

Fowl pox was quite general throughout the county in unvaccinated flocks during the month of January.

One day when the poultry specialists were in the county they accompanied the county agent on a tour of all the poultry enterprises in the valley.

Three small chicks were sent to the animal pathology department at the University of Arizona for examination for possible bacterial disease. When the agent saw the type of brooder being used it was quite evident the reason that 325 chicks out of 350 died within a few days was due to the brooder. An old bathroom heater with no vent was used for a brooder. No thermostat or thermometer was used to check temperature or to regulate temperature. The chicks showed no sign of any disease that would kill this many so quickly. The owner was given information on the correct use of a brooder and immediately procured a regular brooder.

2. Poultry Meetings

A poultry meeting was held at the Valley National Bank meeting room, Safford, Arizona on January 13, 1958. Thirty poultrymen attended.

Dr. Pasvogel, Head of the poultry department of the University of Arizona, Dr. Kurnick, nutritionist, and Mr. Ralph Van Sant extension poultryman from the University, were on the program.

Mr. Van Sant urged poultrymen to buy better chicks. Dr. Kurnick talked on poultry feeding. Dr. Pasvogel gave a report of some of the latest poultry research and a report on poultry diseases.

At the end of the meeting the agent gave each poultryman a card to write a question on. The panel of Dr. Pasvogel and Dr. Kurnick answered the questions. This method of answering questions avoids embarrassment. The poultrymen enjoyed it very much and it was real information.

Four local poultrymen, the agriculture class at Eastern Arizona Junior College and the county agent attended the poultry industry field day held at the University of Arizona poultry farm on May 2, 1958.

3. Fly Control

Situation - Many poultry farms in the Safford valley have turned over to the cage system in the past few years. The cage system presents a problem of fly control because the droppings are allowed to accumulate for a year at a time.

As a result of the many fly control demonstrations using Malathion the past couple of years, poultrymen in general were pretty well sold on the use of it to control flies in the poultry houses.

Ted McBride at Pima has 4,000 laying hens in two buildings under the cage system. He cleans up the droppings once each

year. He was one of the first poultrymen in Graham County to use Malathion as a spray to control flies. This year a number of the poultrymen used dry bait - that is Malathion treated with sugar - with good results.

One of our poultrymen noticed his fly population was down considerably this summer and started checking the manure and found a great mass of large larvae renovating the manure and seemingly was doing something to keep the fly population down.

Dr. J. N. Roney, extension entomologist, inspected the larvae and found them to be the "Soldier Fly" larvae. In poultry houses they are very beneficial because they eat the other fly larvae.

Now we have transplanted this larvae to the poultry house of Mr. Boswell of Pima, Mr. Whetstone, Safford, and Mr. Boyd Overton at Artesia. We will check these demonstrations and watch the results of the Soldier Fly at work.

4. Housing and Care

Situation - Owners of small back yard poultry flocks do not make sufficient arrangement for difference of care during winter months and the months of excessive summer heat. Poultry houses are of a make-shift variety. Ted Welchert, extension agricultural engineer, now has a set of plans which are a great help to the county agent and poultrymen alike.

Six sets of University of Arizona poultry plans for ground systems were furnished people wanting to go into the poultry business. One set of plans has already been used and the person has the building constructed and is very happy with it.

5. Marketing

Situation - The poultry industry in Graham County has not developed as it has in other parts of the state. This is no doubt because our marketing facilities are inadequate. There is no egg storage plant, nor is there any dealer in live poultry. However, the Arizona Egg Company of Tucson is now buying eggs in the area. This has helped to stimulate a little more interest in poultry production. It has also helped to some extent to take care of the surplus in the spring.

The proper marketing of eggs can make or break a poultryman because the public is very critical of bad eggs. This matter has been continuously brought to the attention of poultrymen by the extension service through newspaper articles, radio talks, and personal interviews.

One of our large commercial poultrymen having 4,000 laying hens in cages sells all of his eggs to a local dealer, who grades the eggs and sells through his stores, and in turn sells feed to the poultrymen. In fact, this is often the case - "You buy my feed and I'll buy your eggs". Now if a number of people went into 4,000 laying hen size enterprises the marketing situation might not be too good.

There is a possibility, however, that many individuals could build up a good sales business right at home by selling high quality eggs at a lower price than the stores. This part of the program is being pushed by the extension agent.

The matter of selling culls is looking brighter. A Phoenix processor will now buy culls. Also the local market is using more culls than formerly. Egg charts showing egg grades and how the eggs appear for different grades were sent to every poultryman and egg dealer in the county.

The poultry industry is not large in Graham County, but we do have a few people now making it a full time job and there are a number of small flocks. During the past year a number of people have indicated that they would like to go into the poultry business.

More of our 4-H'ers are going into poultry. Gene Kempton at Eden did a very nice job this last year with a poultry project. Eggs prices were not as favorable this year as they have been in the past ten years. However, more people are going into the poultry business in Graham County because to date the market has been pretty steady.

6. Culling

Cage system operators have no problem in culling. This is one of the advantages of this system, but the flocks on the ground are a little more difficult to cull.

The problem of cannibalism is also very bad on the ground. The cage systems have many advantages and are really being adopted in this area.

V. PROJECTS

#7 - Agronomy

A. Alfalfa

1. Culture

Situation: In 1958 cotton acreage allotments forced farmers to raise other crops. Two other crops can be grown quite well in a cotton rotation. These crops are: small grains and alfalfa. There is a great demand for alfalfa in the Gila Valley. The Safford Packing Plant, dairies, and surrounding ranches buy all the alfalfa raised.

Alfalfa does require considerable water but most farmers average 8 tons of top quality alfalfa hay, and for the last several years good alfalfa has never gone below \$17.00. Besides all of this alfalfa used here, alfalfa pellets are imported from Pinal County.

2. Fertilizers

As a result of fertilizer test plots conducted in Graham County in the past, by the extension service, more and more farmers are making a practice of fertilizing their alfalfa with treble superphosphate. Treble superphosphate in every case has increased alfalfa production in Graham County. We have been very pleased with the results of its use on alfalfa.

3. Varieties

Farmers in Graham County have been planting Chilean and African alfalfa seed. African does not last too long, and freezes out easily, but it gives farmers an extra cutting and many of them like African alfalfa.

This spring late cold weather ruined a number of African alfalfa fields. It froze the tops back and many of the plants suffered from Crown Rot. Fields of Chilean alfalfa under the same conditions held up well, and loss of stand did not occur. African is recommended, but the farmer

is told about the possibility of a freeze. It's a good alfalfa, however, and resists the yellow aphid better than others.

Moapa is a new variety of alfalfa that shows real promise in this area. Moapa is resistant to the spotted yellow clover aphid and it yields right up with African. A demonstration plot was established in the fall of 1958 in the Wilson Farm at Geronimo. This is a one-acre strip across the middle of a 20-acre field of the African variety.

4. Seed Production

Many farmers in Graham County became interested in alfalfa seed production, apparently because of the demand for alfalfa seed, since cotton allotments were inaugurated. Very few farmers had much experience with alfalfa seed, and the agent was called on many times to see whether the alfalfa would make seed. In each case the agent did not inspect the field without the farmer being along. The blossoms were examined for tripping, and in each case the agent explained to the farmer how he might check the field to see if the blossoms tripped, and the percentage necessary to say that alfalfa seed production could be expected.

Some farmers and insecticide dealers were interested in some of the new defoliant used on alfalfa to hasten alfalfa seed production and to make harvesting easier. This information was obtained from the extension agronomist and made available to all those who were interested.

5. Alfalfa Irrigation

Spotty fields and fields with too much slope do not make good alfalfa stands. Alfalfa requires even penetration of water.

Farmers were urged through radio, press, and personal contacts to level land before planting alfalfa. They were also told to come back with a light irrigation in about seven or eight days after planting to help the plant to come through the crust.

6. Alfalfa Insects

The spotted clover aphid was the number one enemy of the alfalfa plant this year. The infestation was not as general as it was in 1956, but where it did hit, it did plenty of damage. BHC 2-3% dust or spray seemed to be effective in controlling the aphids and was the cheapest treatment.

Dr. J. N. Roney, extension entomologist, made a number of field trips to inspect the aphids with the agent, and several tape recordings were made each time on aphid control.

7. Alfalfa Disease

Texas root rot showed up in several alfalfa fields this year. Specimens were sent to the University for examination. A rotation program using crops without a tap root, is the only solution for this. Some stem nematode was found in alfalfa fields in the Glenbar area. The stem nematode is spreading in the Central and Fort Thomas areas. The new Moapa variety may have some resistance.

V. PROJECTS

#7 - Agronomy

B. - Cotton

1. Varieties

Situation - For many years Graham County cotton growers have not been decided upon one variety of short staple cotton. At a casual consideration of this problem it would appear that a one-variety community could be easily obtained. Things which have prevented this are the facts that we grow both long and short staple, very often on the same farm, and the prevalence of root rot, cotton wilt, and the scarcity of irrigation water.

For several years our farmers grew P-18, which had a poor quality of lint, just because they got a bigger yield than with other varieties, when their water was short. 1517C has been and still is being grown, principally because additional "points on" have been given to the farmers for the lint. The bolls are small, however, and this variety is difficult to pick.

The past eight years quite extensive tests have been made on the Experimental Station in Safford and by our farmers to determine which cotton varieties were adapted to growing on land infested with verticillium wilt. As a result of these tests WR-44 has proved to be the most wilt resistant. It also has large bolls, which open well and are easy to pick.

For a long time Graham County farmers planted SXP as practically the only long staple cotton. Then about four or five years ago some of them started planting Amsac. Amsac seemed to give more yield than SXP. For the past few years farmers have planted Pima-32, which is giving a higher yield than any other variety of long staple.

As a result of test plots by the extension service and cooperating farmers almost all of the long staple planted in Graham County this year was of the S-1 variety.

A move was made by the National Cotton Council and the Arizona Cotton Growers' Association to take S-1 off the support program, and this would mean a free market and no limit on acreage to be planted. In October of 1956 the U. S. Department of Agriculture announced that the long staple allotment for Arizona had been doubled.

INFORMATION ON THE 1957 COTTON IN GRAHAM COUNTY

The total cotton ginned in Graham County was as follows (1957 crop):

Long Staple	10,054	
Short Staple	12,370	
	<u>22,424</u>	TOTAL

The 1957 acreages planted were:

Long staple	10,335 acres
Short staple	7,857.3 "

BALES PER ACRE: Long - 1 bale per acre
Short 1.6 bales per acre

Long and short staple both were about one-half bale below average production for the past three years.

A late spring and rains in the fall when dry weather was needed knocked both yield and grade.

The yield was down some too, because it was necessary to pick 75% of the crop by machine and the waste was quite heavy in many instances.

At the Farmers' Day meeting held in Safford, Arizona on February 3, 1958, 150 farmers heard the county agent give the results of variety demonstration plots. There was very little difference in the production yield of WR-44 and 1517C over a four-year period. Dr. Feaster of the U. S. Department of Agriculture explained the new hybrid program for S-1 cottonseed.

Each year we maintain variety demonstration plots of cotton just to show farmers what different varieties will do under farm conditions.

Cotton is the most important cash crop grown in Graham County because it is the most profitable crop a farmer can grow. This is also the reason it was the principal crop discussed at the Farmers' Day meeting.

March 4 and 5, 1958 the agent attended the Western Cotton Conference held at El Paso, Texas.

This was two days well spent. Late developments in the use of growth stimulants and systemic insecticides were emphasized.

One of the latest developments is the use of hand sprayers to control Johnson grass and Bermuda grass. This topic was very well presented by the Texas A. & M. Agronomy Department.

Dr. Fuller, head of our own soils department at the University of Arizona gave a very good talk on soil compaction and what we can do about it.

Seedling diseases were given considerable attention. A new attachment now on the market places the fungicide around the seed at planting time and a good many tests have been run with very good results. The treatment is still quite expensive.

As a result of the agent attending this meeting a Graham County cooperater procured a jet-type knapsack sprayer for spot treatment of Johnson grass, and used it during the entire season.

Dr. Carl Feaster, plant breeder from the U.S.D.A. Cotton Research Center, Tempe, Arizona, visited the county on October 15th and again on October 24th and 26th.

The agent and Dr. Feaster went over the regional long staple tests being conducted at the Farrell Layton Farm near Thatcher.

On October 26th the agent met with Dr. Barker, head of the cotton branch, U.S.D.A., Dr. C. Lewis of the cotton branch, and Dr. Feaster, and evaluated the plots.

October 27, 28, and 29 the agent assisted in harvesting the plots and taking composite spinning samples.

September 18th and 19th the county agent attended a cotton marketing conference for county agent in Phoenix, Arizona. This conference was held at the Cotton Research Center near Tempe.

Men from all segments of the cotton marketing process were brought in to talk to our group. We visited the U.S.D.A. Cotton Classification Center and a cotton buyer's office. This was a well planned and interesting, as well as informative conference.

The cotton crop looks very good. The crop is about two weeks ahead of normal. The agent sent in to various agencies on the average of three reports weekly on the cotton situation in the county.

The variety plots on the Bob Colvin Farm were visited and the WR-44 was outstanding in its apparent tolerance to verticillium wilt. The 29-68 was hit the hardest with wilt. The 1517C had a great deal of wilt in it but it may pick out quite heavy. This particular test plot was planted on very heavy wilt-infested ground.

The variety tests on the Burwell Hatch farm look very good with no wilt appearing in any of them. The 1517C gave the heaviest yield on the first picking of any of the three varieties in the test.

150 farmers attending the Annual Farmers' Day Meeting in Safford on February 3, 1958, heard the agent give a full report on the cotton demonstrations carried on in the county during the year. Dr. Pressley and Dr. Feaster, cotton plant breeders also gave talks on cotton varieties.

(Charts of these demonstration plots follow this section).

Graham County cotton planted as of June 30, 1958:

Long Staple	10,020 acres
Short staple	7,838 "
Soil bank	1,025 "

As of June 30, 1958 the cotton crop in general was 100% of normal, most of the plants both long and short were putting on squares and loading good. Some long staple plants were in blossom.

COTTON S-1 Long Staple Demonstration

Place - Farrell Layton Farm, Thatcher, Arizona

In cooperation with U.S.D.A. plant breeders, Dr. Feaster and Dr. Turcotte of the Cotton Research Center, Tempe, Arizona. Planting date: April 22, 1958. The diagram of this plot follows this section.

This plot is one of many being established across the long staple belt to test high producing strains of S-1 cotton that have been selected in the cotton plant breeding program. Some selections have produced 20% more than the regular S-1 now being planted.

Place - Bob Colvin Farm, Eden, Arizona

Varieties planted: 1517C, WR-44, and 68

4 rows of each repeated twice
Length of rows - 1/4 mile
Date of planting - April 24, 1958
Rate - 16 pounds an acre

Chart follows this section.

Place - Burwell Hatch Farm - Safford, Arizona

Varieties planted: 1517C, WR-44, and 68 - Planting date
April 23, 1958

4 rows each repeated twice - rate 20 lbs. per acre
Chart follows this section

4-YEAR AVERAGE COTTON VARIETY TEST

BOB COLVIN FARM, EDEN

	<u>Bales per Acre</u>
WR-44	2.0
1517C	1.9

COTTON VARIETY TEST

Bob Colvin Farm
Eden, Arizona

1957

	Bales per acre
1517C	1.7
WR-44	1.4
WR-42	1.2
46	1.1
1-24-68	.7

35% TURNOUT

SPACING TEST: LEA HUNT FARM, THATCHER, ARIZONA: 1957 Variety WR-44

Thinned 6"

Thinned 2.1 bales per acre

Not thinned 1.9 bales per acre

LONG STAPLE HYBRID TEST: LEA HUNT, THATCHER, ARIZONA: 1957

HYBRID 0.91 bales per acre

S-1 0.92 bales per acre

VARIETY BALES PER ACRE

1517C 2.9

WR-44 2.6

4-42 2.4

68 2.3

GYPSUM TEST: LEA HUNT, : THATCHER: 1957

Control 1.17 bales per acre

GYPSUM (10 tons per A.) 1.20 bales per acre

LEA HUNT: FOUR-YEAR AVERAGE WR44 2.4 bales per acre

1517C 2.2 bales per acre

CONCLUSIONS CONCERNING COTTON TESTS ON THE LEA HUNT FARM, 1957

Spacing test

no real advantage to thinning except in rank cotton and then a 6-inch spacing is the best

Hybrid test

no advantage to hybrid

Variety:

1517C outstanding, closely followed by WR-44
The 68 grew tall but did not put on fruit like the other cotton.
No wilt in any of these varieties; it was all planted on non-wilt ground.

Gypsum Test:

nothing significant

4-year variety test:

1517C and WR44 best producers over 4-years
WR-44 little more resistant to wilt
1517C - better selling, stronger cotton

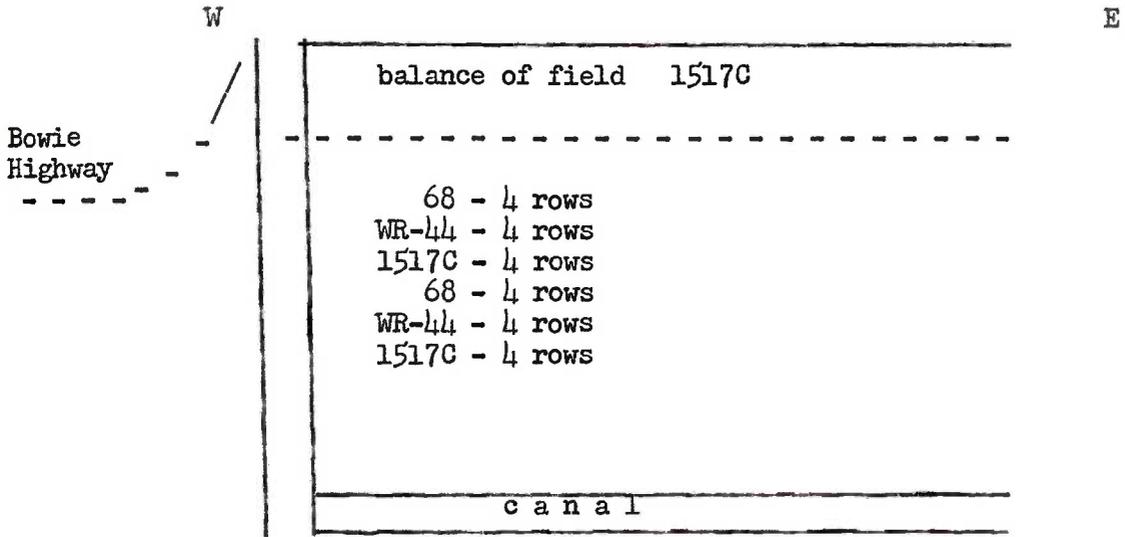
Fertilizer test

nothing significant
control did as well or better than some of the treated

See 1957 annual report for procedures and methods of establishing these demonstration.

Two cotton variety demonstration plots were established
on the Burwell Hatch Farm near Safford

N



DATE PLANTED: April 23, 1958 - Rate 20 pounds an acre

NOT HARVESTED AT TIME OF THIS REPORT

Safford - Layton Farm : Plot size: 2 rows 30' Planted 4/22/58

North

20' fill

4 rows / \$1 border

30'

Plots 81-96	Plots 197-216
Plots 65-80	Plots 177-196
Plots 49-64	Plots 157-176
Plots 33-48	Plots 137-156
Plots 17-32	Plots 117-136
Plots 1-16	Plots 97-116

PS1 Regional Test

F9 Strains Regional Test

40' to edge of ditch

----- 72 rows of test -----

NOT HARVESTED AT TIME OF THIS REPORT

#7 - Agronomy (Continued)

B. - Cotton

2. Pure Seed

Situation - It has always been difficult to get a pure seed association going well in this county. There have been several different varieties of short staple grown every year, and long staple has been scattered all over the valley. This has made it almost impossible to get the necessary isolation, for either long or short staple cottons. During some years when a few farmers have had the necessary isolation, and grew pure seed, there was not enough sale for it. Also there was not enough increase in price over ordinary seed, to justify the time and pains the farmer took to get his seed certified.

In general farmers now purchase most of their seed through the gins. This means they get pure seed with the blue tag. This has been a real struggle to put over, but I believe our work is beginning to pay off.

3. - Cotton Fertilizer Demonstrations

Situation - For at least eight years our cotton farmers have been spasmodically using various kinds of commercial fertilizers. For the most part they have not kept records of yields. Some have claimed beneficial results, while other claimed that the fertilizer did not do any good.

Charts following this section show the results of 1957 fertilizer plots. The results obtained on these farms give us a pretty good indication of how fertilizers will do throughout the county.

One of the plots put out this year was in cooperation with the University of Arizona Soils Department. This was put on with a special tractor equipped to put on measured amounts. It was all side dressed at chopping time. All of the NH_3 was put on as gas injected in the soil.

4. Classification and Market News Service

Situation - For many years cotton growers had to sell their cotton practically "in the dark" with reference to quality. They had no way to ascertain whether or not they were get-

COTTON FERTILIZER TEST

Bob Colvin Farm
Eden, Arizona

1957

	Bales per Acre
75N - (A N)	1.3
75N (N G)	1.3
75N (16-20)	1.2
50 N (NG)	1.2
50 N (AN)	1.2
Control	1.1
50N (16-20)	1.0

36% TURNOUT

1957 - FERTILIZER TEST: ON COTTON: LEA HUNT, THATCHER, ARIZONA

36% Turnout - VARIETY WR-44

	Bales per Acre
50 N 16-20	2.3
Control	2.4
50 N NuGreen	1.7
75 N NuGreen	2.3
50 N Ammonium nitrate	2.1
75 N Ammonium nitrate	2.5
75 N 16-20	2.1

EXPERIMENTS 58-J and 58-K - Cotton

Cochise and Graham Counties

Hatch Farm

Treatment Number	Treatments	Rates
1	0	0
2	N	40-0
3	N 1	80-0
4	N 2	120-0
5	P 3	0-92
6	N P 1	40-92
7	N P 2	80-92
8	N P 3	120-92
9	N PK & Fe & An & Mn 2	80-92-42

EXPERIMENTS 58-J and 58-K - Cotton

4315	4327	4333
4219	4224	4232
4116	4128	4131
2114	2121	2137
2215	2222	2238
2319	2323	2336
3314	3328	3333
3111	3129	3135
3212	3326	3237
1214	1226	1235
1113	1121	1132
1317	1328	1339

N
61



Soil injection of NH_3 is becoming more popular in Graham County; farmers like it because it is simple and requires little labor.



This equipment is easy to install and our soils department reports the results are just as good as using the powder or pebble form of fertilizer.

ting the market price for the quality of cotton they were producing. Buyers in the valley bought on what was commonly called the "hog round" basis. That is, they paid everyone on the basis of the value which they placed on the poorest quality of cotton which the farmers had. For over ten years this office has assisted farmers in organizing the Graham County American Egyptian Cotton Improvement Association and the Graham County Upland Cotton Improvement Association. Some years this has taken considerable time because the organization papers required the names, addresses, and acreages of all growers of each different variety. As a result of this work farmers are now supplied free of charge with the classification of their cotton by the U.S.D.A. Market News Service. Classification cotton cards are ordinarily left with the gins, and buyers can and do purchase the cotton directly at the gin on the basis of these cards.

During 1958 this service was continued, and the County Agent's office made the necessary additions and deletions to bring the Associations' acreages up to date.

5. Cotton Insect Control

Situation - Cotton insect control is a major project of the Agricultural Extension Service in Graham County because cotton is the principal cash crop, and the lack of proper cotton insect control can ruin a cotton crop in one season. For several years dusting with ground machinery was the principal means of application, but in the last few years the airplane has been the chief means of application.

A close check of cotton insects was made by the agent at all times during the season when cotton insects do the most damage. A report was made each week by the agent to Dr. J. N. Roney, extension entomologist, describing the cotton insect situation in the county. Information for the checks was gathered by personal checks of certain fields in each area, interviews with commercial companies doing insecticide work, and with members of the Bureau of Entomology making regular cotton insect checks in this area.

150 farmers attending the Farmers' Day meeting in Safford on February 3, 1958 heard Dr. Roney lay down the necessary steps for the control of pink bollworm in Graham County. A wonderful 10-minute movie on the life cycle of the pink bollworm, in color, was shown at the close of the talk.



Cotton farmers like our annual cotton insect field days. Here is a group listening to and watching Dr. J.N. Roney, extension entomologist, give the latest recommendations on insect control.



Cotton farmers come from far and near to our insect field days!

Through the cooperation of a local cotton farmer and a local implement dealer, a cotton stalk shredding and plowing demonstration for the control of pink bollworm was put on in a field right near the meeting place. Dr. Roney explained in the field how pink bollworm should be controlled.

The Folder No. 70 entitled "Destroy Pink Bollworm" published by the Agricultural Extension Service, University of Arizona, was mailed to every cotton farmer in Graham County.

Pictures of farmers plowing with a moldboard plow and others using the proper tools for shredding, were used to publicize the pink bollworm control. With each picture a caption explained the purpose of the equipment in the pictures.

More than 80 farmers, bankers, insecticide dealers, agricultural teachers and others gathered at Lone Star, Central, and Cork to see Dr. Roney and the agent check fields for insects, identifying them, and checking plants for damage. This was one of our best field days. Farmers were very interested and asked many questions.

6. Cotton Diseases

The cotton was hit quite hard in August with Texas root rot and verticillium wilt. Texas root rot was very bad in the long staple fields and verticillium wilt hit late enough so that it may not be too bad. 1517C seemed to be suffering quite badly from verticillium wilt.

In a survey of the county the agent pointed out the great cotton loss this year due to Texas root rot and particularly in the long staple cotton.

At the Safford Experimental Farm Field Day this subject of root rot was again brought up by many farmers so the agent asked Dr. Shields to speak to the 190 persons assembled at the field day, on root rot and what could be done about it.

Dr. Ivan J. Shields, plant pathologist for the extension service, University of Arizona, assisted the agent in establishing a field demonstration on the use of fungicide to prevent cotton seedlings diseases. This demonstration was held at the Norman Welker Farm, Safford, Arizona, on April 23, 1958.

The Shorb Motor Company, local Ford dealer, furnished the

applicator and the Fannin's Chemical Company furnished the material.

Material used was:

Mix No. 1
20% Terraclor (P E N B)
20% Willamite

Mix No. 2
20% Terraclor (P E N B)
2% Dieldrin

Cotton seeding rate: 20 pounds per acre
Variety - S-1 long staple
Cotton planted in moist soil

8 rows treated with	20% P E N B	
	2% Dieldrin	
8 rows treated with	20% P E N B	
	20% Willamite	**
8 rows control	**Fluorescent material so it can	be detected at night

This material was put on in a dust form blowing around the seed and mixing with the soil as the seed was planted. Observations will be made to determine it's future use. Cost of material - rate 10-12 pounds per acre - \$3.80 per acre. The blower used was a Gustafson.

Dr. Shields, plant pathologist for the University of Arizona Extension Service visited the county on May 30, 1958, and assisted the agent in checking the cotton plots on the Norman Welker farm treated with fungicides. After a complete check of the plots it was decided that the fungicide made no isgnificant difference; very little sore shin was found in either the treated or untreated plots. It is quite difficult to show much results with this material unless sore shin is heavy enough to make a difference in the stand.



Texas root rot took a heavy toll of long staple cotton in Graham County this year. This is County Agent John L. Sears in a typical patch of root rot infected cotton. Root rot cotton is a total loss !

1958 ESTIMATED COTTON PERCENTAGE REDUCTION
FROM FULL YIELD DUE TO DISEASES IN GRAHAM COUNTY, ARIZONA

Disease	% REDUCTION FROM FULL YIELD						Your County Estimate	1958
	1952	1953	Average Estimate for Arizona 1954	1955	1956	1957		
<u>Parasitic</u>								
1. Root Knot Nematode	2.5	3.0	2.3	2.02	2.3	2.3	1.0	--
2. Verticillium Wilt	1.75	1.6	2.1	3.1	3.5	3.44	2.5	4.0
3. Bacterial Blight	.25	.4	.8	.41	.10	Tr.	0.0	.1
4. Texas Root Rot	2.75	2.6	1.9	2.18	2.80	3.16	6.5	10.0
5. Seedling Diseases (Rhizoctonia, etc.)	4.5	2.6	2.6	2.65	2.4	2.42	2.0	2.0
6. Boll Rots (Except No.3)	.6	.3	.7	1.9	.60	2.30	0.0	6.0
7. Others, including Crazy Top, Rust, Leaf Crumple	<u>.25</u>	<u>1.8</u>	<u>2.1</u>	<u>.5</u>	<u>.13</u>	<u>.1</u>	<u>1.0</u>	<u>0.0</u>
TOTAL	12.80	12.3	12.5	12.77	11.83	13.72	13.0	16.1

7. Defoliation

The defoliation of cotton is becoming more popular each year. This is because machine cotton picking has become more popular and defoliation is partly the answer to preparing cotton plants for machine picking. In fact, as far as experiments at the Sacaton Station are concerned, the only real advantage to defoliation is machine picking.

Defoliation also has some advantage in higher altitudes. If the bolls are checked and found to be quite soft, it might pay to defoliate to let the sun in and mature the bolls before a heavy freeze hits that might sour the bolls. More defoliant will be used in Graham County this year than ever before. More machine picking will be done this year than ever before, also.

The bulletin "Defoliating Cotton in Arizona", Circular 203 was sent to all of the leading farmers and loan agencies in the county. The agent checked a number of fields to determine defoliating conditions. Short staple cotton was ready for defoliating this year by the last week in September. Farmers held off somewhat because the wet weather kept the cotton growing and regrowth after defoliation could occur under these conditions and that would be a bad situation.

Defoliation of cotton was up about 30% in Graham County this year. Early maturing of the crop and more machine picking brought the percentage up.

8. Cotton Irrigation

There are as many different ways of irrigating cotton as there are cotton farmers. Most farms in this area pre-irrigate their cotton land to a good depth, plant their cotton, and try to keep from watering. Watering, however, is sometimes necessary depending on weather conditions.

Leveling land, cementing ditches, and building up organic matter in the soil is the educational program of the extension service in Graham County. One farmer who practices good conservation farming of rotation, plowing under green manure crops, etc., irrigated his cotton just three times in the season. The farmer next to him irrigated every 10 days and didn't make as much cotton.

Even in these drouth years farmers often use too much water. We must make better use of the water we have.

One farmer in the Thatcher area with good land, raised 3 bales of cotton on land irrigated very other row and the last irrigation was on July 15th. We tell farmers not to irrigate in this area after September 15th.

During the past few years more cotton has been picked by machine than ever before. Hand labor is hard to get and as the weather gets cold, pickers can't get out in the morning, and it gets dark too early to get much picked.

Mr. Osgood Rawson, Manager of the Producers' Gin Company said that as a result of our cotton machine picking schools last year, the grades and quality of machine-picked cotton was the best ever produced in Graham County. Machine picked long staple was turning out 35% in October and the owners were getting top grades.

GRAHAM COUNTY

Crop Acreage - 1958

Crop	Acres Irrigated	Dry Farming Acres
Alfalfa	8,000	N O N E
Cotton Upland	7,838	"
American-Egyptian	10,020	"
**Barley	10,000	"
Corn	500	"
Grain Sorghums and ** Silage Sorghums	8,000	"
**Wheat	80	"
Dry Edible Beans	N O N E	"
Vegetables	75	"
Grapefruit	N O N E	"
Oranges	N O N E	"
Lemons	N O N E	"

** Double crop in most cases

TOTAL IRRIGATED AREA 40,000 Acres

R. E. Seltzer
Dept. Agr. Economics
University of Arizona

#7 - Agronomy (Continued)

C. - Green Manure Crops

Situation - There have been sporadic attempts at growing green manure crops. The ones used have been sour clover and barley. Where sour clover has been grown in the Lebanon District it has always shown beneficial results in the succeeding crop. Where barley has been grown and plowed under it did not show results until the last few years. In recent years we have been adding at least one sack of ammonium nitrate to each acre of barley before it was plowed under. This has caused the following crop to start rapidly and make a good growth.

Because our farmers have thought that they had to get their cotton planted by the middle of April, they were not satisfied with clover as green manure. Clover makes its most rapid growth in April after having been planted in the fall. Now that our farmers who planted cotton the first part of May can still make a good crop, they are beginning to think more of green manure.

The practice of sowing barley in cotton for a green manure crop has become quite prevalent in the last few years. It was first started by Dr. Lavelle Hoopes of Thatcher.

This year it will not be possible to sow a green manure crop unless the cotton is plowed to at least four inches. This is the regulation put on the cotton planting by the pink bollworm quarantine. This may cut down the acreages of green manure crops.

D. - Corn

Situation - Corn is not a leading grain crop in Graham County. However, since the advent of cotton allotments more corn is being grown for silage. Many dairy farmers prefer corn over hegari silage. Mexican June corn has always been the favorite because it makes a great tonnage and the husk covers the end of the ear pretty well and prevents quite a bit of corn ear worm damage. Some dairymen and feeders would like a finer stalk corn, however, because there is less waste to the ensilage.

Yellow hybrid corn can be grown in Graham County. This has been proven at the Safford Experimental Farm. There the yellow hybrids will out-yield Mexican June as far as grain is concerned.

#7 - Agronomy (Continued)

E. - Sorghums

Sorghums seem to be better adapted to Graham County than corn. Silage sorghums have become very popular because of demonstrations put out on the testing plots in the past by the extension service.

Another feature of the Farmers' Day meeting this year was a report by Dr. Lee Stith of the University of Arizona plant breeding department on work being done at the Safford Experiment Farm on sorghums.

Dr. Stith reported that Sart (silage sorghum) was the high yielder at the Safford Station this year, the measured yield being 32.7 tons per acre of silage with a D.N. of 16.4 as compared with a TDN of 17.5 and yield of 19.3 tons per acre for hegari.

On April 10 and 17 Mr. George Clark, extension agronomist from the University of Arizona, visited the county and assisted the agent in setting up grain and forage silage demonstration plots. All of the seed was distributed to cooperators and instructions on planting were furnished.

COOPERATOR

VARIETIES

Bob Colvin, Eden

NK - 320 (forage)
Tracy - forage
Sart - forage
Rex - forage
DeKalb FS-1-forage

Norman Hancock, Eden

Sart
Rex
Tracy

Horace Baker, Cactus - Kafir - grain

W. B. Marshall, Eden, Pima - NK - 320 - forage

George Morris - Cactus - RS-610
RS-650
RS-660
NK-310 all grain

Earl Hunt, Cactus - Advance mix - forage
Sudan grass (hybrids) - forage

J.D. Williams, Klondyke, NK 300 - forage
F.S.-1-DeKalb hybrid - forage
Tracy - forage
Advance seed mix - forage

Bill Hughes - Bonita - varieties not listed; all grain types

Glen Bingham - Safford - E 56 A
F 62A
Martin
C-44 A gall grain types

PLANTING DATE: April 28, 1958

Gordon Hoopes - Central - 300 - NK - silage type

When these sorghums are ready to harvest, the extension agronomist and the agent will take proper samples and evaluate the results.

The agent ran a number of sorghum demonstrations this year, particularly on sorghum for silage. This is the result of one of these tests.

Place - J. D. Williams Farm, Bonita, Arizona

VARIETY	YIELD
Sart	25 tons
Tracy	18 tons
Advance Mix	20 tons
FS-1 DeKalb	18-20 tons

Observations made on the Bob Colvin Farm:

VARIETY	REMARKS
N.K.320	Heavy head, tall heavy producer
Sart	Little late, no lodging, good stalk, fair head
FS-1-DeKalb	Early, short, good head, quick to make head, could be cut twice
Tracy	Tall, no lodging
Rex	Very spindly, good
Advance	Very good
Mix	Very good, heavy yield

The Northrup King 320 silage sorghum looks very good in all tests. We do know this, however, that soon after reaching

full height the bottom leaves start to dry up very fast and if you do notice them starting to dry up, it is necessary to start cutting right away.

Northrup King 320 has a bad fault of lodging very heavily after the heads get heavy. The stalk is also quite pithy.

It may be interesting to compare the following 1957 sorghum demonstrations with the foregoing - since the 1957 results were not available until January of this year.

BYLAS APACHE INDIAN FARM: GRAIN SORGHUM

VARIETY	OBSERVATIONS
No. 660	Good uniformity, matured in 78 days Best yield of any of the hybrids
No. D 50 A	Headed out in 65 days; yield low
No. C 44A	Headed out in 65 days; yield low
No. E 56 A	Headed out in 78 days
No. 62 A	2nd heaviest yield of the hybrids Most uniform of any of the hybrids
DD 38	Out-yielded any of the hybrids planted

J. D. WILLIAMS: SORGHUMS: SILAGE: DEMONSTRATION: BONITA, ARIZONA

Sart out-yielded Advance Seed mix or straight hegari; cattle like it and are doing well on it.

BURT MORRIS DEMONSTRATION: ::: SILAGE

1/2 Hegari and 1/2 Atlas Sorgo - - - yield 25 tons per acre; 1 row hegari
1 row Atlas Sorgo

HYBRID GRAIN SORGHUMS

Texas 611 - high yields

Texas 610 2nd

Texas - Tallest but no heaviest yield

RESULT DEMONSTRATION OF
ELEVEN GRAIN SORGHUM VARIETIES ON IRRIGATED LAND
AT BONITA, ARIZONA (Colonel Hooker Ranch)

PLANTED JUNE 3-4, 1958

ALTITUDE 4500'

HARVESTED NOV. 10, 1958

Variety	Rank	Area in test	Yield/acre	Notes
Texas 660	3.	40' of row 3.21 wide	6355 lbs.	Some tip sterility
E-56 A		1/340 of acre	3640 lbs.	65% blasted - small heads
R-10		340 x 72.6 x plot	3579 lbs.	70% blasted - heavy suckering
RS-610		246.8 factor	3764 lbs.	70% blasted - heavy suckering
C-111 A			4381 lbs.	60% blasted - heavy suckering
D-55	5.		5615 lbs.	Large white seed 5% tip sterility
Texas 620	4.		5738 lbs.	Looked good
RS-650	2.		6478 lbs.	Looked very good
DD-38	:		5121 lbs.	Very short - heavy suckering Many small heads
R-12	1.		6972 lbs.	Looked very good
RS-501			3640 lbs.	30% blasted - small heads

NORMAN HANCOCK FARM: ::::: SORGHUM SILAGE DEMONSTRATION

<u>VARIETY</u>	<u>OBSERVATIONS</u>
Sumac	Best, highest yielder
Rex	Very good seed head, next best
Tracy	Fair yields
Hegari	Fair
Mexican June - corn -	Most tonnage but coarse

Sumac and Rex made very good growth. Mexican June made more tonnage but cattle did not eat it as well, and sorghum all packed and kept better in the silo than the corn. The Sumac and Rex yields were about the same - 15 tons per acre. The Mexican June was 20 tons per acre.

SORGHUM SILAGE DEMONSTRATION: SIERRA BONITA RANCH, BONITA

Advance Seed Mixture	Very good, about 24 tons per acre
Rex	Lodged badly, not high producer

Tracy - 2 rows
with
Hegari - 2 rows- - - - - 24 tons per acre, very good

CONCLUSIONS: Planting two rows of Tracy and two rows of hegari cut down on the lodging and made a good mixture. The Tracy heads were just starting to form when the hegari was ready to cut.

All of this ensilage was put in a trench silo holding 140 tons. It was packed with a wheel tractor. It was covered with a thin plastic covering. There was no spoilage. The cattle did a good job of cleaning up the silage in the mangers and the silage had a good smell and plenty of moisture to make it good.

Sart was not included in this test plot - during 1958 it was used as shown in fore part of this section.

On the next page is the result of a 1958 sorghum demonstration with grain sorghums which had to be cut for silage because of bird damage.

GRAIN SORGHUM DEMONSTRATION: (CUT FOR SILAGE)

COOPERATOR: Glen R. Bingham, Safford, Arizona

PLANTING DATE: April 29, 1958 Type of Soil: Clay loam

Planting rate: 12 lbs. per acre

Distance between rows 36 inches

Harvesting Date: August 25, 1958

VARIETIES PLANTED: (2 rows each 1/4 mile long)

 Martin combine
 E 56A
 F 62 A
 C 44 A
 Texas 660 - balance of field

Birds were eating very heavily on this early planted sorghum and it was found necessary to harvest for ensilage, so only observations could be made.

The combine type sorghum averaged 12 tons per acre for ensilage.

NOTES: Martin	Poorest
E 56 A	Did not fill out good
F 62 A	Very good
C 44 A	Good
Texas 660	Excellent

Fertilizer injected 150 lbs. N H 3 May 27, 1958

Irrigation schedule:

5/12/58

6/2/58

6/21/58

7/4/58

7/13/58

7/24/58

8/3/58 Early planted sorghums were all badly damaged by birds



Rubber-tired tractors do a real job of packing ensilage. Pit silos of this type are becoming more and more popular.



Franklin Sears standing at the end of a field of sorghum that went 25 tons per acre - mixture recommended by county agent: 50% hegari, 25% Atlas Sorgho, and 25% Tracy.

During the past three years the agent started more than twenty Coastal Bermuda demonstration plots on the farms in Graham County.

During the past year a great many more farmers have become interested in the possibilities of Coastal Bermuda grass for pasture in this area.

A recent article in the Arizona Farmer on Coastal Bermuda grass production in the Salt River Valley aroused a number of farmers in Graham County and they came to the agent to find out about it. It was very easy to tell them about it's merits because the plots were there for proof.

Three years ago a demonstration planting of Coastal Bermuda grass was made on the Rodney Alder Farm at Pima. This planting was made on a field that the soil sample showed only a trace of elements necessary for plant growth. Three previous crops were a failure. The only source of water was a well very high in salt content. Mr. Alder could see the value of the Coastal Bermuda; with two irrigations it was waist high.

The next problem was to get this strip to spread to the rest of the field. The agent suggested they tear up the sod in small pieces, spread it with a manure spreader, disc it in and then irrigate. This was done and within five days almost all of the sod had started to sprout.

This field that was worthless will some day be the Alder livestock farm. This is the type of demonstration that gets people to do things.

The agent gave a talk at the Safford Experimental Farm Field Day September 26th on Coastal Bermuda and its place in the agriculture of Graham County. The agent explained its tolerance to salt and alkali. About 180 farmers heard this talk.

We do know:

1. Cattle like Coastal Bermuda and do well on it
2. It will stand more salt and alkali than any other pasture plant that we now raise in Graham County
3. (a) it does not cause bloat
(b) has no disease that we know of
(c) no insects



County Agent Sears pointing to the tall sorghum in a demonstration plot. This tall one is Sart and is one of our top producers for silage. The yield is good, grain quite heavy, and it does not lodge



County Agent Sears in one of 30 Coastal Bermuda demonstration plots established this year in Graham County, Arizona.

More and more Dalapon is being used to spot treat Johnson grass and Bermuda grass in cotton fields.

In cooperation with Mr. J. David Lee, Fannin's Company put on a weed control demonstration on Mr. Lee's farm near Eden during August of 1958. Urea-Bor granules were broadcast at the rate of one pound per 100 square feet on a patch of bindweed 125' x 125'. The material was disced under and water applied. When the bindweed is killed this piece of land will be leveled.

Pepper weed was very bad in alfalfa and to date no selective weed killer has been found that will kill the pepper weed and not hurt the alfalfa. The agent recommended mowing the pepper weed when it was in full bloom and before going to seed. The cutter bar was set high enough to get the pepper weed and not hurt the alfalfa.

2-4-D was recommended for yard weed control. The amine form was recommended for use around other shrubs and flowers.

The agent wrote newspaper articles on Dalapon, put on radio programs and used every means possible to get people started to using it. Hoeing Johnson grass is a futile effort.

Weed burners have been quite popular in this area. It has been proven, though, that burning grass will make it grow faster.

#7 - Agronomy

G. Forage Crop for Alkali Land

Situation - The area south of Safford, Arizona is a problem area. Banks do not make loans there because of the poor risk of return. The soil is alkaline and the artesian wells are high in mineral content and the sodium calcium ratio of the water is high.

We do know after recent work in this area that there are some crops that will do well here. These are:

- Sweet Sudan Grass
- Vegetables
- Barley
- Alfalfa (if you get a stand)
- Corn
- Coastal Bermuda
- Star Millet

The Coastal Bermuda looked like the best bet for pasture. It is tolerant of salt and alkali and with plenty of water and nitrogen will make a good summer pasture, and if it is worked upon, in the fall it could be seeded to barley for a winter pasture.

#7 - Agronomy

F. Weed Control

Situation - The weeds which cause the most damage to crops in this county are Johnson grass, Bermuda grass, bindweed, horse nettle, puncture vine, morning glories, and pigweed. In the west end of the valley there is also quite a heavy infestation of cockle burs. For many years the county agent has been using different kinds of chemicals in an effort to control these weeds. The puncture vine has been easily killed along the highways and fence rows and in lawns by oil sprays and by use of 2-4-D. Horse nettle has been killed in demonstrations with only two sprayings of 2-4-D. Cockle burs have been killed by spraying with 2-4-D in demonstrations at the Eden and Ft. Thomas communities.

A few demonstrations have been given on the use of 2-4-D in controlling bindweed. The use of this material has almost been stopped because of the effect of its fumes on any neighboring cotton. Three-fourths of the Graham County acreage is in cotton.

Johnson grass has been sprayed along ditch banks with fortified oil sprays. This has been quite successful where at least six sprayings have been used during the season.

Dalapon for the spot treatment of Johnson grass and Bermuda in cotton is a weed program that is going over good. The agent publicized this program through radio, press and personal contacts. Lea Hunt, Thatcher, Arizona will use a jet gun knapsack for controlling Johnson grass and Bermuda in cotton as a demonstration project.

Two weed bulletins published in June will help considerably with weed educational work in the county. These bulletins are:

WEEDS of crops in Southern Arizona, Agricultural Experiment
Station Bulletin 296

and

ARIZONA Ranch, Farm and Garden Weeds, Agricultural Extension
Service Circular 265

Some work was done using the granular substance Urea-Bor manufactured by the Pacific Borax Company on morning glory patches in a cotton field. This may help to clean up some of these patches before they spread over the field.

V. PROJECTS

#8 - Irrigation

A. - Water Sampling

Situation - The big problem in irrigated farming is the conservation of water, and this has been the problem for the past eleven years. There has not been near the water supply that our farmers need. Our farmers are not given an allotment of the water until after there is storage at the Coolidge Dam 65 miles west. The allotment is usually made in January and in one-half of the storage water. This the farmers can get provided it later comes down the river. Water stored 65 miles away with no means of getting it back is of little assistance. Because of this our farmers have had to rely mostly on pump water, there must be in the neighborhood of 400 pumps in the valley.

Some of these wells are very alkaline and injure the ground after they are used for a few years, leaving a heavy salt deposit. This year, and for several years past, the county agent has sent in lots of samples of water to the University to be tested for salt content. After the analyses have been returned, an explanation of the meaning has been furnished to the farmers and discussed with them. Where the water has been high in salts the farmers have been encouraged to use it sparingly, and to use river water whenever possible to try to leach out the salts deposited by undesirable pump water.

One of these tests was made in the Ashurst area. The University of Arizona reported over 7,000 parts per million of T.S.S. in the water sample. This is a very high salt content and the soil also showed a high T.S.S. content. This is a problem area and work will be done there this year to help correct the condition.

B. - Water Conservation

Situation - The canals and ditches in the Gila Valley are a great source of water loss. There are approximately 117 miles of canals supplying water to our farms. Few of these are lined to prevent water loss. Most of them have very heavy growths of cottonwood and willows which waste water. Besides the twelve canals, there are many miles of small irrigation ditches, and only a few of these are lined.

Ditch lining started in a small way in 1951 as the result of a demonstration planned by the extension service and carried out on the farm of Dick Layton at Artesia.

Then during 1952 several individual farmers did small amounts of cement ditch lining. Even the Lebanon Ditch Company started lining the ditch on Marajilda Canyon to their reservoirs three miles away. This ditch for years lost all the way from 50% to 80% of the water.

During 1955 and 1956 there was increased activity in ditch lining, principally due to the fact that the Gila Valley Soil Conservation District purchased ditch lining machinery and did custom work.

There will be more ditch lining in 1958 and 1959 than ever before. Farmers have seen the good done with the program that has been started.

C. - See alfalfa irrigation under Project #7 -Agronomy
C. Alfalfa

D. - See Cotton irrigation under Project #7 - Agronomy - Cotton

V. PROJECTS

#10 - Entomology

A. Insect Control

Situation - When DDT and other insecticides came on the market about ten years ago we thought the insect problems were over, but on the contrary, it has increased with each year. It is true that we have some very good insecticides and they certainly beat the old fly paper and Paris green days, but insects do continue to be a "number one" problem for workers in the extension service.

Our latest insecticide for the control of flies, Malathion, is doing a wonderful job. This material is also effective on aphids and on orchard insects.

Dr. Roney, extension entomologist of the University of Arizona, has done a wonderful job of providing the agents with literature and in helping them to keep up to date on the latest insecticides and on insect identification.

The spotted yellow clover aphid has probably caused more concern in the last four years than any other one insect. It is very persistent and must be watched at all times. This has required a number of visits to the county by the extension entomologist, and considerable time checking fields by the agent.

For specific work done in the field of entomology the following sections of this report include special phases:

1. Horticultural insects
Horticulture
2. Cotton Insect Control
Agronomy
Cotton Insect Control
3. Alfalfa Insects
Agronomy
Yellow Aphid Control
4. Livestock Pests
Livestock
Fly Control, etc.

The spring of 1958 was very good for aphids and insects of all types. Cool weather and a slow spring growing season meant a great increase in spraying and dusting to keep ahead of the insects. Hundreds of calls were received on insect control.

The discovery of a heavy infestation of pink bollworm in Graham County this year led to setting a plow-up date for all cotton stalks. Extension programs in entomology were geared to meet this challenge. The new pink bollworm folder Number 70 was mailed to every cotton farmers in the county.

See Agronomy section on cotton for full report on pink bollworm extension program.

The dust or desert grasshoppers hit the Fort Thomas and Geronimo areas and moved quickly down the valley to the Eden area on June 5, 1958. On June 5th the agent met with fifteen farmers in this area and surveyed the situation. There were plenty of adults, but very few nymphs. The agent advised the farmers to keep close watch of them, and to let him know if they noticed any damage.

A few farmers had to spray on some outside rows and on ditch banks. Some even sprayed by plane, but it didn't do much good. The big job was to keep down the panic. The agent did this by putting an article in the local paper, and announcing over the radio that there were none of the bad type of grasshoppers, and that they would soon be gone. By this action we prevented a major push for government action, etc. Mr. E. E. Woodruff, district state entomologist, was very helpful in giving the agent advice and in making field trips to see the situations.

Each week a cotton insect report was sent to the extension entomologist's office describing the cotton insect problems in the county.

Insects of all types were numerous and a great many calls were answered giving recommendations for control of insects on vegetables, fruits, and even in homes.

On May 15th 95 copies of a circular letter on fly control were sent to every dairyman and rancher and feed lot operation in Graham County, describing the latest methods of fly control and the use of the new insecticides.

Dr. Roney and the agent checked cotton fields and alerted insecticide dealers and cotton men to the fact that the lygus count was getting high.

Dahlia's were sent to the state extension entomologist to be checked and he found they had been attacked by leaf hoppers.

Leaf hoppers were hitting corn very heavily and 10% DDT dust was recommended for their control. The leaf hoppers caused the corn to have a white appearance.

In cooperation with Mr. Scott Pace, Solomon, Arizona, a fly, grub, and screwworm control demonstration was established on June 18, 1958. "Co-Ral" was sprayed on 120 head of cattle just recently dehorned and branded. These animals will be checked closely for control.

Just prior to the field days on cotton insects large posters were placed in each store announcing the time for meetings, and a circular letter went to over 200 people inviting them to pick their convenient place to join in this instruction.

In cooperation with the State Veterinarian, and the Animal Disease Eradication Division of the A.R.S. and Director J. W. Pou, a letter was sent to every producer of livestock in Graham County asking their cooperation in reporting screwworm cases. This data was compiled for the use of all concerned.

On October 22, 1958 Dr. J. N. Roney, extension entomologist of the University of Arizona visited the county. A survey of the Angle orchard was made to determine damage done during the past apple season. Dr. Roney found some coddling moth and late stink bug damage, but no mite damage. Guthion was used for the last two cover sprays. The stink bugs came in late after the last spraying.

On September 2, 1958 Dr. Roney gave a talk on entomology and showed the film entitled "The Rival World" to 67 Rotarians at the Safford Rotary Club. This is a wonderful film and the Rotarians liked it very much.

Each week a cotton insect report on Graham County was sent to Dr. Roney. Cotton fields were inspected weekly by the agent and close contact was kept with the commercial companies for any outbreak of insects.

B. Apiculture

Situation - Our records show that there are in the neighborhood of 20 beekeepers in the county with over 3200 colonies. In the past bee men had some difficulty in working out plans with farmers regarding the dusting of cotton fields. The extension agent helped to work out satisfactory arrangements for both.

Mr. Bert Morris and son set up an excellent honey display at the county fair. Besides being very educational, this display was a good advertisement for the bee business in Graham County.

C. - Insect Collection

Situation - During the year about one-third of the agent's work concerns some phase of entomology. Many people bring insects into the office and want them identified. It always involves a problem, perhaps of sending them away and waiting for an answer.

The agent, assisted by Dr. Roney, collected and identified some twelve orders of common Arizona insects. This collection is on display in the county agent's office. If anyone is in doubt about the identification of an insect they can check here.

V. PROJECTS

#11 - Soils

A. Sampling and Testing

For many years this office has given information to farmers on how to take soil samples. These samples have been sent to the University for analysis. Copies of the analysis have been given to the farmer and the county agent. The files contain many copies of soil analyses taken from all parts of the county. Good use has been made of Extension Circular No. 108 entitled "Interpretation of Soil Analyses", helping the farmers to understand what the soil analysis means.

No doubt many of these analyses have done much good by pointing out suggested changes in cropping systems to help the alkali condition. Some improvement has been brought about by change in the methods of irrigation and planting on alkali soils.

At times the extension office cooperates with the Soil Conservation District and the local vocational departments of the high schools by sending soil and water samples required in the students' conservation program. These go to the University of Arizona for testing.

B. Soil Management

This subject has been included in several other projects in this report, including the discussion of fertilizers and green manure crops.

C. Fertilizers

This year in Graham County farmers bought more than 900,000 pounds of commercial fertilizer to apply to their ground. More commercial fertilizer was used on cotton than ever before. More nitrogen was injected into the soil, and into the water, than ever before. Cotton acreages were cut and every farm was out to produce all that was possible per acre.

150 farmers attending the Farmers' Day meeting held at the Elk's Lodge, Safford, Arizona, on February 3, 1958, heard the agent give a complete report of the cotton fertilizer demonstration plots harvested this year on the Lea Hunt Farm and the Bob Colvin Farm.

The Colvin Farm in Eden showed a definite benefit from 75 pounds of ammonium nitrate, but no benefit from commercial fertilizer on the Lea Hunt Farm could be shown.

During the Farmers' Day meeting Dr. Tucker from the University of Arizona soils department gave a report on work being done in other counties. Lyman Amburgey, extension service specialist in soils, from the University of Arizona, reported on the seed bed preparation work being carried on at the Safford Experimental Farm.

People are becoming more and more conscious of commercial fertilizers and during the month of March more than 50 inquiries were made of the office on the application of commercial fertilizers.

On March 12, 1958 Dr. Tucker and Dr. Maier of the University of Arizona soils department visited the county and Dr. Tucker assisted the agent in setting up a rather elaborate cotton fertilizer demonstration plot on the Burwell Hatch farm near Safford. The field selected has been in cotton for the past five years and has never received any fertilizer.

The agent attended the soils conference held at the University of Arizona May 20-22, 1958. This was a three-day meeting of well planned concentrated soils work. The outside speaker was Dr. Milton Fireman, extension soils specialist from California. Mr. Fireman concentrated on alkali soils and salt conditions, and of course these are major problems in Arizona. The University of Arizona staff and the U.S.D.A. soils specialists followed the plant in its soil environment, right on through in a logical sequence, and gave some valuable information that will be used by all in the field. The discussion periods with specialists were very helpful.

Dr. Curt Tucker was in the county on May 12, 1958 and assisted in establishing a fertilizer demonstration on the Burwell Hatch Farm, Safford, Arizona. These plots were put in with special equipment from the University. Almost every combination of nitrogen and phosphorous fertilizers were used, and also they were used alone in varying amounts. Each plot was replicated five times. Trace minerals were also used on some plots.

On September 29, 1958, Dr. Curt Tucker and Mr. Jim Abbot of the Soils Department of the University of Arizona assisted the agent in harvesting the first picking of cotton on the cotton fertilizer plots located at the Burwell Hatch Farm, Safford, Arizona. This was an experiment set up in cooperation with the University of Arizona Experiment Station. The first picking of the 1517C cotton was very heavy and no significant differences could be noted. The total yield after the second picking should tell us the story.

Mr. Lyman Amburgey, extension soils specialist from the University of Arizona met with the local committee on soil and water needs

inventory on September 16, 1958. The first phase of instruction was completed. October 16, 1958 was set for the next meeting, when the agent requested the services of Dr. Campbell. However, since Dr. Campbell had to be out of the state Dr. Raymond Seltzer attended this next meeting. The agent acted as secretary for the group and wrote the minutes of the meeting.

During a recent field day held at the Safford Experimental Farm farmers and ranchers brought in water and soils samples to be analyzed. The results were sent to the county agent, and then the agent explained results to each farmer personally, and gave recommendations.

Water samples from a well being drilled for the new Federal Prison Camp were analyzed and results given before they drilled any deeper. At the very close of the month the staff requested analysis of a fourth sample, to be sure that agitation at a greater depth was not producing too much mineral content.

, D. Soil Amendments

Whether or not gypsum does any good on some of our tight alkali ground is a controversial question. But regardless of this we run gypsum requirement tests to determine need and recommend its use on this basis.

Tests at the Safford Experimental Farm indicate that sulphuric acid applied in the irrigation water is doing about the same amount of good as gypsum applied to the soil.

Through radio talks, newspaper articles and personal interviews the agent urged farmers to rotate crops and to plow under green manure crops and residue.

V. PROJECTS

#12 - Rural Sociology

Situation - For the past seven years the extension service has not had a specialist in rural sociology, and consequently has not worked as aggressively in this field. However, the extension service does help to improve living continually through landscaping, providing plans for septic tanks, indoor plumbing, and better housing.

A. Farm Safety

Farm safety cannot be over emphasized. Farm accidents are too numerous even after years of campaigning by all agencies and farm organizations.

During National Farm Safety Week July 20-26, 1958 approximately 600 copies of an attractive circular letter in black, white, and red was sent to every farm and ranch in Graham County.

In October at the time of National Fire Prevention Week, another circular letter in black, white, and red went to everyone on the county mailing list.

Throughout the year radio programs are presented on safety. At least once a month some safety item is mentioned in the county agent's newspaper column.

All agents in the office combined notes to send a warning letter to everyone on the mailing list during National Spring Cleanup Week; this too stressed fire prevention.

In personal visits to farms the agent urged farmers to have an adequate water supply, to not put all buildings together, and to not stack all hay in one place.

B. Farm Employment

Many farmers in the area have been hiring people just passing through the valley, while people living here were on welfare and unable to get work. All those going on the welfare program are required to register with the Employment Service.

C. Improving Living Conditions on the Farm

The aim of the extension service is to improve living conditions on the farm through better farming methods, homemaking, and 4-H club work.

V. PROJECTS

#13 - Agricultural Economics

The agricultural economics department of the University of Arizona started a new service to the ranchers of the state this year. They sent out a weekly report of range cattle sales. A copy of this report was sent to each store in the cattle areas of Klondyke and Bonita.

Income tax forms and instruction books on making out the farm income tax were distributed throughout the county.

On March 31, 1958, 75 copies of ARIZONA AGRICULTURE 1958 went out to the ones on the mailing list who frequently ask for this report.

Also on March 31st 75 copies of a range report and cattle outlook by Dr. George W. Campbell, Jr., extension economist were sent to every rancher and feeder in Graham County giving them the outlook for the next few months at least.

Each week a report of crop conditions, livestock, soil conditions and any other items of note is sent to the Crop Reporting Service. This is in addition to the monthly statistical report on crops sent to the same Reporting Service in Phoenix.

March was a very heavy month on income tax work and the supply of forms in the county agent's office was used quite extensively by farmers in this area.

A mimeographed sheet on Dr. Campbell's talk given at the Cochise-Graham Cattlegrowers' Association meeting held at Bisbee was made available to farmers and ranchers from this office. This sheet provided additional information on deductions that should be made, some of which might be overlooked.

Farmers and petroleum wholesalers were looking for gas tax reporting forms. They did not all received them. The agent requested forms from the Collector of Internal Revenue in Phoenix and furnished them to farmers and dealers. This was an extra service they very much appreciated.

More than 300 Farmers' Income Tax Guides for 1958 were distributed to banks, income tax offices, F.H.A. clients, and farmers of Graham County.

The extension office also carries a full supply of State and Federal Income tax blanks of all kinds as a service to the people of Graham County.

Each week a cattle market report was sent to the cattle feeders and livestock centers of the county.

Market service information is posted daily in the county extension office giving all commodity prices.

April 15, 1958 was the deadline for income taxes to be paid. The extension office had a full supply of income tax forms on hand for the use of farmers and they certainly did use them. This is an extra service they very much appreciated.

Alfalfa hay quotations from Los Angeles and the Salt River Valley were used to determine hay prices in the county.

Bankers and others doing farm loan work in Graham County received a copy of all agricultural economics publications. These organizations have expressed their thanks for this much needed information.

On April 30, 1958 the agent attended a Farmers' Day luncheon at the Safford Lions' Club as a guest of Mr. Lynn Fitsimmons, County Agent, and heard Dr. George W. Campbell, extension economist speak on "The Relationship Between the Farmer and the Business Man". This subject was well presented and the guests all enjoyed it very much. Charts were used to good advantage.

Dr. George Campbell visited the extension office on August 22, 1958, and assisted the agent in making plans for income tax meetings during the winter.

Dr. Campbell and the agent contacted the Safford Packing Company and went over the problem of making hay pellets with Mr. Heber Nuttall, manager of the feed lot.

A tape recording on cattle prices was made and used on the radio program August 23rd.

A report was sent to the U.S.D.A. on the value of land, land sales, and general farm and ranch real estate information.

V. PROJECTS

#14 - Plant Pathology

Situation - Plant pathology is important to the agriculture of the county and state because of the numerous diseases affecting agricultural plants of different kinds. The extension office continues to get requests to examine everything from dying roses to root rot in cotton. It is necessary to have a wide range of knowledge in this field and to have a good laboratory service on these problems. Up to four years ago the extension service was somewhat handicapped in this field because of the lack of an extension pathologist to handle problems and assist the agent in plant pathology problems.

Nearly all of the disease of plants in Arizona are root diseases. This is probably because of the high alkali content of the soil and salty water. Heat is another thing that causes considerable trouble, often causing sunburn of certain varieties of plants.

On March 19, 1958 the agent was called to the Jim Whitmer Farm near Central to check an alfalfa field that was turning brown despite good moisture and apparently no insect damage. Mr. Whitmer could not imagine what might be causing this condition.

The agent examined the plants and determined right there that it was stem nematodes, but samples were taken and sent to Dr. Ivan J. Shields, extension plant pathologist, for further checking. Dr. Shields confirmed the agent's observation as being correct.

The agent explained to Mr. Whitmer that there was no treatment for the condition but it would disappear as hot weather arrived. It was suggested that he plow the field and plant a grain crop for a few years - - or cotton - - and then come back to alfalfa.

Each year we have had a few fields in this area infested with stem nematode. Mr. Whitmer had done some custom baling in one of the fields where he found the nematodes last year.

Damage done? These nematodes working in the alfalfa stems can reduce the stand and almost hold back the first cutting of alfalfa.

Tomato plants were sent to the extension service plant pathologist for confirmation of curly top virus. The findings of the county agent were confirmed by the extension plant pathologist. Curly top started to hit the tomato plants about May 15th and continued on during the month of May.

Peach chlorosis, mildew on roses, and root rot of roses were other diseases treated during May by the agent.

Mildew was prevalent on roses and euonymous throughout the county and many people were quite concerned. Dusting sulphur, polysulphide and captan were some of the materials recommended. These are all fungicides.

99% of the cotton seed planted this year was treated seed.

Dr. Ivan J. Shields, plant pathologist for the University of Arizona visited the county on September 25th. A number of tree diseases were checked. Ash and Chinese elm seem to go into a dormancy at this time of the year and this is often mistaken for disease, which seemed to be the case. Dr. Shields did, however, take some of the roots to check for nematodes.

The State Highway Department was contacted to check tree problems in their roadside parks. Dr. Shields explained differences in tree species and their tolerance for Arizona conditions.

At the end of each month the agent sent a report to Dr. Shields showing any plant diseases he had discovered. Dr. Shields makes a composite report and sends it back to each county agent for his information and use. It lets us know what diseases are being encountered around the state.

Texas root rot hit long staple cotton in Graham County very heavily late in August. Dr. Shields at the request of the agent told approximately 200 farmers attending the Safford Experimental Farm field day that turning organic matter under was the only answer for this problem.

Additional information on plant diseases in this county are covered in this report as follows:

1. Horticulture
2. Agronomy
Cotton Plant Diseases

V. PROJECTS

#15 - Cooperation with Other Agencies

Situation - The extension service cooperates with many other agencies, local, county, state and federal. This is a very necessary function of the extension service because its work is so varied and includes so many different people in different phases of agriculture. Quite a good deal of the county agent's work could be called "public relations". One good public relations project could be membership in a service club. Helping to get agricultural programs for service clubs helps extension service public relations. The agent is a member of the Safford Rotary Club.

Here are a few samples of the way extension cooperates with other agencies.

Although the agent was on annual leave through August 7, 1958, he attended two days of the meeting of Soil Conservation Districts of the Southwest Area held in Safford the first week in August.

Dean Myers, of the College of Agriculture, University of Arizona, Dr. J. W. Pou, Director of the Agricultural Extension Service, and Dr. R. K. Frevert, Director of Research and the Agricultural Experiment Station were in attendance at the field trip and meetings.

The Extension Service in Graham County has always cooperated wholeheartedly with the Soil Conservation Service and the Gila Valley Soil Conservation District in their efforts.

One interview provided information to an agricultural economist of the Soil Conservation Service who was very glad to have crop and agricultural industry information. This survey is being made as the result of an expanding watershed and range management project under a new state law. The plan is to provide protection to Safford and Thatcher from flooding.

In cooperation with Eastern Arizona Junior College at Thatcher, Arizona, the agent instructed a one-hour class in

agronomy on February 18, 1958. The class was held in the field at the Safford Experimental Farm. The principal subjects were: alfalfa and Coastal Bermuda grass production. There were 30 boys in this class.

During February other work was done in cooperation with the A.S.C. office, the Soil Conservation Service, the Gila Valley Soil Conservation District, the Farmers' Home Administration, and the Forest Service.

The agent assisted Miss Eaton, Home Agent, and Mr. Lynn Fitsimmons in charge of 4-H club work with a county-wide officers' training meeting on Saturday, January 25, 1958. The agent held a training session for presidents at the K G L U Radio Station and immediately following the session the presidents put on a 15-minute radio program.

On January 20th the agent met with the Graham County Fair Commission in an advisory capacity to help formulate plans for next year's fair.

The agent attended the Annual F.F.A. Federation banquet as a guest on January 23rd.

He also attended the annual meeting of the Safford branch of the National Loan Association as a guest on January 30th.

The agent assisted the Graham County J.C.'s with their annual contest for the young farmer of the year. The agent submitted six applications for this contest.

Mr. George Yiassimakopoulos, irrigation specialist from Greece visited the county from February 5-16, 1958 under the International Cooperation Administrative Program of specialist exchange.

During Mr. Yiassimakopoulos' stay in the county he had the following schedule:

Feb. 5 Spoke to the Safford Kiwanis Club
Feb. 6, 7, 8 Study of Gila Valley irrigation with Mr. Dungan, the water commissioner, and Mr. McBride a ditch boss

Feb. 10 Extension work with county agent
Feb. 11 Water control - Soil Conservation Service
Feb. 12 Extension work - spoke to Lions' Club
Feb. 13 Ranch operation - visit to ranch in Aravaipa
area with county agent
Feb. 14 Flood control - Bureau of Land Management
Feb. 15 Shared radio program with agent telling about
agriculture in Greece - an interview type of program
The agent gave a brief introduction and then Mr.
Yiassimakopoulos spoke to 500 members of the
Graham County Electric Coop at their annual meeting
held in Solomon, Arizona. The topic was "The
Value of American Aid to Greece".

Mr. Yiassimakopoulos was very willing to learn and knew a great deal of the world situation besides his own field of irrigation.

This is a two-way program - they not only learn from us, but we learn perhaps even more from them.

On October 16 and 17 Mr. Youseff, director of agricultural extension work in Iraq visited the county. The agent took Mr. Youseff on field trips, talked to a group of Methodist men, attended a soils and water needs inventory committee meeting, attended a 4-H planning meeting with our State 4-H Leader, and took part in our extension service radio program. The agent also went over all of the administrative reports and duties of the extension office.

Mention might be made here of the way the extension service office assists when the Safford Experiment Station holds a field day program. The office prepared the programs sent to all those participating, and the county agent gave a brief report on the progress made with Coastal Bermuda in the valley.

SOIL AND WATER NEEDS INVENTORY
Graham County Committee Meeting

Date of Meeting: October 16, 1958

Time: 1:00 P.M.

Meeting Place: Soil Conservation Service Office
Post Office Building, Safford, Arizona

The meeting was called to order by the Chairman, James R. Ferrin,
Unit Conservationist, for the Soil Conservation Service at 1:00 P.M.

and the following committee members were present:

John L. Sears, Agricultural Extension Service, University of Arizona, Safford.

James A. Hoover, County Supervisor, Farmers' Home Administration, Safford

Wesley J. Morris, Office Manager, A.S. C. Office, Safford

James R. Ferrin, Unit Conservationist, Soil Conservation Service, Safford

James Cochran, Forest Service, Safford

Guests and Advisors:

A. R. Swanson, Soil Conservation Service, Tucson, Arizona

Dr. Raymond C. Seltzer, Head Agricultural Economics Department
College of Agriculture, University of Arizona, Tucson

L. A. Heindl, U. S. Geological Survey, Tucson, Arizona

Alton Taylor, Farmers' Home Administration, Safford, Arizona

Burlan M. Yousef, Agricultural Extension Service, Iraq

m o r e

Mr. Ferrin reviewed the N-1 Forms and entered figures supplied by the state committee:

40,000 acres was the figure arrived at by the county committee as the irrigated land in Graham County

Reasons: 32,000 acres, decreed acreage (this does not include pump land)
36,000 acres Gila Valley Soil Conservation District figures, and a number of irrigated acres are not in the District, which could bring this up to 40,000 acres

A.C.P. records listed 39,000 acres but the committee could count up another 1,000 acres not included in these figures. Farmstead and ranchstead figures were discussed.

Farmstead - 2% of the cropland (this was a measured figure)

Ranchstead - the committee estimated 5 acres each. The committee was unable to arrive at any percentage figure that might fit the ranchstead

74 ranches in the county - figures from A.S.C. records and Extension Service mailing list

Under the Heading - B - N-1 Form - Acreages for Expansion Sample

Less 1 - Urban built-up areas 2,310 acres

This original figure was discussed and the committee agreed it should be altered and the following acreages subtracted: county roads, airport, fairgrounds, City of Solomon, golf course, cemeteries, shooting range, Fort Grant, Cluff Ranch, railroad right-of-way, garbage dump, gravel pits, and the sawmill.

Mr. Leo Heindl, U.S.G.A. reviewed the water situation in Graham County for the group.

In Mr. Heindl's opinion we are farming about all the area possible with the present water supply. The water supply in the Gila Valley is directly dependent upon the flow of the Gila River. The recharge of wells in this area is dependent directly on the flow of the river. Mr. Heindl could not foresee any change in water supply from what it has been in the past unless industries moved in, using considerable water, but, of course, they would be limited because of the water decree.

Dr. Seltzer, Head, Agricultural Economics Department, College of Agriculture, University of Arizona, thought the water supply would maintain present acreage and probably will remain about the same. Cost of farm operations may increase. Ditch lining and land leveling will expand. Farm prices will exist about the same in the next 17 years as in the past 5 years.

Dr. Seltzer pointed out that today the government is able to regulate currency, credit, farm prices, etc. much more than ever before, and can maintain a fairly even economy if they want to use all of the means available to them. Dr. Seltzer concurred with the committee on all the figures worked up for the N-1 Form.

The committee suggested Mr. Warner Mattice as a farmer-rancher member of the committee.

November 20, 1958 was set as the date for the next meeting (tour), to leave the Post Office at 8:00 A.M.

The meeting was adjourned at 4:00 P.M.

JLS:lg



JOHN L. SEARS, SECRETARY

VI. OUTLOOK AND RECOMMENDATIONS

1958 was a top year for agriculture in Graham County. Ranges were good all year and the cotton and grain crops were very good. The Gila River flowed most of the time and very little pump water was used. The R.E.A. complained because they were not collecting the usual revenue from irrigation pumps. The irrigation pumps were used less this year than anytime in the past ten years.

Cotton

Both the long and short staple crops were very good this year. We don't know yet what the new cotton law will do to acreage allotments in Graham County but we believe the conditions will be about the same.

Farmers need to do more rotating to control root rot and make good use of insecticides. We must push the pink bollworm control program if we are to stay in the cotton business.

Alfalfa

Alfalfa will become more popular as a cash crop. It works into the rotation very nicely and certainly improves the fertility and the general makeup of the soil.

At the present time the alfalfa raised in Graham County will not supply all of the need. Requests from out of state cannot be filled.

Through an educational program, farmers selling alfalfa will have to learn that only top quality alfalfa will bring top prices, and as the acreages increase the competition will become stronger.

Some dairymen are using alfalfa pellets from other areas and that means a better quality of alfalfa must be raised here to meet the outside competition. The only thing which is holding back alfalfa production is the shortage of water.

It has been proved by demonstration plots that phosphates will increase alfalfa yields in Graham County and do it very profitably. The program will be pushed by the extension service.

The spotted yellow clover aphid is a real threat to the alfalfa crop in Graham County.

This year a demonstration plot of Moapa (the new variety resistant to the alfalfa aphid) was established at Geronimo, and more will be done in this regard.

Plant Disease

Cotton acreage allotments have encouraged rotation programs, but root rot is still a costly disease.

Trees and shrubs suffer baldy from root diseases, but we try to keep before the public constantly the idea of planting resistant varieties, and I think this should be continued as a part of our educational program.

Weed Control

Bindweed and annual morning glory are the chief weed problems in Graham County. D. B. granules may be the answer to spot treatments - at least we will have demonstrations along that line this year.

Dalapon looks like a very promising chemical for the control of Johnson grass and Bermuda grass. Farmers who tried the material on ditch banks were well pleased with the results, and Dalapon is becoming more popular. Spot treatments in cotton fields will become more popular.

Further demonstration plots to try this material will be established on Graham County farms this year.

Weed burners look very promising for ditch bank weed control. To date the weed burner is the cheapest method of ridding the ditch banks of weeds.

Irrigation

The conservation of water is becoming more necessary each year. Demonstrations on penetration, measuring loss of tail water, and cement lining of ditches will be recommended through radio programs, meetings, newspaper articles, and personal contacts.

Actual demonstrations will be established on farms to demonstrate proper methods of irrigation. With the present outlook for water it will be necessary to conserve every bit of water possible.

Livestock

As cotton acreages are cut, farmers turn to raising feed and livestock. Through livestock is the only way our roughages can be marketed. More feeding operations will be started, and we must be prepared to give information on feeding.

Cattle ranchers need a program for selecting their foundation stock based upon production. This program will take considerable work and thought to work all types of ranches.

Swine production will pay off if pastures and hay are used to an advantage.

We need to put more emphasis on external and internal parasite control. More ranchers need to spray or erect "rubs" to control flies, grubs, and lice.

Dairying

Today dairying is an important segment of the agricultural industry in Graham County. The herds are being increased in number and according to D.H.I.A. records they are getting rid of a number of culls and are raising the production per cow, besides raising the number of cows per herd.

There are several more herds in the county that should be taking part if the D.H.I.A. program. Last year non-members were invited to the D.H.I.A. banquet held at the cafeteria of the Solomon School. If this practice is continued each year it may bring in some of the non-members. We need about four more herds in this program.

Increased work with 4-H dairy projects would bring the parents into the program.

Poultry

The poultry industry in Graham County meets considerable competition from eggs brought in from the coast and other areas. Therefore egg production here must be efficient or it does not pay.

At the present time poultry producers in this area are selling all the eggs they can produce, and are selling culls to local markets. One producer who has 4,000 laying hens in cages is making a profit. Small flocks do not pay. Egg prices were good in 1958.

Graham County cannot support a large poultry industry, but certainly there is room for a good many efficient operations with the present marketing set-up.

Coastal Bermuda Pasture

Coastal Bermuda is a life-saver to farmers on alkali soil with salty water, and they want to do some grazing. With a good nursery supply now at the Safford Experimental Farm this program should be "pushed".

Insects

The extension service should do everything possible to cooperate with all agencies involved in controlling the pink bollworm - this is a "must".

Home Beautification

Proper landscaping and home beautification will add many dollars to the value of a farm or city home.

Each year the extension service in cooperation with the extension horticulturist, does landscaping demonstrations. These demonstrations will be continued.

Fire and Accident Prevention

Fire and accident prevention involves every one of us and farmers and ranchers are high on the list of casualties. Through all means available we will continue to bring this important item to the attention of the public.

4-H Club Work

4-H club work in Graham County is growing, but it will take considerable time and effort to keep it rolling. Church activities, Scouts and numerous school activities are all bidding for the youngster's time, and a 4-H program must be well planned to be accepted. We feel that the 4-H Honors Banquet started three years ago, the fourth being held this year, has raised the enthusiasm for 4-H club work in the county, along with such new programs as the electrical project and the tractor program.

Fairs

We always say "this year's fair was the best", but it really was because we had more facilities. The new \$10,000 commercial building added considerably to the fair. The free acts helped to draw a large crowd and there were more agricultural and home economics exhibits displayed than ever before.