

ANNUAL REPORT OF THE
COUNTY AGRICULTURAL AGENT
FOR GRAHAM COUNTY.
PERIOD FROM DECEMBER FIRST, 1924, TO
NOVEMBER THIRTIETH, 1925.

By

John W. Wright,
County Agricultural Agent.
Safford, Arizona.

TABLE OF CONTENTS

	Page
STATUS OF COUNTY EXTENSION ORGANIZATION.....	3
Form of Organization.....	3
General Policies and Relationship to Extension Program.....	3
PROGRAM OF EXTENSION WORK.....	4
PROJECT ACTIVITIES AND RESULTS.....	7
COTTON.....	7
Variety Demonstrations.....	7
Certified Cotton Seed.....	10
Improved Cotton Production Methods.....	11
SMALL GRAINS.....	12
Smut Control.....	12
Grain Sorghums.....	12
HORTICULTURE.....	13
Better Orchard Management.....	13
Melon Aphis Control.....	13
Pecan Culture.....	13
Home Winter Gardens.....	13
RODENTS, PREDATORY ANIMALS AND BIRDS.....	14
Rodent Control.....	14
Rabbit Control.....	14
Predatory Animal Control.....	14
Sparrow Control.....	15
ANIMAL HUSBANDRY.....	15
Farm Sheep.....	15
Range Management.....	15
DAIRY HUSBANDRY.....	16
Better Dairy Cattle.....	16
Better Methods of Handling Dairy Products.....	16
Better Management of Dairy Herds.....	16
Tuberculosis Eradication.....	16
POULTRY HUSBANDRY.....	17
Better Poultry Stock.....	17
Better Management of Poultry.....	17
Capon Production.....	18
Poultry Culling.....	19
AGRICULTURAL ECONOMICS.....	19
Farm Management.....	19

	Page
Farm Management Project 1924.....	20
The 1925 Outlook.....	21
Financial Summary for 1924.....	22
Analysis of the Farm Business of 21 Farms.....	23
Cost of Producing Cotton on Fourteen Farms.....	25
Yields and Costs.....	26
Production Equivalent to Cost.....	29
Conclusions.....	29
Costs and Returns on Four Dairy Farms 1924.....	30
Conclusions.....	36
Hay Marketing.....	38
Cotton Marketing.....	38
BOYS' AND GIRLS' CLUB WORK.....	38
MISCELLANEOUS.....	39
OUTLOOK AND RECOMMENDATIONS.....	39
Tentative Program of Work for 1926.....	41
SUMMARY.....	44

STATUS OF COUNTY EXTENSION ORGANIZATION .

The County Farm Bureau continues as the recognized legal sponsor of Extension Work in the County. This organization, under the provisions of the state statutes, is responsible for preparing the annual financial budget in support of Agricultural Extension activities within the County.

Form of Organization

The County Farm Bureau is governed by a Board of Directors, each member of which is elected by and represents one of the eleven community centers in the County. During the present year the plan of organization has been changed considerably, so as to make the Farm Bureau more representative of the farmers of the County. The system of annual membership dues has been abandoned and full membership privileges are accorded to all farmers contributing to the organization through the check-off fund for farm products sold. This arrangement has brought about two hundred fifty new members into the County Farm Bureau, and at the same time is providing an effective and adequate system for financing the activities of the organization.

General Policies and Relationship to Extension Program

The general policy of the officers of the County Farm Bureau during the year has been to promote the welfare of the local farming interests. Problems in connection with hay marketing, railroad rates, and legislation have been taken up and supported in the interests of the County's farming population.

The program of Extension work for the year was approved by the Farm Bureau officers.

PROGRAM OF EXTENSION WORK

The general policy adhered to during past years has constituted the basic background in determining the program of work for the year. In brief, this has consisted of the promotion of the production of those agricultural commodities which are biologically and economically well adapted to this section, together with the promotion of those improved production practices, which make for decreased production costs.

The following program as planned and approved has constituted the major lines of work undertaken during the year.

PROGRAM OF EXTENSION WORK FOR GRAHAM COUNTY 1925

Project	Methods	Goal
Farm Bureau	Revision of plan of organization and of collection of membership dues.	To make the organization representative of the farmers of the County.
Cotton: Variety demonstration. Certified seed. Improved production methods.	5 acre demonstration of 5 upland varieties at Sunset. 50 acres certified seed. Roguing and supervised ginning. A series of demonstrations of planting and thinning methods. Irrigation demonstration	To determine best variety for the dry farm section. 50,000 lbs. certified seed. 300 farms to improve production methods. To demonstrate best irrigation practices.
Wheat and Barley: Smut Control	3 demonstrations of copper carbonate treatment.	Seed for 2000 acres treated.
Horticulture: Better orchard management. Walnut and pecan culture.	2 demonstration orchards and vineyards. Planting, Heading and grafting demonstrations.	25 orchards to prune and spray orchards and vineyards. 500 pecan trees planted. 25 pecan and walnuts grafted.
Home winter gardens.	Series of newspaper articles.	50 home winter gardens planted.
Rodents and other pests: Rodent control Sparrow control	15 demonstrations of methods. Newspaper articles and circular letters.	500 farmers to treat 20,000 acres for rodent extermination. 25 poultrymen to attempt sparrow control.
Animal Husbandry: Farm Sheep Range Management	Boys' Sheep Club. Assistance in getting pure-bred stock. 1 demonstration farm. Newspaper articles. 1 demonstration of range management.	25 farms to add small flocks of sheep

PROGRAM OF WORK (continued)

<p>Dairy Husbandry: Cow Testing Ass'n.</p> <p>Better method on farm.</p> <p>Better dairy cattle.</p>	<p>Organization of testing association.</p> <p>Series of newspaper articles.</p> <p>Farm visits.</p> <p>Assistance in securing pure-bred stock. County Fair.</p>	<p>15 dairymen to improve methods of handling dairy products.</p> <p>5 dairymen to secure pure-bred sires.</p>
<p>Poultry Husbandry: Better poultry stock.</p> <p>Better management of farm flocks.</p> <p>Caponizing, Culling.</p>	<p>3 demonstration farm flocks</p> <p>Series newspaper articles.</p> <p>2 day Extension school.</p> <p>8 Caponizing demonstrations.</p> <p>8 Culling demonstrations.</p>	<p>10 poultrymen to secure male birds from trapnest stock and to select breeding pens.</p> <p>20 poultrymen to produce capons.</p> <p>100 poultrymen and farmers to cull flocks</p>
<p>Agricultural Economics. Farm Management</p> <p>Hay Marketing</p> <p>Cotton Marketing</p>	<p>40 demonstrations in farm accounts. Follow-up in each case to suggest changes in farm layout and system of management.</p> <p>Work with farmers' committee to improve marketing conditions.</p> <p>Demonstration of advantage of selling cotton on grade by securing Federal grading on 100 bales.</p>	<p>35 to complete accounts</p> <p>25 to improve methods of farm management.</p> <p>To secure maximum price to hay growers.</p> <p>Majority of farmers to insist on selling cotton on grade.</p>
<p>County Fair</p>	<p>Work with Fair Commission</p>	<p>County Fair held in 1925.</p>

Phil C. Merrill
President, County Farm Bureau.

Approved:

P. H. Ross
Director, Agricultural Extension Service.

J. W. Wright
County Agent.

Date 3-9-25

PROJECT ACTIVITIES AND RESULTSCOTTONVariety Demonstrations

The cotton variety demonstration which was planned for the dry farming district at Sunset was abandoned because of insufficient moisture in the soil at planting time. The unusual drouth prevented the growing of any spring crops in that section this year.

Other variety demonstrations were later arranged at Thatcher and Ashurst. The demonstration at Thatcher has consisted of an eight acre tract planted to the three varieties: Mebane, Lonestar, and Acala. The idea of this demonstration was to verify the results of similar demonstrations conducted in this locality during the previous two years.

The demonstration at Ashurst which consists of a six acre tract planted to the three varieties: Acala, Mebane, and Lonestar, was arranged especially with the idea in mind of securing data with respect to the comparative merits of the three varieties when grown on alkali soils. The cooperator is, at the time this report is being written, recording yield data for each of the three varieties as the cotton is being picked. Samples for securing lint percentages and grades have been collected and forwarded to the Experiment Station. Complete data as to the results of this demonstration could not be secured in time to be included in this report.

The following data from the variety demonstrations which were conducted in 1924 were not secured in time to be included in the report of last year:

RESULTS OF COTTON VARIETY DEMONSTRATION J.W. ALLRED FARM, SAFFORD 1924

	Acala	Mebane	Lonestar	Hartsville	Delta Type Webber
Previous Crop	Cotton	Cotton	Cotton	Cotton	Cotton
Type of Soil	Silt Loam	The same	The same	same	same
Preparation of Soil	Stalks cut Plowed Marked Irrigated Dragged Harrowed Planted Cultipacked	same	same	same	same
Date of Planting	April 25th	same	same	same	same
Lbs. Seed Planted Per Acre.	30	30	30	30	30
Irrigation	June 18 July 29 Aug. 20	same	same	same	same
No. of cultivations	5	5	5	5	5
Date of Thinning	June 5th	same	same	same	same
Space between plants in row	1 ft.	1 ft.	1 ft.	1 ft.	1 ft.
Date of first picking	Sept. 1	same	same	same	same
Yield per plot seed cotton, Lbs.	2950	2524	2550	2090	2390
Size of Plot, Acres	1.5	same	same	same	same
Yield seed cotton per acre, Lbs.	1966	1683	1700	1393	1593
Ginning percentage	38	45	39	33.3	32.4
Yield lint per acre, pounds	747	757	663	464	516
Length of Staple	No data	No data	No data	No data	No data
Grade	" "	" "	" "	" "	" "
Ability of plants to stand up under load.	Good	Good	Good	Good	Good
Uniformity	No data	No data	No data	No data	No data
Strength	" "	" "	" "	" "	" "
Cost of Production per lb. Lint.	12.3	12.6	13.4	16.1	15.2

RESULTS OF COTTON VARIETY DEMONSTRATION H.W. NICHOLS FARM, SUNSET 1924

	Acala	Mebane	Lonestar	Hartsville	Delta Type Webber.
Previous Crop	Beans	Beans	Beans	Beans	Beans
Type of Soil	Sand Loam	same	same	same	same
Preparation of soil	Plowed Harrowed Planted	same	same	same	same
Date of Planting	5/2/24	same	same	same	same
Lbs. Seed Planted per acre	25 lbs.	same	same	same	same
Irrigation	None	none	none	none	none
No. of cultivations	"	"	"	"	"
Date of Thinning	"	"	"	"	"
Date of first picking	10/8/24	same	same	same	same
Yield per plot seed cotton, Lbs.	110 Lbs.	75#	85#	40#	40#
Size of plot, Acres	6 Acres	6	6	6	6
Yield seed cotton per acre. Lbs.	185 Lbs.	125#	140#	65#	65#
Ginning percentage	40	37.5	35.6	30	28
Yield lint per acre. Pounds.	74	47	50	20	18
Length of Staple	No data	No data	No data	No data	No data
Grade	" "	" "	" "	" "	" "
Ability of plants to stand up under load	Good	Good	Good	Good	Good
Uniformity of Lint	No data	No data	No data	No data	No data
Strength of Lint	" "	" "	" "	" "	" "
Cost of Production per lb. Seed Cotton	5.2¢	6.7¢	6.2¢	10.9¢	10.9¢

The above data is reasonably consistent with the data secured in 1923. It is readily apparent that the Hartsville and Webber varieties can safely be eliminated as undesirable varieties under local conditions. The demonstrations of the present year have included only the three varieties which have given the most satisfactory results under local conditions. When the 1925 data is completed it should, if consistent with that of the two previous years, provide conclusive evidence of the most desirable variety under local conditions.

Certified Cotton Seed

The local situation with respect to the available supply of pure planting seed of the three most desirable upland varieties of cotton has made it advisable to promote the exclusive planting of the Acala variety. This is because a satisfactory seed supply of the Acala variety is available, while there is no satisfactory available supply of any other variety at the present time.

Early in the year a local cotton firm was induced to import a carload of 50,000 pounds of certified Acala seed from the Coachella Valley of California. This seed was distributed to local cotton growers at a reasonable price and most of it was planted in the upper end of the Valley. The majority of the remaining cotton acreage of the County was planted with locally grown Acala seed.

The campaign for a one variety County has brought very satisfactory results during the year. Approximately ninety per cent of the total cotton acreage of the County this year was planted to the Acala variety. The other varieties are gradually being eliminated and it is only a matter of a short time until the goal for an exclusive one variety community will have been attained.

Tentative plans were made early in the year for roguing and certifying the seed from one of the local fields which was planted with the imported Acala seed. However, since seed from the improved type of Acala will be available for next year's planting, it was considered advisable to delay the local certified seed project for a year and start with seed of the improved type.

Improved Cotton Production Methods

During the year a considerable amount of time on the part of both the Agronomy Extension Specialist and the Agent has been devoted to this project. The plan has been by means of a campaign and method demonstrations of desirable practices, to secure the general adoption by all cotton growers, of those production methods which make for increased yields and decreased production costs. The improved production methods advocated, have included the following:

- Plowing land and irrigating in the rough.
- Filling soil to moisture holding capacity to depth of six to eight feet.
- Use of cultipacker in preparing seed bed.
- Planting in a moist seed bed.
- Use of planter attachment for planting seed to proper depth.
- Planting an adequate amount of pure seed.
- Use of cultipacker after planting.
- Proper thinning.
- With-holding irrigation water until plants have commenced fruiting so as to avoid excessive vegetative growth.
- Proper lay-out of land for irrigation.
- The use of small irrigation heads and short runs so as to secure adequate and uniform moisture penetration.

Method demonstrations in the field were conducted in various parts of the Valley at appropriate seasons for demonstrating proper practices for most of the above. The majority of the cotton growers of the County have either directly or indirectly adopted these methods to greater or less extent, and the results obtained have been especially encouraging. A conservative estimate is that the average yield of lint cotton has been increased at least one hundred pounds per acre over last year's yield, as a result of the adoption of these improved practices. For the seven thousand acres of cotton in the County, this represents an increase in yield of approximately seven hundred thousand pounds of lint. At present prices this means an increase of approximately \$150,000.00 in the value of the cotton crop produced in the County this year. The extent to which production costs have been reduced cannot be ascertained until the cost data have been worked over at the end of the season.

IMPROVED METHODS OF COTTON PRODUCTION

Determining the depth of moisture penetration in soil before planting the crop. The practice of filling the soil to moisture holding capacity to a depth of six to eight feet has been advocated.



The soil auger has been used to good advantage as a means of determining whether sufficient moisture has been stored in the soil to carry the crop to mid-summer without the application of additional irrigation water.

IMPROVED METHODS OF COTTON PRODUCTION



A cotton planting demonstration at Thatcher, April 16, 1925. A series of similar demonstrations were conducted throughout the County to demonstrate under field conditions a practical method of planting to secure a satisfactory stand of cotton.



The use of the special furrow opener to insure the placing of the seed at the proper depth in moist soil was demonstrated at each of these field meetings.

IMPROVED METHODS OF COTTON PRODUCTION.



Demonstrating a special attachment on a cotton cultivator for making a wide flat furrow between the row of cotton plants.

This method of preparing a cotton field for irrigation insures better moisture penetration and at the same time reduces the amount of labor necessary to properly irrigate the crop.



On the first cultivator the discs are set so as to throw up a good ridge next to the cotton plants. The attachment on the second cultivator for making the wide flat furrows consists of 2 by 6 inch material.



The excellent results secured by those farmers adopting the improved practices this season will undoubtedly result in the general adoption by all cotton growers, of these practices.

Extension work in connection with cotton and other irrigated crops in this County is greatly handicapped because of lack of adequate experimental data relative to the application of irrigation water under local soil conditions.

SMALL GRAINS

Smut Control

A demonstration of the dry copper carbonate treatment for grain smut was conducted early in the year. This demonstration together with similar demonstrations conducted during the past three years have given uniformly satisfactory results. In fact the method of treatment has been so successful that a local milling firm that handles the majority of the seed wheat of the County has been induced to provide facilities for treating all of their seed wheat by this method. This means that practically all wheat planted in the County this fall and winter will be treated for smut by this method.

Grain Sorghums

The planting of hegari and other grain sorghums as a second crop following wheat and barley has been very successfully promoted during the present year. A large number of local farmers have secured an increased farm income as a result of this system of double cropping.

The problem of utilization of the increased production of this type of grain was solved by making silage of that portion of the crop in excess of the requirements of the local commercial poultrymen.

HORTICULTURE

Better Orchard Management

Work with the demonstration orchard and vineyard at Safford was continued by the Agent in the absence of an Extension Horticultural Specialist. Demonstrations in pruning and spraying were held at the orchard.

Considerable miscellaneous and demonstration work in pruning and spraying was done in the various communities of the County. Approximately twenty five farmers adopted the pruning and spraying methods advocated.

Melon Aphis Control

During the summer an unusually heavy infestation of melon aphis threatened serious damage to the cantaloupe, melon, and cucumber crops. Three spraying demonstrations and a campaign for spraying were conducted to promote the control of this insect. The Crop Pest Inspector for this district, representing the State Entomologist, rendered valuable aid by cooperating in this work.

Pecan Culture

Approximately seven hundred pecan trees of the improved varieties have been planted in the County during the year. In practically all cases the parties planting these trees requested and were given information as to methods of planting, heading, and irrigating the trees.

Home Winter Gardens

During the Fall months some promotion work was done in creating interest in the planting of home winter gardens. Advice as to vegetable varieties, time of planting and cultural practices was in considerable demand. Several hundred fairly good gardens are now growing in various parts of the County. The interest in this line of work is much greater this season than at any time during recent years.

RODENTS, PREDATORY ANIMALS AND BIRDS

Rodent Control

Early in the year a rodent control campaign was launched in cooperation with representatives of the United States Biological Survey. This campaign covered the entire irrigated area of the County. Seventeen public demonstrations of control methods were conducted at which poison grain was distributed to two hundred seven cooperators. An actual demonstration of poisoning gophers was given in each case.

Throughout the year the Southern Pacific Railroad Company has cooperated in covering thirty eight miles of their right-of-way which extends through the cultivated area of the County. This work has not only been of benefit to the Company in maintaining their road-bed, but also has indirectly aided the adjoining farmers in their efforts to exterminate these pests.

During the year three hundred ten farmers have cooperated in this project in placing two thousand three hundred sixteen quarts of poison bait on the twelve thousand eight hundred fifteen acres of farm land and thirty nine city lots that have been covered in the control work.

Rabbit Control

The extreme drouth of the Spring and early Summer months had the effect of increasing the crop damage from rabbits in some of the outlying districts. In some cases complete destruction of crops was threatened. The use of the special poison prepared by the United States Biological Survey, proved very effective as a control measure. Approximately eight thousand rabbits were killed, with the result that serious crop damage was avoided. Forty seven farmers cooperated in this campaign.

Predatory Animal Control

Four ranchers were assisted in poisoning coyotes and other predatory animals.

Sparrow Control

The unusually large number of sparrows present in this locality during the winter months has caused a great deal of annoyance to the poultrymen and gardeners. In cooperation with representatives of the Biological Survey some experimental work was conducted to determine the most satisfactory poison for exterminating these pests. A satisfactory method of poisoning with regular poultry feeds as bait was discovered and a control campaign was launched. About forty poultrymen and farmers cooperated in this work. The result was a material reduction in the number of sparrows. The work was greatly appreciated by the poultrymen and farmers.

ANIMAL HUSBANDRY

Farm Sheep

Early in the year a special campaign in cooperation with some of the leading farmers of the County, was launched to stimulate interest in farm sheep raising on those farms where a small flock of sheep could be used to advantage in improving farm management practices. This work has been fairly successful and the number of farmers who are providing facilities for sheep and stocking with small flocks is gradually increasing. There are great undeveloped possibilities along this line for those farmers whose farms are traversed by irrigation canals. There are approximately one hundred fifty miles of canals traversing farm lands in the County upon which there is a good growth of Johnson grass and other weeds that would provide good forage for large numbers of sheep. The use of sheep as scavengers along these canals would greatly simplify the problem of weed control on the farms which are irrigated from canals.

Several farmers have been assisted in securing pure bred rams and other breeding stock for their farm flocks.

Range Management

Cost of production data for cattle and goats is being secured in cooperation with one rancher.

DAIRY HUSBANDRY

Better Dairy Cattle

During the year assistance has been given in the selection of some exceptionally good dairy sires. Two animals with very excellent production records back of them were imported. The exchange within the County of a number of dairy sires has been promoted. While the dairy industry in the County is not increasing, the interest in better breeding stock has been increasing steadily so that the commercial dairymen are breeding up some very profitable animals.

Better Methods of Handling Dairy Products

The campaign in connection with this project has resulted in the equipping of practically all dairy farms with adequate facilities for handling dairy products in a satisfactory manner both from the standpoint of sanitation and economy.

Better Management of Dairy Herds

The practices of feeding balanced rations, keeping records of production and expenses, and culling of unprofitable cows, are gradually being adopted by the dairymen as a result of Extension activities. Ten farmers are keeping fairly satisfactory cost of production records during the present year.

Tuberculosis Eradication

The publicity and educational work in connection with the tuberculosis eradication campaign in local dairy herds has been conducted through this office. The Agent has also cooperated with the Veterinary Inspector in districting the County for the testing of all dairy cattle. The work has been so planned as to permit of covering the County in a very thorough manner, thus permitting the location and slaughter of all infected animals. The testing work is still in progress and will be completed about January 1st. Herds where reactors are found will be re-tested within a few months so that with consistent work the disease should be completely eradicated from local dairy herds within the next year.

In connection with this campaign a post-mortem examination of two animals that had reacted to the test was conducted for the benefit of local dairymen and the agricultural students of the local high schools. This examination disclosed the fact that both animals were badly infected with the disease. Typical lesions and abscesses were found in various parts of the anatomy of each animal. The examination was well attended and accomplished a great deal in convincing local people of the accuracy of the test and of the necessity for the work.

POULTRY HUSBANDRY

Better Poultry Stock

The Poultry Show held early in the year proved very effective in promoting an interest in better foundation stock on the local poultry farms. This Show was very well supported and in a great many ways provided an excellent means for accomplishing some effective Extension work in connection with the improvement of poultry in the County.

A special effort was made during the breeding season to get the poultrymen to secure well bred cockerels and make careful selections for breeding pens, so as to insure the raising of higher producing stock. Assistance was given in securing fifteen pedigreed cockerels and in selecting breeding pens. Considerable interest was stimulated in this project and it is evident that there has been a great deal of improvement in the quality of the poultry stock produced in the County during the year.

Better Management of Poultry

A two day Poultry Extension School which was held in January proved very effective in promoting this project. The four sessions of the School were attended by approximately sixty five commercial poultrymen and farmers. A great deal of interest was shown in the lectures and discussions. The Poultry Extension Specialist and the Professor of Poultry Husbandry at the University, assisted in conducting the School. Also, a number of local poultrymen of considerable experience in the business aided materially in making the School a success. Among the subjects discussed were the following:

Problems of incubation.
Feeding for egg production.
Brooding and feeding baby chicks.
Selection and management of poultry breeding stock.
Poultry houses and equipment.
Poultry diseases and insect pests.
Handling and marketing of eggs.
Records and accounts on the poultry farm.
Market poultry.

Throughout the year this work has been followed up so that now practically all local commercial poultrymen have adopted the practices which have been advocated. The local poultry industry has increased in profitability a great deal as a result of the accomplishments in connection with this project.

During the year three farmers were assisted in planning poultry houses. One of these is a new type structure which is believed to be the ideal house under local climatic conditions. It is expected to serve as a valuable demonstration for future poultry house construction in the County.

Capon Production

Early in the year a series of caponizing demonstrations were arranged with various cooperators throughout the County as a means of developing an interest in capon production. Due to the fact that the Poultry Extension Specialist was out of the State during the proper season for doing this work, the Agent conducted these demonstrations. A total of six demonstrations were conducted and a total of one hundred sixteen birds were caponized. The cooperators in this work have in every case made a satisfactory financial return from the enterprise and are planning to engage in it on a larger scale in the future. Indirectly a number of other poultrymen and farmers have become interested and are planning to produce capons next season.

Poultry Culling

A series of culling demonstrations were conducted in August in cooperation with the Poultry Extension Specialist. These demonstrations afforded an opportunity for those poultrymen and farmers who had not yet become proficient at culling to secure instruction and experience in the work. Systematic culling is now being practiced by all of the commercial poultrymen in the County and by the majority of the farmers who have only small flocks.

AGRICULTURAL ECONOMICS

Farm Management

This project has been carried on continuously since January 1922. Each year the financial records of the cooperating farmers have been summarized and analyzed and changes suggested in the system of management for the individual farms. While the time and facilities for carrying on this project are inadequate for doing the work properly, the results have proved invaluable as a basis for work in connection with other Extension projects.

The analysis of the records for 1924 was completed in April. Twenty two farmers cooperated in the work during that year. Of these, fourteen kept cost of production data on their cotton crops and four recorded similar data for the dairy enterprise.

A complete report of this project for the year 1924 including a typical copy of the summary, statistical analysis and discussion of results as returned to each cooperator follows:

GRAHAM COUNTY FARM MANAGEMENT PROJECT 1924

The financial summary on the following page gives a summarized and complete account of the farm business for the year for each individual co-operator.

In table No. 1 on pages 3 and 4 is contained a statistical analysis of the farm business of each individual cooperator together with comparisons with the average of the six best paying farms and all twenty one farms included in the project. This analysis brings out very clearly the reasons why some farms are paying better than others. The various factors influencing farm profits have, no doubt, been sufficiently emphasized or commented upon in the reports of the past two years, so that this year's figures will be self explanatory. The most out-standing fact in this connection as brought out by the 1924 data is that high crop yields and high producing livestock were the most important factors making for large profits on the six best paying farms as compared with the average for the entire group. A noticeable increase in farm profits has taken place during the three years in which the project has been running. The average labor income per farm was \$190.00 greater for 1923 than for 1922, and, for 1924 was \$752.00 greater than for 1923. This increase is partially accounted for by an increase in prices of farm products, but is due in a very large measure to improvements in farm organization and management.

The past year marks the first attempt to secure cost data for some of the most important enterprises. The work of the first two years being limited to a study of the profitability of the farm business as a unit. For the past year fairly representative cost data for cotton and butterfat have been secured. Changing price relationships make it necessary to have records through a series of years before definite conclusions concerning the profitability of any farm enterprise can be made. For this reason it is desirable that the records on the above mentioned enterprises be continued and at the same time the number of farms from which cost data is secured should be increased. For the present year representative cost data for the alfalfa, wheat, barley, poultry, and sheep enterprises should be available.

The 1925 Outlook.

Present indications are that practically all locally produced crop and livestock products will bring satisfactory returns during the next year.

At the present time the relationship between feed prices and the prices of butter-fat and eggs is tending, temporarily to diminish the profits from the dairy and poultry enterprises. A good crop year combined with the natural weeding out of the less efficient producers of these products should result in better profits from these enterprises a few months later. This will be especially true for the farmer who is keeping only high producing stock.

Apparently hog prices during the next year will be comparatively high. The farmer who has a brood sow or two and is situated so as to be able to feed hogs very largely on waste products should make good profits from this enterprise.

Prices of sheep and wool are high at the present time. Sheep should have a more important place on Graham County farms. Year in and year out they will return a profit if facilities for handling them are provided so as to permit utilization of pasturage and waste farm products.

FARM FINANCIAL SUMMARY FOR YEAR 1924. Farm No. 3

Inventory	Beginning of Year:	End of Year:
ASSETS:		
Land.....	\$ 12,000.00	\$ 12,000.00
Dwelling.....	1,450.00	1,450.00
Farm Building.....	2,372.00	2,320.00
Machinery and Tools...	1,029.00	1,025.50
Cattle.....	145.00	205.00
Horses.....	300.00	525.00
Hogs.....		
Sheep.....		
Poultry.....	40.00	40.00
Bees.....		
Feed and Supplies.....	132.00	312.00
Increase in Inventory	\$17,468.00	\$17,877.50
Decrease in Inventory	409.50	
	\$17,877.50	\$17,877.50

FARM CASH RECEIPTS:

Cattle.....	\$ 74.85
Hogs.....	
Poultry.....	120.63
Horses.....	
Sheep.....	
Alfalfa.....	3,616.19
Wheat.....	573.03
Barley.....	
Cotton.....	1,620.12
Fruit and Vegetables..	
Miscellaneous.....	\$
Total Cash Receipts	6,004.82
Increase in Inventory.....	409.50
Total Receipts plus Inventory In-	
crease, ,	\$6,414.32

FARM CASH EXPENSES:

Alfalfa.....	\$ 265.08
Cotton.....	790.07
Dairy Cattle.....	77.25
Buildings. Water Assess-	
ments..	104.90
Machinery.....	82.77
Poultry.....	
Wheat.....	121.60
Labor.....	432.37
Taxes.....	422.42
Horses.....	225.00
Miscellaneous.....	4.25
Total Cash Expenses...\$	\$ 2,525.71
Decrease in Inventory.....	\$
Cash Expense plus Inventory Decrease	2,525.71
Receipts above Expenses.....	\$ 3,888.61
Interest on Investment at 6%.....	\$ 1,048.08
Labor Income (pay for work of	
Farmer and family).....	\$ 2,840.53
Value of Farm Products Used.....	550.38
Total return for work of Farmer &	
Family.....	\$3,390.91

Table No. 1 23
 AN ANALYSIS OF THE FARM BUSINESS OF 21 GRAHAM COUNTY FARMS. 1924.

The following is a comparison of your farm with the average of the six best paying farms and the average of all 21 farms included in the analysis, with reference to some of the important factors that determine farm products.

	Your Farm No. 3	Average of 6 best pay- ing farms.	Average all 21 farms.
Size of Farm Business:			
Total Capital.....	\$17,468.00	\$20,347.13	\$16,125.28
Total Farm Area, Acres.....	60.00	104	99
Total Crop Area, Acres.....	57	65	61
Total Productive Animal Units. ^{1,2}	2.4	17.6	16.5
Profitableness of Farm Business:			
Total Receipts ³	\$ 6,414.32	\$ 7,840.18	\$ 5,196.70
Total Expenses.....	2,525.71	3,640.92	2,925.87
Farm Income.....	3,888.61	4,199.26	2,270.83
Income from Capital (Interest at 6%)	1,048.08	1,167.71	934.09
Labor Income ⁴	2,840.53	3,031.55	1,336.74
Value Farm Products Used by Family	550.38	916.49	616.76
Total Returns for Work of Farmer and Family.....	3,390.91	3,948.04	1,953.50
Diversity of Farm Business:			
Number of Crops Grown.....	3	3	3
Number of Sources of Income.....	3	4	4
Balance of Farm Business:			
Total Fixed Capital ⁵	\$15,822.00	\$16,395.17	\$13,110.95
Percentage Fixed Capital.....	91%	80%	81%
Total Operating Capital ⁶	1,646.00	3,951.96	3,014.34
Percentage operating Capital	9%	20%	19%
Percentage Crop Area in Alfalfa...	50%	71%	60%
Percentage Crop Area in Grain.....	35%	15%	12%
Percentage Crop Area in Cotton....	16%	14%	28%
Percentage Animal Units, Cattle...	83%	76%	72%
Percentage Animal Units, Hogs.....	None	3%	16%
Percentage Animal Units, Poultry.	17%	14%	11%
Percentage Animal Units, Sheep.....	None	7%	1%

1. A Productive Animal Unit consists of one cow, or other mature cattle, two young cattle, seven sheep, fourteen lambs, five hogs, ten pigs, or one hundred poultry, as based on approximate feed requirements. Work horses are not included.

2. Includes increase in inventory, if any.

3. Includes decrease in inventory, if any.

4. Labor income is what the farmer receives in cash or increase in inventory for the work of himself and family for the year. It is obtained by deducting from the gross farm income, six per cent interest on the farmer's equity in the capital invested in the farm business. In addition to his labor income, the farmer gets all that his farm produces toward the family living, i.e., house to live in, milk, butter, meat, eggs, vegetables, fruit, etc., and the income from capital if the farm is free from debt.

5. Includes land, buildings and other permanent improvements.

6. Includes machinery, tools, livestock, feed and supplies and cash for current expenses.

Table No. 1 Continued)

	Your Farm No. 3	Average of 6 best paying Farms.	Average of all 21 Farms.
Efficiency of Labor:			
Crop Acres per man.....	57	41	47
Animal Units per man.....	2.4	10	13.2
Crop Acres per work horse.....	14	14	14
Machinery Investment per crop Acres	\$ 18.05	\$ 20.31	\$ 14.00
Crop Returns:			
Alfalfa:			
Yield per acre (tons).....	5	5	4.4
Index of Yield ¹	114	125	100
Cost of production per ton.....	No data	No data	\$ 9.69
Barley:			
Yield per acre (pounds).....		3120	2211
Index of Yield ¹		141	100
Cotton:			
Yield per acre (pounds lint)...	813	655	433
Index of Yield ¹	188	151	100
Cost of production per lb. lint.	10.5¢	10.8¢	15.1¢
Wheat:			
Yield per acre (pounds).....	1436	1978	1752
Index of Yield ¹	82	113	100
Index of all Crop Yields ¹	113	114	100
Livestock Efficiency:			
Dairy Cattle:			
Receipts per Animal Unit ²	\$ 156.30	\$ 100.08	\$ 77.97
Butter-fat Production per Cow..	No data	330	287
Cost of production per lb. But- terfat (cents).....		39.7¢	38.7¢
Hogs:			
Receipts per Animal Unit ²		\$ 72.98	\$ 71.99
Sheep:			
Receipts per Animal Unit ²		\$ 89.37	\$ 71.17
Poultry:			
Receipts per Animal Unit ²	\$ 426.45	\$ 335.34	\$ 411.04
Egg Production per Hen.....	No data	No data	134
Cost of production per doz. Eggs.	" "	" "	34.1¢
Receipts per Animal Unit all Live- stock ²	\$ 201.33	\$ 171.36	\$ 120.81
Index of Livestock Returns ¹	167.00	142	100

1. Percentage of County Average.

2. Receipts per animal unit for the various classes of livestock were computed from the following formula:

$$R = \frac{(I_2 + S + V) - (I_1 + P)}{N}$$

In which case R represents receipts per animal unit; I₁ represents inventory value of livestock at beginning of year; I₂ represents inventory value at end of year; P represents purchases of stock made during the year, V represents the value of livestock and livestock products used by the family during the year; N represents the number of productive animal units on the farm.

COST OF PRODUCING COTTON ON FOURTEEN GRAHAM COUNTY FARMS 1924.

The fourteen farms included in the group are typical of the farms of the County, as regards to soils, acreage, yields, and costs. They were selected as being representative of the various sections of the County. Thus the group should give a fairly true cross-section of the cotton industry of the County with respect to yields and cost of production for the year 1924.

The data is based on yearly records consisting of a labor record, a production record and a complete account of cash receipts and expenses.

The farmer's own labor was charged at an arbitrary rate of thirty cents per hour. All horse labor was charged at the rate of ten cents per hour per horse used. These figures represent approximately the current rate of wage in this locality. Actual cost of horse labor for the individual farms may vary either way from this figure, depending upon the extent to which work animals are used throughout the year, as well as upon the cost of keeping them. Hired labor for hoeing, picking and other operations for which hired labor was used, was charged at exact cost.

Taxes for each individual farm were calculated at the exact rate of state, county, drainage, and special school taxes for the district. The land valuations used were the assessed valuations as reported by the County Assessor.

Interest on investment in land was calculated at the rate of 6% on the valuation placed on the land by the farmer.

The most arbitrary figure in the entire list of cost items is that of machinery charges. This item was charged at the rate of ten cents per horse hour which is the usual custom in arriving at such cost figures. The probabilities are that machinery costs charged at this rate would exceed actual machinery costs if a separate machinery cost record was kept.

Yields and Costs.

Table 2 contains cost items for the separate operations in growing the crop and the percentage that each item is of the total gross costs. The figures in this table are in all cases the averages for the fourteen farms.

In table 3 the farms were arranged in order of cost of production per pound lint, with the farm producing at lowest cost, first. It will be noted that when the farms are arranged in this order the farm having the lowest cost of production is also the one having the highest per acre yield. This relationship holds fairly consistently on down through the table. That is, low cost of production per pound lint is associated with high acre yields. By mathematical methods, the details of which are beyond the scope of this report, it was determined that the coefficient of correlation between cost of production and yield per acre is $-.64$. This is a very close negative correlation between two variable factors. The same calculation shows the coefficient of regression to be $.016$ cents per pound. By this it is meant that from the average yield of 433 pounds lint per acre at the average cost of 13.4 cents per pound lint, each 62.5 pounds increase in yield of lint per acre reduces the cost of production one cent per pound of lint, and each 62.5 pounds decrease in yield below the average of 433 pounds per acre increases the cost of production one cent per pound.

Table No. 2

COST OF PRODUCTION DATA FOR COTTON ON 14 GRAHAM COUNTY FARMS. 1924.
Straight averages of per acre averages.

COST ITEMS:	Average Per Acre	Percentage of Gross Cost
Preparation of Seed Bed	\$ 6.28	9.0
Planting	.71	1.1
Thinning	2.50	3.7
Hoeing	1.89	2.8
Cultivating	3.01	4.5
Irrigating	1.07	1.6
Picking	22.32	33.1
Weighing	.20	0.3
Hauling to Gin	2.05	3.1
Seed	.99	1.5
Ginning (Including Bale Material)	7.61	11.2
Rent on land or interest on Investment	9.65	14.4
Machinery at 10¢ per Horse Hour	4.79	7.1
Water Assessments	1.17	1.8
Taxes on Land	3.22	4.8
Total Gross Costs	\$ 67.46	100.0
CREDITS:		
Seed	9.54	14.2
Net Cost	\$ 57.92	85.8
Yield Lint, Lbs.	453	
Cost of Production per Lb. Lint.	13.4 cents	
Net Cost Less Picking and Ginning	\$ 27.99	
Production Equivalent to cost. Lbs, lint.	175.5	

COST OF PRODUCTION ON 14 GRAHAM COUNTY FARMS 1924.

Farm No.	Cost of Production Per Pound, Lint	Yield per Acre	Net Cost Per Acre Less Picking & Ginning	Cost Equivalent Lbs. Lint	Price Received per Lb. Lint
3	10.5	813	\$22.84	149	23.1
23	10.8	696	12.71	81	22.7
13	11.2	666	23.14	147	23.5
8	11.2	600	29.68	163	24.5
7	11.8	437	24.08	144	23.0
24	12.7	538	29.04	186	22.7
16	15.3	300	22.52	141	23.0
14	16.0	277	24.05	148	24.0
19	16.7	200	33.38	277	22.5
10	17.1	309	31.84	191	23.6
12	18.1	312	36.93	230	22.3
20	18.4	354	37.76	256	22.5
1	19.1	318	35.44	242	22.4
4	22.9	280	44.13	258	24.1
Average	13.4	433	27.99	175.5	23.1

Average cost of picking per lb. seed cotton $1\frac{3}{4}$ ¢

Average cost of picking per lb. lint. $5\frac{1}{4}$ ¢

Average cost ginning (including bale material) per 500 Lb. bale. \$9.50

Average cost ginning (Including bale material) per lb. lint. 1.9¢

Average cost picking and ginning per lb. lint 7.15¢

In most instances the low yields were obtained on land that was foul with Johnson grass and other weeds. Naturally the hoeing costs on these farms were high, which resulted in the high per acre costs up to the time of picking as is indicated by the figures in column 4 of table 3, which is headed, "Net Cost Per Acre Less Picking and Ginning." On some farms hoeing costs were as high as \$12.00 per acre. This combined with low yields resulted in high cost of production per pound of lint.

Production Equivalent to Cost.

In column 5 of table 3 is listed for each farm the calculated production per acre in pounds of lint cotton necessary to equal costs. These figures were calculated from the formula:

$$r = \frac{c}{p - q}$$

c in this case represents the net cost per acre less picking and ginning charges.

p represents the price received by the farmer per pound of lint cotton.

q represents the combined cost of picking and ginning per pound of lint.

Thus r corresponds to the yield in pounds of lint cotton necessary to equal costs. Obviously this yield which is exactly equivalent to cost will vary with the price of cotton even though the other factors should remain constant.

Conclusions

The data indicate that low cost of production per pound of lint cotton is dependent upon the following conditions:

1- Comparatively low per acre costs up to the time of picking which in turn is dependent upon:

a- Planting in clean fertile soil which has been filled with moisture to a depth of six to eight feet, so as to eliminate the necessity for early summer irrigation there-by keeping in check the growth of grass and weeds.

b- Planting the seed by methods which will insure a good stand with one planting and without the necessity for irrigating the cotton up.

2- Intelligent subsequent handling of the crop as to insure a yield of five hundred pounds or more of lint cotton per acre.

Cotton grown under these conditions should be produced at from ten to twelve cents per pound of lint, which costs it will be remembered include current wages for the farmer's own time. It is inconceivable that the cotton market is in any immediate danger of slumping to an extent that would cause financial embarrassment to the farmer who can produce cotton within these costs limits, as is easily possible under Gila Valley conditions with present price relationships. Most of the financial hazards in connection with local cotton production are for the farmer whose per acre yields are low.

COSTS AND RETURNS ON FOUR GRAHAM COUNTY DAIRY FARMS 1924

Costs and returns data for four Graham County Dairy farms for the year 1924 are presented in tables Nos. 4 and 5. It is believed that the four dairies included in this group are typical of the dairy farms of this locality and when grouped together constitute a fairly representative cross-section of the dairy industry of the County. Thus in summarizing the data in this form the assumption has been made that the results are sufficiently typical so that even though the number of dairy farms included is small, yet they constitute a fairly reliable index of the true status of the local dairy industry for the year 1924.

The data presented are based upon a yearly record, which consists of two inventories, one at the beginning and the other at the end of the year, together with labor and feed records, and a complete account of all cash receipts and expenses in connection with the dairy herd during the year. Cost items not involving a direct cash outlay, were arrived at by the most consistent method of calculation possible or entirely by estimate as was necessary in some cases.

Labor in terms of man hours performed directly in connection with the dairy enterprise by the farmer and his family, and in some cases by hired labor, was valued arbitrarily at thirty cents per hour. This value corresponds very closely to the current rate of farm wages in this locality when board and other items are taken into consideration.

Farm Feeds consisted of Alfalfa hay, whole cotton seed, corn silage and pasturage. Only a negligible quantity of grain was fed. These feeds were charged on the basis of market prices less costs of preparing for market and transportation to market. An approximate average for Alfalfa hay was \$10.00 per ton, corn silage \$5.00 per ton, and whole cotton seed \$24.00 per ton. It was estimated that the value of pasturage and the value of manure would approximately offset each other, and these items were not otherwise taken into consideration.

Feeds purchased were only a minor item of cost. On the three farms where feeds were purchased, the materials consisted of cotton seed and Alfalfa hay. These were charged at actual cost. Labor involved in transporting them to the farm was included in the labor item.

Taxes were calculated at the exact rate of state, county, and special school taxes for the district. The valuation used was the average valuation on dairy stock as reported by the County Assessor.

Housing including dairy sheds, barns, corrals, land, etc., used in connection with the dairy enterprise, was calculated on the basis of an arbitrary rate of 10% of inventory value. This rate should be ample to take care of interest on investment, maintainance, depreciation, taxes, etc.

Machinery and equipment used directly and exclusively by the dairy enterprise were also charged at the rate of 10% of the inventory value.

Interest on investment was calculated at the rate of 6% on the inventory value of the dairy herd at the beginning of the year.

COST OF PRODUCTION OF BUTTER-FAT ON FOUR GRAHAM COUNTY FARMS 1924
(Total number of Cows included 74)

Cost Items:	Average per Cow	Percentage of Gross Costs
Labor	\$ 40.09	25.6
Farm Feeds	85.51	54.4
Feeds Purchased	4.99	3.1
Taxes	1.67	1.1
Housing	1.78	1.1
Machinery & Equipment	.70	.4
Interest on Investment at 6%	6.71	4.3
Hauling to Market	3.31	2.2
Miscellaneous Cash Expenses	6.49	4.1
Inventory Decrease	5.81	3.7
TOTAL GROSS COSTS	\$156.86	100.0
Credits:		
Inventory Increase	\$ 15.16	
By-Products Sold	16.25	
By-Products Used on Farm	13.86	
TOTAL CREDITS	45.28	28.9
NET COSTS	111.58	71.1
Production, Lbs. Butter-Fat	278 $\frac{1}{2}$	

Hauling to Market the dairy products on two of the farms was on a cash contract basis and was charged at the actual cost. In the other cases where the farmers hauled their own products to market the cost was included in the labor and equipment items.

Miscellaneous Cash expenses were charged at actual recorded cash expenditures. The chief items included were stock purchased, and veterinary services.

Inventory decrease represents the exact diminution in value of the herd at the end of the year as compared with the value at the beginning of the year. Three farms showed inventory decrease. This was due to the fact that a number of cows were culled out because of the comparatively low price for butter-fat during the greater part of the year. Mortality in the herd was taken into consideration in the inventory comparisons.

Credits included by-products sold, by-products used on the farm and inventory increase in the value of the herd, if any.

By-Products sold included, hides, veal calves and cull cows sold. These were credited at the actual value received.

By-Products used on farm included veal and beef consumed by the family, and skimmed milk used by poultry, hogs and other farm enterprises. Skimmed milk was credited at the arbitrary rate of twenty cents per cwt.

Net Costs as is clearly apparent were arrived at by deducting the sum of the credit items from the total gross costs.

Production records for individual cows in the herd together with butter-fat tests were available from only one herd. In the other cases total butter-fat production for the year, was obtained from the creamery weights plus the estimated amount consumed by the farm family. Herd tests only were available for these farms. Naturally production data secured in this manner leaves a great deal to be desired.

Cost of Production of butter-fat per pound varied within somewhat wide limits, the minimum being 33¢ and the maximum 42.6¢. The average for the group was 38.7¢. Production per cow was the chief factor influencing cost of production per pound of butter-fat. The most significant fact which the figures indicate in this connection is that at the price received for the product on the various farms there is a certain minimum production per cow required in order to pay costs including pay for the dairyman's own time at the current wage rate for farm labor. This cost equivalent, in butter-fat production per cow, varied not only with the annual cost item per cow but also with the price received for the product. Thus the profitableness of a dairy cow is as much dependent upon the price at which her production is sold, as upon the amount of her production. For the group as a whole, any cow producing less than two hundred and twenty six pounds of butter-fat during the year was kept at a loss. The cost equivalent figure for the various herds also varied widely. The necessity for production records and monthly tests for individual cows is clearly apparent if the dairyman is to eliminate those cows whose production is less than the cost equivalent.

COSTS & RETURNS ON FOUR GRAHAM COUNTY DAIRY FARMS 1924

Farm Number	8	10	17	21	Average
Number of Cows	12	9	32	21	18.5
Total Returns for herd	\$1367.42	\$ 966.32	\$5538.73	\$2707.54	\$2645.00
Total Gross Cost for Herd, Dollars.	1604.38	1436.40	6077.83	2489.11	2901.94
Total credits for herd	208.80	542.20	1869.87	729.53	837.60
Total net costs for herd	1395.58	894.20	4207.96	1759.63	2064.34
Total Profit or loss on Dairy Enterprise.	(Loss) 28.16	72.12	1330.77	947.91	580.66
Gross Returns per Cow, Dollars	113.95	107.37	173.08	129.95	142.97
Net Costs per Cow, Dollars	116.95	99.35	131.49	83.79	111.58
Profit or Loss per Cow	Loss 2.34	8.02	41.59	46.14	31.39
Production Butter-Fat Per Cow, Lbs.	273	233	330	253	287
Gross Returns per Lb. Butter-fat, Cents	41.3	46.0	52.3	50.8	49.2
Cost of Production per Lb. Butter-fat Cents	42.6	42.5	39.7	33.0	38.7
Margin of Profit or Loss per Lb. Butter-fat, cents.	Loss .9	3.5	12.6	17.8	10.5
Returns per hour of Man Labor, Cents.	27.4	39.8	54.3	66.5	53.4
Production per Cow Equivalent to Cost, Lbs. Butterfat.	278	234	251	165	226

Returns calculated on an average per pound basis for the entire year are given as weighted averages for the year's sales plus home consumed products at market value. The average price received per pound of butter-fat varied from 41.7¢ to 52.2¢. The average for the group was 49.2¢. This variation in price received by the individual dairymen was due to the fact that the product was marketed in different forms. On one farm all the product was sold as sour cream and brought the lowest price per pound of butter-fat. Butter-fat in sweet cream, the form in which a considerable portion of the product from some of the dairies was sold, brought from three to eight cents per pound more than butter-fat in sour cream. A small amount of the product was sold as whole milk on the basis of butter-fat content. These dairies which were situated and equipped so as to enable them to sell sweet cream were able to make a profit from cows that would be unprofitable if sour cream prices were received. However, the results obtained emphasize the necessity for high producing animals if satisfactory profits are to be secured in the dairy business, regardless of form in which the product is sold.

Return per hour of man labor was arrived at by adding to the total profit on the dairy enterprise, the total charges for man labor and dividing the remainder by the total number of hours of man labor. This return per hour was fairly satisfactory for the group as a whole. When it is considered that on the average general farm, the time devoted to the dairy enterprise is for the most part, time which otherwise would not be profitably used, it is apparent that on a well balanced farm a return of 53¢ per hour for work in connection with the dairy herd will add materially to the total farm profit for the year.

Conclusions

Although butter-fat prices in 1924 were below normal and feed prices averaged slightly above normal, the data indicate that the local dairy industry was moderately profitable with cows producing two hundred seventy five pounds of butter-fat and above. Although, the sale of the product in the form of sweet cream requires additional time and equipment, the differential in price over sour cream is sufficient to make the marketing of the product in this form considerably more profitable.

Of course, the cost of getting the product to market daily, prohibits some diarymen from selling their product in this form. Also there is a limit to the amount of the product that the market can absorb as sweet cream. Hence the average dairyman must base his return upon sour cream prices, and must adjust his dairy production so as to make for a profit on that basis, or he cannot hope to make dairying pay.

In general it may be stated that local price relationships preclude any possibility of making unusual profits in commercial dairying in this section. However, in connection with the local system of crop rotation, where ample feed and pasturage are available, dairying either as a major or a minor farm enterprise makes for a conservative and moderately profitable system of farming when the herd consists of animals with good production records.

Hay Marketing

At the request of the Farm Bureau Hay Committee the Agent assisted in formulating plans for the work of the Committee during the year. The committee has, during the year, accomplished some worth while things in connection with the improvement of market practices, stabilization of local hay prices, and reduction of freight rates. Also the growers have been kept informed as to hay prices and the condition of the market.

The Agent also cooperated with a committee of hay growers and dealers in arranging meetings and securing the endorsement of the local hay trade for the Federal System of hay grades.

Cotton Marketing

The work of promoting the practice among local cotton growers, of insisting upon the sale of cotton on the basis of grade has brought fairly satisfactory results. The majority of the local sales are now made on the basis of grade with the result that local prices are proportionally better this season than for previous years.

BOYS' AND GIRLS' CLUB WORK

During the year seven clubs have been organized in the County by the State Home Demonstration Agent. These have included the following lines of work:

Three First Year Sewing Clubs.

One Second Year Sewing Club.

One Third Year Sewing Club

Two Girls' Own Room Clubs.

These clubs have been organized in the Thatcher, Central, Pima, Bryce and Ashurst communities. Six of the clubs, including sixty three members have completed their work in a very satisfactory manner and have held their achievement programs. The club which has not yet completed its work got started late and indications are that the project will be carried over and finished next year.

MISCELLANEOUS

During the year the Agent has cooperated with the local Forest Service officials in holding meetings relative to Forest problems and in conducting a campaign for the observance of American Forest Week.

OUTLOOK AND RECOMMENDATIONS

The outlook for Extension work in the County at the present time is especially favorable. The fact that farmers who have adopted the systems of farming and practices as advocated by the Extension Service are securing satisfactory farm incomes is tending to strengthen the position of the Service in this locality. Furthermore, this condition is gradually bringing the majority of the farmers into line for the adoption of the practices as advocated.

The complete lack of basic economic data as to the relative profitableness of the various competing farm enterprises has, during past years, been a serious handicap in working out a program of Extension work to the best advantage and one that could safely be promoted without fear of getting the farmers into financial difficulties. An attempt has been made during the past three years to remedy this difficulty so far as possible with the time and facilities available, by accumulating data as to farm returns under different systems of management, and cost of production data for some of the major individual farm enterprises. Some progress has been made but it is now apparent that a major portion of the Agent's time during the next year will be required to secure this data in proper form and reduce it to a usable basis. Detailed cost data for each of the principal agricultural commodities produced in the County should be secured. This should include material and labor requirements so that price changes will not make the data obsolete. The data should be reduced to the following comparative bases:

- 1- Net Return per hour of operator's labor.
- 2- Net return per acre of per animal.
- 3- Net interest return on investment.
- 4- Seasonal requirements for man and horse labor.

These data in connection with data as to available markets and such physical data as soil types, water supply, climatic conditions, and crop and livestock adaptation should provide a basis for determining the most profitable system of farming under any given conditions in the County.

An Extension program worked out on this basis should not only be economically sound and of assured permanency, but should also make it possible to concentrate on those lines of work that promise the greatest returns for the efforts put forth. While it perhaps would not be advisable during the coming year to neglect the other projects that are now in progress, it is quite apparent there is ample justification for concentrating as much time as possible on the Farm Management Project. The satisfactory completion of this piece of work will permit of devoting a larger proportion of the time to other projects during subsequent years and will make it possible to plan those projects on an economically sound basis.

The tentative program of work for 1926 is as follows:

Project	Methods	Specialist Help Wanted	Goal
Soils: Irrigation demonstrations.	5 demonstrations of filling soil to moisture holding capacity before planting crops. Newspaper articles. 2 demonstrations of proper layout of land and length of runs secure adequate and uniform moisture penetration. 1 demonstration of equipment of head ditches for proper distribution of water to land. Water penetration studies for each distinct soil type in County.	Agronomy Specialist 2 days in April. Agronomy Specialist 2 days in July.	To get majority of farmers to fill soil with moisture in winter and early spring while ample water is available. To get majority of farmers to provide layout for efficient use of irrigation water. To get majority of farmers to provide proper equipment for distribution of water on land. To secure water penetration data for all local soil types as a basis for calculating time required in applying irrigation water to secure adequate penetration.
Cotton: Improved production methods. Variety demonstration One variety County.	Newspaper articles. 5 planting demonstrations. 1 demonstration of 3 upland varieties at Sunset. Newspaper articles. 100 acres certified seed. Roguing and supervised ginning.	Agronomy Specialist 3 days April.	To get majority of farmers to adopt practices which have been found to give maximum yields. To determine best variety for dry farm section. Carload of improved Acala seed planted in County. To get all cotton growers to plant Acala variety.

<p>Horticulture: Better orchard and vineyard management.</p>	<p>Newspaper articles 1 demonstration orchard. 2 demonstration vineyards.</p>		<p>25 farmers to prune and spray orchards and vineyards.</p>
<p>Rodents & other Pests: Rodent control Sparrow control. Ant Control.</p>	<p>Newspaper articles. 15 method demonstrations. Newspaper articles. 5 method demonstrations Newspaper articles.</p>	<p>U. S. Biological Survey Specialist 20 days in Jan.</p>	<p>400 farmers to adopt control methods. 50 poultrymen and farmers to adopt control methods. 20 farmers to adopt control methods.</p>
<p>Animal Husbandry: Farm Sheep</p>	<p>Newspaper articles. Livestock Show.</p>	<p>Livestock Specialist- ist 2 days Jan.</p>	<p>10 farmers to add farm flocks 5 farmers to secure pure-bred rams.</p>
<p>Dairy Husbandry: Better dairy cattle. Dairy Management.</p>	<p>Livestock Show. Farm Visits. 1 day Extension School.</p>	<p>Dairy Specialist 2 days January. Dairy Specialist 2 days September.</p>	<p>10 farmers to secure better breeding stock. 10 farmers to feed balanced rations and keep production and test records.</p>
<p>Poultry Husbandry: Better Poultry Stock. Better Management Capon Production</p>	<p>Livestock Show 2 day Poultry Extension School. 3 culling demonstrations 5 Caponizing demonstrations.</p>	<p>Poultry Specialist 2 days January. Poultry Specialist and Professor of Poultry Husbandry 2 days January. Poultry Specialist 2 days August. Poultry Specialist 3 days in May.</p>	<p>15 poultrymen to secure better breeding stock. 25 poultrymen and farmers to adopt better methods of feeding and management. 10 poultrymen to produce capons.</p>

PROGRAM OF WORK (Continued)

Agricultural Economics:
Farm Management

25 demonstrations in farm accounts for farm enterprise as a unit.
14 demonstrations of cost accounts for wheat crop.
14 demonstrations of cost accounts for barley crop.
10 demonstrations of cost accounts for poultry.
20 demonstrations of cost accounts for cotton crop.
10 demonstrations of cost accounts for dairy enterprise.
15 demonstrations of cost accounts for Alfalfa crop.
5 demonstrations of cost accounts for Hegari crop.
5 demonstrations of cost accounts for corn and silage.
1 demonstration of cost accounts for range goats.
1 demonstration of cost accounts for range cattle.
5 demonstrations of cost accounts for cattle feeding.
3 demonstrations of cost accounts for hogs.
Survey of available markets for local farm products.

To secure representative cost of production data for each product on a basis of material and labor requirements.

To determine seasonal labor requirements for each enterprise.

To determine relative profitability of various enterprises on basis of:
Return per hour of operator's labor.

Return per acre or per animal.
Interest return on investment.

To determine most profitable combination of farm enterprises for local farms.

To convince farmers of desirability of keeping accounts.

To determine market possibilities for local farm products.

Handwritten note:
1. Survey of available markets for local farm products.

SUMMARY

1- The County Farm Bureau is functioning as the official sponsor of Extension Work in the County. A change in the system of financing has made the organization more representative of the farmers of the County and at the same time is providing adequate revenue to support its activities.

2- The program of Extension Work for the year has been based upon the apparent requirements for an economically sound system of farm management for the County.

3- Cotton variety demonstrations have provided information to the effect that the Acala, Mebane and Lonestar varieties in the order named are the most profitable upland varieties for this County. Other varieties have not given satisfactory results under local conditions.

4- Progress has been made toward the goal of a one variety County. Approximately 90% of the total cotton acreage in the County this year, was planted to the Acala variety. Fifty thousand pounds of certified seed for planting purposes was imported.

5- Improved production practices which were adopted as a result of Extension work have increased the average per acre yield of lint at least 100 pounds. This represents an increase in returns to the cotton growers of the County, of approximately \$150,000.00.

6- The majority of the farmers of the County are planting seed wheat which has been treated by the dry copper carbonate method.

7- Many farmers have made increased farm incomes by planting hegari as a second crop following wheat and barley.

8- The practices of pruning and spraying orchards and vineyards have been adopted by about 25 farmers.

9- Interest has been stimulated in pecan production. Approximately 700 young trees of the improved varieties have been planted during the year.

10- A campaign for the planting of home winter gardens has brought satisfactory results.

11- A rodent control campaign was participated in by 310 farmers. Gophers were exterminated on 12,815 acres of farm land.

12- The threatened destruction of crops by rabbits in some of the outlying districts was avoided by using the United States Biological Survey control methods.

13- Approximately forty poultrymen and farmers cooperated in a successful campaign for the control of sparrows.

14- Progress has been made in stimulating interest in the use of farm flocks of sheep as scavengers on local irrigated farms.

15- The importation of some dairy sires with excellent production records back of them is tending to improve the quality of local dairy cattle.

16- Facilities for handling dairy products in a sanitary manner have been provided on all local commercial dairy farms.

17- A thorough campaign for the eradication of tuberculosis in the dairy cattle of the County is in progress.

18- A successful Poultry Show has brought tangible results in improving the quality of poultry stock.

19- A well attended two day Poultry Extension School was effective in promoting the adoption of scientific methods of management of poultry flocks.

20- A series of caponizing demonstrations has stimulated an interest in capon production.

21- The farm management project has provided valuable information as to the relative profitability of the various local systems of farm management as well as cost of production data on the cotton and dairy enterprises.

22- The local hay trade has endorsed the Federal system of hay grades. Valuable services have been rendered to the hay growers in cooperation with the Farm Bureau Hay Committee in connection with the stabilization of local hay prices, and the solving of transportation problems.

23- The sixty three members participating in Boys' and Girls' Club Work have completed a successful season.