

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

O F

K. K. HENNESS

COUNTY AGRICULTURAL AGENT

PINAL COUNTY

ARIZONA

FOR YEAR ENDING NOVEMBER 30, 1934

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III. History of Extension Work in Pinal County

Data on extension work in Pinal County prior to August 16, 1920, are rather incomplete. The Agent has been informed, however, that at least two County Agents served in the County prior to that time. These agents seem to have been on temporary appointment and it appears that various other individuals from time to time assisted in the local extension program. Pure seed, irrigation and pumping equipment, rodent control, poultry feeding and management, plant disease and insect control, and improved livestock appear to have received most attention. Subject matter specialists from the University seem to have been used a good deal in this early period.

Mr. E. S. Turville began work as County Agent on August 16, 1920, and continued in this position until November 1, 1926. Mr. Turville rendered valuable service in the development of the agriculture of the County. He saw the slump in 1920, with its consequent bankruptcy of local farmers, and assisted in the rebuilding program. He developed an active County Farm Bureau, with various local units. He devoted time to marketing of butterfat, eggs and poultry, grapes and truck crops, which were without a local market at that time. His was an inquiring mind, and various projects in soil moisture and irrigation were carried on. Poultry feeding and management received much of his time. Farm Bureau leaders now in the County who worked with Turville oftentimes say that he and his poultry work were the means of keeping many settlers here, awaiting the building of the Coolidge Dam which was to store water for their lands.

Mr. Turville left the County on November 1, 1926, to become Specialist in Agronomy and Irrigation Practice. He was succeeded by Mr. G. W. Scheerer on December 16, 1926. Mr. Scheerer continued in service until forced to resign because of ill health on February 15, 1928. Mr. Scheerer carried on the regular extension program as outlined by Turville, and paid particular attention to pumping and irrigation equipment, soil problems, and irrigation.

On April 1, 1928, the present County Agricultural Agent succeeded Mr. Scheerer. There was rapid expansion of irrigation under pump in 1929, and in 1930 water became available from the Coolidge Dam, providing irrigation for some 50,000 acres of land. This was a period of rapid development in the agricultural resources of the County, and the Agent believes that this office has been of some consequence in formulating the agricultural policies and practices of the County during this development period.

*L. P. Hayter
Dec 20, 1917
June 30-1919*

*July 15-1919
C. K. Walden
Aug 15-1920
mills office
Aug 16-1920
Scheerer
Nov 1-1916
Scheerer
Dec 16-1926
Feb 15-1928
Hemen
April 1-1928*

One of the problems incidental to the development of irrigated land is the matter of levelling land for water. The records of this office show that during the tenure of the present Agent over 7,000 acres of new land have been laid out by water under directions of the Agent.

Since a large portion of the irrigated land of the County is irrigated by pumps, mostly electric, which receive their power from a neighboring county, and since the cost of power is a large factor in production costs, the Agent, working with the Pinal County Farm Bureau and other interested agencies, have been able to bring the cost of power for pumping down from .0225 per kilowatt hour to .01. This has resulted in a saving of tens of thousands of dollars to local farmers, and was only accomplished thru organization of local interests.

The matter of soil fertility has also received some attention, this office promoting the planting of alfalfa to build up the fertility of desert soils.

In the early spring of 1931 the Agent, working with various committees, conducted an economic survey of Pinal County Agriculture. Thirty-six residents of the County, together with various subject matter specialists from the University of Arizona, contributed to this study, which was published in Extension Circular No. 64. The County Agricultural Agent believes that the recommendations for our agriculture as set forth in this Circular, covering Land and Water, Cotton, Alfalfa, Dairy, Beef Cattle, Sheep and Swine, Poultry, Truck Crops, and Credit and Finance, have been a great factor in outlining the agricultural policies of the County.

Finally, the present Agent has, with the assistance of leaders within the County, carried thru the various programs of the Agricultural Adjustment Administration. Thirty-three percent of the planted cotton acreage was taken out of production during the 1933 season, the average for the State being only sixteen percent. Ninety-nine and two-thirds percent of the land eligible to sign cotton acreage reduction contracts for the years 1934-35 have so signed. Eighteen swine growers, covering practically all swine grown within the County, have signed Corn-Hog contracts. The rules regarding base acreage of wheat growers prevented several of our growers signing contracts, but four contracts were signed.

IV. The Agricultural Situation in Pinal County

Upland cotton is the main crop in Pinal County, with alfalfa taking second place, and Pima cotton third. Growers planted 20,000 acres of cotton during the spring of 1934. Low water costs have been a factor in aiding growers to produce their crops at a low cost of production during the two years preceding this year, but higher water costs, labor, fuel oil, supplies and picking have been factors in increasing costs this year. Cotton growers would have had a very profitable year had it not been for the fact that practically every grower must purchase Bankhead tax-exemption certificates. This is caused by the discriminatory feature of the Bankhead Act wherein two years of cotton production are included in our cotton history, 1928 and 1929, which was before water was available from the Coolidge Dam, and the bulk of our lands were in desert. It is now apparent that cotton growers of this County will have to spend approximately \$80,000 for tax-exemption certificates.

Water for the lands of the San Carlos Project was short during the summer, but flood water came in time and in sufficient frequency to save the cotton crop. Unless winter rains store a larger amount of water in the Coolidge Dam, however, the outlook for 1935 is not too bright.

The Pima cotton acreage expanded this year, due to the possibility of cotton acreage control legislation. Pima cotton growers are receiving but 19 cents a pound for their cotton, the usual price differential existing between Pima and upland not being apparent this year. The continuance of the Bankhead Act for another year will result in a much greater increase in Pima cotton, with probably lower comparative prices for Pima as compared with upland.

The alfalfa and other hay markets have been satisfactory, hay selling from \$9 during the spring to \$14 and \$15 at the present time. Production of hay was almost up to normal, but more alfalfa has been cut for hay, with consequently less pasture for sale.

The 1933 fall lettuce crop was not profitable in most cases. The 1934 fall crop of peas has returned satisfactory prices, though the acreage planted was smaller than normal.

Poultry and egg prices have improved materially, as has the returns from butterfat. Higher feed costs, however, are cutting down possible profits. Beef cattle prices are

still low, and feeders are not laying in their usual supply of cattle. Cottonseed meak and cake prices, hay, and pasture are entirely out of proportion to beef prices, and unless there is material improvement within the next several months when our cattle move to market the feeding venture will fail to show anything but a loss in most cases.

Water assessments under the San Carlos Project are to be higher in 1935. A 25 percent increase in cost of power for pumping will also probably go into effect, with the possibility also of a surcharge for steam power. Since the main crop is upland cotton, there must be some adjustment in the county allotment under the Bankhead Bill unless the whole agriculture of this County is to be thrown out of joint.

V. Status of County Extension Organization

1. Form of Organization - Changes and Development

Work in Pinal County is being carried on largely thru the Pinal County Farm Bureau. There is one active local bureau in the County, and five districts maintain representation in the County Farm Bureau. The County Farm Bureau is composed of two delegates from each of the five districts, which constitutes the Board of Directors, and which carry on the business of the County Farm Bureau.

But little work towards building up the membership of the Farm Bureau was done during the year. Recently an active membership campaign is going forth thruout the valley, and a local unit is being organized at Coolidge.

The Board of Directors and Secretary of the Pinal County Farm Bureau have furnished the Agent fine cooperation, as have the Board of Directors and Secretary of the Pinal County Electrical Districts Nos. 2 and 4, the Board of Directors and Secretary of the San Carlos Irrigation and Drainage District, and the various civic clubs and chambers of commerce.

2. Function of Local People, Committees and Project Leaders in Developing the Program of Work.

Practically all work carried on by the Pinal County Farm Bureau and the local bureaus is thru committees. Committees are appointed to work on various subjects of interest, the County Agent acting as Secretary of the various Committees. This method is giving good results in this County. Project leaders assist in putting over the various projects.

3. General Policies

The relationship between the County Agricultural Agent's office and that of the County and local Farm Bureaus has been most cordial. The Farm Bureau expects to and does work with the Agent in anything which may be to the helpful interest of agriculture in the County, and during this year the results have been most gratifying.

VI. Program of Work, Goals Established, Methods Employed, and Results Achieved.

1. Factors Considered and Methods Used in Determining Program of Work

Extension Projects upon which work is to be done are outlined as the need for same develops. From time to time various Projects are completed, or discontinued, and carried on as Miscellaneous Work. During 1934 work was carried on under the following Projects:

- II. Improved Cotton Irrigation
- III. Improved Conditions on Tight Lands
- IV. Improved Crop Stands
- V. Seed Improvement
- VI. Boys' and Girls' Club Work
- VII. Rodent Control
- VIII. Better Sires
- X. Land Levelling and Preparation
- XII. Agricultural Survey of Pinal County
- XIV. Poultry Feeding and Management
- XV. Plant Disease and Insect Control

Other work not covered by these Projects has been handled as Miscellaneous Work as the problems arose, and at such times as the Agent deemed it necessary.

Hay, poultry and eggs, and truck crops producers have been assisted in marketing problems during the year. The Agent has also assisted in securing sheep for winter pasturage.

The cotton, wheat and Corn-Hog reduction campaigns of the Agricultural Adjustment Administration have required a large amount of the Agent's time during the year, as has the Cattle and Sheep-Goat purchase programs. The Agent has endeavored to continue the work as planned on all Projects, but has been unable to do as much as he had hoped to do when outlining the work for the year.

2. Project Activities and Results

(a) Cereals

Work under cereals has consisted mainly in the introduction of pure seed and building up of interest in the use of pure seed. A pure-seed planting of 40 acres of hegari was established, the seed coming from Maricopa County and being certified. This seed will furnish planting seed of good quality for the 1935 season. Practically all of the wheat grown in the County this year was from Certified Early Baart, produced and certified by Maricopa County growers.

A large proportion of the hegira planed this year was from seed grown from the University Agricultural Experiment Station foundation stock, produced by Mike Hayduke of Coolidge last year, and certified by the Arizona Crop Improvement Association.

(b) Legumes

Several plantings of pure Chilean alfalfa seed were made in 1933, but on account of shortage of water and high prices of hay no seed was made from these fields this year.

The Agent has assisted local growers in finding markets for their hay, and has cooperated with the Drought Relief officials in furnishing the names of growers and dealers having alfalfa and other hays for sale.

(c) Cotton

2,000 lbs of pure strain foundation seed from the Shafter Agricultural Experiment Station have been planted in the County this year, rogued by the staff of the Sacaton Agricultural Experiment Station, and the seed is being saved for planting in 1935.

Variety test plantings were continued on the farm of M. H. Montgomery near Casa Grande. Results have not been tabulated to date, as picking is not finished. Twenty-two cotton growers have visited this test during the season.

Twenty days of the Agent's time were spent with cotton growers, working on problems of seed-bed preparation, irrigation methods, and cultivation.

Due to the danger of water shortage during the late summer, many inquiries came to the Agent relative to best methods of handling irrigation in order to secure the most beneficial use of water. This office has encouraged plenty of cultivation, and holding off of water until a good root system was established. We have also encouraged cultivation following irrigation with muddy water as long as possible.

Improved cotton irrigation practice has received much attention this year, and the cotton acreage reduction work with many producers calling at the office of the Agent has been the means of securing a wider distribution of the facts pertaining to cotton irrigation.

Twenty-one cotton farmers were advised by this office relative to lease agreements.

(d) Home Gardens and Landscape Gardening

Two meetings were held with regard to home gardens and landscape gardening, the Agent conducting the program. Club gardens were grown (see Statistical Report) in the Florence district. These included both flower and vegetable gardens. At the County 4-H Club Fair the Agent judged the garden exhibit.

(e) Market Garden and Truck Crops

The Agent cooperated with officials of the Arizona State Prison in their vegetable gardening activities, as in previous years, assisting them in cultural and insect control problems.

Recommendations of this office and the Plant Pathologist of the Agricultural Experiment Station are being followed by the vegetable growers in the Eloy section. High bedding of lettuce has aided materially in the control of lettuce drop.

Approximately 30 growers called at the office during the year and requested information relative to the control of plant diseases and insects affecting garden and truck crops, information on seed, and cultural methods.

(f) Fruits

One pruning demonstration was given by the Agent, and the Specialist in Horticulture also gave one in the Araiwaipa Canyon section. Four farmers adopted improved pruning methods, two sprayed for the first time in years, two developed better methods of irrigation, and information relative to varieties was furnished four farmers.

Dr. A. K. Finch visited the County several times during the year, and he and the Agent inspected trees treated with zinc sulphate several times during the season.

Inspection of the several cooperative date plantings were made during the year by the Agent. A demonstration in removing and planting date offshoots was conducted by the Agent, with seven farmers present.

(g) Rodent and Insect Control

One hundred and twelve farmers secured strychnine from the County Agent for use in controlling rabbits, ground squirrels and rats. Since this poison is no longer distributed free, the Agent purchased a supply, which was distributed at cost by the Secretary of the Casa Grande Farm Bureau. This service was a great convenience to growers. We believe that better utilization is made of the poison when it is purchased, and it is significant that rabbits were kept better under control this year than in any of the past several years.

The Agent furnished information relative to the poisoning of lettuce birds in the Eloy section, which were damaging lettuce severely. Formulae for the preparation of bran mash for cricket and grass hopper control were furnished four vegetable growers of the Eloy section, and seven growers of home gardens.

Gopher control work continued, under the direction of the U. S. Biological Survey, the entire infested area within the Project being treated, as well as a large amount of Indian lands. Losses of water thru ditches and canals breaking because of gopher burrowings did not occur this year, notwithstanding full canals at times because of flood water.

The Agent cooperated with the U. S. Biological survey in securing a government trapper to assist in controlling coyotes which were causing some loss to sheepmen.

Another infestation of beet web-worm occurred in lettuce, and was brought under control thru dusting with Flu-ci dust, a commercial product containing sodium fluosilicate.

The cotton crop was practically free from insect damage. Some corn worm damage occurred in the river lands near Florence, but the balance of the crop was clean.

It can be reported that both rodents and insects are under better control than at any time in the past several years.

(h) Agricultural Engineering and Soil Reclamation

Due to the large amount of work under the A. A. A., the Agent was unable to spend as much time with levelling and irrigation equipment work as in previous years. However, the effect of our work in previous years was felt, in that men with

whom we have worked are continuing work outlined by the Agent. The levelling of a ranch properly for best utilization of water is a process which takes time, and growers are continuing with the development of their irrigation systems. The Agent assisted eighteen farmers in laying out 740 acres of land for better irrigation, and a close check indicates that nineteen farmers with whom the County Agent has worked used the office levels in continuing work outlined by the Agent.

Work was continued on the demonstration area of "tight" land on the H. B. Holt ranch. Due to the shortage of water only two crops of hay were made, and then when water did come it was muddy and due to the levelness of the land the application of this water would have killed out our stand. Consequently the alfalfa was let go dry and seeded itself. Twelve farmers visited the demonstration during the year.

Seven farmers requested and received information relative to irrigation of alfalfa. Nine received information relative to the seeding of new stands of alfalfa.

(i) Poultry

Work with poultry was done in five communities, Specialist Clyde F. Rowe assisting the Agent, and also carrying on some work independent of the Agent when necessary because of the rush of work on the A. A. A. program.

The Agent made twenty-four farm visits for the purpose of discussing poultry problems. One demonstration was given in vaccination for fowl pox. Forty-one office calls relative to poultry were received.

The Agent cooperated in establishing an egg grading and packing establishment, whereby eggs were graded and packed for the relief agencies. This work resulted in getting rid of a temporary surplus of eggs, and in material benefit to poultrymen.

(j) Dairy

The usual amount of work was not done in Dairy Production this year. Twelve calls of a veterinary nature were handled by the Agent. One dairyman was assisted in securing a pure-bred sire, and the Agent arranged an exchange between two dairymen of pure-bred bulls (these were bulls brought to the county thru the efforts of this office). Cow testing work was discontinued.

The lack of interest in dairy cattle is prompted by the fact that butterfat prices have been low and feed costs are all out of proportion. We can expect no improvement or development in the local dairy industry until this situation readjusts itself.

(k) Livestock

The Agent has visited more livestock breeders this year than in any of the previous years, due to the work with the Livestock Purchase Programs of the government. Incidentally he has had an opportunity to discuss livestock breeding and management with many of these men, and believes that the results will be effective.

Five cattle feeders have requested and received information from this office. Four cattle feeders were assisted in securing finances for the purchase of feeder cattle.

The Agent has had an opportunity to assist four cattle breeders in the culling of female stock. One car of breeding cows were also secured for the Indian Agency at Sacaton.

(l) Farm Management

Thirty-five farmers have been assisted in securing credit for the operation of their farms.

The Agent assisted in organization of a Production Credit Corporation, and has cooperated with the local director in problems which arose relative to crop finance. The local Production Credit Unit has functioned very well this year, and it is believed that it will receive a much greater amount of business during 1935, due to the fact that it is now in operating condition.

(m) Marketing

The Agent has visited hay growers and with them discussed best methods of putting up hay. Also growers have called at the office for this information. The quality of hay produced in the County has materially improved this year over last, and no difficulties are being experienced in marketing it.

One grape grower was assisted in the marketing of his crop. Egg producers were also assisted, as before stated. Vegetable and fruit growers are receiving regular quotations from the Bureau of Agricultural Economics, receiving reports thru the efforts of this office.

Arrangements were made whereby alfalfa pasturage was listed, and sheepmen lined up to use it.

VII. Emergency Work - Agricultural Adjustment Administration

Cattle: The emergency cattle buying program started in Pinal County on June 25, and was concluded on November 23. One field crew was used, and a summary of this work shows that there was purchased and condemned 4897 head of cattle, the government paying \$72,785 for them. 4065 head of cattle were purchased and 832 condemned.

Sheep and Goats: One purchase of sheep was made, and three of goats. Hides have not been cured as yet so consequently final figures are not available. The work was brought to a close late in November, no other producers desiring to sell their stock.

Corn-Hog: Eighteen hog producers of Pinal County signed Corn-Hog adjustment contracts. Their base hog production was 1860 head, and a recent check on compliance shows 563 to have been produced.

Wheat: Four wheat acreage reduction contracts were signed. This was but a small proportion of the wheat acreage of the County. More producers would have signed had the rules regarding base production been more liberal.

Emergency Loans: The Agent has cooperated with the E. R. A. in the making of feed loans. ----- ou

Cotton: Two hundred and ninety-three cotton producers, representing 99 $\frac{2}{3}$ percent of the eligible farms, signed contracts agreeing to reduce their cotton acreage. A summary shows that of a base acreage of 29,160 producers in this County agreed to rent 11,493 acres to the Secretary of Agriculture.

A majority of the first rental payments have been made, and it is expected that the second may be made shortly. Our State Agricultural Statistician made no allowance to cover cross-county ginning, and the committee elected to fight the matter thru. On the same evidence which was presented to the State Statistician in April we finally secured a minor adjustment. In the meantime his office has been responsible for holding up the contracts, and Pinal County Producers have waited four months for him to correct an error in his figures.

Four hundred and seventy-eight Bankhead forms were filled out in the Office of the County Agricultural Agent, tax-exemption certificates distributed, and other work incidental to the Bankhead Law carried out.

(n) Community Activities

As has been the custom for the past several years, this office, assisted by Mr. M. L. Talla of the Salt River Valley Water Users' Association, compiled crop acreage information.

No fair was held in the County this year, and no collection of exhibits was made for the State Fair.

The Office of the County Agricultural Agent handled seed loans for the Crop Production Loan Office, both in the spring and fall of the year.

(o) Miscellaneous

More club work was done during the year than in any of the previous years of extension work in this County. A complete report of the enrollment and completions in the various clubs may be found in the statistical report.

A club fair was held, with 500 people attending. Produce from the various garden clubs was shown, together with cooking exhibits, livestock and poultry. This fair was held at the Florence Grammar School.

January 8-11 was spent in Tucson at the Annual Conference of the Agricultural Extension Service.

The Agent cooperated with the two local farm loan associations in securing better consideration of the loan needs of local farmers.

VIII. Outlook and Recommendations for Coming Year

A study of the agriculture of Pinal County furnishes the following picture:

a. Outstanding improvement in the prices received for upland cotton, including rental and benefit payments, have materially helped the cotton growers of this County. Sufficient tax-exemption certificates will have to be purchased, however, to take out of the county about half that which is received in rental and benefit payments. Were it not for this situation, it might be said that conditions were excellent, insofar as upland cotton growers are concerned.

b. Pima cotton prices are relatively low, though yields are satisfactory. The usual price differential existing between Pima and upland cotton is not apparent this year.

c. While water has been short, the yield of alfalfa hay has been satisfactory, and prices have ranged from \$9 to \$15 per ton, baled and in the field. In general, hay producers have had a good year.

d. Pasture and hay and other feed prices are out of line with the prices of livestock, particularly cattle. Cattle feeding this winter will fail to show profit in most cases unless there is a material rise in beef cattle prices shortly after the first of the new year. Shortage of pasture has increased the price, however, with consequent benefit to alfalfa and grain growers.

e. Dairymen are in particularly bad circumstances. Costs have risen faster than butterfat and milk, and feed ordinarily used for dairy cattle can be marketed for more profit thru sheep and beef cattle thru selling the feed to feeders.

f. Poultry growers have had an improved market, even though the prices of cereal grains and other feeds has increased.

g. The cattle purchase program of the government has greatly aided cattlemen, though severe losses will occur this winter in the north and eastern portions of the County. High cottonseed cake prices make it prohibitive to supplement range feed for the purpose of carrying weak cattle thru.

h. Indications are that prices received for fall lettuce will be satisfactory, although disease will probably take 40 percent or the crop, making the general deal unprofitable. Peas have returned good profits this fall, although the acreage for harvest was small.

i. The alarming feature of the entire agricultural proposition in this County is the shortage of stored water in the Coolidge Dam. The present water supply, including potential supplies of pump water, is only sufficient to carry crops into the beginning of the summer; unless storage water now available is augmented by further floods during the winter the entire area of project lands are facing a serious situation. .

j. Demands upon this office have been almost twice as great as last year. While a certain amount of work on various projects which had been planned has not been completed, yet we have been able to meet and discuss with most of the valley farmers improved methods of value to producers in this County. On the whole, therefore, the entire extension program has been strengthened notwithstanding the extra burden of work placed upon this office by the Agricultural Adjustment Administration.

With these considerations in mind, it is apparent that the larger efforts of this office should be centered upon the following program.

a. The most efficient use of irrigation water should be encouraged, in order to conserve and make best use of the small supply of storage water available. Improved irrigation methods and irrigation equipment should be stressed.

b. While it is desirable that more alfalfa be planted in order to replenish and build up the fertility of our farms, it will be the policy of this office to discourage such plantings until there is a sufficient amount of water available to care for the cotton crop, which is the cash crop of the valley.

c. Cooperative endeavor is showing fruit in the County, and it is desirable that some work be done toward building up a more active farm bureau. Such an active organization will weld farmers more closely together in working out their mutual problems, but also will aid this office in its work.

d. It is apparent that a large part of the Agent's time during the coming year will be spent upon the various emergency programs of the Agricultural Adjustment Administration and other government agencies. While this work is being done, however, we should not overlook the opportunity to strengthen our other work.

e. Work should be done immediately upon the control of side rot in lettuce, unless this industry is to be discontinued. The aid of the Plant Pathologist of the University of Arizona will be secured in this work.

f. Work on poultry feeding and management should be continued, with particular emphasis being placed upon the value and utility of the "farm flock."

g. More 4-H Club Work should be done, in more districts in the County. More effort should be devoted toward tying this work in with active local farm bureaus.

h. In general, those practices which make for lower production costs should be encouraged. Good seed and cultural methods which enable growers to produce a higher quality commodity are necessary. Particularly is this true with cotton and hay.