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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, 1932

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### III. The Agricultural Situation in Pinal County

The year 1932 has been one of gradually lowering prices for agricultural commodities, and farmers in the main are in the red for the year's operations. Some few, taking advantage of the late summer rise in the cotton futures market, contracted sufficient of their crop at figures from  $7\frac{1}{2}$  to 9 cents per pound to take care of their growing costs, and in some cases to show a small profit.

The lettuce crop of the 1931 fall deal, which extended over into this extension year, was moderately profitable, but the spring deal was unsatisfactory from a profit making standpoint. Some hay growers, using the most efficient production methods, along with cheap water, have made a little more than cost of production on their year's operations. Prices of butterfat, after declining to a low of 12 cents per pound, have now risen to over 20 cents, but this product is still being sold below cost of production. Lowered feed costs and rising prices for eggs have put the poultryman in a stronger position, and at present well-managed poultry flocks are returning satisfactory profits.

There has been a considerable reduction in the acreage of pump lands being farmed, altho the tendency has been toward increased development in the Eloy section, where vegetables are being grown.

The efforts of this office in increasing the number of home gardens and home poultry flocks have been successful, altho there remain many farms which need these. Shipments of baby chicks into Pinal County were in heavier volume last spring, and many were locally hatched. There has also been an increased interest in turkeys, there now being three large growers in the valley, in addition to a number of small operators. Many people who are employed only part time are turning to the production of eggs and poultry, in order to utilize part of their time and increase their income. Demands from these poultry keepers have increased nearly 100 percent from last year.

Special efforts have been made this year toward the end of lower production costs. We have been particularly successful in hay production and cotton production, and in the feeding of cattle. A study has been instituted, incomplete as yet, which will give us accurate information on pasture feeding and gains, and some information has been collected relative to pen feeding with silage.

The need for crop rotation is becoming more and more apparent, with cotton yields falling off again this year. Efforts are being made in order to stimulate the planting of some alfalfa on every farm. Were conditions better we would see a rapid increase in the alfalfa acreage, but notwithstanding there will be some considerable increase. With this increase will come the problem of marketing.

The demonstration in the reclamation of "tight" or "slick" land has been continued, with considerable interest being shown by landowners having this type of soil. We are now at the point where it can be said that we will be able to make this soil productive, and the information secured will be of aid in the development of some 8,000 acres of this type of soil in the irrigated area of the San Carlos Project.

Alfalfa growers have been turning toward the pasturing of cattle. Specialist C. U. Pickrell has assisted the Agent in his work with cattlemen, and our policy has been to aid in making satisfactory feed-gain contracts, especially urging farmers when they take cattle on a gain basis to secure the highest quality steers.

Despite retrenchment in County expenses and appropriations, this office has been continued, the majority at least believing that money spent for agricultural extension work is well spent. Under the distressing conditions which we are now going thru our policy has been to "hit the line" harder in order that the farming interests of Pinal County may be best served. Our Statistical Report for the year shows that the same number, approximately, of farm visits were made by the Agent this year as last, and that there was an increase of 38 percent in the number of calls at the office for information.

#### IV. 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.

Plans have been worked out for a membership drive during the month of December, thus coinciding with the drive being put on in Maricopa County. Membership dues have been reduced to conform with the times. The Board of Directors feel that now is the time, as never before, to have a strong County Farm Bureau in each of the Counties, and a strong State Farm Bureau, in order that agriculture may be well represented in legislation which may affect it.

The Board of Directors and Secretary of the Pinal County Electrical District No. 2 have cooperated with the County Farm Bureau and the County Agricultural Agent, as have the Board of Directors and Secretary of the San Carlos Irrigation and Drainage District, and the U. S. Indian Service. Civic clubs and Chambers of Commerce have also furnished splendid cooperation.

The Pinal County Farm Bureau cooperating with the Agricultural Committee of the Arizona Bankers Association arranged a meeting of bank representatives and farmers in Casa Grande. This meeting was held on February 4, and approximately 80 people were present.

The County Farm Bureau, thru their Fair Committee and Fair Manager, put on a Pinal County exhibit at the Southern Arizona Fair at Tucson, and at the Arizona State Fair in Phoenix. This was without any help of any kind from the Board of Supervisors.

Splendid cooperation has been furnished the County Agricultural Agent in his work, and the County Farm Bureau has been of real service in bettering farming conditions in Pinal County.

Representatives of the County Farm Bureau appeared before the State Tax Commission and assisted in holding down the valuations of farming land. Gopher control work was carried thru successfully thru the cooperation of the Farm Bureau and other agencies, and cooperation was also furnished the Arizona Cotton Growers Association.

A new duty falling upon the Pinal County Farm Bureau this year was the organization of a seed loan committee in order that local farmers might avail themselves of this source of agricultural credit. The Farm Bureau Committee serving as the County Committee on loans was composed of Frank C. Elwell, John Zelleweger, and W. P. Clements (Chairman).

## 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. Whenever anything comes up which needs their attention, a committee is appointed and with the County Agricultural Agent the proposition is worked out. This is a satisfactory way, and 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 gratifying.



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

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

Operations for the year were started with the same list of Projects that work was done on during 1931, with the exception that one was added, namely Project XIII - Cost of Production Studies.

Under this set-up, the work was to be done upon the following projects:

- II - Improved Cotton Irrigation
- III - Improved Conditions on Tight Lands
- IV - Improved Crop Stands
- VI - Boys' and Girls' Club Work
- VII - Rodent Control
- VIII - Better Sires
- IX - Cow Testing
- X - Land Levelling and Preparation
- XI - Improved Check Gates and Turnouts
- XII - Pinal County Agricultural Survey
- XIII - Cost of Production Studies

It was planned to put special emphasis upon work on Projects II, III, VI, VII, X, and XIII. Other work not covered by these projects was to be handled as Miscellaneous Work as the problems arose, and at such times as the Agent deemed it necessary.

During the year we have had occasion to do a large amount of work in poultry husbandry, there being many calls for information relative to management and feeding of poultry. Also we have endeavored to increase the number of home flocks of poultry, and the work done along this line has been in some cases much heavier than that done on certain of the Projects above listed.

Work in the control of insects and disease affecting crops has been especially heavy, and more work has been done along this line than upon several of the Projects listed.

### 2. Project Activities and Results

#### (a) Cereals

Work under Cereals consisted mainly in the introduction of pure seed and building up interest in the use of pure seed. Two pure seed plants of hegari were established, with the cooperation of R. N. Johnson of Casa Grande and Mike Hayduke of Coolidge. The seed used came from the Mesa Experimental Farm, and we will have around 300 sacks of certified seed, the certification work being done by the Agent and Specialist H. N. Watenpaugh.

(b) Legumes

Work under this heading has consisted largely in aiding growers in securing stands of alfalfa, and in building up an interest thruout the valley which will tend to increase the alfalfa acreage. At least one-third of the new land of this valley should be planted to alfalfa, and one-third of the entire valley area should be in alfalfa at all times, if the soils are to improve. Fifty four farmers were reached in this work directly.

(c) Potatoes

The Agent has assisted potato growers in the selection of seed, seed treatment, storage of sweet potatoes, and in other ways. Plans were furnished for the building of one warehouse for the storing of sweet potatoes. Five growers received information relative to cultural methods of early Irish potatoes.

(d) Cotton

Work on this subject has largely consisted of personal field work with farmers. Sixty-two farmers have been visited during the year for the purpose of discussing best methods of cotton irrigation, and eighteen have called at the office for similar information. Work has been done in four communities, namely Casa Grande, Coolidge, Florence and La Palma. No cotton was grown in the Eloy section this year.

Cotton variety tests in cooperation with the Agronomy Department of the Agricultural Experiment Station were arranged in cooperation with W. H. Lane, farming near Coolidge, and R. H. Pottebaum, farming the Fred Kratska ranch near Casa Grande. Six varieties were planted in each of these tests, there being about  $1\frac{1}{2}$  acres of each variety on the Lane ranch, divided into three series of four rows each, and  $\frac{7}{8}$  acre on the Pottebaum ranch, also divided into three series of four rows each. Because of late preparation of land on the Pottebaum ranch, which had been in an old stand of alfalfa, the seedbed preparation was not satisfactory and the stand secured was not good enough for a variety test comparison. For this reason work was discontinued on this comparison.

Only preliminary results are available at this time on the Lane variety test, as the second picking has not been made. The results of the first picking, by each series of 4 rows, is herewith presented:

<u>Variety</u>	<u>1st series</u>	<u>2nd series</u>	<u>3rd series</u>
Mebane	197*	349	385
Paris Big Boll	367	333	367
Nunn's Acala	376	350	377
Stoneville	437	331	354
Bakersfield Acala	409	399	448
Kasch	348	337	355

\*Edge of field, cannot be used in average

Note: Yields are the cotton picked from the middle two rows in all cases.

Professors Matlock and Hawkins cooperated with the Agent in this work. A field day was held, with Prof. Matlock discussing Studies in Cotton Lint, and Prof. Hawkins discussing variety tests conducted by the University. The County Agent showed the visiting growers over the plot, comparing the varieties. Twenty-five farmers attended this demonstration, and a large number, unrecorded, visited the demonstration from time to time during the growing season, being attracted by newspaper publicity and also by signs which had been erected to mark the different varieties early in the summer.

Forty days of the Agent's time during the year was devoted to work with cotton growers. Three meetings with a total attendance of 70 were held, seven news stories published, and one circular letter mailed to cotton growers of the County.

Miscellaneous work consisted of answering inquiries relative to cotton growing, irrigation, and ginning, and inspection of fields in order to determine whether or not they could be successfully volunteered.

The Agent has also cooperated with Profs. King, Harrison and Kearney of the Sacaton Station in the selection of Pima fields for a comparison of cotton lint which grew under stress conditions as compared with that grown on land where the crop did not lack for sufficient moisture.

#### (e) Home Gardens and Landscape Gardening

The year's program has been to build up interest in growing home gardens, and we have been successful in this work. The program involved both adults and club members, 30 club gardens being grown.

Prof. J. J. Thornber visited Casa Grande and spoke to the members and guests of the Casa Grande Farm Bureau on the subject of landscaping the home. His talk proved to be very interesting and of great value to those attending.

#### (f) Market Garden and Truck Crops

The Agent and Professor M. F. Wharton made an



inspection of the lettuce, pea and asparagus fields of the valley early in the fall, visiting growers and discussing cultural methods.

Arrangements were made with the Horticultural Department to grow a number of celery plants for a field test. These did not do well until the weather became cool, but two plantings have been made, one on the Ratcliffe ranch and one on the Houser ranch.

The Arizona State Prison has devoted a large part of their acreage toward the growing of vegetables. The Agent visited their Farm Superintendent several times during the year, assisting him in horticultural work.

#### (g) Fruits

A demonstration was held in the removal and planting of date offshoots, with six farmers present. Another demonstration in pollination of dates was held, with five date growers present.

During the year the Agent has worked with fruit growers in the Araiwaipa Canyon country, Hidden Valley, and in various other isolated areas of the County.

The Agent cooperated with the Maricopa County Agricultural Agent in releasing publicity for the Annual Pecan Tour. Ten farmers from this County attended.

#### (h) Rodent and Insect Control

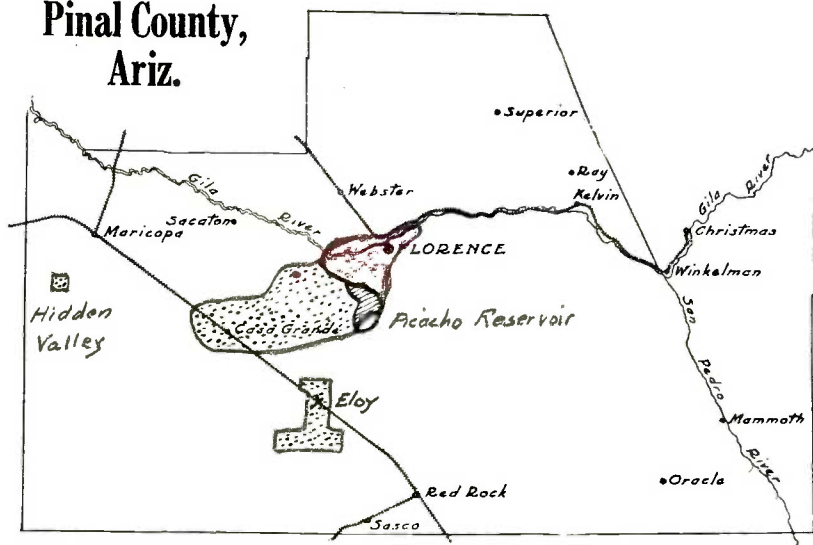
One hundred and forty-two cooperators secured poison for the control of rodents thru this office during the year. 30½ ounces of strychnine alkaloid were used in the preparation of poisoned alfalfa for rabbits, and 1516 pounds of poison bait used in gopher control.

Birds destroying lettuce in the Eloy section were handled thru cooperative poisoning by the growers. 14 ounces of strychnine alkaloid were used in protecting these drops.

21,666 pounds of poison were used in controlling insects thru directions from this office. During the year the control of insects and plant disease affecting horticultural crops has offered a very serious problem, and demands for the time of the Agent have been greater than ever before.

Sclerotinia sclerotiorum in lettuce offers a serious obstacle to the development of the lettuce industry in the Eloy area. 120 acres of one ranch were found to be infected, and in cooperation with Dr. J. G. Brown and the manager of the

## Pinal County, Ariz.



Present area of lands being trapped and poisoned for pocket gophers. Infestation on these lands has been reduced over 85% during the past four years.



Lands formerly infested with pocket gophers, but now clean. Note that the canal bank and dam creating Picacho Reservoir were formerly infested.



General outline of lands being irrigated (in addition to those shown in red and shaded. These lands have always been free from pocket gophers, and our program is to keep them clean.

There are other small areas of land which are not shown which are irrigated by pump, or by waters from the San Pedro River, Aravaipa Creek, and the Gila above the San Carlos Project lands.

All these lands which border on the desert have trouble with rabbits, Kangaroo rats and ground squirrels. Poisoned grain and strychnine is furnished these farmers thru this office.

farm this land was planted to fall peas, which are not affected by the disease. A survey during November indicates that the disease is spreading, perhaps by spores being carried by irrigation water. It has appeared about three miles from the infested area, in ground which has been farmed in lettuce for a number of years, with no trouble from this disease. Plans for the coming year include the inauguration of effective control measures.

With the assistance of Dr. J. G. Brown, and Mr. Y. C. White of the Boswell Ginning Company, field tests in dusting of cotton with sulphur and Bordeaux dust were conducted during July. An examination of the leaves following dusting showed that both dusts were effective in killing the cup spores. Under more favorable price conditions it is indicated that it will be practical to dust cotton for control of this disease. Losses from rust in cotton this year were much less than in any of the three previous years.

Three growers were assisted in mixing dust and dusting for aphids on melons. Five farmers received information relative to control of termites, and similar information was furnished the Nevada Consolidated Copper Company at Ray.

A cauliflower seedbed on the Miller Cummings ranch at Eloy was attacked by crickets, and with the assistance of Prof. A. A. Nichol the seedbed was saved. Control methods used were the fencing of the bed with burlap, which was sprayed with oil, allowing the growth of some weeds and grass for insects to feed upon, and the dusting of the bed and surrounding area with sulphur. Prof. Nichol and the Agent spent two evenings experimenting in order to find some food which the crickets would take. It was found that Irish potatoes were popular, but when they were poisoned the crickets would not feed on them. It is suggested that the Entomology Department of the University conduct research work which will give us a means of control of these insects. Further work with this seed-bed involved the treating of it with corrosive sublimate in order to stop damping off. Two treatments stopped losses.

A new type of insect appeared in the Eloy section at planting time. These are "burrowing bugs". The stand of lettuce was ruined on about 200 acres of ground, and the entire area had to be replanted. Various control measures were used with no success. This insect will be handled next year by clean cultural methods following the lettuce harvest. Damage consisted of sucking the plant even before it was above ground. Blaps also caused some trouble, but were controlled with poison bran.

Various other diseases appeared during the year, mostly in home gardens.

Another insect to appear for the first time in lettuce was the beet web worm. The infestation was general on

about 2,000 acres of lettuce in the Eloy section. Mr. Geo. Swink of the Miller Cummings Co. and the Agent visited Tucson, and in cooperation with the Entomology Department worked out the life cycle of the insect, and effective control was secured with sodium fluosilicate dust. In some parts of the lettuce fields the infestation was so heavy that seven out of ten heads of lettuce, pulled at random, contained worms.

(1) Agricultural Engineering and Soil Reclamation

Work on this subject was done in five communities, and forty-eight and one-half days of the Agent's time was devoted to it.

Work was continued on the demonstration area of "tight" or "slick" soil, which was rented by the University of Arizona from Mr. H. B. Holt, of San Francisco. This work is a cooperative demonstration between the Agricultural Chemistry Department and the County Agent's Office.

The alfalfa on the demonstration area was planted late in the fall, and the cold winter held it back until warmer spring weather. An excellent stand was secured, and three cuttings of hay were secured before warm weather came. The policy has been to only water sufficiently during the hot months to keep the alfalfa alive, this in order to prevent any scalding. There is a small area in the northwest corner of the five acres which scalded out, and this has been replanted.

Fifteen farmers owning land of this type have visited the demonstration during the year, and 12 have requested information on the methods used.

All hay produced has been stacked just north of the demonstration. Sometime during the winter it will be baled and then production results will be available. It is estimated that around 14 or 15 tons of hay were produced.

At the date of the writing of this report complete cost records are on file in the office, and the alfalfa is in good stand.

Other work in this regard was conducted with Mr. Geo. Harding, of Casa Grande, who has been developing an area of about three acres under our direction. No gypsum was used, grain being grown in the winter, followed by manuring, followed by hegari, the crop residues being plowed under. Noticeable improvement has resulted.

Tabulated results on work on improved crop stands show that 18 alfalfa growers received information on best methods of securing stands, 39 cotton growers, 14 sorghum crop growers, and 43 vegetable growers, most of which were home gardeners.



Seven demonstrations were given in the use of the field level in laying out land for irrigation. Seventeen farmers were present at these demonstrations, and 640 acres of land were laid out for water. This brings the total area laid out for water thru the efforts of this office to approximately 5300 acres during the past four years. This project has been emphasized inasmuch as most of the San Carlos Project lands were new three years ago, and there was much need for this work. Twelve farmers used the office levels in continuing work outlined by the Agent

270 acres of land were equipped with irrigation turnouts under direction of this office, using the forms recommended by the Agent

#### (j) Poultry

There has been a considerable increase in the number of poultry kept this year as compared with 1931, and as a result there have been more demands for the Agent's time by poultrymen.

Prof. H. B. Embleton spent one day with the Agent, visiting poultrymen and aiding them in problems of feeding and management, and incubation and brooding. He also addressed a meeting of poultrymen on the subject of "The Poultry Outlook".

Every poultryman in the County has been reached by our poultry work this year. The Agent has visited almost all, and discussed with them problems of feeding and management and disease control. A two-night school was held again this year, Specialist Clyde F. Rowe directing the work. Mr. Rowe devoted the first evening to "Feeding and Management" and the second to "Sanitation and Disease Control". Circulars prepared by the Poultry Department and Specialist Rowe have been mailed to all poultrymen. Fifty people were present at these two meetings, which indicates the demand for information on poultry, caused largely by the depression and the desire to produce home-grown poultry and eggs.

Arrangements have been made by the Agent and Specialist Rowe for the testing of breeding hens in the turkey flocks of C. M. Cornman, H. J. Love, and R. A. Faul. These are the three largest turkey growers in the County, and it is believed that they will be the first growers in the Southwest who will be able to market poults and sell hatching eggs from turkey hens which have been tested for Bacillary White Diarrhea. This work will be done in December.

In addition to the facts reported here, a large amount of miscellaneous work with poultry, involving feeding and brooding of baby chicks, disease control, sanitation, selection, etc. has been handled.

### (k) Dairy

No registered veterinarian is available in Pinal County, and of necessity a large amount of this type of work must be handled by the County Agent. There were forty calls for services of this kind.

Work in the control of contagious abortion involved the blood testing of the Albert C. Lay dairy herd, as well as several cows for individuals.

The Agent has assisted the Nichols Dairy and Mountain View Dairy in the treating of cows affected with infectious mastitis. Bacterin prepared from the milk from the affected quarters has been used, and the results have been good. In the Mountain View herd great improvement was noticed in nine out of ten cows, and eight out of nine improved following the bacterin treatment in the Nichols herd. This resulted in a considerable saving to the owners of both these dairies, inasmuch as the cows would have had to be beefed had they not responded to the treatment.

The Agent cooperated with the U. S. Department of Agriculture, Bureau of Animal Industry, in the testing of all dairy cattle in the County for tuberculosis. The work was so handled that a number of producers of market milk received their test at about the time they would have had to had a special test made, this resulting in a saving of \$1 per cow.

### (l) Livestock

Considerable interest is being manifested by local alfalfa growers in the fattening of cattle. Specialist Pickrell has visited every cattle feeder during the year, and also several who plan on feeding. These men have been furnished information relative to the purchase and handling of cattle, feed-gain contracts, and results to be expected with various rations when fed to the different classes of cattle.

Two local cattlemen and the Agent attended the Maricopa Cattle Feeders' Tour on February 5. Publicity was also given in this County to the Cattle Feeders' Day at the Mesa Experimental Farm, and two cattle feeders from this County attended, in company with the Agent.

Two cattlemen were assisted in securing finances for the purchase of feeder cattle. Information was furnished one cattle feeder relative to the construction and filling of a 300 ton silo. There has been an increased interest in the keeping of sheep. Two local farmers have been assisted in working out feeding and management methods for their flocks.

Assistance was given to the farm superintendent of the Arizona State Prison in swine feeding. Six farmers requested information on rations for swine fattening, and for breeding sows.

Encephalomyelitis in horses appeared again this year, and an article was prepared for the press relative to handling of horses and mules affected with this disease.

Hog cholera appeared on three farms in the Coolidge area. Antitoxin was administered and other hog growers were notified thru the press and letters that the disease existed in the County and they were advised to take precautionary measures.

#### (m) Farm Management

Arrangements have been made by Specialist Pickrell and the Agent to secure four pasture records on cattle feeding operations. One large cattle feeder has kept cost account records for this office on his silage feeding operations. This information has been worked up and is on file in the local office.

A Project was written up early in the year with the view of outlining work on cost of production studies in alfalfa and cotton. About the time that we had planned on starting this work Specialist Barr had to devote all of his time toward the handling of the seed loans, and the Agent had the same work to do in this county. Plans for the coming year are to secure these records.

#### (n) Marketing

Outlook information has been furnished the press and farmers of the County.

Recent highway improvement and reduction of railroad rates on hay have improved the hay marketing situation. Tucson dairymen have been consistent buyers of Pinal County hay during the year, and this office has cooperated with growers in assisting them to find a market, and in preparing high quality hay, which is the only kind that can be exported. Improved equipment such as side delivery rakes and portable balers is aiding in the production of higher grade hay.

Turkey growers have been assisted in the marketing of their product. February and March hatched poults have been recommended, in that a higher percentage of birds are prime for the Thanksgiving market.

Grape quotations were furnished to two growers, and vegetable quotations to three.





N-11,855

Meeting of Casa Grande Valley farmers, in conjunction  
with the Agricultural Committee of the Arizona Bankers  
Association, held on February 4, 1932.



#### (o) Community Activities

The Agent has assisted in the work of the Pinal County Farm Bureau, and that of the Casa Grande Farm Bureau. Committees have handled many of the problems that came up, the Agent acting as Secretary of the Committee.

The Agent arranged for the meeting of the Agricultural Committee of the Arizona State Bankers Association, which was held with a total attendance of 80.

This office assisted the County Farm Bureau in putting on an exhibit of agricultural products at the Southern Arizona Fair in Tucson, and at the Arizona State Fair in Phoenix. This work was done without cost to the County, leaders in various parts of the County assisting in collecting the exhibits.

The Agent has rendered much help to various communities about the County, in aiding in putting on programs, securing speakers and financial aid, etc.

#### (p) Miscellaneous

Boys' and Girls' Club Work has required several days of the Agent's time. Emphasis has been paid during the past year on completions in well conducted club work, rather than the enrolling of a large number of club members, many of which drop out before the end of the club year. After the disastrous results of last year we decided to delay enrollment until we were sure that a majority of those enrolled would finish their club work. Good leadership was another factor that enabled us to set this record in completions.

Thirty-two club members enrolled in garden and poultry club work. For lack of interest and sufficient membership the poultry club work was discontinued before final enrollment was made. The thirty-two continued their work and all completed their records and the story of their club year. These were under the leadership of Mr. Harvey Tyson of Florence.

Club work has been continued, but the final enrollment has not been made. It is apparent that we will have about the same membership for next year, and that the percentage of completions will also be high. Mr. Tyson is leading the garden club, and the Agent is acting as leader for those having poultry as their club project.

At the final Achievement Day program 170 visitors saw the exhibit of flowers grown by the members of the garden club. Photographs are submitted with this report.



Members of Rainbow Garden Club, of Florence,  
under the leadership of Harvey Tyson.



Exhibit of flowers grown by Florence Rainbow Garden club members. Entries were made by every club member, and during the day it was shown 170 people visited the exhibit.

Club work was only done in one community this year, namely Florence. The Agent devoted  $22\frac{1}{2}$  days to this work, Specialists devoting  $1\frac{1}{4}$  days. The club reported furnished 4 articles to the press, with the help of the Agent. Each of the club projects was visited by the Agent.

The period from January 11 to 16 was spent in Tucson at the Annual Conference of Agricultural Extension Workers. Much information which proved to be of value in our work in this County was secured.

Mr. M. L. Talla, local representative of the Salt River Valley Water Users Association, and the Agent conducted a crop acreage survey covering all farming lands outside the area watered by the San Carlos Project. Data on the latter lands were secured by the zanqueros and secretary.

With the passage of the Reconstruction Act, with arrangements being made for the making of seed loans to farmers, the Agent began the setting up of an organization locally so farmers might avail themselves of these loans. A meeting of the County Farm Bureau was held and a County Committee to pass on loans selected. Thirty-six loans were made, some over the recommendations of the County Committee. In a large number of cases the loans were of real value and helped the farmers receiving them to a great extent. Some of the money will be lost.

All applications for loans were made thru the Agent's Office, and meetings of the County Committee were called whenever necessary for analysis of the applications.



## VI. Outlook and Recommendations for Coming Year

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

- a. The crops and animal products produced by most farmers are being sold at a loss under the present prevailing prices.
- b. The tendency for the past three years has been toward the abandonment of more and more of what may be called marginal lands. These lands are not farmed because there has been no hope of a profit, and the 1933 crop season promises greater abandonment.
- c. The new desert soils of this area have in the main been "mined". The average acre yield of cotton has been decreasing due to the lack of a proper rotation with alfalfa. Low unit cost of cotton production is associated with high yields, and those farms practicing a rotation with alfalfa are producing cotton at the lower costs.
- d. Field tests and research by this office have furnished the basis of successful development of some 5,000 acres of silty and alkaline soils which lie within the San Carlos Project.
- e. The percentage of farms having home gardens, home poultry flocks and a home meat supply has increased, in part thru the efforts of this office.
- f. There is a tendency toward the growing of alfalfa and feeding of cattle and other livestock. Accurate information relative to feeding methods, gains, purchasing and marketing is necessary if this industry will develop to the extent justified.
- g. A highly specialized vegetable growing industry has been built, largely in the Eloy section. Scientific assistance from this office in the control of insects and disease has saved heavy losses this year. More problems in insect and disease control are arising each season.
- h. Rodent losses have been largely eliminated. The pocket gopher is under control in the extreme east end of the project.

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

- a. Cost of production studies should be conducted, with the view of determining those methods and practices which tend to produce agricultural products at the lowest unit cost.
- b. Efforts should be made toward creating a community and individual interest in proper crop rotation, with the view of preserving and increasing the fertility of our soils.
- c. Research and field tests should be continued in the development of "tight" or "slick" soils, in order that when conditions improve landowners having this type of soil will have a background of scientific fact upon which to base their development program.
- d. Well-leveled and laid out farms, with simple but efficient irrigation equipment, result in cheaper and more efficient irrigation. Work in the levelling of lands should be continued.
- e. Increased interest should be given toward the end that a higher percentage of farms shall have home gardens, poultry and milk and meat for the family consumption.
- f. This office and the Specialist in Livestock should lend every aid to further the development of livestock feeding.
- g. Especial attention should be paid toward the working out of plans for the control of insects and disease affecting vegetable crops.
- h. The present well-financed plan of rodent control operations should be continued, with the view of securing better gopher control, keeping our clean lands clean, and reducing losses. Other rodent control and distribution of poison from this office should be continued.
- i. The Pinal County Farm Bureau and local agencies should be made a part of the program, working together for the development of our agriculture.
- j. Work should be continued in the control of disease affecting poultry, dairy cattle, swine and other livestock, with the view of reducing losses to a minimum.

# Program of Work - 1933

## Pinal County

Project	No. Communities No. in which work will be done	Dems	Goals Established
II - Improved Cotton Irrigation	4	1	Wider dissemination of facts on best methods of cotton irrigation, 20 farmers using improved methods.
III - Improved Conditions on Tight Lands	2	2	Continue work on demonstration on H. B. Holt ranch and Geo. Harding ranch. Six farmers improving soil of this type thru assistance of Agent.
IV - Improved Crop Stands	5	1	Twenty farmers secure better stands of cotton, and eight of alfalfa. Wider interest is use of pure seed.
VI - Boys' and Girls' Club Work	2	2	90 percent completion in club work, garden club during fall continued thru summer. Increased membership in poultry club work.
VII - Rodent Control	5		Continuance of adequately financed gopher control program. Total area of gopher infested land and ditch and canal banks to be treated. Wider and more efficient use of rabbit poison.
VIII - Better Sires	4		Increased interest in pure bred bulls, rams and boars and poultry.
IX - Cow Testing	3		Endeavor to reorganize Pinal County Herd Improvement Association.

X - Land Levelling and Preparation	4	12	Twenty better levelled and laid out farms. Methods demonstrations by Agent in four districts of county.
XI - Improved Check Gates & Turnouts	5		Wider interest in irrigation equipment in order to more efficiently handle water.
XII - Pinal County Agricultural Survey	5		Wide dissemination of facts learned in agricultural survey and of recommendations of various committees. Crop acreage data to be secured. Build up interest in diversification and crop rotation. Also bring survey up to date.
XIII - Cost of Production Studies	4		Secure cost of production records on ten cotton and ten alfalfa farms. Also five records on cattle feeding operations.