

ANNUAL NARRATIVE REPORT

STATE: ARIZONA

COUNTY: YAVAPAI

REPORT OF:

E. S. TURVILLE

FROM DECEMBER 1, 1933 to:

DECEMBER 1, 1934

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SHORT HISTORY OF AGRICULTURAL EXTENSION IN YAVAPAI  
 COUNTY, ARIZONA, DECEMBER 1, 1934

Extension work began in Yavapai County  
 May 1, 1919, the first agent being George Scherer.  
 The agents with their periods of time are listed in  
 the following table:

	May 1, 1919 to <del>Dec. 1919</del> <sup>Jan 15, 1920</sup>	George Scherer
	July 1 <del>1921</del> <sup>1921</sup> to May <sup>15</sup> 1923	C. U. Pickrell
<sup>July 16</sup>	<del>June</del> 1923 to April 1925	Harry Stewart
	April 1, 1925 to <del>Dec.</del> <sup>Mar 30,</sup> 1929	Guy Hobgood
	February 1, 1930 to present time	E. S. Turville

This history of the work will be carried  
 thru the full time on the basis of projects.

ORGANIZATION:

Scherer reports no organization of any kind  
 operating when he arrived, though the present agent  
 finds earlier records of a livestock association  
 started in 1878.

The first official Extension organization was  
 started June 1921 by agent Pickrell.

This was the County Farm Bureau, organized under a state law specially passed for this purpose. (Senate Bill 109 - 1921).

This County Farm Bureau still functions.

Pickrell and Stewart both report livestock association activities, having the objective of improved marketing. At present there is a cattle association with similar aims.

Other types of organization reported are, local farm Bureaus, Extension Committees, Community Clubs, dairy and poultry marketing associations and a poultry club for exhibition purposes.

One dairy association, two community clubs, a Cattle Growers Association and the Farm Bureau are all that remain of this effort.

#### POULTRY:

This project has received considerable attention from all agents and the industry reached considerable size. However, it is now much reduced owing to economic conditions. Culling, house construction, brooding, show work and improved health have

been the main Extension efforts. House construction and health improvement remain.

DAIRY:

T. B. eradication and efforts towards eliminating cut throat competition in the market milk field are most frequently noted. The former has been quite successful.

BEEF CATTLE:

The types of work stressed appear to have been (1) Organization for improved marketing. (2) Rodent and Predatory Animal control. (3) Improved bulls. (4) Range fencing. (5) Chute construction, and (6) General economic information. Results appear to have been larger and more permanent in this industry than in the other fields. Marketing efforts have gone thru an evolution that has finally resulted in a policy of two parts: (1) To encourage buyers to come in and thus increase competition amongst buyers, and (2) To line up with a national program that has a chance of

becoming really effective, thru the adjustment of supply to demand.

#### ORCHARD WORK:

The early mortality of trees was early reported and has provided an objective thruout the years. Comparatively little progress appears to have resulted except in the way of a definite diagnosis of the difficulty. Numerous methods for improvement have been used without avail.

Pruning, spraying, packing fertilizing, irrigating, etc. have received attention under all agents. Orchard heating is reported as having been tried, but the results as reported are not conclusive or highly encouraging.

#### SOILS AND IRRIGATION:

Every agent reports attempts at increasing fertility and improving irrigation practice. The two last agents report attempts at securing deeper penetration. The present incumbent reports the

results of a survey of soil and subsoil using the moisture equivalent as a measure of structure. The former agent reports a survey of dry-land farming.

MISCELLANEOUS:

The present agent reports two years' experience with a weekly letter devoted largely to economic subject matter.

Finally, a perusal of the reports covering the 15 year period would indicate:

- (1) That the county is best adapted to range livestock production.
- (2) That rainfall is the controlling factor in farm operations over a considerable area.
- (3) That interest in improved methods follows prosperous conditions.
- (4) That cooperative efforts in marketing have not been highly successful.
- (5) That many Extension efforts have failed because they were not right or adaptable.

(6) The use of Extension Service activities has been constantly increasing, which fact is illustrated by the following table of office calls:

1919	Office and 'phone calls	593
1925	" " " "	543
1927	" " " "	1499
1928	" " " "	1068
1929	" " " "	1204
1930	(part year) office only	751
1931	" "	1571
1932	Office and 'phone calls	1912
1934	" " " "	4035

## SUMMARY

Economics and the mechanics of the AAA has taken the major part of the year's efforts. The former was handled thru the weekly letter, the local papers and meetings: the latter included cattle, hogs, goats and two wheat contracts.

The agronomy work developed largely into a test of sorghums. Economics related mostly to the principles underlying the AAA program and other similar subjects. Agricultural engineering, which consisted mostly of contour bordering, was handicapped by the drouth. Livestock concerns, in the main, AAA activities. Fruit work was pretty much confined to tree diseases with positive diagnosis the chief achievement. Poultry efforts were mostly routine as were also dairy. Soils, other than the agronomy project were considered as a soil sanitation project with the Horticultural specialist.

4-H Club work involved four clubs, all of which finished close to 100%.

Farm Finance efforts were in connection with the various loan agencies, Welfare Boards and the Rehabilitation Loan Corporation.

Routine work in connection with grasshoppers, predatory animals and rodents were carried out with the help of the Biological Survey and the State Pest Control Board.

## OUTLOOK

A change from a dry to a wet cycle of years would greatly aid Extension work as would also, improvement in the economic situation.

On the whole, Extension work has improved its standing over that of a year ago. Inability to cover the ground in so large a territory is the present chief difficulty, though lack of correct, adaptable, subject matter is an added one.

The Agent expects the growing success of the AAA program to add to the popularity of local extension work.

#### IV CHANGES IN COUNTY EXTENSION ORGANIZATION

No change has occurred in the County Extension organization, which is the Yavapai County Farm Bureau.

#### V COUNTY PROGRAM OF WORK.

(1) Two factors have dominated the past year's program.

(a) The increased importance of economics in present day agriculture, and

(b) The AAA program.

While the regular projects have been carried along, they necessarily have not received the attention of former years. The mechanics of the AAA program (described on page 12-20) has taken considerable time and the effort to explain the economics behind these has occupied even more. This latter effort has been made difficult by the fact, that nearly all literature (other than government) coming into the farmer's hands has been anti-AAA.

The drouth situation has also had an important influence on Extension policy. This, together with general depression conditions has made advisable, efforts along welfare and rehabilitation lines.

The writer would note the fact, that the continuance of depression conditions has tended to sap the morale of those worst hit, and the trend, as concerns improved methods, has been backward.

In the matter of procedure, the Agent still holds to his weekly letter plan as the most efficient in teaching economics. Talks on such subjects have been used to some extent. However, the evidence is that the subject is too big to be so handled.

Welfare work has been conducted in conjunction with, and largely under the general direction of the County Welfare Board.

It should be borne in mind that the county's agriculture is approximately 75% range livestock and the farming, either truck and fruit growing or range supplementary feed production.

From experience and observation covering fifteen years in the Extension Service and a similar period preceding, devoted to actual farming and including farm organization work, the writer concludes that the only extension efforts worth while and of lasting benefit, are those that assist farmers in their thinking, leaving their doing to their own will and judgment. This, of course, refers only to efforts properly belonging to the individual only.

### AAA PROGRAMS

The Agent was pleased to have the opportunity of taking part in one marketing program, that had a chance of success - the adjustment of supply to active demand.

Thru his weekly letter, the local papers and some magazines, the writer has attempted to present the background for such a program. Just what results might have resulted had not the drouth situation added its influence, it is of course impossible to say. As it turned out, the program received generous support from most farmers and cattlemen and liberal opposition from the rest of the population.

AAA programs were carried on with cattle, hogs and goats.

CATTLE:

Briefly stated, the cattle program may be thus reported:

Total cattle in County (Tax Rolls) - - - - -	68,000
" " Purchased - - - - -	13,759
" " Condemned - - - - -	1,374
" " Marked for Grazers - - - - -	2,287
" " Shipped (incl. dead enroute, etc	12,385
" " of Contracts Made - - - - -	406
" " " Individual Signers - - - - -	243
" Inventory (Beginning of Purchase) - - -	57,187
" " (End of Purchase) - - - - -	43,428
" Value of contracts - - - - -	\$197,506.

While it would be impossible to give figures, it is a fact that many cattlemen were saved from bankruptcy thru this program.

The accompanying pictures show:

(1) A bunch of grazers at the yards at Clarkdale. The appearance of these cattle should indicate that owners would not have sold such stock

for around \$17.00 per head, if feed conditions were not certain to become serious.

(2) Oak browse over a large area that had never half leaved out.

(3) A close-up of a typical bush in (2).

The sudden stopping of the program left cattle gathered and awaiting inspection. Most of these cattle had been brought from a summer range to the winter range where there was no feed.

Except for this latter condition, involving about 2000 head of cattle, the cattle program has given general satisfaction.

The Agent is endeavoring to help place these cattle.

THE MOHAIR GOAT PROGRAM:

Activities in this field may be so reported :

Total goats in County at beginning - - - - -	84,000
No. of goats purchased (nannies)- - - - -	14,787
Amount of money involved - - - - -	\$20,701.80
No. of contract signers - - - - -	37
Inventory (at beginning) - - - - -	73,625
" (after purchases) - - - - -	58,838

As all sales were made from nannies, the flocks are left in an unbalanced state.

HOGS:

Yavapai is not a hog raising county.

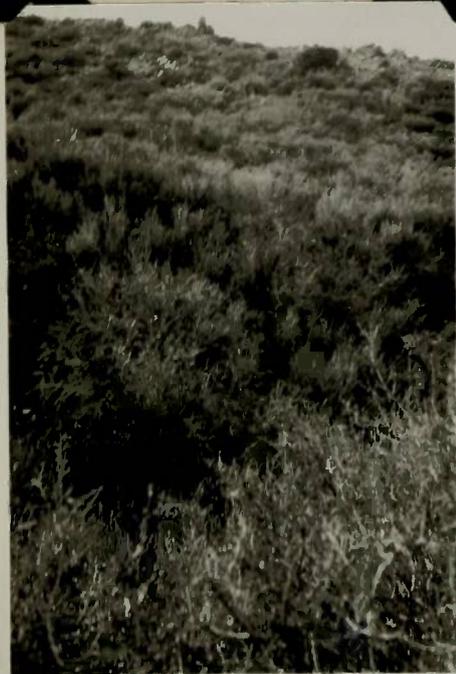
The following figures cover the AAA Corn-Hog activities:

Contracts - - - - -	7
Corn Acres Contracted - - - - -	74
Hogs Reduced - - - - -	243
Corn Reduction Payment - - - - -	\$670.
Hog Reduction Payment - - - - -	\$3,645.

(Note: Payment on above contracts not received up to present date - November 21st)

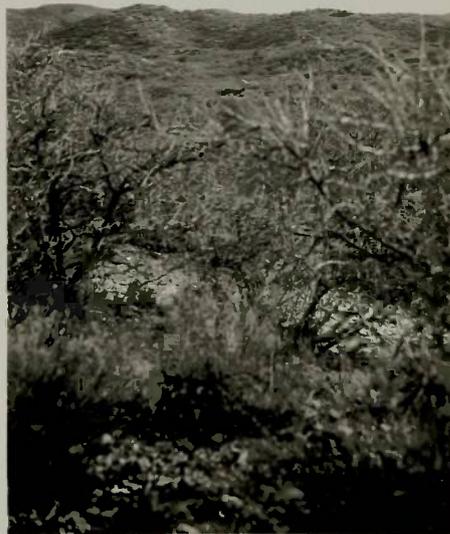


Selected "Grazers" from a shipment of drouth cattle,  
Clarkdale (Yavapai County) September 1934.



1

Oak Browse on M. L. Ranch, Wagoner (Yavapai County) only partially  
leaved out - October 29, 1934. (1) General View, (2) Close-up.



2

1934 REPORT ON THE RESULTS OF WORK DONE IN CHINO  
VALLEY SOIL PLOTS.  
(In Cooperation with Agronomy Department - U of A)

E. S. Turville

EXPERIMENT #1 - DRY LAND

WHEAT: As there was little rain in the summer of '33 and almost no rain last winter and spring, the wheat crop was a failure. The best yield did not exceed two bushels per acre and that occurred only where the grain was very thin on the ground. Here the grain filled properly but the total yield was small.

Dry land wheat production in years like the past one is impractical even where fallowing is practiced.

SUMMER CROPS - MILO-HEGARI-CORN. A fair stand was obtained, but the yield generally was too small to measure.

An interesting exception occurred in one small section of the hegari plot. Here, for a rod or so in length, the crop was fairly good, the heads of fair size and the grain well filled. (Picture #1 shows the heads). No difference in water conditions was observable and the logical conclusion is that

the result was due to extra fertility of this naturally poor soil. The incident again brings up the question, what results would be obtained on a fertile soil?

Pictures Numbers Page 27 30 show the crops as grown on these plots.

A summary of the findings to date on this experiment would read:

- (a) The soil used is poor in fertility and shallow in depth.
- (b) Without summer fallowing dry land crop production is impossible except in the most favorable years.
- (c) With fallowing, average rainfall will produce a fair winter wheat crop, but not a summer crop.
- (d) On this land, results have been as much the product of fertility conditions as of moisture supply.
- (e) The results do not conclusively show what would occur on this land were it raised to a fairly fertile condition.

(f) The problem of finding a method of seeding summer crops on land that has had only rain and this some months before seeding was not solved.

On the sandier spots, stands were obtained, but not on the average heavier soil and this in spite of the fact that there appeared to be plenty of moisture in the soil near the surface.

The subject is of practical importance, as often it is convenient to so seed, even where irrigation is to be used later on. The following case illustrates:

Harry Heslop whose farm adjoins the plots had 40 acres of land which he fallowed in '33 intending to sow fall wheat. The land had been in alfalfa. He was unable to seed the wheat and in May 1934, immediately following a rain that re-wet the top soil, he seeded to corn, hegari, beans and truck crops and obtained a good stand, but was unable to get water until June 15th. This was obtained from the newly installed community well. The crops started well

on the stored moisture and were finished with pump water. Mr. Hyslop made the only good crops in the district this year, as the crops planted on the well water (available after June 10th) were too late to mature properly.

The incident offers a possible favorable practice for a district that has much more land than water and suggests another method of supplementary irrigation.

#### EXPERIMENT #II - SUPPLEMENTARY IRRIGATION

Owing to lack of irrigation water, it had been decided to drop this project for this year, but upon the completion of the community well, water was purchased.

It was applied July 3d and seeding was done July 7th.

Crops were planted as follows:

- (1) Standard Red Milo,
- (2) Dwarf Red Milo,
- (3) Wheatland Milo,
- (4) Standard Hegari,
- (5) Velvet Beans,
- (6) Golden Republic corn,

Good stands were obtained, and the crops grew well, All except the Standard milo were irrigated once after seeding. The second irrigation showed little effect.

On the night of September 25th a frost occurred (unusually early) and while the crops showed but slight damage further maturity appeared to be seriously retarded and much of the sorghum grain did not mature.

Had plantings been made at the proper time (about June 10th) there would apparently have been good production.

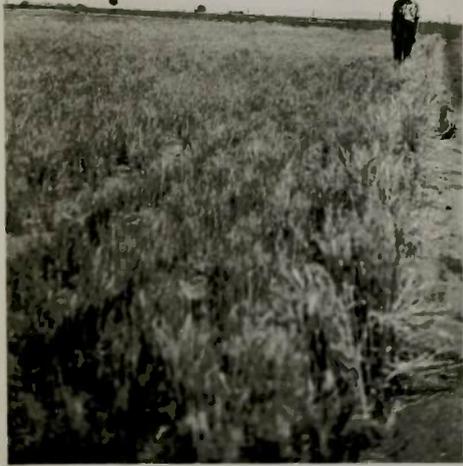
The sorghums made a much better showing than the corn as far as set of grain is concerned. In order of maturity the crops rated as follows:

- (1) Standard Milo about 65% matured
- (2) Dwarf Milo " 40% "
- (3) Hegari " 65% "
- (4) Wheatland Milo " 10% "
- (5) Corn " 60% " but not well filled.
- (6) Velvet Beans - foliage only and not heavy.

The results raise the following questions.

1. Should sorghums replace corn in these experiments?
2. What would be the results if the sorghums were planted by June 10th?
3. When should supplementary water be applied?
4. To what extent does the fertility factor affect these results?
5. What sorghums are the most suitable?
6. Is there any suitable green manure crop for such conditions?

The accompanying pictures show the crop as grown, photographed October 14th.



(1)



(2)

Wheat Plot: Chino Valley 1934 showing results of rate of seeding in a very dry year. (1) Edge of plot next a fallow. (2) Very scattered seeding; grain fully matured in both cases.



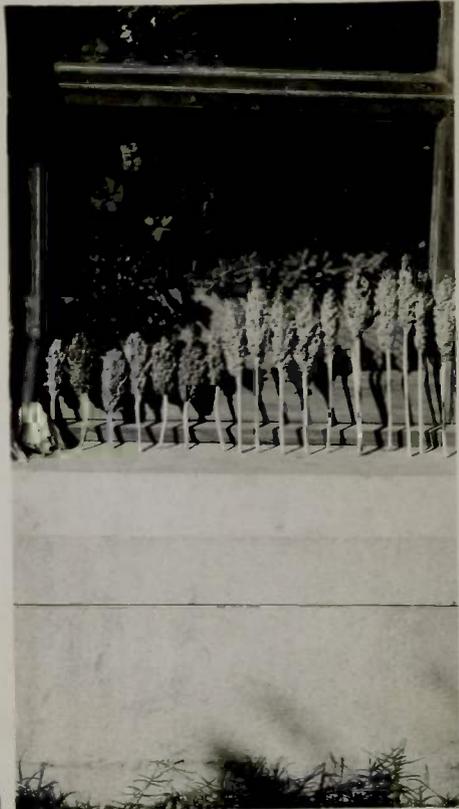
(3)

(3) Normal seeding showing poor growth. Grains when present, much shrunken.



-1-

Dry Land Milo



-2-

Hegari and Milo Heads

From Chino Valley plots (Dry Land) planted June 8, 1934. Fair stand. Major portion of planting did not make grain, but the part shown (due, the writer thinks to fertility rather than water) matured the heads as shown.

Three years' experience would indicate that summer crops cannot be grown on this land without irrigation water. The fertility factor has not been determined.



Standard Hegari

Chino Valley Plots (1934). One irrigation after planting - planted July 6th. Normal season about June 10th. Frost September 25th. Much better matured than the milos.



1  
Double Dwarf Milo



2  
Wheatland Milo

Milo Maize - Chino Valley plots (1934), one irrigation after planting. Planted July 6th. Normal planting season about June 10th. Frost September 25th. Neither plot gave a properly matured crop but No. 1 was much more advanced than No. 2.

## AGRICULTURAL ECONOMICS

In this field the Agent has tried mainly to collect, condense and present facts and figures in such a form that farmers could use these as a basis for drawing their own conclusions. The Weekly Letter has been the chief medium used. Pages 34 and 35 show two copies of this. The table, page 34 circular page 3 has appeared weekly for two years. The table, page 35, circular page 4 has appeared monthly for nearly the same time. Other tables and articles appear from time to time.

On page 36 is shown a sample weekly column appearing in the two local papers. This medium has been used for the same purpose.

### FARM FINANCING:

The writer's office has acted as a Bureau of Information for farm and home financing. Also the office handled directly the Emergency Crop Loans. These later numbered twenty-six, a considerable decrease from the last two preceding years.

The weekly letter carried numerous news items on types of loans. Also considerable time was devoted to assisting in the organization of a local unit of the Crop Production loan office. Assistance was further given to the Livestock Loan agency and other forms.

The credit situation has been much confused. Assuming that only earning power is a sound basis for credit, market conditions, both local and general, allowed little in the way of a sound base. The drouth has further reduced this base. Changed and changing price conditions will doubtless improve credit matters materially.

There remains as chief difficulties in credit:

- (1) Necessary loans (usually small) for purposes other than property improvement, as education, sickness, etc.
- (2) Loans for any purpose on acreage units too small to interest the Federal Farm Loan Board.

(3) Small loans \$100.00 to \$300.00 belonging normally to the Production Loan Companies.

(Note: the expense of these loans is necessarily high, being as much for \$100. as for \$1000.)

#### OTHER FINANCING EFFORTS:

The writer has spent considerable time in assisting Welfare agencies in Feed loans, Rehabilitation, etc.

One of the largest of this latter type was a successful effort to put in operation a pumping unit that supplies some 1100 gallons of water per minute. This water allotment was practically all that was used this summer by an organized gravity-flow irrigation district of 2400 acres. There was no water in the dam.

Other Rehabilitation projects are just getting under way and the Agent is lending his services (when requested) to the local or State Welfare Boards.

Prescott, Ariz. Nov. 15, 1934

BUSINESS INDEX FIGURES (WEEKLY TABLE)  
 U. S. Dept. of Commerce Report (Survey of Current Business)  
 Prices from "Department of Labor Index"  
 "Business Activity" from "Business Week"

	1926	1933		1934	Week ending		1935 Yr. Ago
		Mar.	Sept.	July	1934 Oct. 27th	Nov. 3d	
Prices Farm Products (67 kinds)	100	43	58	65	71	—	56
Wheat #2 Hard Winter Kansas City per bu.					1.01	99¢	84¢
Prices non-farm Pro- ducts (595 kinds)	100	—	—	79	78	—	77
General Business ac- tivity. (A combina- tion of leading bu- siness activities)	Normal 100	49	62	61	58	58	60
	1923-25						
Steel Ingot Production	100	20	53	35	34	34	34
Auto Production	100	27	58	73	31	22	21
Car Loadings	100	48	67	61	65	—	63

Figures from files of YAVAPAI CATTLE GROWERS

NOTE OF EXPLANATION: Line one means that: A farmer marketing 67 of the leading farm products in 1926 and receiving \$100. would have received for the same amount of the same quantities in March 1933, \$43.: : in September 1933, \$58.00: in July 1934, \$65.00 and for the week October 27th, \$71.00 as against \$56.00 for the same week one year ago.

#### GREEN FEED FOR POULTRY

Reports come in that the mid-West farmer who keeps poultry, is having a new experience. The pullets are not maturing properly and roup-type diseases are appearing.

The reason given is the drouth and the consequent lack of green feed. As this type of feed had always been supplied by nature, the farmer had never before recognized its importance.

More poultry losses and delayed maturity have resulted from a lack of green feed, than from any other single cause. Until the coming of range paralysis the lack of this or a proper substitute, had probably caused more disease than all other causes combined.

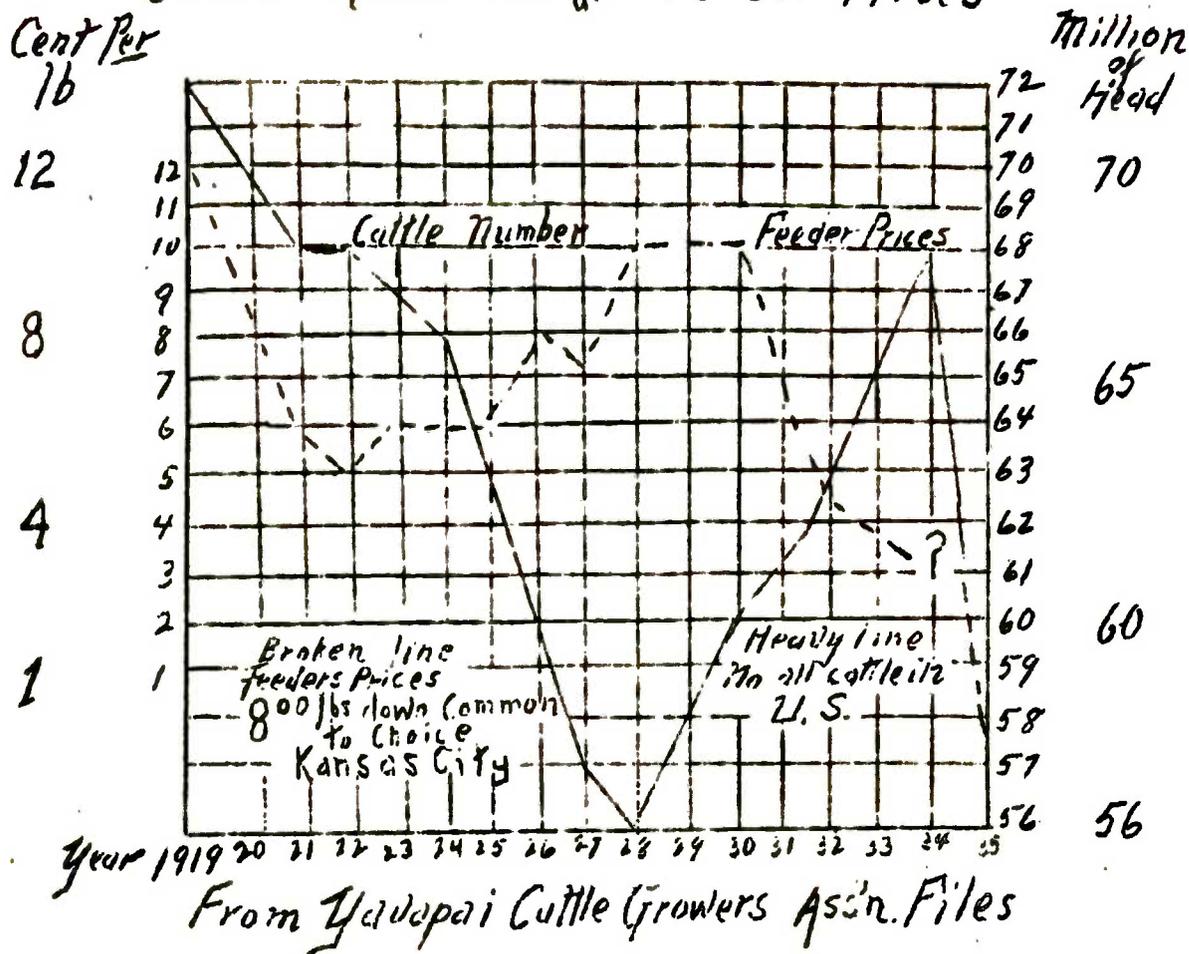
Where possible to provide, fresh green feed should be fed in abundance. Where not possible, alfalfa hay is a fairly good substitute. It is not alone a disease preventive, it is a body builder, in the case of growing stock.

The best indication that plenty of green feed has been consumed (it may be present but not eaten) is a deep yellow color in bill and shank, of the yellow skinned varieties.

Parties wishing proof of the above, should note the difference in appearance between farm flocks running at large in irrigated farms and similar flocks on dry farms and in commercial yards.

(Over)

# The 1919 and 1934 Deflations Cattle Numbers and Feeder Prices



The above chart is an attempt to bring the cattle number situation up to date.

The figures to January 1, 1934 are official, the line for this year is estimated from the best figures available.

The important point is that total cattle numbers are getting down near the level of the low point of 1928, when the total was 56 million head.

It should be noticed, that while it took 7 years, 1919 to 1928, for cattle numbers to go down from 72 million head to 56 head, or 14 million, in the earlier cattle deflation period, now it has taken but one year to reduce the numbers from 67 million to 58 million or about 9 million head, and it may go lower.

Throwing so many cattle on the market, even tho much of the beef will be given away, is a totally new experience. All of the results on price, therefore, cannot be estimated and the immediate future of cattle prices is uncertain. The long-time effect is easier forecast: it could hardly be other than a distinct advance.

There appears to be little likelihood of further cattle purchases in the druth areas, but feed loans to those who can use them are likely to be provided.

(Over)

Prescott, Ariz. Nov. 21, 1934

BUSINESS INDEX FIGURES (WEEKLY TABLE)  
 U. S. Dept. of Commerce Report (Survey of Current Business)  
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Wheat #2 Hard Winter Kansas City per bu.					99¢	1.01	84¢
Prices non-farm Pro- ducts (595 kinds)	100	—	—	79	78	—	77
General Business ac- tivity. (A combina- tion of leading bu- siness activities)	Nor- mal 100	49	62	61	58	58	60
Steel Ingot Production	1923-25 100	20	53	35	36	37	34
Copper, Electrolytic price	100				64	64	57
Auto Production	100	27	58	73	22	21	15
Car Loadings	100	48	67	61	64	—	60

Figures from files of YAVAPAI CATTLE GROWERS

NOTE OF EXPLANATION: Line one means that: A farmer marketing 67 of the leading farm products in 1926 and receiving \$100. would have received for the same amount of the same quantities in March 1933, \$43.00: in Sept. 1933, \$58.00: in July 1934, \$65.00 and for the week November 3d \$70.00 as against \$56.00 for the same week one year ago.

PROSPECTS FOR 1934 TURKEY CROP AND PRICE

Clyde F. Rowe, Poultry Extension Specialist, University of Arizona, Tucson, who has been visiting this county for the past few days, made the following statement regarding the season's turkey market:

"The 1934 turkey crop will be 15 to 20 percent less than last year and housewives will in all probability be asked to pay 15 to 20 percent more for their holiday birds. Every state in the west, with the exception of California and Utah, are reporting less turkeys. The Arizona crop will run almost 20% under last year. Texas, which produces more turkeys than any other state, reports 20 to 25 percent fewer birds. Nebraska, the Dakotas and Montana, all large turkey producing states, are far below last year in numbers, largely because of the drouth and feed conditions.

Prime Toms and Hens are being quoted at 21 and 22 cents per pound at the present time in Los Angeles and other coast towns. While some sales are being made at 12 to 15¢ live weight, it is not expected that these prices will continue.

(Note: - All meat and egg prices are weakening slightly at the moment -  
 E. S. T. )

## MONTHLY REPORT (Latest Official Figures for September)

(All figures from the Survey of Current Business, U. S. Dept. of Commerce, thru courtesy Yavapai Cattle Growers).

SUPPLY

## PRODUCTION AND "STOCKS ON HAND"

(Table 1)

	Base Year	1934			1933
	1923-25	Jan.	July	Sept.	Sept.
Industrial . Production Rate	100	78	75	71	84
U. S. All Stocks on Hand	100	161	140	154	153
World Stocks Food and Raw Materials	100	249	268	—	256

DEMAND

## CONSUMING INDEXES

(Table 2)

	Base Year	1934			1933
	1923-25	Jan.	July	Sept.	Sept.
Dept. Store Sales	100	69	72	75	70
Factory Empl.	100	72	79	74	78
Factory Payrolls	100	53	60	58	59

MISCELLANEOUSMEAT AND FEED PRICES  
(Meat, Chicago - Feed, Kansas City)

(Table 3)

	1934			1933
	Jan.	July	Sept.	Sept.
Beef Fresh, Native steers, per cwt.	\$8.90	\$11.40	\$14.10	\$ 9.40
Cattle, Corn fed, per cwt.	5.55	8.40	9.36	6.23
Hogs - heavies, per cwt.	3.38	4.35	7.23	4.04
No. 3 Yellow corn per bu.	45¢	57¢	81¢	44¢

NOTE: Table #3 shows considerable improvement due to the increase in feed price and fat stock. Thin livestock and feeders have not yet felt the increase.

Tables 1 and 2 show decline except Department Store Sales.

Courier Sept 12/34

# EXPECTS BOOST IN MEAT PRICES

By E. S. TURVILLE

County Agricultural Agent)

The stockman who has beef or feeders to sell is wondering what all the talk is about. He hears predictions on every hand that meat is going out of reach of the consumer, but fails to see the evidence. Top fat cattle are moving from Phoenix at 6 cent and the bulk at 5½ cents. This should mean from 3½ to 4 cents for feeders—still depression prices.

True, the stockman expects better prices—some day; but there is room for considerable rise before the profit level is reached.

The shortage of feed grains, due mainly to drought, will necessarily force meat products higher, but the effects will be moderated by the reduction of some 20 million head of hogs and to date about 4 million head of cattle. Such a reduction in stock numbers will reduce the demand for feed by that much, leaving a larger amount available per head.

While hog prices are up, nearly double those of last spring, they are still below parity (the 1910-11 buying power) and as yet there is no evidence of a runaway market for this class of stock.

If meat prices are high, it is not because of high prices for meat animals, and if these are shortly to reach high levels, one would naturally expect heavier buying and storing by processors and packers. The country's cattle population last January was 67 million head and there is nothing in past history to indicate a real beef shortage with a cattle count above 60 million head.

### Droughts and Plant Growth

The last year's drought experience has brought out some plant cultural points it is well to keep in mind. One of these is that a certain amount of drought resistance can be secured by improving, where possible, the depth of soil, the fertility of the soil and the species of plant grown.

In the matter of depth of soil, this is of course, only possible of improvement on small garden plots. In farm operations, selection is the one method available. Depth, above hard pans or tight layers, determines the water hold-

Sample of weekly column  
in local papers. Main  
heading written by City  
Editor.

ing capacity of the root zone and therefore is a highly important factor in drought resistance.

The fertility of the soil is less easily understood as a drought resistance factor, but it has been amply proven, that a rich soil will require only about two-thirds as much water for a given amount of growth as the same soil, lacking fertility. Here then, it is a matter of the efficient use of the water available.

Drought resistant farm crops are not numerous but there are some that show distinct advantages. For instance the grain sorghums have the ability to stand through a drought period without injury and make growth when the rains finally come. Corn is unable to do this, for when once stunted, it has little come-back power. Beans also hold up well under drought conditions.

## AGRICULTURAL ENGINEERING

Most of the work in this line has been in the dry farming areas where contour bordering is in progress. The drouth of the past two years has made it impossible to make much progress, as results are not in evidence.

Construction of buildings, silos etc. has been at a practical standstill, because of economic stress.

The Rehabilitation program may start some building, and survey work, in which the Agent is assisting, is now in progress.

## FRUITS

Work done in this field has concerned itself in large part with tree diseases.

The project was started in 1931 in cooperation with the Plant Pathology Department of the University of Arizona. Nineteen thirty-one was devoted to survey work. Nineteen thirty-two and three, to experimental treatment on the root rot areas, with ammonium products and copper-sulfate. Nineteen thirty-four has been given over to a checking of results.

On the whole, results do not appear to have been as favorable as those reported elsewhere. Future policy has not yet been decided.

The chief beneficial effect, and it is one of no small importance, is that the constant work on this project has brought a more definite knowledge of the facts in the case, to the attention of the local people than had been secured in many years of past experience.

The real trouble appears to be Texas Root Rot, complicated by the fact that much of the area affected is near the border-line (in temperature) of this disease.

Similar success has been achieved in determining the cause of dying in orchards, where no specific disease could be isolated.

The trees invariably showed a normal foliage and fruit growth, on the lower half and a much stunted appearance on the upper part. Later, whole limbs would begin to die back, showing some canker. This gradual decline in individual trees has been going on for a number of years, until total death results.

Fertilizing of all kinds was tried but without success.

During the past year the extreme drouth conditions have so greatly increased the trouble, that it is now apparent we are dealing with a constantly decreasing sub-soil moisture and that this fact is the prime factor operating.

Future orchard policy will be largely one of making known the conclusions arrived at and the adjustment of practices to these facts.

LIVESTOCK:

Most of the work has been connected with the AAA program as described on page 15.

The Yavapai Cattle Growers Association has maintained its activities, which have been largely of an organizing, economic and marketing nature. Practically all of the Agent's cattle work has been done thru this medium.

Dairy efforts have been largely confined to aiding two market milk associations. Marketing conditions and prices have been their chief objective.

The Verde Association has accomplished considerable in eliminating price cutting, but the Prescott group have been less successful. However, the situation is not too serious and the producers are getting by.

All work with hogs, sheep and goats concerned the AAA program.

Thru the medium of the weekly letter, the effort has been made to present the important facts relating to the livestock situation, in the hope that, as far as possible, private adjustments would be made.

It is difficult to measure results in this

field, but there is plenty of evidence to show that stockmen are taking interest in the statistics relating to their business.

## POULTRY:

Conditions since the depression began and up to the present time, have been highly unfavorable to this industry. The reasons may be listed as follows:

(1) The district is a feed importer and as the freight was often larger than the original cost, the local producers could not compete with the flood of imported eggs, produced on a feed at half their cost.

(2) All meat products have been particularly low in price.

(3) The drouth ('33 and '34) has been against the production of local feed.

(4) The continuing increase in range paralysis has added a new element of risk.

(5) The local market has been much reduced due to the shutting down of the numerous large mining camps.

So completely have these factors worked, that the present poultry industry is today but a small part of what it formerly was.

Some progress has been made in improving the health of the birds. The death loss from BWD in chicks has been considerably reduced, apparently as the result of testing breeding stock. However, most of the flocks are maintained by the purchase of baby chicks, so the effort was not local.

The effort to induce a greater use of protective foods is being continued with a fair degree of success.

Little has been done on the main project, that is the survey of poultry diseases. The results have made it rather clear to all concerned, that the matter is one for research investigation and that there is little that can be done about it locally.

The Agent has directed his efforts in the poultry field, largely in attempts to present the economics of the situation. This has been done thru the weekly letter and thru newspaper items.

SOILS:

Owing to drouth conditions, little soil work under the old project was attempted, except on the plots handled in cooperation with the Agronomy Department of the University of Arizona. A report of this project is attached, page 21.

Another soil project under the direction of the Horticultural Specialist and the Pathology Department of the University of Arizona was started in the Lower Oak Creek district last spring.

The conditions are briefly summarized by saying.

- (1) Nematodes are serious and on the increase.
- (2) Ryzock is a serious handicap on some crops, otherwise suitable to the district.
- (3) This section is also subject to root rot.

The effort is being made to secure types of legumes suitable for the above conditions and climatically

adapted, to develop practices also suitable and to make known the susceptible crops.

Three beans were used, the Iron Cowpea, the Brahmin and the Velvet. All grew fairly well, but the Velvet Bean did not mature. The Iron Cowpea made the best growth. Three demonstrations were employed.

This work will be continued next year.

Efforts will be made to induce a greater use of green manure crops, as a special soil sanitation measure.

TRUCK CROPS:

Other than routing work with pests and diseases, this year's efforts have been confined to attempts to induce the use of methods to increase the organic content of the soil. The writer is strongly of the opinion, that soil sanitation can be greatly improved in this way and that such improvement is **almost** the "one thing needful".

For four months of the summer, the weekly letter has carried a page dealing with market conditions and prices at Phoenix and Prescott. Numerous timely articles have also been published relating to truck crop production and handling.

4-H CLUB WORK:

Four clubs have operated during the year. One of these completed two projects, sewing and canning. Two new clubs are in process of organization.

Briefly stated the club record is as follows:

One Beef Calf club,

Two Sewing clubs (one of these also did canning).

One Health club,

Two Girls Sewing clubs are organizing,

One Music club is supplanting the canning work in the Cornville club.

All of these clubs made a very creditable showing and the first four have completed.

Much credit is due the leaders of the various clubs and H. R. Baker, Club Specialist.



Review of  
 production annual

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The "Do-All" Canning Club, Cornville canning  
 fruit out-of-doors under direction of 4-H Leader,  
 Mrs. Maneth.