OKLAHOMA
AGRICULTURAL AND MECHANICAL COLLEGE
AGRICULTURAL EXPERIMENT STATION
STILLWATER, OKLAHOMA

Outfield Experimental Results

McINTOSH COUNTY
For
1925, 1926, 1927

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Bulletin 171. January, 1928.

FOREWORD

This bulletin is a report of the outfield work in McIntosh county, Oklahoma, conducted by the Experiment Station of the Oklahoma Agricultural and Mechanical College.

Outfield experiments in Oklahoma are conducted by the Department of Field Crops and Soils of the College, and have been going for three years under the supervision of H. C. Potts, assistant agronomist in charge, who gives direct supervision to all outfield experimental work. Work is now being conducted in McClain, Bryan, Okmulgee, Pittsburg, McIntosh, Creek, Nowata and Garfield counties. The Garfield county work was started in 1926. A few acres are rented from each place of some good farmer who supplies the land, the labor, tools and equipment, and for his services takes the crops and a small agreed sum to pay him for his extra trouble.

In addition to the work in the above named counties, specialized work is being conducted in two places: (1) at Granite on the State Reformatory farm, for the benefit of the farmers of Southwestern Oklahoma. Roy W. Ellithorpe, assistant agronomist, is in charge of this work. It was established three years ago through the cooperation of the late Dr. G. A. Waters, then warden of the reformatory. It was continued under the administration of his successor, Mr. J. J. Savage. The present warden, Mrs. G. A. Waters, widow of Dr. Waters, has been enthusiastic in her cooperation in the continuance of the work. (2) At the Panhandle Agricultural College at Goodwell special work is being conducted under the supervision of H. H. Finnell, associate agronomist, who is in charge of the work at that place in crops and soils, in cooperation with the Panhandle Agricultural College. This work is for the benefit of the Panhandle and the Northwestern section of Oklahoma.

In order to extend Outfield Experimental work to other counties, additional funds will be necessary.

REPORT OF EXPERIMENTAL WORK IN McINTOSH COUNTY

The experimental work in McIntosh county is being carried on with Mr. J. O. Kimbro who lives six and one-half miles north of Eufaula on the highway to Checotah. The soil on which these experiments are conducted is of a loamy nature and is representative of the average upland soil of that locality.

CORN VARIETY TESTS

Table I—Corn Variety Tests Yield in Bushels Per Acre**

Variety	1925	1926	1927	Average	Rank
Silvermine	21.1	25.7	14.9	20.4	9
Pride of Saline	21.1	33.7	19.4	27.0	2
Surcropper	25.3	32.9	22.6	26.9	3
Reid's Yellow Dent (Clay)	23.3	27.1	19.7	23.4	8
Reid's Yellow Dent (Cole)	*	*	18.4		
Ferg. Yellow Dent	22.7	34.2	21.4	26.1	4
Midland Yellow Dent	27.2	38.3	23.1	29.6	1
Dent Squaw	*	30.0	18.6	24.6***	7
Chisholm	24.2	33.1	20.1	25.8	5
St. Charles White	20.0	30.9	24.0	24.95	6

*Not planted.
**70 lbs. ear corn per Bu.
***Two year average.

Moisture is not the limiting factor in corn production in this section as shown by the production in 1927. On this type of upland soil, the fertility seems to be the limiting factor. However, the yield secured from the leading varieties indicate that corn is a paying crop on these lighter upland soils. The earlier maturing varieties such as Midland Yellow Dent, Pride of Saline, and Surcropper can probably be recommended on this type of upland soil over the later maturing varieties.

GRAIN SORGHUM VARIETY TEST

The varieties of grain sorghums grown in 1925, 1926, and 1927, were Darso and Common, Reed's, Sunrise, and Hegari Kafir. All the grain of each variety except Darso was destroyed by the birds, Darso producing an average for the three years of 33.9 bushels per acre which was a little over four bushels per acre more than the leading variety of corn for the same period. This being the case, Darso can be recommended as a grain crop along with corn in this locality.

SWEET SORGHUM VARIETY TEST

Table II—Sweet Sorghum Varieties Yield in Tons* of Dry Forage Per Acre

Varieties	1925	1926	1927	Average	Rank
Sumac	6.25	4.12	3.80	4.72	3
Orange	5.31	3.96	5.16	4.81	2
African Millet	6.33	3.30	3.45	4.36	4
Red Amber	3.70	3.10	3.00	3.27	5
Seeded Ribbon	8.33	4.50	9.50	7.44	1

*All forage was weighed when dry enough to store in barn.

While the Seeded Ribbon Cane as shown in Table II yielded about two tons per acre more than any other variety, it cannot be recommended over the Orange or Sumac because of the lack of quality. The Seeded Ribbon has a very large stalk an dcontains a great amount of moisture when cured under field conditions.

There is a very little difference in the quality of Orange and Sumac but because of the popularity of the Sumac with the farmers in this section, it could be recommended over the Orange variety.

SOYBEAN VARIETY TEST

There were six varieties of soybeans planted in 1925 and 1926, but because of such a small area planted to soybeans in this locality, the rabbits destroyed so much of the plots that no yield was secured. However, in 1927 a fair yield was secured from the Laredo, Old Dominion, Virginia, and Chiquita, but in order to make recommendations as to the best variety more information concerning these varieties must be secured.

COWPEA AND MUNG BEAN VARIETY TEST

Table III—Cowpea and Mung Bean Varieties Yield in Bushel of Grain and Tons of Forage Per Acre

Variety	1925		1926		1927		Average	
	Grain	Forage	Grain	Forage	Grain	Forage	Grain	Forage
Early Buff	12.5	.9	13.0	1.2	6.3	.9	10.8	1.0
New Era	13.2	1.2	16.6	1.9	12.3	1.6	14.0	1.6
Whippoorwill	8.0	1.4	17.3	1.7	11.0	1.2	12.1	1.4
Brabham	*	*	2.1	1.7	10.5	1.7	6.3**	1.7**
Red Ripper	*	*	16.5	2.0	0	1.9		2.0**
Blackeye	12.0	.9	9.3	1.5	12.0	1.1	11.1	1.2
Erect Mung Bean	*	*	13.3	3.0	3.0	1.9	8.0**	2.5**
Dwarf Mung Bean	18.1	1.5	7.3	***	12.7	1.0	12.7	1.3**

*Not planted.
**Two year average.
***Destroyed by wet weather.

Cowpeas can be very highly recommended in this section. As shown in Table III, most varities make a high grain yield and can be considered a good money crop from the sale of seed. A fair hay crop was also secured and cowpeas are one of the best soil builders for this section. In the three seasons mentioned above, Early Buff cowpeas were planted after oats. A good yield of seed was harvested and the vines were turned under as a manure crop. This increased the fertility of the soil.

From the data secured, the New Era variety can be recommended as a dual purpose variety while the Red Ripper will probably give the greatest amount of forage. It is not a high seed producer.

The Erect Mung Bean gives a little larger forage yield than any of the cowpea varieties, but because it has a lower quality of hay, they cannot be recommended over the cowpeas. While the Dwarf variety is a heavy seed producer, its habit of growth makes it difficult to harvest.

OAT VARIETY TEST

Table IV—Oat Varieties Yield in Bushels Per Acre

Variety.	1926	1927	Average	Rank
Fulghum	31.2	28.4	29.8	2
Kanato	31.6	28.4	30.0	1
Nicholson's Extra Early	25.4**	28.4	26.9	5
Nicholson's 100 Bu.	30.4	24.6	27.5	4
Ferg. No. 922	*	21.3		
Local Variety	30.4	28.4	29.4	3

*Not planted.
**15% smut damage.

With seasons like 1926 and 1927, the earlier maturing varieties give a little higher yield than the late maturing ones. Kanota and Nicholson's Extra Early are both strains of the Fulghum, while the other three varieties used are all strains of the Texas Red and are considered late maturing.

Table V—Cotton Varieties, Showing Length of Staple, Lint %, yield of Seed Cotton, and Money Value Per Acre

Variety	1925				1926				1927				Average Yield	Average Value
	Length Lint	% Lint	Yld. Per Acre	Value Per Acre	Length Lint	% Lint	Yld. Per Acre	Value Per Acre	Length Lint	% Lint	Yld. Per Acre	Value Per Acre		
Okla. Tri. 44	14	33.80	615	55.12	15	36.00	570	31.42	14	30.00	465	33.89	553	40.14
Acala 5-37	15	34.93	270	24.73	16	34.24	420	22.19	16	32.92	180	14.74	293	20.55
Acala 5	*	*	*	*	*	*	*	*	14	32.45	225	17.70	225***	17.70***
Mebane	14	33.59	345	28.52	15	41.17	210	12.76	15	32.37	45	3.53	200	14.93
Delfos 6102	*	*	*	*	*	*	*	*	15	27.03	330	22.63	330***	22.63***
New Boykin	13	35.80	570	45.75	15	38.89	375	21.64	14	29.70	165	12.06	370	26.48
Okla. Tri. 44	14	36.96	810	72.49	15	35.25	765	40.50	14	30.00	285	20.78	620	44.59
Tri. 406	14	34.57	555	47.28	16	36.74	270	15.18	14	30.96	75	5.62	300	22.69
Lone Star	14	36.56	750	66.67	16	35.89	285	15.69	16	33.15	60	4.94	365	29.10
Rowden	15	34.91	340	31.13	15	35.42	390	20.72	14	32.63	120	9.55	283	20.48
Half and Half	12	37.22	750	62.60	11	42.36	585	30.76	13	34.57	240	19.19	525	37.52
Trice	*	*	*	*	15	30.08	645	37.69	13	26.87	180	11.92	413**	24.80**
Okla. Tri. 44	14	35.44	874	75.46	15	36.64	555	30.43	15	29.60	183	14.78	537	40.22

*Not planted.

**Two year average.

***One year only.

COTTON VARIETY TEST

During the season of 1926 the flea hopper did a great deal of damage to cotton in this section of Oklahoma and in 1927 a large per cent of the crop was destroyed by the boll weevil.

The data obtained from these tests show that under adverse conditions like these, the early maturing varieties give the highest money value per acre. This value is based on the average price paid for Middling cotton using the length of staple of each of these varieties. This method, however, favors to a slight extent the later maturing varieties and penalizes the earlier ones, for usually a higher grade is obtained from the earlier varieties because they open at a season when conditions are more favorable for harvesting.

There are some objections, however, to the early maturing varieties. They usually have a small boll and are not as storm resistant as some of the later maturing varieties. With the exception of Half and Half and Trice, the length of staple of the early maturing varieties is about the average of all varieties used in the test.

The true value of a variety to any community is necessarily the amount of money returns secured from the sale of lint and seed. These varieties were compared on that basis. The three main factors taken into consideration in determining the value of these varieties are length of lint, linting per cent, and yield per acre.

FERTILIZER EXPERIMENTS ON COTTON

The soil on which these experiments are conducted is of a loamy nature and is typical of this area. It is of medium productiveness. Three years results have been secured and are given in Table No. 6. Fertilizers containing acid phosphate or acid phosphate by itself have given increases in yield. The amount of the increase in some cases is small and not enough to pay for the fertilizer. This was the case when acid phosphate was used with farm manure. Farm manure by itself gave best returns of anything used. Plot No. 1, which is a check plot, is close to a fence where, in all probability, some organic matter and soil material have accumulated due to wind transportation. It should be discarded so far as comparison is concerned.

In 1926, the yield of the cotton crop was decreased due to flea hopper injury, while in 1927, boll weevil injured the crop even more than did the flea hopper in 1926.

Considering the 1927 yields it will be noticed that acid phosphate, the complete fertilizers, and manure pushed the crop along and a higher yield of cotton was produced than from the other fertilizers under boll weevil conditions. This factor must not be overlooked especially in areas where boll weevil are likely to be present.

The influence of the complete fertilizers has been more or less consistent in that they have been among the highest each year. The yields each year have been quite variable one with the other but fertilizers which have consistently produced increases are more to be favored than those which produce spasmodic increases. The cost of the light application of the complete fertilizer is $3.25 at the present prices of raw materials. It has increased the yield on an average of over 200 pounds of seed cotton per acre and has thus been used at a profit. The light application of the complete fertilizer is more profitable than the heavier (400 pound application) application of the same fertilizer.

Table VI—Results of Cotton Fertilizer Test. (Yield in Pounds Per Acre)

	Treatment	1925	1926	1927	Average
1.	Check	1240	740	440	806
2.	Nitrate of soda 100 lbs.	1080	720	300	700
3.	Nitrate soda. 100 lbs. (chopping)	940	660	280	626
4.	(Nitrate soda) (50 lbs. planting) (50 lbs. chopping)	920	640	320	626
5.	Acid phosphate 200 lbs.	920	680	500	700
6.	Check*	900	540	360	600
7.	(Acid phosphate 200 lbs.) (Nitrate soda 100 lbs.)	860	900	420	726
8.	(Acid phosphate 200 lbs.) (Kainit 25 lbs.)	980	1020	480	826
9.	(Nitrate soda 100 lbs.) (Kainit 25 lbs.	1060	1140	340	846
10.	(Acid phosphate 160 lbs.) (Nitrate of soda 30 lbs.) (Kainit 10 lbs.)	1020	900	540	820
11.	Check*	880	560	364	601
12.	(Acid phosphate 320 lbs.) (Nitrate soda 60 lbs.) (Kainit 20 lbs.)	1080	860	600	846
13.	Manure 8 T. per acre, 1925	1500	960	540	1000
14.	(Acid phosphate 100 lbs.) (Manure 8 T. per acre, 1925	1360	1100	580	1013
15.	Legumes Rotation. Cowpeas to be turned under		540		
16.	Legumes Rotation. Cowpeas to be turned under		560		
17.	Cotton Rotation	580		280	430
18.	(Cotton Rotation) (Acid phosphate 200 lbs.)	920		460	690
19.	Check*	870	565	350	595