OKLAHOMA

AGRICULTURAL EXPERIMENT STATION

Bulletin No. 33--March, 1898.

Experiments With Field Crops, 1897.

G. E. MORROW, Director and Agriculturist,
J. HAYES BONE, Asst. Agriculturist.

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STILLWATER, OKLAHOMA.

OKLAHOMA

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Field Crop Experiments, 1897.

G. E. MORROW, Director, and J. HAYES BONE, Asst. Agriculturist.

The Experiment Station farm is in latitude 36° 10′ and longitude 97° 5′. It is about 1,000 feet above sea level. It is of fairly fertile prairie soil, with a considerable southern slope. It is properly classed as "upland." The soil is finely divided, holding water well; the subsoil overly compact. The land has been in cultivation since 1891. No chemical fertilizers have been applied. Stable manure has been used in moderate quantities.

KAFIR, MILO MAIZE, JERUSALEM CORN, SWEET SORGHUM.

Few crops are of greater importance for much of Oklahoma than are the different kinds of sorghum grown for forage. Kafir corn, Milo maize, Jerusalem corn are all classed as non-sweet sorghums. Some varieties of sweet sorghum are also largely grown for hay or "fodder." Each year the acreage of these crops increases in Oklahoma, especially on upland and places where corn is not considered a sure crop. In Kansas, in 1897, it is reported there were 742,594 acres in these crops, Kafir standing first with 371,838, and sorghum next with 352,528 acres; Milo maize and Jerusalem corn together having 18,228 acres.

There are many varieties of sweet sorghum, differing much in size of stalk, form of head, as well as in percentage of sugar. Three varieties were tested at the Station, but the proper name of no one of these is certainly known. Kafir corn is broadly divided into the red and white varieties. The black hulled Kafir is a form of the white, as is the "black rice corn," judged by the seed purchased by this Station. Milo maize, Jerusalem corn and Dourra, while resembling Kafir corn in many respects,

differ from it and from each other in the form of head and some features of the stalks.

The experience at this Station confirms the judgment of many farmers that Kafir corn is to be preferred where the yield of grain is the chief consideration—its stalks and leaves also being palatable and nutritious. The larger yield of well selected sweet sorghum varieties is good reason for preferring these where the stalks and leaves are thought most important. There seems little reason for recommending either Milo maize, Jerusalem or the Dourras, in preference to Kafir or sweet sorghum.

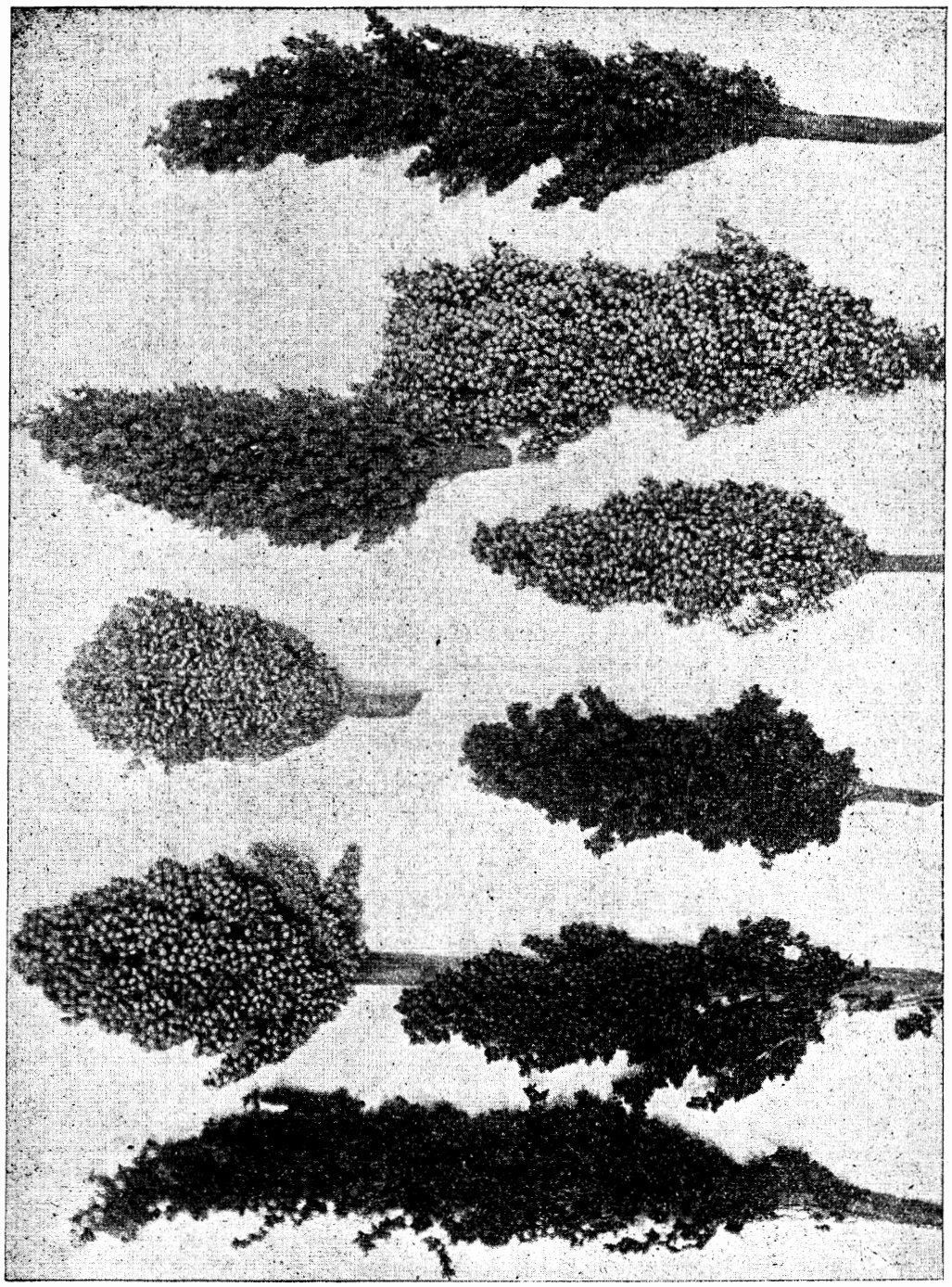
Table No. 1 gives yields per acre calculated from plats planted with different varieties as named. Two varieties of sorghum were planted. Care must be used in drawing conclusions, as differences in the vitality of the seed, consequently differences in the "stand" secured caused much of the difference in yields. There were also variations in the soil, although the plats were as close together as possible.

Table 1.—Varieties of Kafir Corn, Sorghum and Milo Maize.

Plat No.	VARIETY	YIELD PER ACRE		HEADED		Mature
		Grain bu.	Stover lbs.	First	Fully	
19	Sorghum (small)	25.6	3285	Aug. 2	Sept. 7	Sept. 24
20	Black Rice Corn	26.2	5808	July 29	Aug. 23	Sept. 24
21	White-hulled White Kafir Corn	21.1	8059	Aug. 2	Aug. 24	Sept 24
22	White Jerusalem Corn	7.8	7550	July 20	Aug. 2	Aug 26
23	White Milo Maize	20.2	5218	Aug. 2	Aug 24	Sept 24
24	Yellow Milo Maize	12.8	8358	Aug. 2	Sept. 7	Sept. 24
27	Black-hulled White Kafir Corn	14.9	9801	Aug. 2	Aug. 24	Sept 24
28	White-hulled White Kafir Corn	13.6	6498	Aug. 2	Aug. 24	Sept. 24
29	Brown Dourra	15.7	4356	July 24	Aug. 4	Aug. 26
30	Red Kafir Corn	7.2	4912	July 21	Aug. 24	Sept. 19
31	Black Rice Corn	7.8	12212	Aug. 2	Aug. 24	Sept. 22
33	Sorghum (large)	12.1	12577	Aug. 2	Sept. 7	Sept 24

EFFECT OF TIME OF PLANTING ON KAFIR

Beginning April 10 five plats were planted at intervals up to May 22. It was planned to plant one plat each week, but the ground was too wet on April 24 and May 8 to permit planting. At the time of the first planting the soil was cold and few kernels grew. That planted one week later came up well but it was ten days before the plants appeared. That planted May 15 came up in seven and that planted May 22 came up in six



1—Yellow Milo Maize. *2 & 3—Types "Jerusalem Corn"*
4, 5 & 6—Udnamed Sorghum *7—Black Rice Corn (Kafir)*
8—Clack-hulled Kafir. *9—Red Kafir.*

days. The earliest planted plats headed about two weeks before the latest planted, but there was only about three days difference in the time of ripening.

The two earlier planted plats were badly blighted; the later not at all. The average yield of seed from the plats planted April 17 and May 1 was 22.3 bu., with 6.1 pounds of stover for each pound of seed. The average yield of seed from the plats planted May 15 and 22 was 38.2 bu., with 3.4 pounds stover for each pound of seed produced.

PLANTING KAFIR AT DIFFERENT THICKNESSES.

Sixty plats were planted with white-hulled Kafir corn on May 6. The plats were necessarily small. They were close together, on land apparently uniform in most respects, except that the whole tract sloped to the south. It was found, however, that there were considerable differences in the soil and this must be kept in mind in drawing conclusions.

On three of the plats a good press drill was used. This was set so it would sow one bushel per acre of wheat. In one plat the drill rows were six, in one 12 and in one 18 inches apart. On thirty plats the seed was drilled in rows—ten 30, ten 36 and ten 44 inches between the rows. On thirty plats the seed was planted in hills. The distance between the stalks in the drilled plats and the number of stalks in the hills varied.

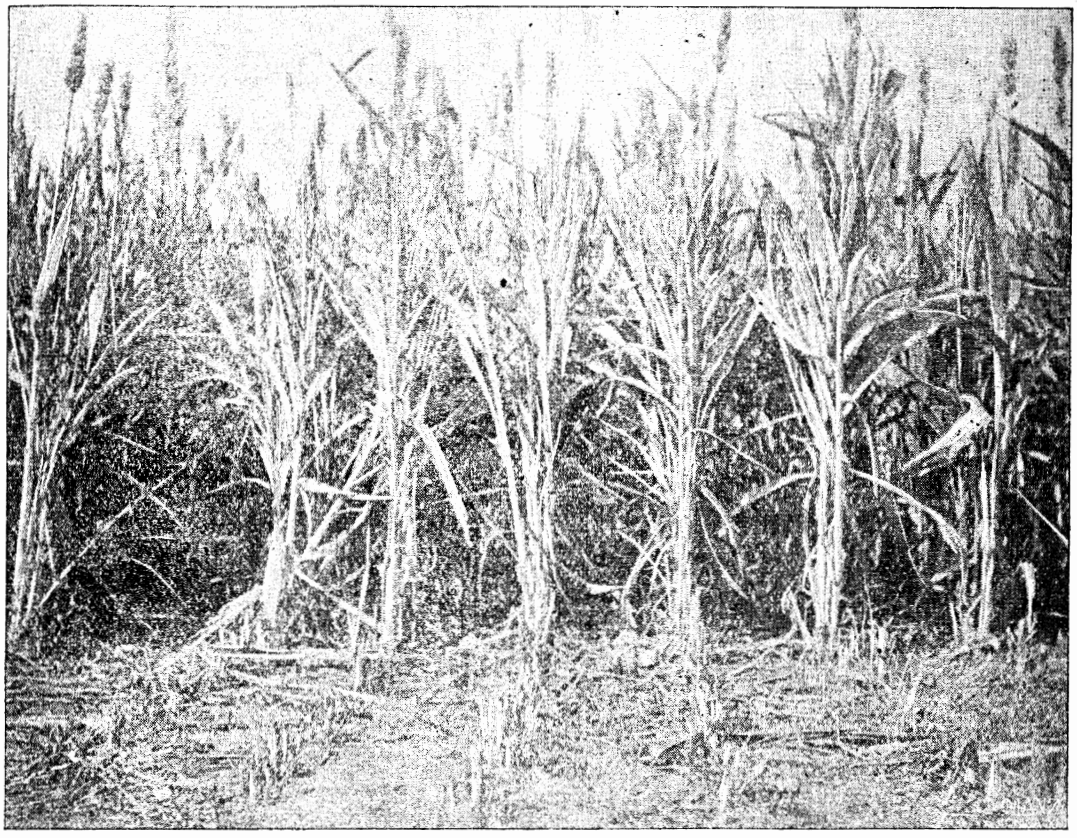
The largest yields of seed were from plats where the seed had been drilled in rows. The largest yield from one plat was at the rate of 53.3 bu. per acre. On this plat the stalks were three inches apart in rows three feet apart. The average yield of the plats drilled in rows 30 inches apart was 29.1 bu.; from plats with rows 36 inches apart, 34.5 bu., and from plats with rows 44 inches apart, 26.9 bu. The average yield from plats with hills where the rows were 30 inches apart was 26.9 bu.; where the rows were 36 inches apart, 36 bu., and where they were 44 inches apart, 25.4 bu.

In general the largest yields of stover—the stalks and leaves after the seed had been removed—were from the plats with the greatest number of stalks. Four plats gave more than 11,000 pounds each of well-dried stover, and ten others gave well over 9,000 pounds each. Where the planting was in hills, even if more plants grew than would be desirable with corn

designed for grain chiefly, the yields of both seed and stover were relatively small.

KAFIR AND SORGHUM AS "FODDER CROPS."

Ten plats were seeded with sorghum and different varieties of Kafir, using a press drill. The sorghum was of an unnamed variety, the seed being obtained of a neighboring farmer who knew it only as sorghum or "cane." The drill rows were six inches apart and the drill set to sow approximately from one-half to one bushel per acre for different plats. Three plats of



White Kafir Corn, Drills One Foot Apart.

sorghum gave an average yield of 13,447 lbs. per acre of well-dried fodder, two plats giving over seven tons per acre each. Three plats of red Kafir gave an average yield of 7,980 lbs. per acre, the largest yield being 9,220 lbs. Three plats of black-hulled white Kafir gave an average yield of 8,758 lbs., the largest yield being 9,475 lbs. One plat sown with a mixture of sorghum and Kafir gave 11,833 lbs.

Drilled in rows three feet apart one plat of red Kafir gave 4,600 lbs., and one of black-hulled white Kafir 6,450 lbs., showing a marked superiority for the close-drilled.

In the experiment as to thickness of planting or drilling Kafir, forty-nine plats, drilled at varying rates, gave total average yield of 9,319 lbs., of which 1,657 lbs. were of grain, while eleven plats check-rowed with hills from 30 to 44 inches apart gave average yield of 6,064 lbs., of which 1,255 lbs. were grain.

CORN—THICKNESS OF PLANTING.

An experiment to help determine the proper thickness in planting corn on creek bottom land was tried on the farm of Capt. W. H. Adams. This land is about one-half mile south of the Station farm, and near Stillwater creek. It is of good natural fertility. It had produced a crop of corn each year since 1890, without receiving any manure. The land was plowed April 15 and the corn planted April 17. The land was not in the best condition at the time. Soon after the corn was planted nearly all the tract was flooded by the overflow of the creek. In some places the corn did not come up well. The corn on all the plats was thinned by hand. The land was twice cultivated with a spring tooth cultivator and was hand hoed once.

The corn used was a good variety of white dent which has been grown by Mr. Adams for several years, he having brought seed from Southern Kansas. The corn began to tassel about July 1; the ears were well glazed August 8 and well matured August 18. One-twentieth of an acre on each plat was cut and put in shock. The stand was somewhat better on this part than on the other. The corn was husked October 4 and the fodder and the ear corn weighed. The moisture in the corn was determined. This varied from 10.1 to 13.8 per cent. The largest per cent. of moisture was in the plats with smallest number of stalks. The rows were 3 ft. 8 in. apart. The smallest yield of corn, a trifle less than 46 bu., was from plat where there was one stalk each six inches; the largest, 63.5 bu., from plat where there were two stalks each 30 inches; the next largest, 62 bu., from that with one stalk each 18 inches. The average yield from the ten plats was at the rate of 56 bu. per acre.

The yield of stalks and leaves varied much—the largest yield, a trifle over three tons to the acre, being from the thickest

planting. A full stand was not secured and there were many stalks without ears. The average weight per ear increased from the thickest to thinnest planting, the larger ears averaging about six-tenths of a pound each. Table No. 2 gives details.

Table 2.—Thickness of Planting Corn.

PLAT	THICKNESS		YIELD PER ACRE		Ears per Acre	Weight of 100 Ears lbs.
	Stalks	Distance inches	Corn bu.	Stover lbs.		
Plat 1	1	6	45.9	6020	9900	31.3
Plat 2	1	9	51.9	4290	8060	43.5
Plat 3	1	12	58.7	3700	7720	52.0
Plat 4	1	15	59.5	3910	7380	55.3
Plat 5	1	18	62.1	4060	6940	61.0
Plat 6	2	44	49.6	3890	5500	63.5
Plat 7	3	44	56.1	2680	6660	58.3
Plat 8	4	44	56.9	3260	7360	53.0
Plat 9	2	36	56.1	3560	6420	60.5
Plat 10	2	30	62.5	3900	7240	60.1

Forty plats were planted on upland prairie soil to compare results of planting at different thicknesses. The corn made a fine growth, although a full stand was not obtained on several plats. Dry weather, high temperature and hot winds, especially on one day in July, much affected the corn. No well-developed ears were produced. None of the corn was husked. The stalks were cut, placed in shocks and, when well dried, the fodder was weighed. The largest yields were from the thickest planting, the highest yield being at rate of a trifle over four tons per acre; five other plats giving well over three tons per acre each. The smallest yield was 2,640 lbs. per acre. Many "suckers" were produced on the plats where the corn was thinnest.

In 1896 in an experiment of like character on the same tract creditable yields of grain were secured; the largest where the stalks stood one each eight or nine inches in rows three feet apart, with the largest yield of stover where the stalks were one each six inches.

On the bottom land in 1897 the best yields of grain were from planting so the stalks stood at rate of one for each 15 or 18 inches in rows 3 ft. 8 in. apart.

CORN—TEST OF VARIETIES.

Forty-four plats were planted to test varieties of corn.

While the corn made good growth in the early part of the season, unfavorable conditions later so much reduced the yields that it was not thought desirable to make detailed report, especially as different varieties seemed unequally affected. Nine plats of Adams' white dent, used as a check variety, gave an average yield of 4,690 lbs. of fodder per acre. Some of the earlier varieties were prematurely matured and were cut July 31. Most of the corn was cut from August 10 to August 16.

In comparison with the results of the experiments with Kafir corn, these corn tests are very suggestive. They indicate the relative uncertainty of corn on upland prairie land in a season in which there is drouth or hot winds at a critical time in the growth of the crop. Where not 10 bushels of good corn per acre were produced, a considerable number of plats of Kafir in the same field produced from 40 to 53 bu. per acre.

On the other hand, the value of good creek bottom land for corn was well shown. An average yield at the rate of 56 bu. per acre is very creditable. Mr. Adams states that he has never had a crop on this bottom land yielding less than 50 bu. per acre where a fair stand was secured.

RATE OF GROWTH OF CORN AND KAFIR.

A large number of measurements were made during the season, as was done in 1896, to ascertain the rate of growth of corn and Kafir. Ten stalks on each of a number of plats were measured daily and the averages taken.

Corn planted March 27 grew at the rate of 1.35 in. per day from May 24 to June 7, when the plants were from two to four feet high. From June 7 to June 22 it grew at rate of three inches per day, reaching height of seven feet. For five days the average growth was 3.77 inches; on one day, 4.25 inches; individual stalks growing 4.5 inches. Later planted corn did not grow so rapidly nor reach so great a height.

Kafir corn grew much less rapidly than Indian corn. At best period of growth, in June, individual stalks grew 3.5 inches in one day, but there were few days in which the average growth of ten stalks was more than two inches. Kafir planted April 17 made an average daily growth of something over one inch per day from June 16 to July 1.

Kafir corn will continue to grow with so small an amount of moisture in the soil that Indian corn makes no perceptible growth. Late planted Kafir grew 10 inches higher than did the early planted, although the daily growth was less.

In 1896 individual stalks of corn grew a little over four inches in one day. During three weeks, from May 20 to June 10, the average rate of growth was about two inches per day. The greatest growth of Kafir corn in any one day was 2.5 inches. From May 18 to June 18 the daily growth was about one inch; from June 18 to June 29, about 1.5 inches. In 1896 corn grew most rapidly when there was from 16 to 20 per cent. of moisture in the soil. Kafir made growth of .75 inch per day with a little over 13 per cent. of soil moisture; 1.8 inches when the soil moisture was about 20 per cent., but temperature probably partly accounted for part of the difference.

OATS.

Nine plats were seeded to oats, all with press drill. For plats one to seven the drill was set to sow two and one-half bushels per acre; for plat eight, two, and for plat nine, three bushels per acre. The seed was from the crop grown on the farm in 1896, an unfavorable season, and all the oats were light in weight. The oats were sown March 6–8. Plants appeared March 17 to 20. Most of the plats

Table 3—Yield of Oats, 1897.

Plat No.	VARIETY	YIELD PER ACRE		Wt. per bu.	Lbs. straw per 100 lb. grain
		Bu. gr'n	Lb. str'w		
1	Texas Red	46.9	2606	31	173
2	Black Russian	33.2	2418	27	228
3	Negro Wonder	44.4	2838	30	200
4	Texas Red	60.9	2553	31	131
5	Lincoln	37.2	2889	29	243
6	Negro Wonder	42.6	2448	30	180
7	Lincoln	26.5	2867	29	342
8	Texas Red	45.3	2169	31	149
9	Texas Red	44.6	2097	31	147

were fully headed June 2. Plats eight and nine were cut June 24, all the others except No. 2, Black Russian, on June 28. The Black Russian was cut July 2. All were threshed July 6.

The table gives yields. Plat No. 1 was on land in oats each year for five years. Plat No. 4 adjoined this. Plats eight and

nine were not so favorably situated as the others. Little difference in the yield consequent on difference in rate of seeding was shown.

In 1897, as in 1896, the varieties gave yields in the following order: 1, Texas Red; 2, Negro Wonder; 3, Lincoln; 4, Black Russian.

COTTON—TEST OF VARIETIES.

Six varieties were planted on ten plats. Plats 34, 36, 37 were on higher land than the others. Plats 15 to 19 were planted April 20; plat 20, April 21; plats 34, 36, 37, April 27. Plat 26 was not planted until May 3, as the seed was not received until that date. All plats were planted in rows 3 ft. 6 in. apart. Because of excessive rains an unsatisfactory stand was secured. All of the plats were given five cultivations, shallow, from May 22 to July 29. No hand hoeing was done except at time of "chopping out." The first pickings were from Sept. 13 to 20, except on plats 18 and 19, planted to Egyptian varieties imported by the U. S. Department of Agriculture. These varieties were so late in ripening as to be valueless for this region.

Table No. 4 gives yields and percentage of lint to seed cotton. Considering the unfavorable weather after planting, causing an uneven stand, the yields may be considered satisfactory for upland soil, and the percentage of lint to seed cotton, from 31 to 34, is satisfactory. In this test the Southern Hope gave largest yield, with Storm Proof ranking second. In other trials the best yields were by King Improved. This variety, as well as the Peterkin and others, were included in the variety test, but the soil was so washed that it is not thought proper to include them in table.

COTTON—TIME OF PLANTING.

The plans for this experiment were disarranged by unfavorable weather, making it impossible to plant at regular intervals. The results were also affected by unequal stand, heavy rain having washed the seed more on some plats than on others. A steady decrease in yield was shown from first to last planting. From planting April 12, a yield of 363 lbs.; from planting May 3, 271 lbs.; from planting May 18. 235 lbs. lint per acre was secured. A plat was planted May 3 on ridged land. It gave little more than half as large a yield as the adjoining plat planted without ridging.

COTTON—THICKNESS OF PLANTING.

Eighteen plats were planted, in sets of duplicates to test effects of planting cotton at different distances between the rows, and thinned so the plants were at different distances in the rows. On account of unfavorable weather the first planting gave so unsatisfactory a stand that the land was again cultivated and the plats replanted May 17—later than is desirable. All the plats were cultivated five times, with shallow working cultivators. The first picking was on Sept. 27, the last November 25. The table gives details of results:

Table 4.—Cotton—Varieties—Thickness of Planting.

VARIETY	Width of rows	Stalks—in	Yield per acre, seed cotton, lb	Lint cotton, lb.	Per cent. lint
Local	4	15	961	290	31.1
Local	4	12	930	289	31.1
Local	4	9	921	286	31.1
Local	3 5	18	997	310	31.1
King Improved	3.5	12	911	318	34.9
King Improved	3.5	9	946	330	34.9
King Improved	3	18	1009	352	34.9
King Improved	3	12	1133	395	34.9
King Improved	3	9	973	339	34.9
Local	4	15	943	293	31.1
Local	4	12	983	306	31.1
Local	4	9	997	310	31.1
Local	3.5	18	875	272	31.1
Southern Hope	3.5	12	750	251	33.5
Southern Hope	3.5	9	789	264	33.5
Southern Hope	3	18	896	300	33.5
Southern Hope	3	12	825	276	33.5
Southern Hope	3	9	813	272	33.5

Three varieties were used. Definite conclusions cannot be drawn, but the general lesson is that, like many other plants, cotton adapts itself to varying conditions quite readily. Thinner planting gives room for larger growth and, within reasonable limits, yield is not materially affected by number of plants. It is believed that uniformity of the stand is more important than distance apart of the rows or of the plants in the rows, within reasonable limits. The habit of growth of different varieties should be considered.

CASTOR BEANS.

In trials of castor beans planted at different dates, the largest yield, 12.9 bu. per acre, was from earliest planting, April 13, but there was not great difference between this and later plantings. Planting April 21 gave yield of 11.8 bu.; May 3, 10.7 bu.; May 19, 10.4 bu. per acre. The first picking from

the earlier planted plats was on July 21; that from the latest planting, August 17. In each case the rows were 3 ft. 6 in. apart, with stalks thinned to one each 15 inches.

To test effects of planting at different distances 18 plats were planted April 19–20. The first bloom was observed June 20; first picking, July 28; last, November 8. Each plat was cultivated four times, from May 22 to July 12. Duplicate plats were planted, the average yield of each pair being given in the table:

Table 5.—Castor Beans—Thickness of Planting.

DISTANCE	Stalks, in.	Yield, bu.
Rows 4 feet apart	15	11
Rows 4 feet apart	12	10.4
Rows 4 feet apart	9	9.1
Rows 3.5 feet apart	18	9.4
Rows 3.5 feet apart	12	9
Rows 3.5 feet apart	9	8.4
Rows 3 feet apart	18	9
Rows 3 feet apart	12	8.2
Rows 3 feet apart	9	8.4

The largest average yield was from the plats planted in rows four feet apart; the largest from any pair of plats was where the rows were four feet and the stalks 15 inches apart.

ANALYSES OF SUGAR BEETS GROWN IN 1897.

Table 6

NAME	COUNTY	Per ct. solids in juice	Per ct. sugar in juice	Coefficient of purity
C. W. Barnes	Canadian	17.5	9.3	53.1
D. W. Jones	Canadian	19.6	13.0	66.3
J. A. Foreman	Canadian	16.1	10.1	62.7
L. Faubion	Cleveland	17.5	13.0	74.3
R. K. Ogden	Custer	20.4	13.9	68.1
L. Billings	Garfield	18.7	12.6	67.3
J. W. Scott	Lincoln	14.8	10.8	73.0
J. W. Scott	Lincoln	18.7	10.8	57.7
A. Williamson	Lincoln	17.0	13.9	81.8
C. Mears	Lincoln	16.8	10.1	60.1
I. W. Gray	Logan	14.0	9.6	68.6
E. Eaton	Logan	16.0	9.3	58.1
R. Kleiner	Oklahoma	17.8	14.0	78.6
C. W. Goodman	Pawnee	17.8	12.2	68.5
N. Neilson	Payne	24.4	17.7	72.5
N. Neilson	Payne	21.9	11.9	54.3
J. K. Hastings	Payne	18.2	11.8	64.3
G. W. Stockton	Pottaawtomie	20.9	12.8	61.2
Small beets, Experiment Station farm	Payne	18.7	11.8	63.1
Large beets, Experiment Station farm	Payne	16.1	8.4	52.1

Beets to be of value for sugar making should contain at least 12 per cent. of sugar in the juice, which should have a coefficient of purity of 80. Stated in another way, the juice of the beets should contain 15 per cent. or more of solids, 80 per cent. of which is sugar. A high content of sugar is desirable, but high purity is essential, as the impurities present prevent about an equal weight of sugar from crystalizing and render the manufacturing process more difficult. An examination of the above table will show the extent to which the beets examined agree with the standard for sugar making.

STOCK OR "PIE" MELONS.

With a not satisfactory stand, a small plat of the green-seeded stock or "pie" melon produced at the rate of 15,200 lbs. per acre. Much larger yields are usually secured with little attention. With some objections this melon is believed worthy of cultivation.

GRASSES AND CLOVERS.

Sixty-eight varieties of grasses, clovers and other forage plants were planted March 27. Fairly satisfactory germination was secured from about a dozen plats. Among the varieties which proved most successful may be named: Side-oats grass *(Bouteloua)*, Canary grass *(Phalaris caroliana)*, Andropogan *(richardsoni* and *tenerium)*. The grass usually called "big blue stem" belongs to the Andropogan genus.

Bromus adoensis made good growth and matured early. Bermuda grass is not killed by the winters, spreads readily, makes a compact sod, produces a fair quantity of pasturage or hay of medium quality. The leaves and stalks are killed by the first sharp frost.

Orchard grass and Hungarian brome grass have done moderately well.

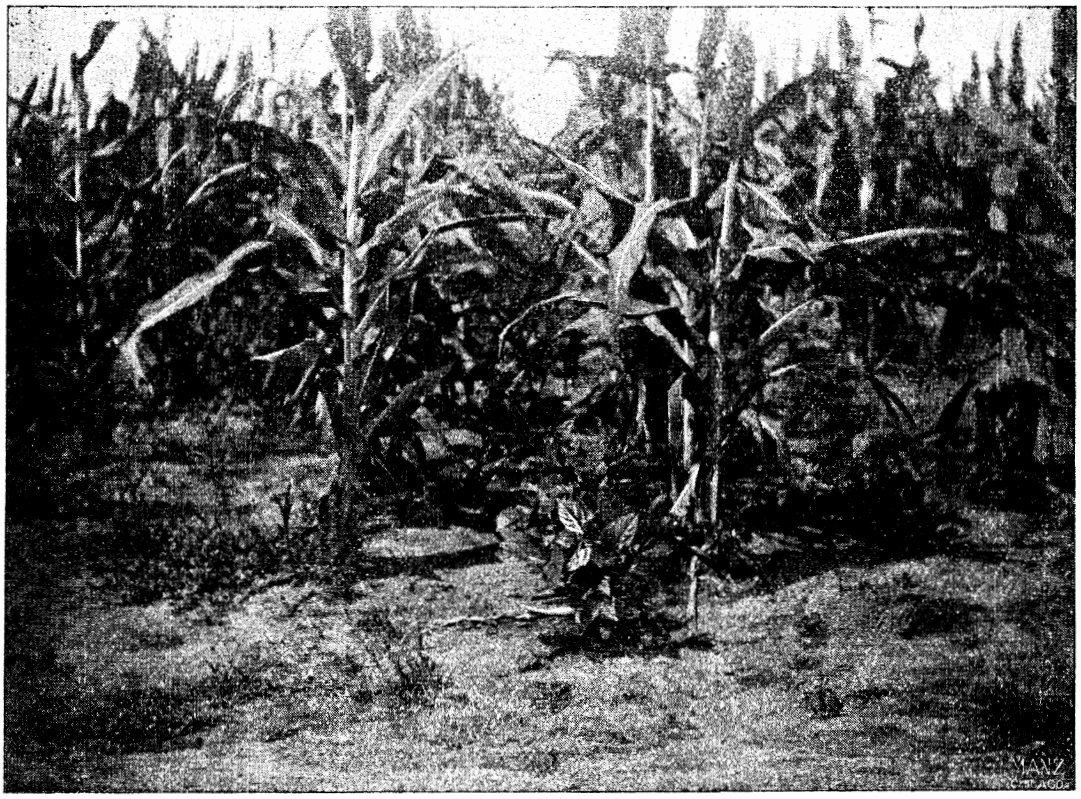
In two or three cases satisfactory results have been secured with timothy and red clover; in a larger number of trials they have failed. White clover has done well in a number of trials.

The Australian salt bush has done remarkably well in many trials on alkali lands in California. At this Station difficulty has been found in getting the seed to grow, and the plants have made a relatively small growth.

Rape did moderately well in trials in 1897, but did not make nearly so vigorous growth as it does in many more northern latitudes.

ALFALFA.

An acre of alfalfa gave 6,055 lbs., or a trifle over three tons of well dried hay at three cuttings, the first cutting, May 19, giving one and one-half tons; the second, June 23, within a few pounds of 2,600 lbs. Alfalfa sown in early part of August, with



White Kafir, Rows Three Feet; Cow Peas Between.

good rain following, did well. One failure in securing a stand was made from sowing in spring of 1896, with two moderate successes. On plats sown in spring of 1897 a fair stand was secured. The difficulty in securing a good stand is the only serious objection to a much more extensive use of alfalfa in Oklahoma.

COW PEAS AND SOY BEANS.

A medium early variety of cow peas, planted May 29, in

drills 30 inches apart, gave 4,230 lbs. well cured hay in September, a considerable portion of the coarser stems being left on the ground, as the cutter-bar of the mowing machine ran over them without cutting. Cow peas drilled between the rows of standing corn or Kafir made only moderate growth until the corn and Kafir were cut, after which they made a good growth. In 1896 different varieties of cow peas gave from 2,000 to 5,750 lbs. well dried hay. In general larger yields were secured where the peas were drilled than where they were sown broadcast.

Each year the hay was readily eaten by cattle; hogs also eating it readily, of course leaving the stems.

Soy beans drilled in rows 15 inches apart gave 611 lbs. seed per acre; in drills 30 inches apart the yield was only 218 lbs. per acre. In 1896 the yield was at rate of 264 lbs. per acre.

Neither in yield of beans nor in growth of stalks have the Soy beans done as well at the Station as reported from other Stations further north.

Among the less promising forage crops tried at the Station may be mentioned vetch and rape. VETCH *(Vicia villosa)* belongs to the pea family. It has a small blue flower and delicate stems that lie close to the ground, making the crop difficult to harvest. This could be overcome by planting with another crop such as corn or Kafir corn. It may be planted in the spring or late summer and will remain green through the winter. The crop gave fair yields on a small plat at the Experiment Station. Although it deserves further trial, it cannot as yet be recommended for a general crop.

Rape is a plant closely allied to the turnip. The Dwarf Essex variety should always be used in planting for a forage crop. It does well in northern latitudes, but in our Territory it is not so promising. It is attacked by insects and injured by hot weather. If tried, the area should be small.

CHUFA belongs to the sedge family and produces a small tuberous root which has been recommended as a hog food. The yield at the Station last season was so small that it is hardly thought worthy of further trial.

Under the direction of the Horticultural Department of this Station some experiments have been carried out with pea-nuts,

yams and sweet potatoes. Very fair yields were obtained, but the expense of digging the pea-nuts and preparing them for market was rather large. It is quite probable that these crops can all be made profitable by allowing hogs to harvest them.

The Idaho Coffee, or field pea, did not give favorable results at the Station.

The Station cautions farmers of the Territory against accepting the extravagant claims frequently made for new or claimed to be new varieties of grains, grasses, cotton, etc. Sometimes the statements are true, but the remarkable yields reputed were secured under exceptional circumstances and similar results are not to be expected in ordinary practice.

A claimed new variety of cotton sold at very high prices from Atlanta, Georgia, is pronounced identical with a well-known variety by the Experiment Station of that State. Most remarkable claims are made for a variety of corn sold from Indiana—claims far beyond what has been found true of any other variety. An advertisement is now appearing in many papers of oats yielding 231, barley 173 and potatoes 1,600 bushels per acre. If purchasers of these seeds at high prices secure one-fourth as large yields they may congratulate themselves.

There can be no objection to farmers making tests of new varieties if they so desire, but the Station can better afford to pay high prices than can individual farmers, when there is good reason to expect disappointment in many cases. Trials on a large scale of any untried plants or varietes are not wise.

The Station authorities repeat their request that information of presumably valuable varieties of grains, grasses, fruits, etc., known to be growing in Oklahoma but not widely distributed should be sent them.

The Experiment Station has not a supply of seeds, plants, etc., for general free distribution. The United States government makes large distribution of free seeds, chiefly through members of Congress. Applications should be addressed to the Territorial Delegate for Oklahoma, at Washington, D. C.

In some cases the Station is able to arrange for co-operative experiments, with a few persons in different parts of the Territory, but only on condition that the results will be fully reported to the Station.