BULLETIN NO. 4.

OCTOBER, 1892.

OKLAHOMA AGRICULTURAL EXPERIMENT STATION.

STILLWATER, OKLAHOMA.

TEST OF VARIETIES.

OATS, CORN, SPRING WHEAT, IRISH AND SWEET POTATOES.

"He who causes two blades of grass to grow where there grew but one is his country's benefactor."—Anon,

All bulletins of the Station are sent regularly, free of charge, to citizens of this Territory who apply for them.

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BULLETIN NO. 4.

TEST OF VARIETIES,

OATS. CORN, AND SPRING WHEAT.

BY A. C. MAGRUDER.

The work of testing different varieties of oats, corn, and spring wheat was undertaken with a view to finding out those kinds best suited to our climate and soil.

OATS.

Ten varieties of oats were tested on one-fifth acre plats, with the following general results :

1.	Archangel,.....	21.87	bushels	per acre.
2.	Clydesdale,.....	27.51	"	" "
3.	Golden Giant,.....	36.35	"	" "
4.	Hopetown,.....	26.54	"	" "
5.	Improved Welcome,.....	35.47	"	" "
6.	Probsteier,.....	32.91	"	" "
7.	Race Horse.....	33.95	"	" "
8.	Black Tartarian, ...	24.97	"	" "
9.	White Russian,.....	37.29	"	" "
10.	Bonanza.....	27.45	"	" "

It may be said by way of explaining the general low yield of oats, and, in fact all the crops grown this year on the farm, that 1st, the soil is not considered so good as the average land of this section of the territory. 2nd, the treatment which the oat land had received prior to our taking charge, was very imperfect. Part of the land, was broken in June '90, part in June '91, and all planted in corn in '92. The crop was gathered the following fall and soon after we took posession of the land as a part of the College Farm.

No fertilizers either commercial or home-made, were used. It is our object to get at the natural value or strength

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of the soil that we may compare present yields with those of the future when barn-yard and green manuring will have been practiced.

DESCRIPTION OF VARIETIES.

No.1 ARCHANGEL. Planted March 11. Stand, good. Average number of stalks to one square foot (six counts), 39. Average number of smutty heads to one square foot (six counts), 4. Per cent of smutty heads to square foot, 10.25. Height of stalk, 3 feet. Headed June 4th. Ripe June 29th. Yield of grain per acre, 21.87 bushels. Number of pounds of straw per acre———. Pounds of grain to bushel 37.5. Loss per acre from smut 2.49 bushels. Test per cent 58.5. Character of the grain small, medium plump. Color, white.

No. 2. CLYDESDALE. Planted March 11th. Stand fair. Average number of stalks to one square foot (six counts), 36. Average number of smutty heads to one sqnare foot (6 counts), 0. Per cent. of smutty heads to square foot, 0. Height of stalk 3 ft. 6in. Headed June the 8th. Ripe June 24th. Yield of grain per acre, 27.51 bushels. Number of pounds of straw per acre, 1,500. Pounds of grain to bushel 34. Loss per acre from smut, 0 bushels. Test per cent, 53. Character of the grain, large and plump: Color white.

No. 3 GOLDEN GIANT. Planted March 11. Stand, very good. Average number of stalks to the square foot (six counts), 40. Average number of smutty heads to one square foot (six counts), 0. Per cent of smutty heads to square foot, 0. Height of stalk, 3 feet. Headed, June 6th. Ripe, July 9th. Yield of grain per acre, 36.35 bushels. Number of pounds of straw per acre, 1792. Pounds of grain to bushel, 31.5. Loss per acre from smut, 0 bushels. Test per cent, 49. Character

of the grain coarse, medium and plump. Color, golden yellow.

No. 4. HOPETOWN. Planted March 11th. Stand, good. Average number of stalks to one square foot (six counts), 35 Average number of smutty heads to one square foot (six counts), 0. Per cent. of smutty heads to one square foot, 0. Height of stalk 2 ft 6 in. Headed, June 6th. Ripe, July 9th. Yield of grain per acre, 26.54 bushels. Number of pounds of straw per acre, 1714. Pounds of grain to bushel 33. Loss per acre from smut, 0 bushels. Test per cent., 51.5. Character of grain small. Color, white.

No. 5. IMPROVED WELCOME. Planted March 11th. Stand, very fair. Average number of stalks to one square foo (six counts), 40. Average number of smutty heads to one square foot (six counts),4. Percent of smutty heads too one square foot 10. Height of stalk, 3ft. 4in. Headed, June. 6th Ripe, July 6th. Yield of grain per acre, 35.47 bushels. Number of pounds of straw per acre, 1,300. Pounds of grain to bushel, 33. Loss per acre from smut, 3.9 bushels. Test per cent,, 51.5. Character of grain, large and plump. Color white.

No. 6. PROBSTEIER. Planted March 11th. Stand, good. Average number of stalks to one square foot (six counts), 36t Average number of smutty heads to one square foot (six counts), 0. Per cent. of smutty heads to one square foot, 0. Height of stalk, 3 ft 10 in. Headed June 6th. Ripe July 9th. Yield of grain per acre 32.91 bushels. Number of pounds of straw per acre 1460. Pounds of grain to bushel 36. Loss per acre from smut, 0 bushels. Test per cent 56. Character of the grain large, and plump. Color white.

No. 7. RACE HORSE. Planted March 11th. Stand, good. Average number of stalks to one square foot (six counts), 34. Average number of smutty heads to square foot, (six

counts) 0. Per cent of smutty heads to one square foot. Height of stalk, 3 ft. 4 in. Headed, May 6. Ripe, June 28. Yield of grain per acre, 33.95 bushels. Number of pounds of straw per acre, 1460. Pounds of grain to bushel, 36. Lost per acre from smut, 0 bushels. Test per cent., 56. Character of grain very long, large, plump. Color white.

No. 8. BLACK TARTARIAN. Planted March the 11th. Stand, poor. Average number of stalks to one square foot (six counts), 20. Average number of smutty heads to one square foot (six counts), 0. Per cent of smutty heads to one quare foot, 0. Height of stalk, 3ft. Headed June 12th. Ripe, July 15th. Yield of grain per acre, 24.97 bushels. Number of pounds of straw per acre, 1340. Pounds of grain to bushel, 25.5. Loss per acre from smut, 0 bushels. Test per cent, 40. Character of the grain long, slim, medium, plump. Col or black.

No. 9. WHITE RUSSIAN. Planted March 11th. Stand, good. Average number of stalks to one square foot (six counts) 40. Average number of smutty heads to one square foot (six counts.) 0. Per cent of smutty heads to one square foot 0. Height of stalk, 3ft. 4in. Headed June 6th. Ripe July 9th. Yield of grain per acre, 37.29 bushels. Number of pounds of straw per acre 1730. Pounds of grain to bushel 33. Loss per acre from smut, 0 bushels. Test per cent 51.5 Character of the grain long, and very plump. Color white.

No. 10. BONANZA. Planted March 11th. Stand, fair. Average number of stalks to one square foot (six counts) 34. Average number of smutty heads to one square foot (six counts) 5. Per cent of smutty heads to one square foot 14.7. Height of stalk 3ft. 2in. Headed June 3rd. Ripe June 28th. Yield of grain per acre 27.45 bushels. Number of pounds of straw per acre, 1,425. Pounds of grain to bushel, 37.5.

Loss per acre from smut, 4.7 bushels. Test per cent 58.5. Character of grain long and very plump. Color, white.

REMARKS.

The great loss occurring from the quantity of smut in some of the test plats of oats, amounting in one instance to over four and one-half bushels, to the acre, demands attention that the evil may be remedied.

If we can introduce a variety of wheat or oats which yields one bushel more to the acre than the one we now have, we will have done more good thereby than the equivalent of usual legislative appropriation for a series of years. If we can save the farmers only one bushel per acre, by preventing a decrease of the present yield we have rendered here equally as much assistance.

SMUT ON OATS.

The smut of oats is a fungous growth living upon the head of the oats and is transmitted to a crop through the seed.

A cheap method, involving little money and time, may be employed to rid the seed oats of smut. It is known as the Hot Water Treatment or "Jensen Method" it having been first published by Mr. Jensen of Denmark.

The process consists in placing the seed oats in water at a temperature of 135 degrees Fah. and allowing it to remain there fifteen minutes.

CAUTIONS.

1. Have the water *exactly* 135 degrees Fah. Do not let

it be warmer or the vitality of the seed will be injured.

2. Put the seed in a sack or basket, and let it remain in the water not less than 13 nor longer than 15 minutes.

3. See that the water is as hot when the seed is removed as when it was put in.

4. As soon as the seed is removed from the bath, dip it in cold water to cool, then spread out to dry.

THINGS NECESSARY.

A good Fahrenheit thermometer,

A bushel basket or sack,

A vessel for the hot water.

CORN.

Forty-four kinds of corn were planted for a variety test on 1-5 acre plats. Other more important work kept the seeding back until late. Very few varieties matured fully, and all were more or less attacked by the boll worm; so no accurate or beneficial results were obtained.

Experiments were arranged to compare results from the different ways of planting, viz: with lister, with drill, and with hand planter, and also to ascertain whether one, two, or three stalks should be left to grow in the hill, but neither experiment could be carried out, owing to the fact that the corn never matured, having been put in too late.

Beginning in time next spring, these two experiments will be tested thoroughly during a series of years until some accurate results are reached.

One fact developed itself in the tests, viz: southern grown seed madebetter returns from the late planting, than did seed

from the North but this cannot be relied on. One year's test can not settle a question of this character.

SPRING WHEAT.

Three varieties of Spring Wheat were tested with the following results,

SASKATCHEWAN. Number of bushels of wheat to acre, 6.1 Number of pounds to bushel, 54. Number of pounds of straw to acre, 1207. Test per cent, 84.5.

BLUE-STEM-VELVET-CHAFF. Number of bushels to acre, 7.7. Pounds of straw to acre, 1450. Pounds of wheat to bushel, 53. Test per cent,. 83.

WELLMAN. Number of bushel per acre, 8.2. Test per cent, 84.5. Pounds of straw per acre, 1635. Pounds to bushel, 54.

The wheat was planted March 12th, and grew well until attacked by the chinch bug in June. The grains never filled.

Experiments in this line will be carried on for a few years to determine accurately whether spring wheat will pay in this territory.

This is an important point to know, when planting can not be done at the usual time owing to a wet fall.

SWEET POTATOES.

NOTES BY DR. J. C. NEAL, DIRECTOR.

In a small way an experiment with 15 varieties of sweet-potatoes was tried, but the results given below may be taken only as slight indication of the comparative yield, as well as the unsuitability of the stiff clay soil of the Station farm for

this valuable plant.

Slips were set from May 11 to 15, in rows 4 feet apart and 2 feet between plants. They were hilled up twice, and dug October 24.

Black Spanish	86.3	Bushels	to	the	acre.
Creole	126.3	"	"	"	"
Dog River	83.8	"	"	"	"
Early Golden	201.5	"	"	"	"
Florida Yam	136	"	"	"	"
Georgia "	65.2	"	"	"	"
Hayman	133.9	"	"	"	"
New Jersey	128.5	"	"	"	"
Norton	145.7	"	"	"	"
Padishah	180.7	"	"	"	"
Peabody	193.6	"	"	"	"
Providence	156.8	"	"	"	"
Queen of the South	176.4	"	"	"	"
Red Nansemond	139.3	"	"	"	"
Yellow "	107.4	"	"	"	"

IRISH POTATOES.

Very little was done with this crop, but a small area was planted with small whole potatoes, another with halved small potatoes, and another area with "eyes." All were planted and all listed alike, with results as follows:

Whole potatoes produced	163.3	weighed	bus.	per	acre
Half potatoes "	92.5	"	"	"	"
Eyes potatoes "	155.2	"	"	"	"

A large percentage of the crop from the eyes were too small to be merchantable. The best results were obtained from the area planted with whole potatoes.

NOTE.

Farmers' Bulletin No. 5 on Following Pages.

EXPLANATION OF CUT.

U. S. DEPARTMENT OF AGRICULTURE

FARMERS' BULLETIN NO. 5.

FIG. 1. Shows a large, Smutty head of oats, the husks of which are only partly destroyed by smut.

FIG. 2. A fully smutted head.

FIG. 3. A smutted head at harvest time.

FIG. 4. A head of bearded wheat with smut.

FIG. 5. A head of beardless wheat with smut.

Fig. 1.

Fig. 2.

Fig. 3.

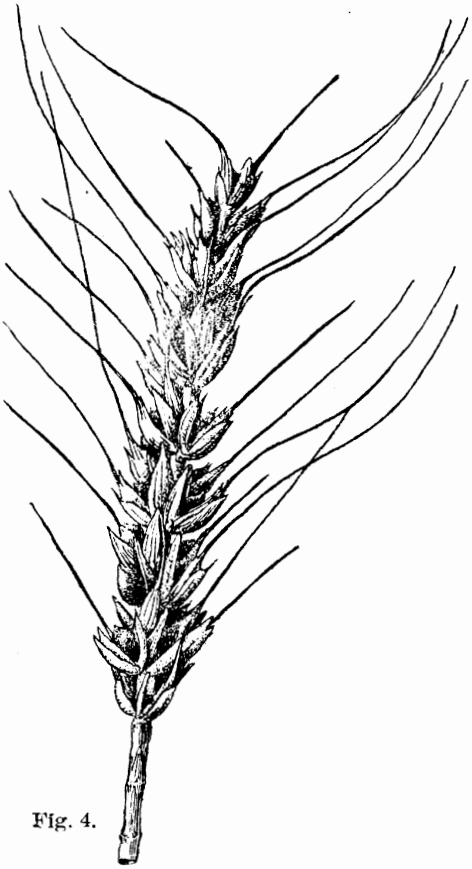

Fig. 4.

Fig. 5.