
CANE BRAKE

Agricultural Experiment Station,

UNIONTOWN, - - ALABAMA.

Bulletin No. 13, - December, 1891

CORN.

BY W. H. NEWMAN.

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CANEBRAKE
AGRICULTURAL EXPERIMENT STATION,
UNIONTOWN, - - ALABAMA.

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EXPERIMENTS WITH CORN.

MANURES AND DRAINAGE.

PLANTED MARCH 30TH—HARVESTED OCTOBER 6, 1891.

(a). *Acre No. 1, Drained Land.*—Three tons of stable manure and one ton of green cotton seed, applied in furrow and bedded on in January. Yield, $34\frac{1}{2}$ bushels.

(a). *Acre No. 1, Undrained Land.*—Manured as acre No. 1, drained land. Yield, $23\frac{1}{2}$ bushels.

(b). *Acre No. 2, Drained Land.*—No manure. Yield, $27\frac{1}{2}$ bushels.

(b). *Acre No. 2, Undrained Land.*—No manure. Yield, 20 bushels.

(c). *Acre No. 3, Drained Land.*—Four hundred pounds cotton seed meal applied in drill at time of planting. Yield, 33 bushels.

(c). *Acre No. 3, Undrained Land.*—Manured as acre No. 3, drained land, Yield, 26 bushels.

(d). *Acre No. 4, Drained Land.*—Two hundred pounds cotton seed meal applied in drill at time of planting. Yield, 25 bushels.

(d). *Acre No. 4, Undrained Land.*—Manured as acre No. 4, drained land. Yield, 18 bushels.

RECAPITULATION.

		YIELD.	
		1890.	1891.
DRAINED LAND.			
Acre No. 1	{6000 pounds stable manure	35	34½
	{2000 pounds green cotton seed		
Acre No. 2, no manure		32	27½
Acre No. 3, 400 pounds cotton seed meal		42	33
Acre No. 4, 200 pounds cotton seed meal		32	25
UNDRAINED LAND.			
Acre No. 1	{6000 pounds stable manure	32	23½
	{2000 pounds green cotton seed		
Acre No. 2, no manure		27½	20
Acre No. 3, 400 pounds cotton seed meal		33	26
Acre No. 4, 200 pounds cotton seed meal		24	18

The following is taken from bulletin No. 10, 1890, on corn:

"The object of the above experiments was to test the benefits derived from the stable manure, green cotton seed, and cotton seed meal on "black slough" bottom land.

"Where 400 pounds of cotton seed meal were applied on drained land the cost of the fertilizer was paid by the increased yield of ten bushels at 50 cents per bushel. In all of the others there was a decided loss by applying the fertilizer and stable manure. The land had been well prepared by flushing in November, 1889, and bedding in January, 1890. All the experiments with commercial fertilizers have given similar results. Cotton seed meal always gave the best results, and it was thought that the meal would pay, but the above results seem to prove that it will not. Where pea vines and melilotus were planted a decided increase was gained in the yield, at a very little cost, on land that was not considered worth cultivating five years ago. The sources of phosphoric acid and potash have also failed to give satisfactory results. Green cotton seed and the cotton seed meal have given good returns when applied to oats. Stable manure also gives returns applied to oats. We will continue to experiment with the fertilizers, and will continue the above on the same land."

Owing to the very wet weather these plots could not be fallowed. The land was prepared by opening a deep furrow in

the old water furrow and bedding the land on this furrow. The first season the stable manure and green cotton seed were applied broadcast; this season they were applied in the furrow opened in the water furrow and bedded on. The meal on the other plats was applied in drill at time of planting.

Each plat was cultivated as they were in the season of 1890, that is shallow, with Terrell heel scrape.

The yield in 1890-91 are given in the table. In this year's experiments the increased yield did not pay for the cost of the fertilizers in any of the experiments.

MELILOTUS AND PEA VINES AS SOIL RESTORERS.

	YIELD. 1890.	YIELD. 1891.
Seeded to melilotus 1888 and 1889.....	40 $\frac{1}{2}$	32 $\frac{1}{4}$
Seeded to peas 1888 and 1889	51 $\frac{3}{4}$	34 $\frac{1}{2}$

The following is taken from bulletin No. 10, 1890, on corn, and gives the notes on the preparation, planting and previous condition of the land seeded to melilotus and peas:

"In the spring of 1888, one acre was sown in melilotus and one in peas.

"The land was in a very impoverished condition, and would not produce half a crop of corn or cotton. It was at the foot of a lime rock hill where the "shelly" land blended with the "black slough" bottom. In the spring of 1889 the acre was again prepared and sown in peas.

"The melilotus is biennial, and the second season it is not necessary to stir the land until after it has re-seeded. Then if it is to be run in melilotus the third and fourth years, it is best to break the land in the fall and harrow well.

"The plots were broken in December, 1889, and bedded as early in January as possible. The melilotus land was dryer and more easily plowed than the pea vine land. The long tap roots of the melilotus descend very deep in the soil and act as drains. The roots and stalks of the melilotus rot sooner than the roots and stalks of the pea vines.

The cost of seeding the acre to melilotus was \$3.25, and the cost of seeding to peas was \$7.00 for the two seasons, or \$3.50 per season. The melilotus acre produced $40\frac{1}{2}$ bushels of corn per acre, and the pea vines $51\frac{3}{4}$ bushels—a difference of $11\frac{1}{2}$ bushels in favor of the pea vines. Considering the greater cost of seeding the land to peas the difference is very slight. A good crop of hay could have been cut each season and the profits would have been very much increased. From two to four tons of excellent hay can be cut from an acre in melilotus or pea vines, worth from eighteen dollars to thirty-six dollars. The increased yield by leaving the stalks and vines on the land will not pay for the loss of hay. Pea vines will produce better results in one year, for they make more forage the first year and cover the ground better. Melilotus makes a better growth the second year, and after it dies the land is more easily prepared. It is very easily killed by plowing, and is not hard to eradicate either the first year, or after it has reseeded itself. Before the land was sowed in melilotus and peas it was not considered worth cultivating. This season it produced as fine a crop as the best lands on the station highly fertilized.

The winter and early Spring of '91 was so wet the land could not be fallowed, and hence was prepared by running deeply the water furrow, and then bedding the land back to the water furrow. In this way no land was left unbroken, as is generatly the case in the "Canebrake," in bedding for corn and cotton. The plots were cultivated shallow, the entire season, with Terrell heel scrapes. Two hundred pounds of C. S. meal were applied in the drill at the time of planting.

The yield compares most favorably with the plots where stable manure and green cotton seed were applied, and where four hundred pounds of C. S. meal was applied. The increased yield was due to the effects of the growth of pea vines and melilotus on the land. These plots also suffered from drouth. The difference in the yield of the plots was not as great as it was the first year.

EXPERIMENT WITH CORN.

Plot.	VARIETIES.	Merchantable.	Unmerchantable.	Total.
1	Carter Corn	21 04	5.61	26 65
2	Virginia Horse Tooth	23 09	3.73	26 82
3	Welborns Conscience	19 43	6.29	25 72
4	White Gourd Seed.	20 07	6 10	26 17
5	White Prolific	22	5 90	27 90

White Gourd Seed and White Prolific were obtained from W. F. Strudwick, Demopolis, Alabama. The other varieties have been grown on the station for two years. Each variety was planted on black, slough, bottom land April 7th, and harvested October 7th. The corn suffered from drouth at the time it commenced to "make," and the yield was considerably decreased. They were cultivated shallow with a Terrell heel scrape. There was only a slight difference in the appearance of the stalk. White Prolific was smaller than the other varieties. Welborns, Carter corn, and the Virginia Horse Tooth produced the largest ears and grains. Virginia Horse Tooth has hard grain and is not attacked by the weevil to any great extent. The other varieties were badly damaged by them.

The yield of each variety per acre is given in the table. There was only a slight difference in the yield of the different varieties. Each plot was fertilized with two hundred pounds C. S. meal per acre.

CONCLUSIONS.

- (1) Drainage pays better than manuring on black slough prairie land and pays permanently and annually.
- (2) Melilotus and peas grown upon the land furnish the best and cheapest fertilizer for prairie soils.

Acre No. 5.—Undrained Land.—The following gives the preparation, planting and yield of acre No. 5 in 1890 :

This acre was bedded in four-foot rows and every alternate row planted very thick in corn, the seed being dropped from eight to fifteen inches in the drill. This made the rows eight feet apart. Peas were sowed on the other beds in May and left to fertilize the land. The next season corn will be planted where the peas grew and peas where the corn grew. In this manner the land can be improved very rapidly and at a little cost. The acre produced 32 bushels of corn. It was fertilized with 200 pounds of C. S. Meal. It was "Black Slough" bottom and the yield was better than most of the acres that were planted to four-foot rows.

In 1891 the land was prepared and planted the same as 1890.

The corn was planted where peas grew in 1890 and peas where corn grew in 1890.

The corn was planted March 30th and harvested October 7th, 1891.

There was little difference in the yield of this acre and the acres on which stable manure and green cotton seed and C. S. Meal were used. The yield was $24\frac{3}{4}$ bushels. Some seasons a good crop of peas can be picked, but generally they all go to vine.