

Test for Sugar Content of Sugar Cane Utilizing MicroSoil

Conducted in Yucatan, Mexico



This test was primarily conducted to determine whether or not MicroSoil would effect the sugar content of sugar cane. The Brix Scale and Test were used to measure the results. The soils where this test was conducted were in very poor condition, as nothing had ever been applied on them due to a lack of funds.

General Observations:

This test was very significant as it proves that:

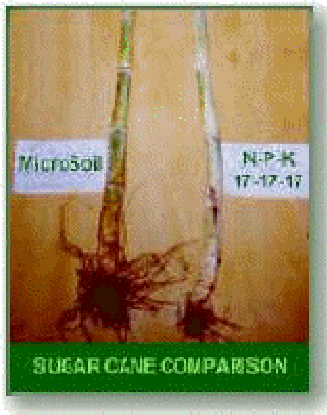
- 1. MicroSoil by itself should not be used in poor soils with low nitrogen content*
- 2. MicroSoil works extremely well with reduced amounts of chemical fertilizers*
- 3. MicroSoil was the determining factor in elevating the sugar content.*

In reference to #1 above, please note that in all our protocols we state categorically that MicroSoil needs at least 2% organic matter (i.e. 80 lbs. of nitrogen per acre or 100 kg of nitrogen per hectare) in order for MicroSoil to be effective. One half of the recommended amount of nitrogen is needed for the microorganisms to proliferate and the other half is needed by the plants in order to grow. If a soil has only one half of the recommended 2% organic matter, then the soil microorganisms will use it up before the plants have a chance to benefit from it and, therefore, the plants will suffer. This is precisely what happened when only MicroSoil was used in these extremely poor soils. On the other hand, when chemical fertilizers were used exclusively, the plants also suffered due to the lack of balance between the macronutrients and micronutrients. However, when both a reduced amount of chemical fertilizer was used along with MicroSoil, the soil was provided with the necessary nutrients and in adequate amounts causing the plants to flourish.

MicroSoil is the catalyst which enhances and balances the macronutrients and micronutrients which is the key to growing larger and healthier crops, however, MicroSoil works within certain parameters which include a pH between 5.5-7.5, a nitrogen content equivalent to 2% organic matter and adequate macronutrients and micronutrients. A recommended protocol based on the results of a simple soil analysis can greatly increase the chances of having a great harvest.

Test Results:

- A. As expected where only MicroSoil was applied in soil with very low nitrogen content, the sugar cane had to be harvested early due to weak growth.
- B. Where the Control crop was fertilized with chemicals 17-17-17, although the sugar cane was slightly taller, the stalks were thinner. (See GROSS COMPARISON diagram below)
- C. The MicroSoil crop with reduced chemical fertilizer 17-17-17, was much greener and the stalks were much thicker in size. One liter of MicroSoil was applied, along with 350 kg of 17-17-17 and 150 kg of urea. In the following photograph you will notice that the distance between nodules was greater in the control group than in those where the MicroSoil was used, but the growth is very uneven as evidenced in the last 3 nodules in which the control reaches up to 16.6 cm but then drops drastically to 6.7 cm. Those on which MicroSoil was used, maintained a balanced growth of more or less 12 cm.
- D. As shown in the tables below, the sugar content of the MicroSoil crop yielded a **2.48 degree* increase in sugar**, which calculates to an astonishing **10.69% higher sugar content**.
- E. Note the difference in the root structures as seen in the photograph. The roots of the MicroSoil plant are much larger and more fully developed.



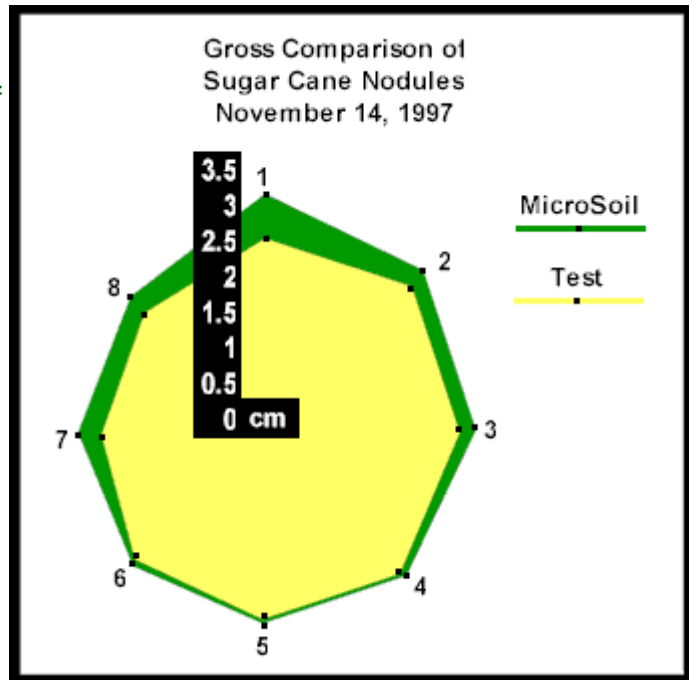
MicroSoil treated Sugar Cane is larger with better color and sugar content than normal plants

Since the purpose of the test was specifically to test the sugar content, the size (weight) of the crop yield, estimated to be 30% higher, was not accurately measured. Please refer to the [tables](#) below for detailed results.

*The Brix Scale: 1 degree on the Brix scale is the equivalent of 18 grams of sugar per liter.

The thickness between nodules is shown in the picture above. In the diagram on the right, a comparison of the largest nodule cross-sections is presented graphically.

A complete detailed comparison of the nodule sizes and the sugar content between the Control plants and the MicroSoil treated plants is presented in tabular form below.



MicroSoil results in consistently larger nodule cross-sections than normal

SUGAR CANE STUDY TABLE

FIRST STAGE: November 14, 1997 - 3 MONTHS AFTER APPLICATION OF MICROSOIL

DISTANCE BETWEEN NODULES (cm)

Nodules	1	2	3	4	5	6	7	8	TOTAL
MicroSoil	2.07	4.43	8.76	11.67	13.1	12	12.3	12.17	76.5
Control	2.55	4.4	8.65	13.05	15.35	16.6	12	6.7	79.3

Difference	-0.48	0.03	0.11	-1.38	-2.25	-4.6	0.3	5.47	-2.8
------------	-------	------	------	-------	-------	------	-----	------	------

THICKNESS BETWEEN NODULES (cm)

Nodules	1	2	3	4	5	6	7	8	TOTAL
MicroSoil	3.16	3.03	2.86	2.73	2.56	2.53	2.53	2.6	22
Control	2.6	2.8	2.65	2.65	2.5	2.45	2.2	2.3	20.15

Difference	0.56	0.23	0.21	0.08	0.06	0.08	0.33	0.3	1.85
------------	------	------	------	------	------	------	------	-----	------

SECOND STAGE: June 22, 1998 - (5 Samples) AT HARVEST

DEGREES (*BRIX SCALE)

MicroSoil	1	2	3	4	5	TOTAL	AVG
BASE	26.8	25.2	27	27	26	132	26.4
MEDIUM	26.8	23.8	26	26	25	127.6	25.52
HIGH	27	22.5	26	25	25	125.5	25.1
							77.02
TOTAL AVERAGE IN DEGREES (*BRIX SCALE)							25.67

DEGREES (*BRIX SCALE)

CONTROL	1	2	3	TOTAL	AVG
BASE	21	25.2	25	71.2	23.73
MEDIUM	21	23	25	69	23
HIGH	21.5	23	24	68.5	22.83
					69.56
TOTAL AVERAGE IN DEGREES (*BRIX SCALE)					23.19

DIFFERENCE BETWEEN TREATMENTS	(The equivalent of 10.69% increase in sugar)	2.48
--------------------------------------	--	-------------

*Brix is a scale for measuring the density or concentration of sugar in solution.