



**MINISTRY OF SUGAR**  
**NATIONAL SUGARCANE RESEARCH INSTITUTE**  
**SOUTH EASTERN TERRITORIAL**  
**SUGARCANE RESEARCH STATION**

**REPORT OF VITAZYME EFFECTS ON HARVEST YIELD ESTIMATES IN  
SUGARCANE EXTENSION TRIALS ON CAMBISOL SOILS OF SANTIAGO DE  
CUBA PROVINCE (15/12/04)**

**Description and Characteristics of the Extension Trials**

Location: Calderon Cooperative Farm, Blocks 14; 12; 75 and 8.

Sugar Enterprise (Estate): Dos Ríos

Municipality: Palma Soriano

Province: Santiago de Cuba.

Soil type: Cambisol (Eutropept).

Crop: sugarcane

Varieties: C 8612, C 87-51, C 87-51 and C1051.

Cycles: Plant cane, 1<sup>st</sup>; 2<sup>nd</sup>; 3<sup>rd</sup> ratoons, respectively.

Application date: first application July 5-12; second application August 6/ 2004.

Previous harvest date: all areas were harvested between February and April/2003.

Application technique: Shogun, 16 L capacity, backpack sprayer, with a spray volume of 300 l.ha<sup>-1</sup>, using hollow cone nozzles, and spraying in 50% (80 cm) bands to the row. Vitazyme applied at 1 l/ha.

Fertilizer dosages according to SERFE (Fertilizer Service) recommendations: 60 -80 kg N.ha<sup>-1</sup> in ratoons; no fertilizer in plant cane.

For calculation of harvest yield estimates:

- Measurements of stalk diameter and length were taken in 10 stalk samples of 4 plots per treatment.
- Stalk population counts were made in 10 meters of row per plot in 4 plots per treatment, with which variable stalks / linear meter was determined.
- All stalks in one linear meter of row per plot, in 4 plots per treatment, were harvested, counted and weighted, with which mean stalk weight was determined.
- Taking into account the row spacing of 1.6 m ( 6250 linear meters / ha), the number of stalks per linear meter and mean stalk weight, cane yields in metric tons/ha were determined.

## RESULTS

In plant cane, with 6 months age in December 2004, an important trend of increase over the control in stalk population and diameter with Vitazyme was evident.

**Plant Cane, Block 14, Field 1, variety C8612, area applied: 8.03 ha, age: 6 months, planting date: June/03.**

Variables	Control	Vitazyme 1 l/ha 1 Application	Dif. Vitazyme-Control %
Stalk length (cm)	121.85	125.9	3.35
Stalk diameter (cm)	2.54	2.82	11.02
No. stalks / linear meter	8.8	12.25	39.20

In ratoons, marked increases in stalk weight and/or stalk population, resulting in similar increases in estimated cane yields, were observed. In third ratoon, were two applications were made, a yield increase of 34 % was reached. Actual final harvest yield and sugar quality data will be collected and reported at the corresponding harvest months.

**First Ratoon, Block 12, Fields 4 and 5, variety C87-5,1 area: 12.06 ha.**

Variables	Control	Vitazyme 1 l/ha 1 Application	Dif. Vitazyme-Control %
Stalk length (cm)	2.23	2.33	4.48
Stalk diameter (cm)	189.2	201.35	6.47
No. stalks / linear meter	9.03	9.0	-0.33
Stalk weight (kg)	0.69	0.81	17.4
Tons cane/ha	38.94	45.56	17.0

**Second ratoon, Block 75, Fields 1 and 2, Variety: C87-51, area: 10 ha.**

Variables	Control	Vitazyme 1 l/ha 1 Application	Dif. Vitazyme-Control %
Stalk length (cm)	216.2	212	1.89
Stalk diameter (cm)	2.33	2.34	4.29
No. stalks / linear meter	11.83	12.8	8.20
Stalk weight (kg)	0.84	0.99	17.86
Tons cane/ha	62.11	79.2	27.5

**Third ratoon, Block 8, Fields 1 and 2, Variety C1051, area: 7.52 ha.**

Variables	Control	Vitazyme 2 Applications	Dif. Vitazyme-Control %
Stalk length (cm)	170.00	175	2.94
Stalk diameter (cm)	2.51	2.67	6.37
No. stalks / linear meter	8.15	10.65	30.67
Stalk weight (kg)	0.77	0.79	2.60
Tons cane/ha	39.22	52.58	34.06

Conducted by: Dr. Elio Angarica

Reviewed by: Dr. Juan C. Díaz