

## POSTER SUMMARY

**ADAPTABILITY OF TEN SUGARCANE VARIETIES AT KIKONENI,  
MSAMBWENI DISTRICT, KENYA**

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**Abstract**

Best-yielding sugarcane varieties are identified by cultivating them in different environments. Adaptability trials of improved varieties have been done in the western part of Kenya. However, in the coastal region there have been no recent trials due to the collapse of Ramisi Sugar Company. An adaptability trial was conducted at Kikoneni in the Msambweni District. The objective was to evaluate the performance of sugarcane varieties to determine their adaptability to the area. The trial was established in a randomised complete block design with three replications. Agronomic parameters were collected and data analysed using analysis of variance. The results showed that four varieties (KEN 82-216, KEN 82-808, KEN 83-737 and Co421) yielded more than 100 tons cane/ha. The four varieties could be recommended for commercial production in the revamped Ramisi sugarcane growing area.

Keywords: sugarcane, varieties, adaptability, yield, Kikoneni, Kenya

**Introduction**

Sugarcane (*Saccharum* spp) is a major cash crop in Kenya. It supports about six million people in the country, and contributes to Kenya's economic growth. During the period 2004-2006 about 475 670 tons of sugar were produced against a demand of 718 396 tons, leaving a deficit of more than 200 000 tons. There is thus a need to increase production by 5.2% annually. However, land for sugarcane cultivation in the high potential areas is becoming increasingly scarce. It is against this backdrop that a variety adaptability trial was conducted at Kikoneni in the Msambweni District. The area falls in the coastal lowlands, with annual mean temperatures ranging from 24°C to 26.6°C, and rainfall of between 1000 and 1400 mm. The long rains occur during April, May and June, while short rains occur in October and November. The experiment was established in May 2007 to evaluate adaptability and suitability of sugarcane varieties to revive production in the area.

**Materials and Methods**

The trial was conducted at Kikoneni, in the Msambweni District. The experiment comprised 10 sugarcane varieties, old commercials (Co421, Co1148, Co617 and Co331) and new varieties (KEN 82-808, KEN 82-737, KEN 82-216, KEN 82-401, N14 and D8484). The trial was conducted using a randomised complete block design replicated thrice. The plots consisted of four rows that were 10 m long and 1.2 m apart, with 35 setts planted in each row. Agronomic characteristics such as plant height, stalk population and girth were measured from the two middle rows. The plant height was determined by measuring stalks using a ruler. A caliper was used to determine average stalk diameter while stalk population was

determined by counting all stalks within the two middle rows. Brix was also measured. Brix is important in sugar yield prediction (Miller *et al.*, 1978). Measurement was done at 12 months. Cane yield was determined from the weight of the two middle rows of each plot after harvesting.

Data was analysed by analysis of variance procedures (SAS, 1996) and LSD mean tests were done. Means of different parameters amongst the varieties were compared using the Duncan Multiple Range Test.

### Results and Discussion

There were significant differences amongst the ten varieties in terms of brix, height, population, girth and cane yield (Table 1).

**Table 1. Quality and agronomic characteristics of ten varieties at 12 months.**

Variety	Brix (%)	Height (m)	Stalk population (stalks/two rows)	Girth (cm)	Yield (t/ha)
KEN 82-216	19.1b	2.65ba	211a	2.4c	113.3a
KEN 82-808	16.5d	2.868a	204ba	2.4bc	110.2a
Co421	16.2d	2.50abcd	166c	2.9a	104.9ab
KEN 83-737	16.5d	2.75ab	196ab	2.2c	100.7ab
D8484	16.9cd	2.54abc	165c	2.7a	91.2abc
KEN 82-401	21.9a	2.52abc	133d	2.9a	89.8ab
Co1148	17.8bcd	2.11de	187abc	2.5bc	86.5abc
Co617	17.0cbd	2.34bcde	177bc	2.4bc	81.9bc
N14	18.6bc	2.06e	193abc	2.5bc	78.13bc
Co331	19.6b	2.14cde	164c	2.5b	71.2c
LSD (0.5%)	2.0	40.8	29	0.2	27.2
CV%	6.4	9.8	9.5	5.3	17.2

Values followed by the same letter are not significantly different from each other

Brix ranged from 16.2 to 21.9%, with KEN 82-401 recording the highest brix.

The tallest variety was KEN 82-808 with a mean value of 2.86 m. However, this was not significantly different from KEN 82-216, Co421, KEN 83-737, D8484 and KEN 82-401. N14 was the shortest variety.

KEN 82- 216 was the most populated variety. Stalk number is more important than individual stalk weight in determining cane yield and is weighted in greater proportion for indirect selection for cane yield (Gravois *et al.*, 1991; Milligan *et al.*, 1996).

In girth, varieties KEN 82-401, Co421 and D8484 had similar diameters, which were significantly different from the other varieties.

Cane yield differences amongst the varieties were significant, with the highest being KEN 82-216 at 113 t/ha. Based on these results, the four new varieties can be recommended for adoption in the area pending confirmation of ratoon crop yields.

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