

SUGARCANE BREEDING FOR HIGH YIELDING AND GOOD QUALITY IN LONG AN

Nguyen Duc Quang¹, Doan Le Thuy², Nguyen Thi Bach Mai³

Sugarcane breeding for high yielding and improved quality in Long An was supported by MARD with the title as “Sugarcane breeding and integrated crop management (ICM) to enhance yield and quality”. Its multilocal trials were carried out at five ecological locations from 2006 up to now. Varietal trials were realized in a two-crop cycle (plant crop and 1st ratoon) through two steps involving basic experiment of 0.25 ha in RCBD with three replications, and large-scale trial of 1.5 ha with production design on a large scale. K95-156, Suphanburi 7, KU00-1-61 and KU60-1 satisfied the aim of the subject with above 120 tons/ha in cane yield as well as 11 CCS and over in sugar content. Therefore, these varieties are proposed to release for test production next time.

Sugarcane breeding has been interested in as well as helped to increase cane yield and quality with 1.74% per year of average rate. However, the average cane yield equaled only 80 per cent as compared to ones in South-East Asia countries (75 tons/ha) and cane quality was low. To get the national goal on average cane yield and quality of 65 tons/ha and 11 CCS in 2010 as well as 80 tons/ha and 12 CCS in 2020 (GOV Decision 26/2007/QD-TTg, Feb. 15, 2007 by Prime Minister), sugarcane breeding is still considered as the heart of agric production improvement in Vietnam. It is affirmed in 2010 – 2015 of next period repeatedly (Ministry of Agriculture and Rural Development, May 7th 2009). This report is as a partial result attained in Long An, the biggest in the South-west region with 13,700 ha of sugarcane.

The yield trials were performed at Luong Hoa Village, Ben Luc District, Long An Province. Treatments included as KU60-1, KU00-1-61, KK2, Suphanburi 7, K95-156, ROC27 genotypes with K84-200 as check variety.

- The experiments were designed into RCBD with three replications. They were conducted in two continuous seasons (plant crop and 1st ratoon) through two steps involving basic experiment of 0.25 ha.

- Germination / ratooning, tillering, stem density stem height, growth rate, and flowering, borer and disease incidents, logging, yield components, cane yield, and sugar content were assessed.

KU60-1, KU00-1-61, K95-156 and Suphanburi 7 are highyielding genotypes. Preeminent sugar content exhibited in KU60-1, KK2 and ROC27 in ascending order. ROC27 and KK2 were early ripening genotypes while K95-156 was medium ripening and the others belonged to late genotypes. The others obtained over 10% in 10 CCS-converted yields as compared to the check, except of KK2 (Fig 1). Nevertheless, ROC27 owned weak points' *i.e.* unequal stem and withered leaf in late growth stage. Besides Suphanburi 7, KU00-1-

Treatments	Overcoming rate of 10 CCS-converted yield compared to the check (%)
KU60-1	18.6
KU00-1-61	13.9
KK2	3.7
Suphanburi 7	10.7
K95-156	18.0
ROC27	23.8
K84-200(check)	-

¹PhS, ²MSc, ³Eng – Sugar and Sugarcane Research and Development Center –
Phu An Village, Ben Cat District, Binh Duong Province – Tel: 0650.3562227

61, K95-156 and the check were flowering genotypes (4 – 23%) where Suphanburi 7 flowered rather strongly (9 – 23%) and K95-156 was characterized by slow growth in early growth stage.

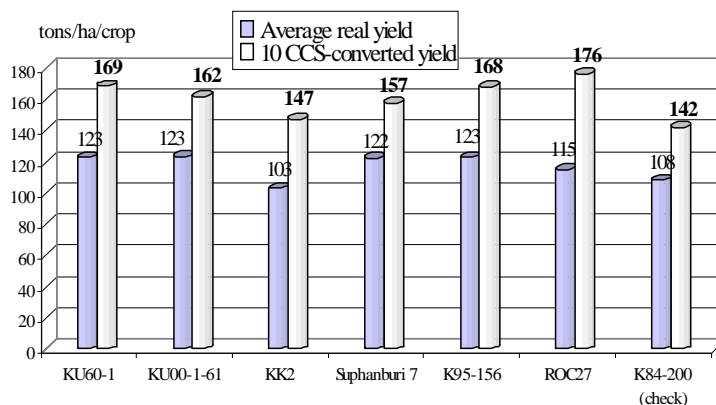


Fig 1. Average cane yield in two-crop cycle in basis experiment

Table 1. Main characteristics of sugarcane genotypes in large-scale trial

Treatments	Ratio of flowering stalks (%)	Ratio of borer susceptible stems (%)	Disease	Level of logging	CCS (%)	Yield (tons/ha/crop)	10 CCS-converted yield (ton/ha/crop)
KU60-1	Non	2 – 9	Slight white leaf	Slight	10.6 – 11.0	120	130
KU00-1-61	0 – 4	2 – 8	Slight white leaf	Slight	11.0 – 11.5	124	140
K95-156	2 – 5	2 – 8		Slight	11.3 – 12.0	116	135
Suphanburi 7	0 – 3	1 – 10		Moderate	11.8 – 12.6	118	144

KU00-1-61, K95-156 and Suphanburi 7 flowered in large-scale trial less than in small-scale trial, especially Suphanburi 7. This was because of weather. Test varieties were moderately infected by borer. White leaf disease slightly appeared on KU60-1 and K95-156. Suphanburi 7 was the worst in logging. All treatments' sugar content was good. Cane yield in the standard of 10 CCS-converted level got 130 tons/ha. KU00-1-61 and Suphanburi 7 were characterized by their tall and millable stalks. Thus as for KU00-1-61 and Suphanburi 7, they were also characterized by heavy stem. Thick stem of KU60-1 resulted in high stem weight. Preeminent density of millable stalks performed on K95-156. However, tillering ability of KU00-1-61 badly exhibited. KU60-1 must be harvested at the age of 12 months because of its late ripening

Hình Giống mía KU60-1

Hình Giống mía KU00-1-61

Hình Giống mía K95-156

Hình Giống mía Suphanburi 7

(Co775 x K84-200)

(PL310 x Uthong 1)

(K84-200 x Đa giao)

(85-2-352 x K84-200)

New sugar cane genotypes can be recommended for large scale tests next time as followed K95-156, Suphanburi 7, KU00-1-61 and KU60-1.

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