

Arthit Sangsayan 2014: Evaluation of Yield Components for Testing Sugarcane Varieties in Plant Cane by GGE Biplot Method. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Rewat Lersrutaiyotin, D.Agr. 356 pages.

Evaluation on potential of sugarcane varieties in yield component characteristics and conditions of testing area affecting yield components in plant cane of 20 trials were conducted by grouping varietal trials according to different conditions of trials and using GE scores from GGE biplot calculation. Each trial had 16 Kamphaeng Saen sugarcane varieties from Cane and sugar Research and Development Center, Kasetsart University and 4 checked varieties. RCBD with 4 replications was used in each trial, in which each plot had 4 rows with 8-meter length. The yield components studied were stem diameter, stem length, stem number per rai. According to the number of all factors studied having positive GE scores of the sugarcane varieties, the sugarcane varieties that had high potential in each yield component were evaluated. The high potential sugarcane varieties were Kamphaeng Saen 01-10-2 in stem diameter, Kamphaeng Saen 00-105 Kamphaeng Saen 00-148 Kamphaeng Saen 00-176 Kamphaeng Saen 01-1-12 Kamphaeng Saen 01-1-25 and Kamphaeng Saen 00-92 in stem length and Kamphaeng Saen 01-1-12, Kamphaeng Saen 01-1-25 and Kamphaeng Saen 00-92 in stem length and Kamphaeng Saen 00-148 in stem number per rai. Therefore, Kamphaeng Saen 00-148 had high potential in stem diameter and stem length. Location of varietal trails that had high number of sugarcane varieties having highest GE scores were Phanom Thuan and Kamphaeng Saen in stem diameter, Ban Lueam in stem length and Dan Makham Tia and Non Sa-at in stem number per rai. Location having different potential varieties were Tha Muang and Phanom Thuan in stem diameter, Tak Fa and Phanom Thuan in stem length and Non Sa-at and Phanom Thuan in stem number per rai. The high stability sugarcane varieties to varietal trials were Kamphaeng Saen 01-10-2 in stem diameter, Kamphaeng Saen 01-1-25 in stem length and Kamphaeng Saen 00-148 in stem number per rai. Moreover, sugarcane varieties having the highest GE scores in each yield component were Kamphaeng Saen 01-1-25 in stem diameter at Phanom Thuan, Kamphaeng Saen 01-3-5 in stem length at Dan Makham Tia and LK 92-11 in stem number per rai at Dan Makham Tia. Soil series, regions groups of trails having close distance, harvesting periods, month of planting and amount of rainfall during 1-4 month, 5-8 month and 9-12 month that sugarcane varieties had high GE scores in stem diameter, stem length and stem number per rai and also types of each factors having different potential varieties were evaluated. Moreover, sugarcane varieties that had high stability and had highest GE scores to the type of factors were also evaluated in each yield component.

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Student's signature

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Thesis Advisor's signature