

Tiwaporn Karapakdee 2015: Evaluation of Environmental Factors Affecting Cane Yield and CCS in Ratoon Cane of Kamphaeng Saen Varieties Series. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Rewat Lersrutaiyotin, D.Agr. 116 pages.

The effect of environmental factors to cane yield and CCS in ratoon cane of 16 Kamphaeng Saen sugarcane varieties and 4 checked varieties from 18 varietal trials were evaluated by simple linear regression and multiple linear regression. Each trial used RCBD with 4 replications. Each plot had 4 rows of 8 meters in length. Environmental factors evaluated in cane yield were soil texture, amount of rainfall of various periods and planting date, while environmental factors evaluated in CCS were maximum and minimum temperature and amount of rainfall of 3 months before harvesting and harvesting period. As sand percentage was found to have correlation with other factors, simple linear regression analysis was used for evaluation of sand percentage and Kamphaeng Saen 01-4-29 was the only one variety that had significantly negative effect. From the evaluation of 6 environmental factors to cane yield of ratoon cane, silt percentage and amount of rainfall during 5<sup>th</sup>-8<sup>th</sup> month had positive effect, while clay percentage, amount of rainfall during 1<sup>th</sup>-4<sup>th</sup> month, amount of rainfall after 9<sup>th</sup> month to harvesting and planting date had negative effect. From the evaluation of 4 environmental factors to CCS of ratoon cane, harvesting period, average maximum temperature 3 months before harvesting and average minimum temperature 3 months before harvesting had positive effect, while amount of rainfall 3 months before harvest had negative effect. The highest coefficient of determination in cane yield was 33.0 percentage in Kamphaeng Saen 01-10-2 and that in CCS was 67.2 percentage in Kamphaeng Saen 00-148.

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