

Sasithorn Khibtong 2012: Study of Sugar Content Characteristics and Maturity of Sugarcane Hybrids. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Rewat Lersrutaiyotin, D.Agr. 188 pages.

Sugar content and maturity of 12 crosses, each cross had 10 clones, of sugarcane hybrids were studied using RCBD with 3 replication at Cane and Sugar Research and Development Center. Evaluation of CCS and CCS components by Saccharometer NIR W2 and brix by hand refractometer of base, middle and top parts of stems at 10 and 11 month were conducted. Maturity using brix and correlation coefficient between CCS, brix and maturity were evaluated. The results of significant difference in clones of each cross in CCS and CCS components revealed that at 10 month, the maximum number of crosses (12 crosses) were observed in fiber content and minimum number of crosses (8 crosses) were observed in purity, while at 11 month, the maximum number of crosses (10 crosses) were observed in CCS, fiber content and purity and minimum number of crosses (8 crosses) were observed in brix. Moreover, significant difference of average values of crosses having the same female parents were observed in CCS and all CCS component characteristics, at both 10 and 11 month. In the study of percentage of ratio of CCS and brix between base, middle and top part of stems, the percentage of ratio of CCS were observed to be higher than those of brix, in both ratio between middle and base parts of stem and between top and base parts of stem and in both 10 and 11 month. Higher number of matured clones at 11 month than 10 month was observed using percentage of ratio of brix between top and base parts of stems, while the nearly the same number of matured clones were observed using percentage of ratio of brix between middle and base parts of stems, percentage of ratio of CCS between middle and base parts of stems and percentage of ratio of CCS between top and base parts of stems. CCS were observed to be about 60 percent of brix in each part of stem. The maximum percentage were observed in the middle, top and base parts of stem, respectively, in which the increase of percentage from 10 to 11 month was observed in base part of stem. The relationship between level of maturity and sugar content were found in both using brix and CCS, in which the higher level of relationship was observed at 10 month than at 11 month. Moreover, the higher level of relationship was observed in hybrids having the same female parents than those of the same male parents.

---

Student's signature

Thesis Advisor's signature