

Pinit Kulayasilapin 2007: Effect of Genetics and Environment Contribution to Yield of Commercial Thai Cassava Cultivars. Master of Science (Agriculture), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Professor Chareinsak Rojanaridpiched, Ph.D. 112 pages.

Yield trials of commercial cassava cultivars were conducted in important cassava planting areas in both early and late rainy seasons. Effects of environment (location) and cultivars on root yield and quality, response of cultivars to locations, and progress of cultivars over time of released were analyzed. Locations and interaction between location and cultivars affected root yield more than cultivars. In contrast, with root starch content, cultivars played were a major role. Yield difference between locations showed greater magnitude than the difference between cultivars. The differences between locations were due to soil fertility and amount of rain fall. Rayong 7, MKUC 34-114-106 were suitable for high yield. Kasetsart 50, Huaybong 60 and Rayong 90 were suitable for low yield. Rayong 5 was suitable cultivars for average location. Rayong 90 and Huaybong 60 showed high root starch content over suitable and unsuitable location. Newer cultivars gave higher yield than the traditional cultivars due to their ability to transport more photosynthetic products to accumulate in the root. This was indicated by a higher harvest index and root starch content. For suitability of recommendation cultivars for location, Rayong 1 and Rayong 72 should not be recommended due to the low root starch content. Progress of the breeding program found that fresh, dry and starch yield increased at the rate of 189.6 105.0 and 97.8 kilogram/hectare/year, respectively.

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