Kaettipong Kamprerasart 2009: Study on the Growth, Starch Content and Starch Synthesis Gene Expression in Cassava *var.* Kasetsart 50. Master of Science (Genetic Engineering), Major Field: Genetic Engineering, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Siripatr Prammanee, Ph.D. 170 pages.

In the present, the harvest time of the cassava-root production is made a decision by the price not by the root weight and the starch quantity. This research studied on their growth in the field, starch quantity and the expression of starch synthesis gene at different age. Eight varieties of cassava (Rayong 5, Rayong 90, Kasetsart 50, HB 60, CMR 35-64-1, CMR 35-22-196, CMR 35-21-199 and CMR36-55-166) were studied. The results show that Kasetsart 50 had better height than others. The stem weight and the root weight at every age of all varieties had no different. The root weight and starch content at 10 months and 12 months were higher than 8 months age. So we harvest more than 10 months. The measuring of amylose content in every variety could be detected at 4-12 months age. Almost all of 8 varieties could be detected higher amylose content at 6 and 12 months age than 8 and 10 months age.

Study on the expression of ADP-glucose pyrophosphorylase (AGPase) gene which is important to starch synthesis. Granule bound starch synthase I (GBSS I) gene is involved in the synthesis of amylose. Starch branching enzyme II (SBE II) gene is involved in amylopectin synthesis. In the leaf, RT-PCR products were present at 4, 6, 10 months age but at 8 and 12 months age were decrease. In the root SBE II gene expressed at 4-12 months age. These results suggest that the suitable harvest time of cassava is 10-12 months after planting.

_____ _____ ___ / ___ / ___

Student's signature Thesis Advisor's signature