

Thesis Title

Inheritance of Earliness, Yield and Yield
Components in Japonica and Indica Rice
Crosses

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Abstract

Study on inheritance of earliness, yield and yield components of japonica and indica rice crosses were conducted during the dry growing season in 1991 at the paddy field of Agronomy Department, Faculty of Agriculture, Chiang Mai University. Five single crosses of F_1 and F_2 generations derived from diallele cross among 2 japonica and 2 indica rice varieties were planted along with their respective parents.

The results showed that there were significant difference of flowering and maturity dates among the parents, their F_1 and F_2 populations. Maturity date was found differently within only the parents population but was neither within F_1 and F_2 generations. Grain yield per plant and some important yield components were significantly different among the three generations except spikelets per panicle and 1,000 grains weight.

Heterosis of earliness in flowering and maturity dates including some important yield components of F_1 hybrid exhibited predominantly among indica/japonica rice crosses except grain yield per plant. Degree of inbreeding depression in F_2 hybrid in terms of earliness and yield components were quite pronounced but grain yield per plant, harvest index and grain filling period were not found accordingly. F_2 population segregation revealed that transgressive segregation was clearly demonstrated among the earliness of flowering and maturity dates, spikelets per panicle and grain yield per plant. Results obtained from the estimation of heritability showed that most of the characters except grain yield per plant provided high values in broad sense. Relatively high magnitude of narrow-sense heritability were determined in all crosses but earliness of flowering and maturity dates and some other important yield components appeared to be low to high values depending on the crosses of parental types.