

Thesis Title Inheritance of Earliness, Yield and Other
 Quantitative Traits in Barley

Author Miss. Premrudee Pintaya

M.S. Agriculture (Agronomy)

Examining Committee

Assoc.Prof. Suthat Julsrigival	Chairman
Assoc.Prof.Dr. Chuckree Senthong	Member
Lecturer Dr. Damnern Kaladee	Member
Assist.Prof.Dr. Sakda Jongkaewwattana	Member

Abstract

A study on inheritance of earliness, yield and other quantitative traits of 4 barley varieties; BRB9, Mona, BRB2 and LBEL201 along with their F_1 and F_2 generation that derived from six half-diallel crosses conducted during November, 1995 to March, 1996 at agronomy field, Faculty of Agriculture, Chiangmai University.

The results showed that there were significant differences of heading date, harvesting date, grain filling period and 100 grain weight among generations and within generations in parents, F_1 and F_2 populations. There was no statistical difference in height, grain number per plant and grain weight per plant among generations but significantly difference within generations. There was significant difference in number of ear per plant among generations but no difference within generations.

The estimates in broad-sense heritability of heading date, harvesting date, grain filling period, height, number of ear per plant and 100 grain weight were rather high but showed quite low in grain number per plant and grain weight per plant. The narrow-sense heritability values of traits including heading date, harvesting date, grain filling period and height were high but low values were observed in ear per plant, grain number per plant, 100 grain weight per plant.

Results from estimation of general and specific combining ability indicated that heading date, harvesting date, grain filling period, height and 100 grain weight were controlled by both additive and non-additive genes but non-additive genes action were found predominantly in 100 grain weight. Grain number per plant and grain weight per plant were controlled by additive genes while number of ear per plant was controlled by non-additive genes.

For correlation analysis, it clearly showed that grain number per plant were positively significant correlated to grain weight per plant in both F_1 and F_2 generations. And from path coefficient analysis, this character had also direct effect to grain weight per plant. In F_2 generation, grain filling period and 100 grain weight showed negatively significant correlated to yield.