

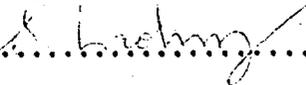
THESIS TITLE : A STUDY ON COMBINING ABILITY IN HOT PEPPER

AUTHOR : MR. RAKCHAI KURUBUNJERDJIT

THESIS ADVISORY COMMITTEE :


.....Chairman

(Assistant Professor Dr. Kamol Lerdrat)


.....

(Assistant Professor Dr. Suwit Laohasiriwong)


.....

(Assistant Professor Prasit Jaisil)

ABSTRACT

Combining ability of chilli studies were conducted using 5 parents which came from different genetic diversity. Half diallel cross was done to produce 10 F₁-hybrids using Griffing's method 2 model 1. The 10 F₁-hybrid and 5 parents were grown in randomized complete block design in wet and dry seasons at Khon Kaen University Experimental farm. Methodologies for statistical analysis were variety cross diallel Analysis II and III of Gardner and Eberhart method. The crosses and parents yield, and agronomic characters on combining ability were compared, heterosis and correlation among characters were also calculated.

The results showed significant differences between two the seasons in all characters except fruit size, among parents and crosses in all characters except plant height and ratio of dry weight and fresh weight, among parents in all characters except plant height and fresh weight. Heterosis showed significant differences all characters except plant height. Heterosis of

crosses depended on average heterosis, varietal heterosis and specific heterosis. The results indicated significant differences in both general and specific combining abilities for all characters except plant height, plant canopy, fresh weight, dry weight and number of seeds which had only general combining ability.

The cultivars Chow-KKU and 83-168 showed high general combining abilities for yield and yield components such as fruit per plant, dry weight and days to harvest. Chow-KKU was the best parent line in this study.

An average yield of the crosses had 60 percent higher than average yield of the parents. Chow-KKU x 83-168 (1x4) had 111 and 80 percents higher heterosis than mid parents and better parents, respectively. Chow-KKU x Hua Rueda(1x3) had highest yield (595 g per plant) and highest specific combining ability. Yield had a positive correlation to dry weight but had a negative correlation to days to flowering.