

Kachain Mathong 2008: Phenotypic Segregation of  $F_2$  Generation of Single Crosses and Double Crosses of Cantaloupe (*Cucumis melo* L.). Master of Science (Agriculture), Major Field: Horticulure, Department of Horticulure. Thesis Advisor: Assistant Professor Pramote Saridnirun, Dr.Ing. 115 pages.

Phenotypic segregation of  $F_2$  generation of single crosses and double crosses of cantaloupe were investigated. Twelve  $F_1$  hybrid's imported varieties and two  $F_1$  hybrid Thailand's commercial varieties were evaluated. It was shown that only four  $F_1$  imported varieties, 'CM-2' $F_1$ , 'CM-3' $F_1$ , 'CM-7' $F_1$  and 'CM-10' $F_1$ , including two  $F_1$  hybrid Thailand's commercial varieties had good adapted and fruit set. Eight double crosses among imported varieties were formed; 'CM-2 $\times$ 1' $F_1$ , 'CM-7 $\times$ 2' $F_1$ , 'CM-2 $\times$ 10' $F_1$ , 'CM-4 $\times$ 6' $F_1$ , 'CM-6 $\times$ 4' $F_1$ , 'CM-7 $\times$ 6' $F_1$ , 'CM-9 $\times$ 3' $F_1$ , 'CM-3 $\times$ 9' $F_1$  and a double cross was formed between imported variety and  $F_1$  hybrid of Thailand; 'CM-6 $\times$ Golden Lady' $F_1$ . The result showed that all double cross had low variation in all traits. Average of fruit length and shape had significant difference among cross. Fruit weight, diameter, flesh thickness and total soluble solid were 1.07-1.86 kilogram, 11.18-13.93 centimeters, 2.90-3.68 centimeters and 9.17-12.93 °Brix, respectively. Fruit characteristics such as fruit shape, epidermis and fruit color, were falled between those of their parents. Segregation of double crosses in  $F_2$  generation had more variation in yield than that of  $F_2$  generation of single crosses. On contrast, variation in flesh thickness and total soluble solid were higher in  $F_2$  generation of single crosses than of double crosses . Variation of fruit shape and firmness were not difference. Fruit shape, epidermis, flesh, and fruit color were segregated and identified into different groups. It was also found that  $F_2$  generation of 'CM-6 $\times$ Golden Lady' was the highest tolerance to pests and diseases under field condition relative to that of other crosses.

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