

Thesis title	Heterosis of Soybean F ₁ Hybrid in Yield, Yield Components and Seed Protein Content	
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Abstract

The main objective of this research was to investigate the amount of heterosis expressed in different soybean crosses. The heterosis of F₁ hybrids on seed yield per plant, yield components, and seed-protein content were determined in eleven crosses. In these crosses a newly released variety Sukothai 2 was used as female parent. The male parents included both the introduced and local materials. They were classified into four different groups according to their prominent characters such as seed size, seed number, maturity, and seed-protein content. A randomized complete block experiment with three replications was conducted at Faculty of Agriculture, Chaingmai University. Ten seeds from each cross were planted in a single row 5.0 m in length that were spaced 50 cm apart. Each block contained the eleven F₁ hybrids and 22 rows of both parental lines.

Results obtained from this experiment revealed that the amount of heterosis expressed on all of the characters observed was not satisfactory high. The range of heterosis, the amount by which the F₁ exceeded the better parent line, for seed weight per plant was 2.78 - 36.00 percent. It was observed that the higher amount of heterosis in this character (16.82 - 36.00 percent) arose from the crosses between Sukhothai 2 and great seed number materials. While the lines with large seed size

per plant produced a lower amount of heterosis in F_1 (2.78 - 15.96 percent). Most of the crosses expressed the amount of heterosis on different characters independently. Only in some individual crosses that their heterosis on seed yield per plant correlated with heterosis on yield components, For example, the crosses between Sukhothai2 x Pakchong, and Sukothai 2 x Maerim. The amount of heterosis on seed protein content of the two different F_1 hybrids observed in this experiment was also low (15.72 - 19.07 percent). It was concluded from these results that the amount of heterosis showed in this experiment did not support for attempts to produce F_1 - hybrid in soybean.