

ABSTRACT

MUHAMAT ARIF. 105040213111017. Selection of Family of F₃ Common Beans (*Phaseolus vulgaris* L.) on Yellow Pod and High Yields. Supervised by Ir. Sri Lestari Purnamaningsih, MS. as Main Supervisor and Dr.Ir. Damanhuri, MS. as Second Supervisor.

Common beans (*Phaseolus vulgaris* L.) is one of the types of vegetable pods plants consumed by the people of Indonesia. As the material of vegetables, beans consumed raw. Bean pods are picked when still young has a sweet taste. Green beans fall into the vegetables with high protein and low prices so that the people of Indonesia of all classes can consume. Indonesian society needs to consume beans from year to year is increase. Data production in Indonesia in 2012 for vegetables, legumes at 338.655 tonnes. However, to meet domestic demand, Indonesia imports amounted to 30.909 tonnes in 2012 (Deptan, 2012). This suggests that domestic production has not been able to meet the needs of the community. Therefore, to suppress the value of imports of vegetables, legumes, especially common beans, there needs to be an increase in domestic production, one with the assembly of new varieties for high yield and on the other hand is expected to support the nutritional needs of the community.

At the beginning of the study, carried crosses the local varieties (green pods) is Gilik ijo, Gogo kuning and Mantili with introduced varieties (yellow pods), Cherokee sun. The aim is to obtain a cross yellow bean pods for high yield. F₂ generation, individuals have obtained high yield potential and yellow peas. Individuals high yield has a weight of ≥ 300 g pods per plant. Results of these individuals are used as planting material ie F₃ generations. Genetic studies and selection is done on the families F₃. Genetic studies includes heritability, coefficient of diversity and genetic gains.

The research was conducted in Kajang Lor village, Mojorejo village, district Junrejo, Batu city with altitude by ± 650 m above sea level, the average temperature ranges 22°C and rainfall by ± 1300 mm/year. The study was conducted in November 2013 to March 2014 study were prepared using a single plot. Planting material used is 22 F₂ seed varieties and four parents. Selection method used is the method of selection pedigree (pedigree) by selecting the best individuals in the line of yellow pod plants and high yield.

Based on 22 families were planted, there are 14 families who have yellow pods then performed genetic studies. Genetic study data showed a low value of coefficient of variability and high heritability. Selection is done on families who have a high heritability value by selecting high-yield crops. High yield range of 300-500 g per plant. Individuals who obtained that CS.M 31 (4), CS.M 31 (24), CS.M 31 (36), CS.GI 63 (10), CS.GI 63 (15), M.CS 11 (13), M.CS 11 (23), CS.GI 7 (17), CS.GI 7 (22), CS.GI 7 (23), CS.GI 7 (30), CS.GI 8 (8), CS.M 11 (25), CS.M 59 (9) and CS.M 59 (32). Value of genetic progress of the plants

selected family hopes high that the selection is made effective as possible are able to provide increased power results in the next generation.

