RINGKASAN

Peningkatan angka kebutuhan kedelai di Indonesia setiap tahunnya tidak dapat diimbangi dengan jumlah produksi kedelai dalam negeri. Hal ini mengakibatkan tingginya angka impor kedelai. Perakitan varietas baru dengan produktivitas tinggi melalui persilangan kedelai Varietas Slamet X Grobogan merupakan salah satu upaya peningkatan produktivitas kedelai untuk mengatasi masalah tersebut. Parameter genetik seperti nilai ragam genetik dan heritabilitas perlu diamati dalam pemuliaan tanaman untuk menunjang keberhasilannya. Penelitian ini dilakukan untuk memperoleh nilai ragam genetik dan heritabilitas dari 15 genotip F_{10} hasil persilangan kedelai Varietas Slamet X Grobogan sebagai pertimbangan untuk seleksi lanjutan guna menunjang proses perakitan varietas unggul baru dengan produktivitas tinggi.

Penelitian menggunakan 15 genotip F_{10} hasil persilangan antara kedelai Slamet dengan Grobogan yang dikembangkan oleh Dr. Ir. Ponendi Hidayat, M.P. di Fakultas Pertanian Universitas Jenderal Soedirman, 2 varietas tetua, dan varietas pembanding. Kedelai diamati karakter agronominya meliputi yaitu tinggi tanaman, jumlah daun, jumlah cabang, jumlah buku, diameter batang, bobot brangkasan kering, bobot akar, jumlah polong isi/tanaman, jumlah polong hampa/tanaman, jumlah polong/tanaman, bobot biji/tanaman, bobot 100 biji, umur berbunga, umur mulai fase R5, umur panen, warna bunga, dan warna hipokotil. Rancangan percobaan yang digunakan yaitu RAK dengan 3 ulangan. Hasil pengamatan kemudian dianalisis menggunakan ANOVA uji F kemudian dihitung nilai ragam genetik dan heritabilitasnya. Uji lanjut DMRT dilakukan bila hasil uji ANOVA menunjukkan perbedaan nyata.

Karakter yang ragam genetiknya termasuk dalam kriteria sempit meliputi jumlah cabang, diameter batang, bobot brangkasan kering, jumlah polong isi per tanaman, jumlah polong hampa per tanaman, jumlah polong per tanaman, dan bobot biji per tanaman, sedangkan sisanya memiliki nilai ragam genetik yang luas. Karakter warna bunga dan warna hipokotil memiliki keragaman yang cenderung seragam, yaitu berwarna ungu pada seluruh populasi. Nilai heritabilitas yang diperoleh cukup beragam, yaitu berkisar dari 0,01 hingga 0,93 dengan kriteria berkisar dari rendah hingga tinggi.

SUMMARY

The increasing demand for soybeans in Indonesia every year cannot be followed by the amount of domestic soybean production. As a result, soybeans were imported in high quantities. The assembly of new varieties with high productivity through crosses of the Slamet x Grobogan variety is one of the efforts to increase soybean productivity to meet the increasing demand for soybeans. To support successful breeding, it is necessary to look at genetic parameters such as genetic variability and heritability. This research conducted to obtain the value of genetic variance and heritability of 15 F_{10} genotypes from the soybean crosses of the Slamet x Grobogan variety as consideration for further selection to support the assembly process of new high-yielding varieties with high productivity.

The study used 15 F_{10} genotypes from a cross between Slamet and Grobogan variety which were developed by Dr. Ir. Ponendi Hidayat, M.P. at the Faculty of Agriculture in Jenderal Soedirman University, two parental varieties, and a comparison variety. Soybeans agronomic characteristics were observed including plant height, number of leaves, number of branches, number of nodes, stem diameter, dry bran weight, root weight, number of filled pods/plant, number of empty pods/plant, number of pods/plant, seed weight/plant, weight of 100 seeds, age of flowering, age of R5 phase, age of harvest, flower color, and color of hypocotyl. The experimental design used was Randomized Block Design with three replications. The results of the observations were analyzed using the F test ANOVA with an error rate of 5% and then the value of genetic variability and heritability were calculated. Duncan's multiple range test (DMRT) further tests were conducted if the results of the ANOVA test showed a significant difference.

Characters whose genetic variance included in narrow criteria were number of branches, stem diameter, dry stover weight, number of filled pods per plant, number of empty pods per plant, number of pods per plant, and seed weight per plant, while the other characters had wide genetic variability values. The character of flower and hypocotyl color has a variety that tends to be uniform, which is purple in the entire population. The heritability values obtained were quite diverse, ranging from 0.01 to 0.93 with criteria ranging from low to high.