

RINGKASAN

Produksi kedelai hingga saat ini belum mampu memenuhi kebutuhan konsumsi kedelai nasional. Upaya yang dapat dilakukan untuk meningkatkan produksi kedelai yaitu dengan melakukan budidaya kedelai pada lahan sub optimal seperti lahan salin. Pengaruh cekaman salinitas pada tanaman dapat diatasi salah satunya dengan budidaya kedelai menggunakan genotipe yang toleran terhadap salinitas. Penelitian ini bertujuan untuk: 1) mengetahui pengaruh pemberian taraf salinitas terhadap pertumbuhan dan hasil tanaman kedelai, 2) mengetahui pengaruh genotipe terhadap keragaman penampilan genotipe kedelai, 3) mengetahui interaksi antara genotipe dan taraf salinitas terhadap pertumbuhan dan hasil tanaman kedelai, dan 4) memperoleh genotipe kedelai yang memiliki toleransi terhadap pemberian taraf salinitas.

Penelitian dilaksanakan di rumah kaca Fakultas Pertanian, Universitas Jenderal Soedirman. Analisis pertumbuhan tanaman dilakukan di Laboratorium Agronomi dan Hortikultura. Penelitian ini dilakukan pada Februari – Juni 2019. Rancangan percobaan yang digunakan yaitu Rancangan Acak Kelompok (RAK) dengan dua faktor. Faktor pertama adalah genotipe kedelai yang disimbolkan dengan huruf “G”. Faktor G terdiri atas 5 genotipe diantaranya G_0 (Slamet), G_1 (Anjasromo), G_2 (Indo 253), G_3 (A403), dan G_4 (P71). Faktor kedua yaitu taraf salinitas yang disimbolkan dengan huruf “N”. Faktor N terdiri atas 4 taraf diantaranya N_0 (Kontrol), N_1 (3 dS/m), N_2 (6 dS/m), dan N_3 (9 dS/m). Penelitian ini memiliki 20 kombinasi perlakuan dengan 3 kali ulangan, sehingga terdapat 60 polibag percobaan. Variabel pengamatan yang diamati terdiri atas variabel pertumbuhan dan variabel hasil. Variabel pertumbuhan yang diamati diantaranya tinggi tanaman, jumlah daun, luas daun, kandungan klorofil daun, jumlah buku pada batang utama, jumlah buku total, jumlah cabang, bobot daun segar, bobot daun kering, bobot tanaman segar, dan bobot tanaman kering. Variabel hasil meliputi panjang akar, jumlah polong per tanaman, bobot polong isi per tanaman, bobot biji per tanaman, dan bobot 100 biji. Toleransi terhadap salinitas ditentukan berdasarkan pengukuran Indeks Toleransi Cekaman (ITC) pada bobot biji per tanaman.

Hasil penelitian menunjukkan bahwa perlakuan taraf salinitas mempengaruhi seluruh variabel pertumbuhan dan hasil kecuali jumlah cabang, panjang akar, bobot daun segar, bobot tanaman segar, dan jumlah polong per tanaman. Terjadi variasi penampilan antar genotipe kedelai pada seluruh variabel pertumbuhan dan hasil kecuali panjang akar, bobot daun kering, jumlah polong per tanaman, bobot polong isi per tanaman, dan bobot biji per tanaman. Interaksi antar genotipe dengan taraf salinitas mempengaruhi jumlah daun trifoliat, bobot tanaman segar, kandungan klorofil daun, dan bobot 100 biji. Berdasarkan pengukuran Indeks Toleransi Cekaman, maka diperoleh varietas Slamet merupakan varietas yang toleran terhadap cekaman salinitas hingga taraf 6 dS/m (N_2).

SUMMARY

Soybean production until now has not been able to meet the needs of national soybean consumption. The efforts that can be made to increase soybean production by soybean cultivation on sub optimal land such as saline land. The effect of salinity stress can be overcome, one of them is soybean cultivation by tolerant genotypes on salinity stress. This research aimed to: 1) determine the effect of giving salinity levels on the growth and yield of soybean plants, 2) determine the effect of genotype on the diversity of soybean genotype appearance, 3) determine the interaction between genotype and salinity level on the growth and yield of soybean plants, and 4) determine the soybean genotypes that has tolerance to the salinity level.

The research was conducted at the screen house of the Agriculture Faculty, Jenderal Soedirman University. Growth Analysis was conducted in Agronomy and Horticulture Laboratory. This research was conducted in February - June 2019. The experimental design used was a Randomized Block Design (RBD) with two factors. The first factor was soybean genotype which is symbolized by the letter "G". The G factor consists of 5 genotypes G_0 (Slamet), G_1 (Anjasmoro), G_2 (Indo 253), G_3 (A403), and G_4 (P71). The second factor was the salinity level which is symbolized by the letter "N". The N factor consists of 4 levels given N_0 (Control), N_1 (3dS/m), N_2 (6 dS/m), and N_3 (9 dS/m). This research has 20 combinations with 3 replications, so that it takes 60 polybag experiments. The variables observed consist of growth variables and yield variables. Growth variables included plant height, total leaves, leaf area, chlorophyll content, number of main node, total number of node, number of branches, root length, fresh leaf weight, dry leaf weight, fresh plant weight, and dry plant weight. Yield variables included number of pods per plant, weight of filled pods per plant, seed weight per plant, and 100 seeds weight. Tolerance to salinity is determined based on the measurement of the Stress Tolerance Index (STI) on the seed weight per plant.

The results of the research showed the salinity levels effect all growth and yield variables except for the number of branches, root length, fresh leaf weight, fresh plant weight, and number of pods per plant. Variations in appearance between soybean genotypes on all growth and yield variables except the root length, fresh plant weight, number of pods per plant, weight of filled pods per plant, and seed weight per plant. Interaction between genotypes and salinity levels. The significantly different result on the total leaves, fresh plant weight, chlorophyll content, and 100 seeds weight. The research result showed that Slamet variety is a salinity tolerant soybean variety to a salinity level of 6 dS/m (N_2). Based on the measurement of the Stress Tolerance Index (STI), Slamet variety is a tolerance variety of salinity stress to the level 6 dS/m (N_2).