RINGKASAN

Bawang merah (*Allium ascalonicum* L) merupakan salah satu komoditas hortikultura yang memiliki banyak manfaat, komoditas strategis dan bernilai ekonomis tinggi. Pemilihan varietas, jarak tanam, dan pemberian pupuk untuk menjamin ketersediaan unsur hara selama pertumbuhannya menentukan keberhasilan usaha tani bawang merah. Penelitian ini dilakukan untuk mengoptimalkan jarak tanam dan penggunaan pupuk N, mengurangi dampak akibat penggunaan pupuk yang berlebihan, dan pemanfaatan bahan organik untuk memperlambat pelepasan pupuk atau *slow release* salah satunya dengan penggunaan pupuk NZEO-SRPlus. Penelitian ini bertujuan untuk mengkaji pengaruh perbedaan jarak tanam dan dosis pupuk NZEO-SRPlus terhadap karakter fisiologi dan hasil bawang merah, serta interaksi antara kedua faktor tersebut.

Penelitian berupa percobaan lapang dilaksanakan di Desa Pliken, Kecamatan Kembaran, Kabupaten Banyumas, Provinsi Jawa Tengah dan Laboratorium Agronomi dan Hortikultura, Fakultas Pertanian, Universitas Jenderal Soedirman pada Bulan Desember 2021 sampai Maret 2022. Rancangan percobaan yang digunakan yaitu Rancangan Acak Kelompok Lengkap yang terdiri atas dua faktor yang diulang tiga kali. Faktor pertama yaitu jarak tanam 15 cm x15 cm dan 15 cm x 20 cm. Faktor kedua yaitu dosis pupuk NZEO-SRPlus yaitu: 0 kg/ha, 50 kg/ha, 500 kg/ha, 750 kg/ha, 1000 kg/ha. Variabel yang diamati adalah jumlah daun, kehijauan daun, kerapatan stomata, kadar klorofil total, kadar prolin, kadar fenol total, kandungan saponin, dan bobot umbi per petak (hasil). Data pengamatan dianalisis dengan uji F dan dilanjut dengan *Duncan's Multiple Range Test* pada taraf kepercayaan 95 % jika terdapat keragaman.

Hasil penelitian menunjukkan jarak tanam 15x15 cm menghasilkan jumlah daun (27,37 helai), bobot umbi segar per petak (800,40 g), dan bobot umbi kering per petak (563,4 g) lebih tinggi dibandingkan jarak tanam 15x20 cm. Sedangkan jarak tanam 15x20 menghasilkan kehijauan daun (50,70) dan kadar fenol total (13811,06 mgGAE/g) lebih tinggi dibandingkan jarak tanam 15x15 cm. Pemberian dosis pupuk NZEO-SRPlus hingga 1000 kg/ha mampu meningkatkan kehijauan daun, jumlah daun, kadar klorofil total dan kadar fenol total dengan titik optimum 500,51 kg/ha. Terdapat pengaruh interaksi jarak tanam dan dosis pupuk NZEO-SRPlus pada kehijauan daun, kadar prolin, dan kadar fenol total. Pada jarak tanam15x15 cm dan 15x20 cm dengan peningkatan dosis pupuk hingga 1000 kg/ha mampu meningkatkan kehijauan daun. Pada jarak tanam 15x15 cm dengan peningkatan dosis pupuk NZEO-SRPlus meningkatkan kadar fenol total hingga titik optimum 427,82 kg/ha dan kadar prolin hingga titik optimum 166,60 kg/ha. sedangkan jarak tanam 15x20 cm meningkatkan kadar fenol total hingga titik optimum 602,42 kg/ha dan kadar prolin hingga titik optimum 666,60 kg.ha.

Kata kunci: bawang merah, jarak tanam, pupuk NZEO-SRPlus

SUMMARY

Shallots (Allium ascalonicum L.) is a horticultural commodity that has many benefits, is a strategic commodity and has high economic value. Selection of varieties, spacing, and application of fertilizers to ensure the availability of nutrients during growth determine the success of shallot farming. This research was conducted to optimize the spacing and use of N fertilizers, reduce the impact of excessive use of fertilizers, and use organic matter to slow the release of fertilizers or slow release, one of which is the use of NZEO-SRPlus fertilizer. This study aims to examine the effect of differences in spacing and doses of NZEO-SRPlus fertilizer on the physiological characteristics and yield of shallots, as well as the interaction between these two factors.

The research in the form of a field experiment was carried out in Pliken Village, Kembaran District, Banyumas Regency, Central Java Province and the Agronomy and Horticulture Laboratory, Faculty of Agriculture, Jenderal Soedirman University in December 2021 to March 2022. The experimental design used was a Completely Randomized Block Design consisting of two factors repeated three times. The first factor is the spacing of 15 cm x 15 cm and 15 cm x 20 cm. The second factor is the dose of NZEO-SRPlus fertilizer, namely: 0 kg/ha, 50 kg/ha, 500 kg/ha, 750 kg/ha, 1000 kg/ha. There were 10 treatment combinations with 3 replications resulting in 30 experimental units. The variables observed were number of leaves, leaf greenness, stomata density, total chlorophyll content, proline content, total phenol content, saponin content, and tuber weight per plot (yield). Observational data were analyzed by F test and continued with Duncan's Multiple Range Test at 95% confidence level if there was diversity.

The results showed that the spacing of 15x15 cm resulted in the number of leaves (27,37), the weight of fresh tubers per plot (800,40 g), and the weight of dry bulbs per plot (563,4 g) higher than the spacing of 15x20. cm. Meanwhile, at a spacing of 15x20 it produced greenish leaves (50,70) and the total phenol content (138,06 mgGAE/g) was higher than the spacing of 15x15 cm. Dosage of NZEO-SRPlus fertilizer up to 1000 kg/ha was able to increase leaf greenness, number of leaves, total chlorophyll content and total phenol content with an optimum point of 500,51 kg/ha. There was an interaction effect of plant spacing and dose of NZEO-SRPlus fertilizer on leaf greenness, proline content, and total phenol content. At a spacing of 15x15 cm and 15x20 cm, increasing the dose of fertilizer to 1000 kg/ha was able to increase the greenness of the leaves. At a spacing of 15x15 cm with increasing doses of NZEO-SRPlus fertilizer increased the total phenol content to the optimum point of 427,82 kg/ha and the proline content to the optimum point of 166,60 kg/ha. while the spacing of 15x20 cm increased the total phenol content to the optimum point of 602,42 kg/ha and the proline content to the optimum point of 666,60 kg/ha.

Keyword: shallots, plant spacing, NZEO-SRPlus fertilizer