RINGKASAN

Upaya peningkatan produksi bawang merah oleh petani saat ini masih mengandalkan pemberian pupuk N, P, K. Pemberian pupuk N, P, K dalam jumlah yang banyak secara terus menerus mampu memberikan hasil yang tinggi namun akan menimbulkan masalah berupa kerusakan lingkungan. Alternatif untuk mengurangi pemakaian pupuk N, P, K adalah pemanfaatan pupuk hayati. Penelitian ini bertujuan untuk 1) mengetahui pengaruh pemberian dosis pupuk hayati mikoriza-Trichoderma untuk pertumbuhan dan hasil bawang merah, 2) menentukan pengurangan dosis pupuk N, P, K yang optimal terhadap pertumbuhan dan hasil bawang merah. 3) mengetahui kombinasi terbaik penggunaan pupuk hayati mikoriza-Trichoderma dan pengurangan dosis pupuk N, P, K terhadap pertumbuhan dan hasil bawang merah.

Penelitian ini dilaksanakan pada bulan April sampai dengan Juli 2019 di lahan petani Desa kaliori, Kecamatan Kalibagor, Kabupaten Banyumas dan Laboratorium Agronomi dan Hortikultura Fakultas Pertanian Universitas Jenderal Soedirman. Rancangan percobaan yang digunakan yaitu Rancangan Acak Kelompok Lengkap (RAKL) dengan 2 faktor. Faktor pertama dosis pupuk hayati mikoriza-Trichoderma terdiri atas 5 g pupuk hayati mikoriza - 5 g Trichoderma, 15 g pupuk hayati mikoriza - 15 g Trichoderma, dan 25 g pupuk hayati mikoriza - 25 g Trichoderma. Faktor kedua pengurangan dari pupuk N, P, K terdiri atas tanpa pengurangan sesuai dosis anjuran, pengurangan 25 % dari dosis anjuran, dan pengurangan 50 % dari dosis anjuran. Masing-masing dikombinasikan dan didapat 9 kombinasi perlakuan diulang 3 kali sehingga diperoleh 27 unit percobaan. Variabel yang diamati adalah tinggi tanaman, jumlah daun, jumlah anakan, luas daun, bobot tajuk segar, bobot tajuk kering, jumlah umbi rumpun^{-1}, volume umbi, bobot umbi segar, bobot umbi kering saat panen, bobot umbi petak^{-1}, hasil umbi kering. Data yang diperoleh dianalisis dengan uji F, apabila ada pengaruh nyata diuji lanjut dengan DMRT pada taraf kesalahan 5%.

Hasil penelitian menunjukkan bahwa pemberian dosis pupuk hayati 5 g mikoriza - 5 g Trichoderma mampu meningkatkan jumlah daun, jumlah anakan, luas daun, bobot tajuk segar, bobot tajuk kering. Pengurangan dosis pupuk N, P, K sebanyak 50% dari dosis anjuran dapat meningkatkan jumlah daun, jumlah anakan dan jumlah umbi rumpun^{-1}. Pemberian pupuk N, P, K dosis anjuran meningkatkan luas daun, bobot tajuk segar, bobot tajuk kering, bobot umbi segar rumpun^{-1}, bobot umbi kering rumpun^{-1}. Kombinasi perlakuan terbaik untuk luas daun bawang merah adalah 15 g mikoriza - 15 g Trichoderma. dan sesuai dosis anjuran, untuk volume umbi terbaik bawang merah 25 g mikoriza – 25 g Trichoderma dan pengurangan 25% dosis anjuran. Karena tidak ada perbedaan pengaruh kombinasi perlakuan pada hasil umbi kering setiap hektar, maka petani sebaiknya memupuk tanah dengan 5 g mikoriza - 5 g Trichoderma dan pengurangan 50% dosis anjuran pupuk N, P, K saat menanam bawang merah.

SUMMARY

Efforts to increase the production of shallots by farmers at this time still rely on the application of N, P, K. fertilizers. The provision of N, P, K fertilizers in large quantities continuously was able to produce high yields but it caused problems in the form of environmental damage. One of many alternatives to reduce the use of N, P, K fertilizers was the use of biological fertilizers. This study aimed to 1) determine the effect of giving a dose of mycorrhiza -Trichoderma biofertilizer for growth and yield of shallots, 2) determine the optimal reduction of the dose of N, P, K on growth and yield of shallots. 3) find out the best combination of the use of mycorrhiza-Trichoderma biofertilizers and the reduction of N, P, K fertilizer dosages on the growth and yield of shallots.

This research was conducted from April to July 2019 at Kaliori Village, Kalibagor District, Banyumas Regency and Agronomy and Horticulture Laboratory of Faculty of Agriculture, the Jenderal Soedirman University. The experimental design used was a Complete Randomized Block Design with 2 factors. The first factor was the dose of mycorrhizae-Trichoderma biological fertilizer consisting of 5 g of mycorrhizae - 5 g of Trichoderma, 15 g of mycorrhizae - 15 g of Trichoderma, and 25 g of mycorrhizae - 25 g of Trichoderma. The second factor was the reduction of the N, P, K fertilizer consisting of no reduction according to the recommended dose, a 25% reduction from the recommended dose, and a 50% reduction from the recommended dose. Each of them were combined which resulted in nine combinations of treatments. There were three replications for each treatment. Observed variables were plant height, number of leaves, number of tillers, leaf area, fresh shoot weight, dry shoot weight, number of bulbs in one cluster, volume of bulbs, weight of fresh bulbs, weight of dry bulbs at harvest, weight of bulbs plot^{-1}, yield of dry bulbs. The data were analyzed using the F test, followed by DMRT at the error level of 5% if there was a significant effect of the treatments.

Results showed that application of biological fertilizer of 5 g mycorrhizae - 5 g Trichoderma increased the number of leaves, number of tillers, leaf area, weight of fresh shoots, weight of dry shoots. Reduction N, P, K fertilizer by 50% from the recommended dosage increased number of leaves, number of tillers and number of bulbs in one cluster. Application of recommended dosage of N, P, K fertilizer increased leaf area, weight of fresh shoots, weight of dry shoots, weight of fresh bulbs one cluster, and eight of dry bulbs in one cluster. Combination of 15 g mycorrhizae - 15 g Trichoderma and recommended dosage of N, P, K, resulted in the highest of leave area. Combination of 25 g mycorrhizae - 25 g Trichoderma and a 25% reduction in the recommended dosage resulted in the highest of volume of bulbs. Since there was no significant effect of all combination of treatments on yield of dried bulbs hectare^{-1}, farmers should apply 5 g of mycorrhizae - 5 g Trichoderma and a 50% reduction in recommended dosages of N, P, K fertilizer on soil if shallot was cultivated.