

RINGKASAN

Salah satu upaya dalam mendukung program diversifikasi pangan diperlukan tanaman pokok seperti padi yang memiliki kandungan nutrisi tinggi namun syarat budidayanya mudah, seperti tanaman jiwawut (*S. italica*). Tanaman jiwawut membutuhkan pemupukan untuk pertumbuhan dan perkembangannya terutama pupuk N untuk memperoleh hasil tanaman yang tinggi. Penggunaan pupuk kimia sintesis menimbulkan dampak negatif terhadap lingkungan. Penggunaan pupuk urea pada tanaman jiwawut (*S. italica*) dapat dikurangi dengan aplikasi kompos paitan (*T. diversifolia*). Kompos paitan memiliki N-total yang cukup tinggi dan mampu didekomposisi cukup baik sebagai pupuk organik. Pemanfaatan tanaman gulma paitan merupakan alternatif pemupukan yang ramah lingkungan. Tujuan penelitian ini, yaitu: 1) Mengetahui pengaruh kompos paitan (*T. diversifolia*) terhadap pertumbuhan dan hasil tanaman jiwawut (*Setaria italica*), 2) Mengetahui efisiensi penggunaan pupuk urea pada tanaman jiwawut (*S. italica*) dengan aplikasi kompos paitan (*T. diversifolia*).

Penelitian dilakukan di *Screen House* Balai Benih Tanaman Pangan dan Hortikultura (BBTPH) Kebun Benih Padi dan Palawija Bojongsari, Kembaran, Banyumas, dan Laboratorium Agroekologi, serta Laboratorium Tanah Fakultas Pertanian Universitas Jenderal Soedirman. Penelitian dilaksanakan bulan Juli hingga November 2020. Rancangan yang digunakan adalah Rancangan Acak Kelompok (RAK) 2 faktor. Faktor pertama adalah dosis pupuk urea yang terdiri atas 3 taraf yaitu 0%, 50%, dan 100% dari dosis rekomendasi. Dosis rekomendasi pupuk urea untuk tanaman jiwawut adalah 300 kg ha⁻¹. Faktor kedua adalah dosis kompos paitan yang terdiri atas 3 taraf yaitu 5 ton/ha, 10 ton/ha, dan 15 ton/ha. Perlakuan di ulang 3 kali. Variabel yang diamati adalah tinggi tanaman, luas daun, kandungan klorofil daun, jumlah malai per rumpun, bobot biji per malai, bobot 1000 biji, bobot akar segar, bobot tajuk segar, bobot akar kering, dan bobot tajuk kering.

Hasil penelitian menunjukkan, 1) Perlakuan kompos paitan mampu meningkatkan pertumbuhan tanaman jiwawut pada tinggi tanaman, luas daun, kandungan klorofil daun total, dan serapan N, serta mampu meningkatkan hasil tanaman jiwawut pada bobot biji per malai, bobot akar segar, bobot tajuk segar, bobot akar kering, dan bobot tajuk kering. 2) Interaksi antara perlakuan pupuk urea dan penggunaan kompos paitan tidak berpengaruh terhadap semua variabel. Namun, berdasarkan nilai EPN perlakuan antara dosis pupuk urea 50% dan dosis kompos paitan 15 ton/ha menunjukkan nilai tertinggi, yaitu sebesar 13,21%. Dengan demikian, penggunaan kompos paitan 15 ton/ha mampu mengurangi penggunaan pupuk urea 50% dari dosis rekomendasi untuk tanaman jiwawut.

SUMMARY

*One of the efforts to support the food diversification program requires staple plants such as rice which have high nutritional content but easy cultivation requirements, such as millet (*S. italica*). Millet plant requires fertilization for growth and development, especially N fertilizer to obtain high plant yields. The application of synthetic chemical fertilizers has a negative impact on the environment. The application of urea on millet (*S. italica*) can be reduced by the application of paitan (*T. diversifolia*) compost. Paitan compost has high N-total and can be decomposed quite well as organic fertilizer. The application of paitan weeds is an environmentally friendly alternative to fertilizers. The aims of this study were: 1) To determine the effect of paitan (*T. diversifolia*) compost on the growth and yield of millet (*Setaria italica*), 2) To determine the efficiency of using urea in millet (*S. italica*) plants with paitan (*T. diversifolia*).*

The research was conducted at the Screen House of the Center for Food Crops and Horticulture Seeds (BBTPH), Bojongsari Rice Seed Farm, Kembaran, Banyumas, and Agroecology Laboratory, and Soil Laboratory, Faculty of Agriculture, Jenderal Soedirman University. The research was conducted from July to November 2020. The design used was a 2-factor randomized block design (RBD). The first factor is the dose of urea which consists of 3 levels, namely 0%, 50%, and 100% of the recommended dosage. The recommended dose of urea fertilizer for millet is 300 kg ha⁻¹. The second factor is the dosage of paitan compost which consists of 3 levels, namely 5 tonnes / ha, 10 tonnes / ha, and 15 tonnes / ha. The treatment was repeated 3 times. The variables observed were plant height, leaf area, leaf chlorophyll content, number of panicles per clump, seed weight per panicle, 1000 seed weight, fresh root weight, fresh shoot weight, dry root weight, and dry shoot weight.

The results showed, 1) paitan compost treatment was able to increase the growth of millet plant in plant height, leaf area, total leaf chlorophyll content, and N uptake, and was able to increase the yield of millet on seed weight per panicle, fresh root weight, fresh shoot weight, dry root weight, and dry crown weight. 2) The interaction between urea fertilizer treatment and paitan compost did not affect all variables. However, based on the level of EPN value the treatment between 50% urea fertilizer and 15 ton / ha paitan compost showed the highest value, which was 13.21%. In consequences, the application of paitan compost of 15 tonnes/ha was able to reduce the use of urea fertilizer by 50% of the recommended dosage for millet.