RINGKASAN

Kompos merupakan bahan organik yang mampu mendaur ulang nutrisi dan memperbaiki sifat fisik dan biologi tanah. Penggunaan kompos limbah tongkol jagung modifikasi pada beberapa varietas kedelai memiliki perbedaan respon terhadap lingkungan tumbuh baru di tanah pasir pantai. Penelitian ini bertujuan untuk 1) mengetahui pengaruh dosis kompos limbah tongkol jagung modifikasi terhadap pertumbuhan dan hasil kedelai, 2) mengetahui keragaman pertumbuhan dan hasil tiga varietas kedelai pada media tanah pasir pantai 3) mengetahui interaksi antara dosis kompos limbah tongkol jagung modifikasi dengan tiga varietas kedelai terhadap pertumbuhan dan hasil kedelai.

Penelitian dilaksanakan pada bulan Desember 2020 hingga Agustus 2021 di *Screen House* Fakultas Pertanian, Laboratorium Tanah, Laboratorium Agronomi dan Hortikultura serta Laboratorium Agroekologi Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto. Rancangan percobaan yang digunakan yaitu Rancangan Acak Kelompok (RAK) pola faktorial dengan 2 faktor. Faktor pertama adalah dosis kompos limbah tongkol jagung modifikasi, yaitu K0 = tanpa kompos, K1 = kompos 20 ton/ha, K2 = kompos 40 ton/ha dan K3 = kompos 60 ton/ha. Faktor kedua adalah varietas kedelai, yaitu V1 = Varietas Detap-1, V2 = Varietas Devon-2 dan V3 = Varietas Grobogan. Kombinasi perlakuan sebanyak 12 dengan 3 ulangan, diperoleh 36 unit percobaan dengan tiap unitnya terdapat lima polibag, sehingga jumlah *polybag* adalah 180. Data yang diperoleh dari hasil penelitian dianalisis menggunakan analisis sidik ragam, selanjutnya apabila berpengaruh nyata dilanjutkan dengan uji DMRT pada taraf kesalahan 5%.

Hasil penelitian menunjukkan bahwa pemberian dosis kompos limbah tongkol jagung modifikasi 60 ton/ha memiliki hasil terbaik pada total luas daun, kadar klorofil daun, bobot polong segar, bobot polong kering, bobot tajuk segar, bobot tajuk kering, serapan nitrogen tanaman, jumlah polong, jumlah biji dan bobot biji. Penggunaan varietas Devon-2 memberikan hasil terbaik pada bobot akar segar, bobot akar kering, jumlah total bintil akar, serapan nitrogen tanaman, jumlah polong, jumlah biji dan sedangkan penggunaan varietas Grobogan memberikan hasil terbaik pada bobot biji, bobot 100 biji, umur bunga dan umur panen. Interaksi antara pemberian kompos limbah tongkol jagung modifikasi dan penggunaan varietas mampu meningkatkan terhadap jumlah polong.

SUMMARY

Compost is organic material that can recycle nutrients and improve the physical and biological properties of the soil. The use of modified corn cob waste compost in some varieties of soybeans has different responses to the new growing environment in the sand land. The purpose of research for (1) knowing the effect of the dose of modified corn cob waste compost on the growth and yield of soybeans. (2) knowing the diversity of the growth and yield from three soybean varieties on beach sand soil media. (3) knowing the interaction between dose of modified corn cob waste compost and three soybean varieties on the growth and yield.

This research was carried out from December 2020 until August 2021 at screen house of Faculty of Agriculture, Soil Science Laboratory, Agronomy and Horticulture Laboratory, Agroecology Laboratory, Faculty of Agriculture, Jenderal Soedirman University. The experiments were done with a randomized design with 2 factors. First factor is dose of corn cob waste, K0 = tanpa kompos, K1 = compost 20 ton/ha, K2 = compost 40 ton/ha dan K3 = compost 60 ton/ha. Second factor is the type of variety, namely V1 = Detap-1 variety, V2 = Devon-2 variety and V3 = Grobogan variety. The combination of experiments is 12 with 3 replications. Obtained 36 experimental units with each unit there are five polybags, so there are 180 polybags. Data obtained from the research results were analysed by analysis of variance, and if significantly different was followed by DMRT test at the error level 5%.

The results of research showed that the dose of modified corn cob waste compost 60 tons/ha had the best results on total leaf area, leaf chlorophyll content, fresh pod weight, dry pod weight, fresh canopy weight, dry canopy weight, plant nitrogen uptake, number of pods, number of seeds and seed weight. The use of the Devon-2 variety gave the best results on fresh root weight, dry root weight, total number of root nodules, plant nitrogen uptake, number of pods, number of seeds, while the Grobogan variety gave the best results on seed weight, weight of 100 seeds, flower and harvest age. There is interaction between composting modified corn cob waste and the use of different varieties was able to increase the number of pods.