

RINGKASAN

Kacang panjang merupakan salah satu komoditas sayuran yang mempunyai potensi untuk dikembangkan karena memiliki nilai ekonomi yang tinggi. Luas panen kacang panjang di Kabupaten Banyumas mengalami penurunan dari tahun 2020, yaitu 193 hektar menjadi 159 hektar. Tidak adanya lahan dapat menyebabkan menurunnya produktivitas tanaman. Maka dari itu, upaya yang dapat dilakukan dalam mengefisiensikan penggunaan lahan adalah budidaya menggunakan *polybag*. Selain itu mencampur tanah dengan variasi jenis media tanam akan sangat mendorong keberhasilan pertumbuhan tanaman dan juga sangat berpengaruh terhadap produksi buah. Penelitian ini bertujuan untuk 1) mengetahui dan menganalisis pengaruh variasi jenis media tanam terhadap pertumbuhan tanaman kacang panjang dan sifat fisik tanah; 2) Mengetahui dan menganalisis pengaruh komposisi media tanam terhadap pertumbuhan tanaman kacang panjang dan sifat fisik tanah; 3) mengetahui keefektifan variasi jenis dan komposisi media tanam pada pertumbuhan tanaman kacang panjang.

Penelitian ini dilaksanakan pada bulan September hingga November 2023 di lahan percobaan Jurusan Teknologi Pertanian dan di Laboratorium Teknologi Pertanian, Universitas Jenderal Soedirman. Alat yang digunakan antara lain: *polybag* 40x40, timbangan digital, *ring sampler*, oven, dan alat lainnya. Bahan yang digunakan adalah bibit kacang panjang varietas *parade tavi*, arang sekam, sekam padi, dan *cocopeat*. Rancangan percobaan yang digunakan adalah Rancangan Acak Kelompok (RAK) yang terdiri atas 2 faktor, yaitu perlakuan variasi jenis media tanam meliputi 1) tanah+arang sekam, 2) tanah+*cocopeat*, 3) tanah+sekam padi serta perlakuan komposisi media tanam 1) 1:1 (4.5 kg tanah : 4.5 kg jenis media tanam), 2) 1:2 (3 kg tanah : 6 kg jenis media tanam), 3) 2:1 (6 kg tanah : 3 kg jenis media tanam). Variabel yang diamati sifat fisik tanah dan pertumbuhan tanaman. Pengambilan sampel tanah dilakukan sebanyak 3 kali saat berumur 14, 28, 42 hst pada 2 tingkat kedalaman (0–10 cm dan 10–20 cm) diulang sebanyak 3 kali. Data dianalisis menggunakan uji Anova (*Analysis of Variance*) dan uji lanjut DMRT (*Duncan Multiple Range Test*) 5%.

Hasil penelitian menunjukkan variasi jenis media tanam memberikan pengaruh yang nyata terhadap kadar air tanah (kedalaman 0–10 cm dan 10–20 cm), *bulk density* (kedalaman 0–10 cm dan 10–20 cm), dan bobot basah buah kacang panjang. Pada parameter tinggi tanaman dan bobot kering buah nilai rata-rata tertinggi diperoleh pada perlakuan M1 (tanah dan arang sekam), sedangkan panjang buah nilai rata-rata tertinggi diperoleh pada perlakuan M3 (tanah dan sekam padi). Komposisi media tanam memberikan pengaruh yang nyata terhadap kadar air tanah, *bulk density*, dan bobot basah buah. Pada parameter tinggi tanaman dan bobot kering buah nilai rata-rata tertinggi diperoleh pada perlakuan K1 (1:1 yaitu 4.5 kg tanah : 4.5 kg variasi jenis media tanam), sedangkan panjang buah nilai rata-rata tertinggi diperoleh pada perlakuan K1 (1:1 yaitu 4.5 kg tanah : 4.5 kg variasi jenis media tanam). Variasi perlakuan yang efektif adalah kombinasi perlakuan M1K1 yaitu tanah + arang sekam dengan komposisi 1:1 (4.5 tanah + 4.5 arang sekam).

SUMMARY

Long beans are a vegetable commodity that has the potential to be developed because it has high economic value. The area harvested for long beans in Banyumas Regency has decreased from 2020, namely 193ha to 159ha. The absence of land can cause a decrease in plant productivity. Therefore, efforts that can be made to streamline land use are cultivation using polybags. Apart from that, mixing soil with various types of planting media will greatly encourage the success of plant growth and also greatly influence fruit production. This research aims to 1) determine and analyze the effect of various types of planting media on the growth of long bean plants and the physical properties of the soil; 2) Knowing and analyzing the effect of planting media composition on the growth of long bean plants and the physical properties of the soil; 3) determine the effectiveness of variations in the type and composition of planting media on the growth of long bean plants.

This research was carried out from September to November 2023 at the experimental field of the Agricultural Technology Department and at the Agricultural Technology Laboratory, Jenderal Soedirman University. The tools used include: 40x40 polybag, digital scales, ring sampler, oven, and other tools. The materials used are parade tavi variety long bean seeds, husk charcoal, rice husks and cocopeat. The experimental design used was a Randomized Block Design (RAK) which consisted of 2 factors, namely treatment with variations in the type of planting media including 1) soil+charcoal husk, 2) soil+cocopeat, 3) soil+rice husk and treatment of the composition of the planting media 1) 1:1 (4.5 kg soil : 4.5 kg types of planting media), 2) 1:2 (3 kg soil : 6 kg types of planting media), 3) 2:1 (6 kg soil : 3 kg types of planting media). The variables observed were the physical characteristics of the soil and plant growth. Soil samples were taken 3 times at 14, 28, 42 DAP at 2 depth levels (0–10 cm and 10–20 cm) and repeated 3 times. Data were analyzed using the Anova (Analysis of Variance) test and the DMRT (Duncan Multiple Range Test) 5% further test.

The results showed that variations in the type of planting media had a significant influence on soil water content (depth 0–10 cm and 10–20 cm), bulk density (depth 0–10 cm and 10–20 cm), and wet weight of long bean fruit. For the parameters of plant height and fruit dry weight, the highest average values were obtained in treatment M1 (soil and charcoal husks), while fruit length had the highest average values obtained in treatment M3 (soil and rice husks). The composition of the planting media has a significant influence on soil water content, bulk density and fresh fruit weight. For the parameters of plant height and fruit dry weight, the highest average value was obtained in the K1 treatment (1:1, namely 4.5 kg of soil : 4.5 kg of variations in the type of planting medium), while the highest average value for fruit length was obtained in the K1 treatment (1:1 namely 4.5 kg of soil: 4.5 kg of various types of planting media). An effective treatment variation is the MIK1 treatment combination, namely soil + husk charcoal with a composition of 1:1 (4.5 soil + 4.5 husk charcoal).