

RINGKASAN

Budidaya kentang di dataran tinggi dengan guludan vertikal dan penggunaan pupuk kimia secara terus – menerus dapat menyebabkan erosi dan menurunnya kesuburan tanah. Sistem guludan horizontal dengan kombinasi penggunaan pupuk dan mulsa organik serta penambahan *biochar* disinyalir mampu mengurangi tingkat erosi dan menjaga ketersediaan unsur hara dalam tanah. Penelitian yang mengkaji hal tersebut belum dilakukan secara komprehensif. Tujuan penelitian adalah 1) mengidentifikasi hubungan jenis pupuk dan mulsa dengan pertumbuhan dan hasil tanaman kentang atlantik dan, 2) mengetahui kombinasi jenis pupuk dan mulsa yang optimal untuk pertumbuhan dan hasil tanaman kentang atlantik pada sistem guludan horizontal dan aplikasi *biochar*.

Penelitian dilaksanakan di Desa Serang Kecamatan Karangreja Kabupaten Purbalingga serta di Laboratorium Teknologi Pertanian, Universitas Jenderal Soedirman. Enam demplot percobaan masing – masing berukuran 3 x 6 m² disiapkan untuk kombinasi perlakuan pupuk dan mulsa, yaitu mulsa plastik pupuk organik (M1P1), mulsa jerami pupuk organik (M2P1), tanpa mulsa pupuk organik (M0P1), mulsa plastik pupuk anorganik (M1P2), mulsa jerami pupuk anorganik (M2P2), dan tanpa mulsa pupuk anorganik (M0P2). Variabel yang diamati adalah tinggi tanaman, jumlah daun majemuk, diameter batang, bobot basah biomassa, bobot kering biomassa, bobot umbi dan jumlah umbi hasil panen. Data yang diperoleh di analisis menggunakan uji T.

Hasil penelitian menunjukkan pupuk anorganik memiliki interaksi berbeda nyata terhadap variabel diameter tanaman, mulsa jerami memiliki interaksi berbeda nyata terhadap tinggi tanaman sedangkan mulsa plastik berbeda nyata terhadap variabel jumlah daun majemuk, diameter batang, dan bobot umbi hasil panen. Kombinasi M2P1 menunjukkan hasil optimal terhadap tinggi tanaman, kombinasi M1P1 menunjukkan hasil optimal terhadap jumlah daun majemuk dan diameter batang, dan kombinasi M1P2 menunjukkan hasil optimal terhadap bobot umbi hasil panen.

SUMMARY

Potatoes cultivation in the highland with vertical ridge system and intensive use of chemical fertilizer caused erosion and decrease in soil fertility. Horizontal ridge system with combination of mulch and organic fertilizers and addition of biocharcoal was expected to be effective in reducing soil erosion and maintaining soil fertility. The related researchs has not been performed comprehensively yet. The objective of this research was 1) to identify the relations beetwen growth and yield of atlantic potato crop with mulchs dan fertilizer, and 2) to find out the optimal combination of mulch dan fertilizer for growth and yield of atlantic potato crop under horizontal ridge system and biocharcoal aplication.

This research was done in Village of Serang, District of Karangreja, Purbalingga Regency , and Agricultural Techology Laboratory, Jenderal Soedirman University. Six potato cropping plots with 3 x 6 m² large each were prepared for several combined tratment, namely plastic mulch with organic fertilizer (M1P1), rice straw mulch with organic fertilizer (M2P1), no-mulch with organic fertilizer (M0P1), plastic mulch with chemical fertilizer (M1P2), rice straw mulch with chemical fertilizer (M2P2), and no-mulch with chemical fertilizer (M0P2). The observed variable are plants height, number of leaves, stem diameter, fresh weight biomass, dry weight biomass, number and weight of tuber. The data analysis were performed using T-test.

The result showed that the anorganic fertilizer had significant interaction with stem diameter, rice straw mulch had significant interaction with plant height, whereas plastic mulch had significant interaction with number of leaves, stem diameter, and weight of tubers. The M2P1 combination showed optimum result on plant height, M1P2 combination showed optimum result on weight of tubers, and M1P1 combination show optimum results on number leaves and stem diameter.