

UJI KINERJA AMANDEMEN ORGANIK KOTORAN HEWAN SAPI DAN IRIGASI MIKRO TERHADAP SIFAT FISIK TANAH PASIRAN PANTAI

INTISARI

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Lahan pantai di Kabupaten Bantul telah dikembangkan menjadi lahan pertanian meskipun memiliki tantangan seperti tekstur pasir, daya simpan air rendah, dan paparan uap garam. Untuk memperbaiki kelemahan sifat lahan pantai ini, maka digunakan amandemen kotoran hewan sapi serta penerapan teknologi irigasi mikro untuk meningkatkan kualitas fisik tanah dan efisiensi air. Penelitian ini menguji kinerja penggunaan kotoran hewan sapi dan dua sistem irigasi mikro terhadap karakteristik fisik tanah pada budidaya tanaman sawi (*Brassica juncea* L.) di lahan pasiran pantai. Penelitian ini dilaksanakan dua kali tanam di Lahan Pesisir Pantai Pandansimo Samas, Srandakan, Bantul. Penelitian dilakukan pada skala plot dengan bedengan di ruangan terbuka, menggunakan Rancangan Acak Kelompok (RAK) dengan 10 perlakuan yaitu dosis amandemen kohe sapi (0 kg, 5 kg, 10 kg, 15 kg, 20 kg) masing-masing irigasi curah (SP) dan irigasi kabut (KB). Parameter yang diukur meliputi sifat fisik tanah (kadar lengas, berat volume, berat jenis, dan porositas). Analisis yang digunakan yaitu statistik dengan uji *pearson correlation* dan visualisasi grafik. Hasil penelitian menunjukkan bahwa pemberian amandemen kotoran hewan sapi dapat memperbaiki porositas tanah dan dinamika lengas tanah. Porositas tanah dengan perlakuan irigasi curah 50,99% pada SP 0 kg dan 38,52% pada pemberian amandemen SP 20 kg Sedangkan dengan irigasi kabut porositas sebesar 51,04 % pada KB 0 kg dan 39,84% pada pemberian amandemen KB 20 kg. Dinamika lengas dengan perlakuan irigasi curah SP 0 kg sebesar 3,25% dan pada pemberian amandemen SP2 20 kg adalah 37,19% sedangkan dengan irigasi kabut KB 0 kg dinamika lengas sebesar 3,41% dan pada pemberian KB 20 kg sebesar 37,19%. Hasil ini menunjukkan bahwa amandemen kotoran hewan sapi dapat mengurangi porositas tetapi meningkatkan kapasitas menahan air.

Kata kunci: Tanah pasiran, kotoran hewan sapi, irigasi mikro curah dan kabut, dan sifat fisika tanah.

PERFORMANCE TEST OF ORGANIC AMENDMENT FROM COW MANURE AND MICRO IRRIGATION ON THE PHYSICAL PROPERTIES OF COASTAL SANDY SOIL

ABSTRACT

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Coastal land in Bantul Regency has been developed into agricultural land despite challenges such as sandy texture, low water retention, and exposure to salt vapor. To improve the weaknesses of coastal land, cattle manure amendments and micro-irrigation technology were used to improve soil physical quality and water efficiency. This study tested the performance of cattle manure and two micro-irrigation systems on soil physical characteristics in the cultivation of mustard greens (*Brassica juncea* L.) on coastal sandy land. The study was conducted over two growing seasons at the Pandansimo Samas Coastal Land, Srandakan, Bantul. The study was conducted on a plot scale with raised beds in an open field, using a Randomized Block Design (RBD) with 10 treatments cattle manure amendment doses (0 kg, 5 kg, 10 kg, 15 kg, 20 kg) each for sprinkler irrigation (SP) and mist irrigation (KB). The measured parameters included soil physical properties (moisture content, bulk density, specific gravity, and porosity). The analysis used statistical methods with Pearson correlation tests and graphical visualization. The results showed that the application of cattle manure amendments could improve soil porosity and moisture dynamics. Soil porosity with flood irrigation treatment was 50.99% at SP 0 kg and 38.52% at SP 20 kg amendment application. With mist irrigation, porosity was 51.04% at KB 0 kg and 39.84% at KB 20 kg amendment application. Soil moisture dynamics with drip irrigation treatment were 3.25% at SP 0 kg and 37.19% at SP 20 kg amendment application, while with mist irrigation, soil moisture dynamics were 3.41% at KB 0 kg and 37.19% at KB 20 kg amendment application. These results indicate that cattle manure amendment can reduce porosity but increase water holding capacity.

Keywords: Sandy soil, cattle manure, micro irrigation drip and mist, and soil physical properties.