

PERBAIKAN SIFAT TANAH LAHAN KERING BERIKLIM KERING MELALUI OLAH TANAH MINIMUM PADA SISTEM TANAM SEN DAN TUMPANGSARI

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INTISARI

Model penelitian pertanian konservasi dengan cara menanam jagung, kacang tunggak dan labu kuning dalam satu lubang tanam atau yang disebut sebagai sistem tanam “Sen” masih jarang dilakukan. Sistem tanam sen merupakan teknologi tradisional dalam beradaptasi terhadap faktor-faktor yang membatasi kualitas tanah wilayah beriklim kering di Nusa Tenggara Timur. Modifikasi olah tanah minimum melalui perbesaran ukuran lubang tanam serta pemberian jarak antar tanaman (pola tumpangsari) diharapkan mampu menciptakan media tumbuh yang lebih baik. Penelitian plot lapangan dilakukan untuk menguji efisiensi dan efektifitas olah tanah minimum dengan pola sistem tanam yang berbeda terhadap perbaikan sifat tanah secara fisik dan kimia serta pengaruhnya terhadap produktivitas per tanaman.

Penelitian didesain menggunakan pola Rancangan Acak Kelompok Faktorial dengan dua faktor perlakuan dalam tiga blok percobaan. Faktor pertama yang dicobakan ialah olah tanah minimum yang terdiri dari lubang tanam berukuran 20x20x20 cm (L20), 30x30x20 cm (L30), 40x40x20 cm (L40) dan lubang tugal/kontrol (K). Faktor kedua yang dicobakan adalah sistem tanam, terdiri dari sistem tanam sen (S) dan tumpangsari (T). Parameter yang diamati terdiri dari sifat fisik (bobot isi, bobot jenis, porositas dan kemantapan agregat) dan kimia tanah (C-organik, pH, N-total, P-tersedia, K, Ca, Mg, Na, dan KPK), efisiensi pemupukan N jagung dan hasil produksi per jenis tanaman.

Hasil penelitian menunjukkan bahwa tidak adanya pengaruh nyata dari interaksi perlakuan serta faktor tunggal sistem tanam terhadap setiap parameter sifat fisik-kimia tanah, efisiensi pemupukan N serta hasil produksi per jenis tanaman. Faktor tunggal ukuran lubang tanaman memberikan pengaruh sangat nyata terhadap sifat fisik-kimia tanah dan hasil produksi per jenis tanaman. Perlakuan lubang tanam berukuran 20x20x20 cm (L20) secara efisien memperbaiki sifat fisik-kimia tanah paling optimal dibanding perlakuan lainnya dalam mendukung pertumbuhan tanaman pada vegetatif awal. Perlakuan lubang tanam berukuran 40x40x20 cm (L40) secara efektif memberikan hasil produksi per jenis tanaman tertinggi dibanding perlakuan lainnya.

Kata kunci: olah tanah minimum, sen, tumpangsari, sifat fisik tanah, sifat kimia tanah, lahan kering

IMPROVEMENT OF SOIL CHARACTERISTICS OF DRY CLIMATE LAND THROUGH MINIMUM TILLAGE IN SEN AND INTERCROPPING PLANTING SYSTEMS

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ABSTRACT

Conservation agriculture research model by planting corn, cowpea and pumpkin in a planting hole or what is called the "Sen" planting system is still rarely done. The Sen planting system is a traditional technology in adapting to factors that limit the quality of land in arid climates in East Nusa Tenggara. Modification of the minimum tillage through enlarging the size of the planting hole and giving the distance between plants (intercropping pattern) is expected to create better growth media. Field plot research was conducted to test the efficiency and effectiveness of minimum tillage with a different cropping system pattern on the improvement of physical and chemical soil properties and its effect on crop productivity.

The study was designed using a factorial randomized block design with two treatment factors in three experimental blocks. The first factor that was tried was minimum tillage which consisted of planting holes measuring 20x20x20 cm (L20), 30x30x20 cm (L30), 40x40x20 cm (L40) and control hole (K). The second factor that was tried was the planting system, consisting of the cent (S) and intercropping (T) cropping systems. The parameters observed consisted of physical properties (fill weight, specific gravity, porosity and aggregate stability) and soil chemistry (C-organic, pH, N-total, available P, K, Ca, Mg, Na, and KPK), efficiency of maize nitrogen fertilization and crop production results.

The results showed that there was no significant effect of treatment interactions as well as a single factor of the planting system on each parameter of the physical-chemical characteristics of the soil, the efficiency of fertilizing N and the production results of plant species. The single factor of plant hole size has a very significant influence on the physical-chemical properties of the soil and yields per plant type. The treatment of planting holes measuring 20x20x20 cm (L20) efficiently improves the soil's physical-chemical properties most optimally compared to other treatments in support of plant growth in the initial vegetative. Treatment of planting holes measuring 40x40x20 cm (L40) effectively gives the highest crop species production yield compared to other treatments.

Keywords: *minimum tillage, sen, intercropping, soil physical properties, soil chemical properties, dry land*