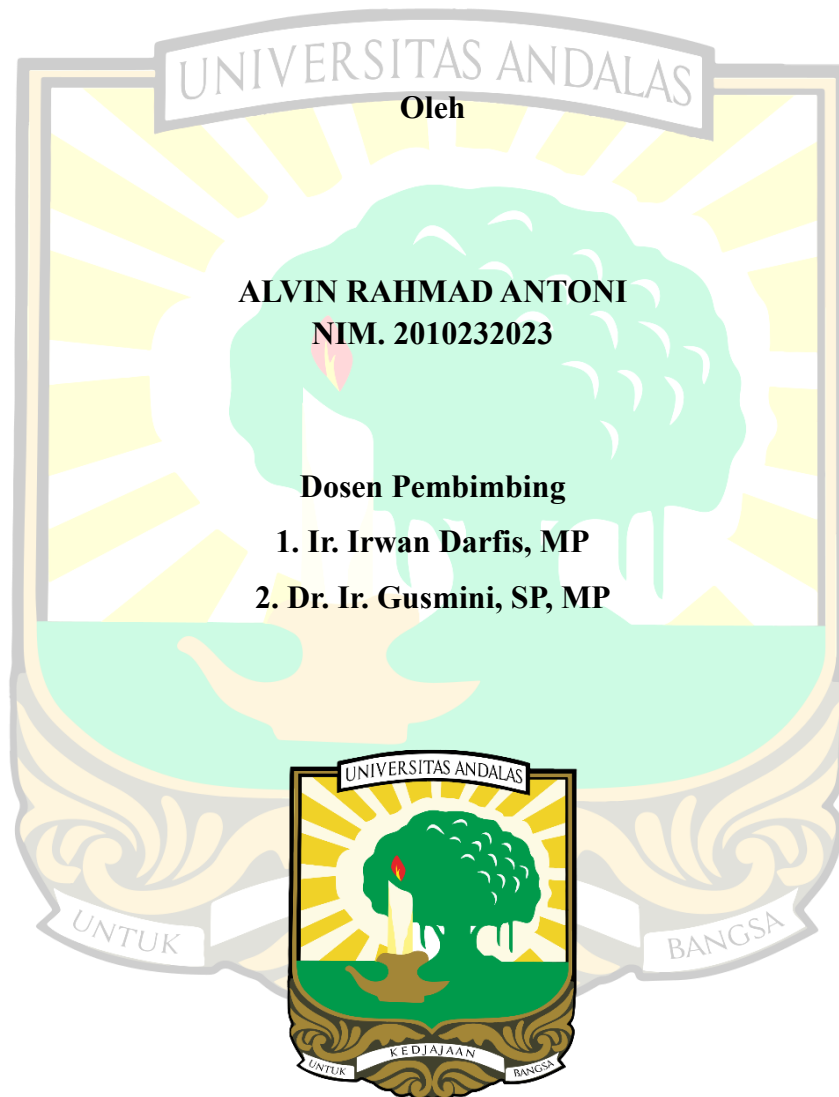


**KAJIAN P-TERSEDIA ULTISOL DAN HASIL PRODUKSI
TANAMAN JAGUNG MANIS (*Zea mays saccharata* L.)
SETELAH APLIKASI KOMPOS KOTORAN SAPI DAN
PUPUK SINTETIS**

SKRIPSI



**FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG
2024**

KAJIAN P-TERSEDIA ULTISOL DAN HASIL PRODUKSI TANAMAN JAGUNG MANIS (*Zea mays saccharata* L.) SETELAH APLIKASI KOMPOS KOTORAN SAPI DAN PUPUK SINTETIS

Abstrak

Pemberian kompos kotoran sapi yang dikombinasikan dengan pupuk sintetis merupakan upaya menangani permasalahan Ultisol yang dijadikan lahan pertanian terhadap keracunan (Al) dan (Fe), serta kekurangan hara terutama Fosfor (P). Unsur P di dalam tanah mengalami berbagai reaksi seperti fiksasi dan retensi. Penelitian ini bertujuan untuk mengkaji ketersediaan hara Fosfor (P) setelah aplikasi kompos kotoran sapi dan pupuk sintetis terhadap hasil produksi tanaman jagung manis (*Zea mays saccharata* L.) pada Ultisol. Penelitian dilakukan di Kelurahan Kapalo Koto, Kecamatan Pauh, Padang, Sumatera Barat, menggunakan metode Rancangan Acak Kelompok (RAK) dengan 6 perlakuan 3 kali ulangan. Perlakuan yang diuji merupakan kombinasi pupuk kompos kotoran sapi dan pupuk sintetis (Kontrol, 1 Rekomendasi Pupuk Sintetis, $\frac{1}{4}$ Pupuk Organik + $\frac{3}{4}$ Pupuk Sintetis, $\frac{1}{2}$ Pupuk Organik + $\frac{1}{2}$ Pupuk Sintetis, $\frac{3}{4}$ Pupuk Organik + $\frac{1}{4}$ Pupuk Sintetis, 1 Rekomendasi Pupuk Organik) dengan pupuk TSP yang diinkubasi kompos kotoran sapi selama 1 minggu kemudian diinkubasi ke tanah selama 2 minggu. Hasil penelitian menunjukkan perlakuan $\frac{1}{2}$ Pupuk Organik + $\frac{1}{2}$ Pupuk Sintetis terbaik dan efisien meningkatkan P-tersedia (21,15 ppm), P-total (65,14 mg/100g), pH (6,24), Al-dd (0,89 me/100g), KTK (27,95 me/100g), C-organik (1,94%), N-total (0,41%), tinggi tanaman (270,13 cm), produksi jagung manis (34,29 ton/ha). Pupuk TSP yang diinkubasi kompos kotoran sapi selama 1 minggu kemudian diinkubasi selama 2 minggu merupakan solusi terbaik karena pupuk organik mampu meningkatkan ketersediaan P dari pupuk TSP dan hasilnya meningkatkan produksi jagung manis.

Kata kunci : Fosfor, Jagung Manis, Kompos Kotoran Sapi, Pupuk Sintetis, Ultisol

STUDY OF AVAILABILITY PHOSPHOR ULTISOL AND SWEET CORN (*Zea mays saccharata* L.) YIELD AFTER APPLICATION OF COWS MANURE COMPOST AND SYNTHETIC FERTILIZER

Abstract

The application of cow manure compost combined with synthetic fertilizers is an effort to deal with the problem of Ultisol which is used as agricultural land against (Al) and (Fe) poisoning, as well as nutrient deficiencies, especially Phosphorus (P). P element in the soil undergoes various reactions such as fixation and retention. This study aims to assess the availability of Phosphorus (P) nutrients after the application of cow manure compost and synthetic fertilizer on the production yield of sweet corn (*Zea mays saccharata* L.) on Ultisol. The research was conducted in Kapalo Koto Village, Pauh Subdistrict, Padang, West Sumatra, using the Randomized Group Design (RAK) method with 6 treatments and 3 replications. The treatments tested were a combination of cow manure compost and synthetic fertilizer (Control, 1 Recommended Synthetic Fertilizer, $\frac{1}{4}$ Organic Fertilizer + $\frac{3}{4}$ Synthetic Fertilizer, $\frac{1}{2}$ Organic Fertilizer + $\frac{1}{2}$ Synthetic Fertilizer, $\frac{3}{4}$ Organic Fertilizer + $\frac{1}{4}$ Synthetic Fertilizer, 1 Recommended Organic Fertilizer) with TSP fertilizer incubated in cow manure compost for 1 week and then incubated into the soil for 2 weeks. The results showed that the $\frac{1}{2}$ Organic Fertilizer + $\frac{1}{2}$ Synthetic Fertilizer treatment was the best and most efficient to increase P-available (21.15 ppm), P-total (65.14 mg/100g), pH (6.24), Al-dd (0.89 me/100g), CEC (27.95 me/100g), C-organic (1.94%), N-total (0.41%), plant height (270.13 cm), sweet corn production (34.29 tons/ha). TSP fertilizer incubated with cow manure compost for 1 week and then incubated for 2 weeks is the best solution because organic fertilizer is able to increase the availability of P from TSP fertilizer and the results increase sweet corn production.

Keywords: Phosphorus, Sweet Corn, Cow Manure Compost, Synthetic Fertilizer, Ultisol