

URLI HOLIDATUL MUNAWAROH. NIM 21.03.111.00043. Pengaruh SRF-Urea Berbasis Biochar Terhadap Produksi dan Kadar Protein Jagung Hibrida Di Alfisol Madura Dibawah bimbingan: **Ir. Slamet Supriyadi, M.Si. dan Fahmi Arief Rahman, S.P., M.Si.**

ABSTRAK

Slow Release Fertilizer (SRF)-urea merupakan pupuk yang dirancang untuk melepaskan unsur hara nitrogen (N) secara perlahan dan bertahap, sehingga efisiensi pemupukan dapat ditingkatkan. SRF-urea dapat dibuat melalui pencampuran atau pelapisan urea dengan bahan mineral dan organik, seperti biochar dan kompos biochar. Penggunaan biochar dan kompos biochar sebagai bahan pelapis bertujuan untuk mengurangi kehilangan nitrogen dari urea. Penelitian ini bertujuan untuk mengevaluasi pengaruh SRF-urea dengan jenis bahan pelapis yang berbeda terhadap pertumbuhan, produksi, dan kadar protein biji jagung hibrida. Penelitian dilaksanakan di Kebun UPT Benih Hortikultura Socah pada bulan Agustus 2024 hingga Januari 2025, menggunakan Rancangan Acak Lengkap (RAL) non-faktorial dengan lima perlakuan, yaitu: P0 (kontrol), P1 (urea berlapis biochar sekam padi), P2 (urea berlapis biochar tongkol jagung), P3 (urea berlapis kompos biochar), dan P4 (urea dosis standar tanpa pelapis). Hasil penelitian menunjukkan bahwa aplikasi urea berlapis tidak memberikan pengaruh yang signifikan secara statistik terhadap produksi tanaman jagung dibandingkan dengan urea tanpa pelapis. Namun, perlakuan urea berlapis menunjukkan kecenderungan peningkatan hasil produksi. Selain itu, perbedaan jenis bahan pelapis tidak memberikan pengaruh signifikan terhadap produksi. Menariknya, aplikasi urea berlapis secara nyata meningkatkan kadar protein biji jagung, dengan peningkatan berkisar antara 56,86% hingga 82,84% dibandingkan dengan urea tanpa pelapis. Temuan ini mengindikasikan bahwa penggunaan urea berlapis, khususnya dengan pelapis biochar dan kompos biochar, berkontribusi positif terhadap peningkatan kualitas hasil panen melalui peningkatan sintesis protein, meskipun belum sepenuhnya tercermin dalam peningkatan hasil produksi secara statistik.

Kata Kunci: Alfisol, Biochar, jagung, pelapis, SRF-urea

URLI HOLIDATUL MUNAWAROH. NIM 21.03.111.00043. The Effect of Biochar-Based SRF-Urea on the Production and Protein Content of Hybrid Corn in Madura Alfisol Under the supervision of: **Ir. Slamet Supriyadi, M.Si. and Fahmi Arief Rahman, S.P., M.Si.**

ABSTRACT

Slow Release Fertilizer (SRF)-urea was a type of fertilizer designed to release nitrogen (N) nutrients slowly and gradually, improving fertilization efficiency. SRF-urea was produced by mixing or coating urea with mineral and organic materials, such as biochar and biochar compost. The use of biochar and biochar compost as coating materials aimed to reduce nitrogen loss from urea. This study aimed to evaluate the effect of SRF-urea with different types of coating materials on the growth, yield, and protein content of hybrid corn seeds. The study was conducted at the Socah Horticultural Seed Research Station from August 2024 to January 2025, using a non-factorial Complete Randomized Design (CRD) with five treatments: P0 (control), P1 (urea coated with rice husk biochar), P2 (urea coated with corn cob biochar), P3 (urea coated with compost biochar), and P4 (standard-dose urea without coating). The results showed that the application of coated urea did not have a statistically significant effect on corn plant production compared to uncoated urea. However, the urea coating treatments showed a tendency to increase production. Also, differences in the types of coating materials did not significantly affect production. Interestingly, urea coating significantly increased the protein content of corn kernels, with increases ranging from 56.86% to 82.84% compared to uncoated urea. These findings indicated that the use of coated urea, especially with biochar and biochar compost coatings, contributed positively to crop quality through enhanced protein synthesis, although this was not yet fully reflected in statistically significant yield increases.

Keywords: Alfisol, Biochar, coating, corn, SRF-urea