RINGKASAN

Jagung manis memegang peranan krusial dalam ketahanan pangan nasional. Peningkatan jagung manis dapat terkendala akibat semakin sedikitnya lahan subur di Indonesia. *Fly Ash Bottom Ash* merupakan abu sisa pembakaran batubara yang memiliki potensi sebagai bahan amelioran tanah. Mineral *wollastonite* termasuk mineral silikat alami yang dapat digunakan sebagai bahan pembenah tanah pertanian, sehingga lahan marginal di Indonesia dapat digunakan untuk menunjang produktivitas hasil pertanian. Penelitian bertujuan untuk mengetahui pengaruh pemberian FABA dan *wollastonite* terhadap hasil tanaman jagung di tanah Ultisol, serta mengetahui pengaruh FABA dan *wollastonite* terhadap karakteristik kimia tanah Ultisol.

Pengambilan sampling dilakukan di *Screen house* Fakultas Pertanian Universitas Jenderal Soedirman dan analisis dilaksanakan di Laboratorium Ilmu Tanah Fakultas Pertanian Universitas Jenderal Soedirman Mei - Oktober 2025. Penelitian menggunakan Rancangan Acak Kelompok Lengkap (RAK) dengan dua faktor dengan tiga ulangan. Faktor pertama FABA yang terdiri atas empat taraf. Faktor kedua *wollastonite* yang terdiri atas empat taraf. Variabel pengukuran meliputi tinggi tanaman, kandungan klorofil daun, jumlah baris pertongkol, serapan N tanaman, N-total tanah, N-tersedia tanah, dan C/N rasio. Hasil pengukuran dianalisis menggunakan ANOVA pada taraf 5%, jika terdapat perbedaan nyata maka dianalisis dengan DMRT pada taraf 5%.

Hasil penelitian menunjukkan bahwa pemberian dosis *Fly Ash Bottom Ash* (FABA) dengan empat taraf, yaitu 0 g/polybag, 18,52 g/polybag, 37,04 g/polybag, dan 55,55 g/polybag meningkatkan nilai N-total tanah, tinggi tanaman, kandungan klorofil, dan nilai serapan N tanaman, menurunkan nilai N-tersedia tanah, C-organik tanah, C/N ratio tanah, dan jumlah baris per tongkol. Pemberian dosis mineral *wollastonite* dengan empat taraf, yaitu 0 g/polybag, 29,41 g/polybag, 58,82 g/polybag, dan 88,23 g/polybag menurunkan nilai N-tersedia tanah, dan meningkatkan nilai serapan N tanaman, N-total tanah, C-organik tanah, C/N ratio tanah, tinggi tanaman, kandungan klorofil, dan jumlah baris per tongkol. Kombinasi perlakuan FABA dan *wollastonite* pada dosis tertentu meningkatkan nilai jumlah baris per tongkol dan serapan N tanaman.

SUMMARY

Sweet corn plays a crucial role in national food security. The increase in sweet corn can be constrained by the increasing lack of fertile land in Indonesia. Fly Ash Bottom Ash is ash left over from coal combustion that has the potential as a soil amelioration material. Wollastonite minerals are natural silicate minerals that can be used as agricultural soil improvements, so that marginal land in Indonesia can be used to support the productivity of agricultural products. The study aims to determine the effect of FABA and wollastonite application on corn crop yield in Ultisol soil, as well as to determine the effect of FABA and wollastonite on the chemical characteristics of Ultisol soil.

Sampling was carried out at the Screen House of the Faculty of Agriculture, Jenderal Soedirman University and the analysis was carried out at the Soil Science Laboratory, Faculty of Agriculture, Jenderal Soedirman University, May - October 2025. The study used a Complete Group Random Design (RAK) with two factors with three replicates. The first factor is FABA which consists of four levels. The second factor of wollastonite consists of four levels. Measurement variables included plant height, leaf chlorophyll content, number of cob rows, plant N absorption, N-total soil, N-available soil, and C/N ratio. The measurement results were analyzed using ANOVA at the level of 5%, if there was a real difference, it was analyzed with DMRT at the level of 5%.

The results showed that the administration of Fly Ash Bottom Ash (FABA) dosage with four levels, namely 0 g/polybag, 18,52 g/polybag, 37,04 g/polybag, and 55,55 g/polybag increased the total N-value of the soil, plant height, chlorophyll, and N absorption value of the plant, lowering the value of N-available soil, C-organic soil, C/N ratio of soil, and number of rows per cob. The administration of wollastonite mineral dosage with four levels, namely 0 g/polybag, 29,41 g/polybag, 58,82 g/polybag, and 88,23 g/polybag decreased the N-available value of the soil, and increased the N-absorption value of the plant, N-total soil, C-organic soil, C/N ratio of soil, plant height, chlorophyll content, and number of rows per cob. The combination of FABA and wollastonite treatment at a given dose increases the value of the number of rows per cob and the N uptake of the plant.