# Analisis potensi penggunaan kotoran kerbau sebagai pupuk organik pada sistem pertanian bawang merah di Desa Pasir, Mijen, Demak

## (Potential analysis of buffalo feces as an organic fertilizer for onion farming systems in Pasir village, Mijen, Demak)

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## ABSTRAK

Penggunaan pupuk kimia dalam sistem pertanian bawang merah telah menurunkan kualitas tanah. Penambahan bahan organik seperti kotoran kerbau dapat meningkatkan kandungan hara, terutama karbon (C) dan nitrogen (N). Kegiatan pengabdian masyarakat ini bertujuan menggali potensi kotoran kerbau sebagai pupuk organik untuk pertanian bawang merah di Desa Pasir, Kecamatan Mijen, Kabupaten Demak, yang dilaksanakan pada April hingga Juli 2024. Sistem pemeliharaan kerbau diidentifikasi, dan sampel kotoran segar serta kering sebanyak 500 gram dianalisis di Fakultas Peternakan IPB University. Analisis meliputi kandungan bahan kering (BK), nitrogen (N), dan karbon (C) dan dilakukan analisis potensi penggunaan feses segar. Hasil analisis menunjukkan kandungan BK pada feses segar sebesar 17.3%, N sebesar 1.9% dan kandungan C sebesar 30%, dengan nilai C/N rasio sebesar 15. Di sekitar Desa Pasir, Kecamatan Mijen, terdapat populasi kerbau sebanyak 408 ekor. Potensi produksi feses segar dari populasi tersebut mencapai 7446 ton per tahun, dengan kandungan BK sebesar 1266 ton per tahun dan N sebanyak 24 ton per tahun. Hasil penelitian menunjukkan bahwa kotoran kerbau memiliki potensi besar untuk digunakan sebagai pupuk organik, yang dapat mendukung sistem pertanian bawang merah di wilayah tersebut secara lebih berkelanjutan. Penggunaan kotoran kerbau sebagai pupuk organik memerlukan bahan tambahan untuk mengoptimalkan nilai C/N rasio.

Keywords: bawang merah, feses kerbau, pupuk organik

## ABSTRACT

The use of artificial fertilizers in onion farming has contributed to soil quality degradation. Incorporating organic materials such as buffalo feces can enhance soil nutrient content, particularly carbon (C) and nitrogen (N). This community service initiative aimed to evaluate the potential of buffalo feces as an organic fertilizer for onion farming systems in Pasir Village, Mijen, Demak. The activity was conducted between April and July 2024. The buffalo farming system in the area was assessed, and 500-gram samples of fresh and dried buffalo feces were collected and analyzed at the Faculty of Animal Science, IPB University. The analyses was included the dry matter (DM), nitrogen (N), and carbon (C) content. The results showed that fresh buffalo feces contained 17.3% DM, 1.9% N, and 30% C, while the C/N ratio ranged between 15 and 18. In Pasir Village, Mijen, the buffalo population is approximately 408 heads. Based on these findings, the total annual feces production is estimated at 7,446 tons, with 1,266 tons of dry matter and 24 tons of nitrogen. These results highlight the significant potential of buffalo feces as an organic fertilizer to support sustainable onion farming. The application of buffalo feces can improve soil fertility while optimizing the C/N ratio, promoting environmentally friendly agricultural practices and reducing dependence on synthetic fertilizers. Further studies are suggested to explore field-level implementation and long-term impacts on soil health and crop productivity.

Keywords: red onion farming, buffalo feces, organic fertilizer