

## INTISARI

Kalium merupakan salah satu unsur hara makro yang penting setelah nitrogen dan fosfor. Pupuk kandang sapi, pupuk hijau kirinyuh dan kompos mimba merupakan beberapa jenis pupuk yang dapat digunakan untuk memenuhi hara tanaman. Penelitian ini bertujuan untuk mengetahui pengaruh pupuk kandang sapi, kompos mimba dan kirinyuh terhadap serapan kalium dan produksi tanaman padi. Penelitian ini dilaksanakan di kebun Pusat Inovasi Agro Teknologi (PIAT) Universitas Gadjah Mada, Dusun Kalitirto, Berbah, Sleman, Yogyakarta pada bulan April 2016 sampai bulan Agustus 2016. Perlakuan yang diaplikasikan adalah kompos mimba dengan dosis 10 ton/ha dan 20 ton/ha, kirinyuh dengan dosis 10 ton/ha dan 20 ton/ha, pupuk kandang sapi dengan dosis 5 ton/ha dan 10 ton/ha, dan kombinasi antara ketiga pupuk tersebut. Kandungan K total tanah, K tersedia tanah dan K total jaringan dianalisis. Hasil penelitian menunjukkan pemberian pupuk kandang sapi, kirinyuh dan kompos mimba berpengaruh terhadap penurunan pH aktual tanah fase generatif, menurunkan K tersedia tanah fase vegetatif, meningkatkan K total tanah fase vegetatif dan generatif, K total dalam jaringan tanaman padi fase vegetatif dan generatif, serapan K jaringan tanaman padi fase vegetatif dan generatif, berat segar dan berat kering tanaman padi, serta produktivitas tanaman padi. Dari semua perlakuan yang diaplikasikan, perlakuan kompos mimba dengan dosis 20 ton/ha memberikan nilai serapan kalium tertinggi yaitu 109,45 mg/akar tanaman dan 272,48 mg/tajuk tanaman. Kalium tersedia tanah terdiri dari kalium tertukarkan dan kalium terlarut. Tanaman padi sawah menyerap kalium tertukarkan karena kalium terlarut banyak hilang terbawa air yang menggenang pada sawah. Kalium tersedia tertinggi terdapat pada perlakuan kirinyuh tetapi serapan tertinggi tidak pada perlakuan tersebut. Oleh karena itu, kalium tersedia yang tinggi belum tentu memiliki serapan tanaman juga tinggi. Selain itu, tanaman pada perlakuan 20 ton/ha kompos mimba memiliki produksi tertinggi yaitu sebanyak 4,57 ton/ha. Kalium berperan dalam meningkatkan kualitas bulir sehingga semakin tinggi serapan kalium dalam tanaman maka akan diikuti semakin tinggi pula produksi tanaman tersebut.

Kata kunci : pupuk kandang sapi, kirinyuh, mimba, padi, kalium

## ABSTRACT

Potassium is an important macronutrients for plants after nitrogen and phosphorus. Cow manure, green manure from *Chromolaena odorata* and neem cake are kinds of fertilizer which can be used to meet nutrients needed of plants. The objective of this research was to determine the effect of cow manure, neem cake and *Chromolaena odorata* on potassium uptake and yield of paddy. The reasearch was conducted at Pusat Inovasi Agro Teknologi (PIAT) Universitas Gadjah Mada, Kalitirto, Berbah, Sleman, Yogyakarta from April till August 2016. The treatments of this research consisted of 10 ton/ha and 20 ton/ha of neem cake; 10 ton/ha and 20 ton/ha of *Chromolaena odorata*, 5 ton/ha and 10 ton/ha of cow manure, and combination of these three fertilizers. Total and available potassium in the soil and total potassium in plant were analyzed. The results showed that the application of cow manure, neem cake and *Chromolaena odorata* were affected on decreasing actual soil pH on generative phase, decreasing available potassium in the soil on vegetative phase, increasing total potassium in the soil and tissues and also potassium uptake in plant tissue on vegetative and generative phases, increasing fresh and dry weights of plant and productivity of paddy. Based on all of the treatments, 20 ton/ha neem cake treatment showed the highest potassium uptake value in root and shoot. There were 109,45 mg/plant in root and 272,48 mg/plant in shoot. Available potassium in the soil consited of exchangeable and water-soluble potassiums. Paddy was absorbing exchangeable potassium rather than water-soluble potassium because most of water-soluble was leached. Highest available potassium was existed in *Chromolaena odorata* treatment but potassium uptake did not exist in this treatment. Therefore, highest available potassium did not necessatily have highest plant uptake. Moreover, 20 ton/ha of neem cake treatment showed the highest yield of plant. It was 4,57 ton/ha. Role of potassium in paddy was to improve the quality of the grain so that the higher potassium uptake in plant it will be followed by the higher yield of paddy.

Key words: cow manure, *Chromolaena odorata*, neem cake, paddy, potassium