RINGKASAN

Cabai merah merupakan tanaman yang banyak dibudidayakan untuk dimanfaatkan buahnya mulai dari konsumsi skala rumah tangga sampai industri. Kendala dalam budidaya tanaman cabai salah satunya adalah areal lahan pertanian yang semakin sempit. Upaya perluasan lahan pertanian diarahkan pada lahan-lahan marginal diantaranya Ultisol. Namun pemanfaatan Ultisol memiliki banyak kendala seperti pH dan KPK rendah, kandungan Al, Fe, dan Mn terlarut tinggi, kekahatan unsur hara makro (N, P, K, S, Ca dan Mg) dan mikro (Zn, Cu, B, Mo) serta rendahnya kejenuhan basa. Pencampuran zeolit kedalam pupuk dapat memperbaiki sifat kimia tanah Ultisol serta mampu mengendalikan proses jerapan dan ketersediaan unsur hara N di dalam tanah sehingga dapat dimanfaatkan secara optimal untuk mendukung pertumbuhan tanaman. Penelitian ini bertujuan untuk: 1) mengetahui pengaruh residu pupuk NZEO-*SR* terhadap sifat kimia tanah dan serapan N oleh tanaman cabai pada tanah Ultisol, 2) mengetahui tingkat efisiensi penggunaan pupuk NZEO-*SR* oleh tanaman cabai pada tanah Ultisol.

Penelitian dilaksanakan di lahan kering jenis Ultisol yang berlokasi di Desa Karangrau, Kecamatan Banyumas, Kabupaten Banyumas dan di Laboratorium Ilmu Tanah, Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto pada Desember 2015 sampai Februari 2016. Penelitian dilakukan dengan rancangan petak terbagi dengan 3 ulangan. Petak utama berupa varietas cabai terdiri dari 2 aras, yaitu varietas Astina (V1) dan varietas *Trophy* (V2). Anak petak berupa takaran pupuk NZEO-*SR* terdiri dari 6 aras, yaitu 0 kg N/ha (N0), 30 kg N/ha (N1), 60 kg N/ha (N2), 90 kg N/ha (N3), 120 kg N/ha (N4) dan 150 kg N/ha (N5).

Hasil penelitian menunjukkan bahwa residu dari berbagai takaran pupuk NZEO-*SR* berpengaruh terhadap penurunan pH H_2O dan pH KCl tanah, peningkatan N-total tanah, bobot basah akar, bobot basah batang, bobot basah daun, bobot kering akar, bobot kering batang, bobot kering daun dan serapan N (µgN/tanaman) oleh tanaman cabai namun tidak berpengaruh terhadap nilai DHL, Al-dd dan H-dd tanah. Takaran pupuk NZEO-*SR* pada takaran 30 kg N/ha mampu menunjukkan efisiensi penggunaan unsur hara N oleh tanaman tertinggi yaitu sebesar 65,03%.

SUMMARY

Red pepper is a plant widely cultivated to be used its fruit from household to industrial scale. One of the obstacle in cultivating the red pepper plants is that the area of agricultural land is more narrow. An effort to expand the agricultural land is directed to marginal lands including ultisol . However the use of ultisol finds that a lot of obstacles such as pH and CEC (Cation Exchange Capacity) are low, the contents of Al, Fe, and dissolved Mn are high. Also, it because of lack of macro nutrients (N, P, K, S, Ca, and Mg) and micro nutrients (Zn, Cu, B, Mo), and base saturation. The blend of zeolite into fertilizer can improve soil chemical properties ultisol and control the sorption process and the availability of nutrients N in the soil so that it can be optimally used to support the plant growth.. This research aims to: 1) Know the effect of fertilizer residues NZEO-SR to the chemical characteristics of soil and N uptake by pepper plants on Ultisol, 2) Know determine the level of fertilizer use efficiency NZEO-SR by pepper plants on Ultisol.

The research had been conducted on dry land types Ultisol located at the Karangrau village, District of Banyumas, Banyumas and in the Laboratory of Soil Science, Faculty of Agriculture, University of Jenderal Soedirman, Purwokerto from December 2015 to February 2016. The research had been conducted with a split plot design with three replications. The main plot was pepper plant varieties with two kinds, namely Astina varieties (V1) and varieties Trophy (V2). The subplots were doses of NZEO-SR consists of six levels, i.e. 0 kg N/ha (N0), 30 kg N/ha (N1), 60 kg N/ha (N2), 90 kg N/ha (N3), 120 kg N/ha (N4) and 150 kg N/ha (N5).

The results showed that the NZEO-SR residue would decrease of pH H_2O and pH KCl soil, would increase the soil total-N, fresh root weight, fresh stem weight, fresh leaves weight, dry root weight, dry stem weight, dry leaves weight and N uptake by pepper plants (µg N/plant), did not significantly affect on soil-EC, exchangeable Allumunium dan Hidrogen. Fertilizers NZEO-SR at the dose of 30 kg N/ha was the highest of use N efficiency by plant, i.e. 65,03%.