RINGKASAN

Padi (*Oryza sativa* L.) merupakan tanaman pangan pokok bagi sebagian besar penduduk di Indonesia, oleh karena itu setiap faktor yang mempengaruhi peningkatan produksi dan pendapatan petani padi sangat penting untuk diperhatikan. Kendala dalam budidaya tanaman padi 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 pemberian pupuk NZEO-*SR* terhadap sifat kimia tanah dan serapan N oleh tanaman padi gogo aromatik pada tanah Ultisol dan 2) mengetahui tingkat efisiensi penggunaan pupuk NZEO-*SR* oleh tanaman padi gogo aromatik 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 Januari samapai Mei 2016. Penelitian dilakukan dengan rancangan petak terbagi dengan 3 ulangan. Petak utama berupa varietas cabai terdiri dari 2 aras, yaitu varietas Inpago Unsoed I (V1) dan G9 (V2). Anak petak berupa takaran pupuk NZEO-*SR* terdiri dari 6 aras, yaitu 0 kg N/ha (N0), 35 kg N/ha (N1), 70 kg N/ha (N2), 105 kg N/ha (N3), 140 kg N/ha (N4) dan 175 kg N/ha (N5).

Hasil penelitian menunjukkan bahwa pemberian berbagai takaran pupuk NZEO-SR berpengaruh nyata menurunkan DHL tanah, menurunkan Al-dd tanah, meningkatkan bobot basah daun, bobot basah malai dan serapan N gabah (mg N/tanaman), namun tidak berpengaruh nyata terhadap pH H_2O dan pH KCl tanah, N total tanah, H-dd tanah, bobot basah akar, bobot basah batang, bobot basah gabah, bobot kering akar, bobot kering batang, bobot kering daun, bobot kering gabah, bobot kering malai, dan serapan N daun. Pupuk NZEO-*SR* pada takaran 35 kg N/ha mempunyai efisiensi penggunaan unsur hara N oleh tanaman tertinggi yaitu sebesar 63%.

SUMMARY

Rice (Oryza sativa L.) is the dominant crop for the majority of people in Indonesia, so that each of factors affect improving rice production and farmers income enhancement is very important consideration. One of the constraint in cultivation the rice 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 constraint such as pH and CEC (Cation Exchange Capacity) are low, the contents of Al, Fe, and Mn dissolved 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 use 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 NZEO-SR to the chemical characteristics of soil and N uptake by aromatic upland rice plants on Ultisol and 2) know determine the level of fertilizer use efficiency NZEO-SR by aromatic upland rice 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 January to May 2016. The research had been conducted with a Split Plot Design with three replications. The main plot was aromatic upland rice plant varieties with two kinds, namely Inpago Unsoed I varieties (V1) and G9 (V2). The subplots were doses of NZEO-SR consists of six levels, i.e. 0 kg N/ha (N0), 35 kg N/ha (N1), 70 kg N/ha (N2), 105 kg N/ha (N3), 140 kg N/ha (N4) and 175 kg N/ha (N5).

The results showed that the NZEO-SR would decrease of soil-EC, exchangeable Allumunium of soil, increase of fresh root weight, fresh leaves weight and N uptake of grain (mg N/plant), did not significantly affect on pH H_2O, pH KCl, total-N, exchangeable Hidrogen of soil, fresh root weight, fresh stem weight, fresh grain weight, fresh panicle rice weight, dry root weight, dry stem weight, dry leaves weight, dry grain weight, dry panicle rice weight and N uptake of leaves. NZEO-SR fertilizers at the dose of 35 kg N/ha was the highest of N use efficiency by plant, i.e. 63%.