RINGKASAN

Tanah yang digunakan untuk budidaya tanaman jagung umumnya memiliki status unsur hara rendah sehingga diperlukan tambahan pemupukan dalam jumlah yang sesuai diperlukan oleh tanaman. Petani belum melakukan pemupukan sesuai kebutuhan tanaman dan berimbang sehingga menjadi salah satu penyebab rendahnya produksi jagung. Analisa tanah diperlukan terkait kajian status unsur hara Kalium (K) dan Magnesium (Mg) agar dapat mengetahui keadaan aktual di lahan untuk tanaman jagung dan informasi, terkait pemberian pupuk yang sesuai dengan kebutuhan tanaman. Penelitian ini bertujuan untuk mengetahui status unsur hara kalium dan magnesium, menentukan hubungan unsur hara K dan Mg terhadap hasil tanaman jagung, serta menentukan rekomendasi pemupukan kalium pada lahan untuk tanaman jagung di Kecamatan Kembaran, Kabupaten Banyumas.

Penelitian dilaksanakan mulai Oktober 2017 sampai Januari 2018 melalui survei di lahan untuk tanaman jagung, Kecamatan Kembaran, Kabupaten Banyumas. Metode yang digunakan yaitu *purposive random sampling* dan pengambilan sampel dilakukan secara komposit. Peta Satuan Lahan Homogen (SLH) dengan skala 1:50.000 (semi-detail) merupakan hasil *overlay* dari Peta Administrasi, Peta Jenis Tanah, Peta Kemiringan Lereng dan Peta Penggunaan Lahan. Penentuan titik sampel didasarkan atas persentase kelas SLH dan berdasarkan hasil survei lapangan, di lahan untuk budidaya tanaman jagung. Variabel yang diamati meliputi pH H_2O, pH KCl, DHL, K-tersedia dan Mg-tersedia tanah.

Hasil penelitian menunjukkan bahwa status unsur hara kalium di lokasi penelitian termasuk ke dalam harkat sedang (0,40 – 0,63 cmol(+)kg^{-1} K_2O) pada SLH 1 dan tinggi (0,52 – 2,37 cmol(+)kg^{-1} K_2O) pada SLH 2, 3 dan 4. Unsur hara magnesium secara keseluruhan tergolong tinggi (7,72 – 11,85 cmol(+)kg^{-1} MgO). Hubungan unsur hara K dengan hasil tanaman jagung didapatkan persamaan fungsi kuadrat $y = -61{,}053x^2 + 80{,}825x – 20{,}967$ dengan nilai K-tersedia optimum sebesar 0,66 cmol(+)kg^{-1} K_2O dan hasil tanaman sebesar 5,78 ton ha^{-1}. Hubungan unsur hara Mg dengan hasil tanaman jagung didapatkan persamaan fungsi kuadrat $y = -0{,}1857x^2 + 3{,}8359x - 13{,}782$ dengan nilai Mg-tersedia optimum sebesar 10,32 cmol(+)kg^{-1} MgO dan hasil tanaman sebesar 6,028 ton ha^{-1}. Rekomendasi pemupukan di lahan untuk budidaya tanaman jagung yaitu di lokasi penelitian pada kandungan K-tersedia tanah rendah dengan pemberian pupuk sebesar 23,85 kg K_2O ha^{-1} (39,75 kg KCl ha^{-1}).

SUMMARY

The soils on the cornfields are usually had a low nutrient level, which requires some sufficient fertilization. Meanwhile, the farmers are facing difficulties to do a rational and balanced fertilization process as much as it needed, which caused rather low yield of corn crops. Therefore, it is necessary to undergo some soil analysis related to the status of Potassium (K) and Magnesium (Mg) nutrients in order to assess the current situation in the cornfields and calculating the fertilizer's dosage required by the field. This research aims to determine the fields' nutrient status of K and Mg, determine the relation between K and Mg nutrients to the amount of corn yields, and determine the optimal recommended dosage of K nutrient in cornfields located at Kembaran District, Banyumas Regency.

The research was conducted from October 2017 until January 2018 by conducting a soil survey in the cornfields across Kembaran District, Banyumas Regency. The purposive random sampling with composite sampling system is used as this research method. The Homogenous Land Unit (LU) created with a 1:50.000 (semi-detailed) scale, combining the Administration Map, Soil Type Map, Slope Map, and Land Use Map. The sample points are determined based on the LU classes' percentages and the field survey and observation on the cornfields. The observed variables were pH H_2O, pH KCl, electrical conductivity, K-available and Mg-available of soil.

The result showed that the nutrient status of K in the samples can be classified as medium level (0,40 – 0,63 cmol(+)kg^{-1} K_2O) at LU 1 and high level (0,52 – 2,37 cmol(+)kg^{-1} K_2O) at LU 2, 3 and 4. Meanwhile, the nutrient status of Mg in the samples generally classified as high level (7,72 – 11,85 cmol(+)kg^{-1} MgO) at all LUs. The relation between K nutrient level and the corn yields are represented in the form of the quadratic function, $y = -61{,}053x^2 + 80{,}825x - 20{,}967$, which shows that 0.66 cmol(+)kg^{-1} K_2O of K-available nutrients can produce 5,78 ton ha^{-1} of corn yield. The relation between Mg nutrient level and the corn yields are also represented in the form of the quadratic function, $y = -0{,}1857x^2 + 3{,}8359x - 13{,}782$, which shows that 10.32 cmol(+)kg^{-1} MgO of Mg-available nutrients can produce 6.028 ton ha^{-1} of corn yield. In general, the cornfields in Kembaran District, Banyumas Regency which regarded as the low levels of K-available nutrients are required to be fertilized with the amount of KCl dosage as much as 23,85 kg K_2O ha^{-1} (39,75 kg KCl ha^{-1}).