

INTISARI

Penelitian ini dilakukan di Perkebunan Teh UP Tambi, Wonosobo, untuk menganalisis pengaruh tingkat kelas lereng terhadap ketersediaan dan serapan hara makro nitrogen (N), fosfor (P), dan kalium (K) pada tanah Andisol setelah pemupukan N lepas lambat. Parameter yang diamati meliputi pH H₂O, pH KCl, bahan organik, karbon organik, kapasitas pertukaran kation (KPK), N-total tanah, P-tersedia tanah, K-tersedia tanah, N-total daun, P-total daun, dan K-total daun. Penelitian menggunakan rancangan acak lengkap (RAL) dengan lima kelas lereng (0–8%, 8–15%, 15–25%, 25–45%, dan >45%). Kemudian pengambilan sampel dilakukan pada tiga kali: H-0, H-30, dan H-60. Pemupukan dilakukan menggunakan pupuk N lepas lambat dengan kombinasi Urea 150 kg/ha, *Master Booster* 300 ml/ha, *Coating* 0,75 kg/ha, dan *Organic Compound Fertilizer* 15 kg/ha, yang merupakan setengah dari dosis anjuran. Hasil penelitian menunjukkan bahwa N-total tanah berada pada tingkat sedang hingga tinggi dan memiliki hubungan positif dengan peningkatan serapan N pada daun teh. P-tersedia tanah sedikit meningkat setelah pemupukan namun tetap pada tingkat rendah, demikian pula serapan P daun teh yang masih terbatas meskipun terdapat variasi antar kelas lereng. K-tersedia tanah dan serapan K daun teh tetap sangat rendah di semua lereng. Analisis korelasi menunjukkan hubungan kuat antara N tanah dan serapan N ($r = 0,43$), hubungan sedang antara K tanah dan serapan K ($r = 0,34$), serta hubungan lemah antara P tanah dan serapan P ($r = 0,17$). Secara keseluruhan, penerapan pupuk N lepas lambat dengan dosis setengah anjuran mampu meningkatkan ketersediaan dan serapan N, namun kurang optimal dalam menambah P dan K tanah karena pasokan hara P dan K dari pupuk relatif rendah.

Kata kunci: Andisol, lereng, lepas-lambat, serapan, teh

ABSTRACT

This study was conducted at the UP Tambi Tea Plantation, Wonosobo, to analyze the effect of slope class levels on the availability and uptake of macronutrients nitrogen (N), phosphorus (P), and potassium (K) in Andisol soil after the application of slow-release nitrogen fertilizer. The observed parameters included soil pH (H₂O and KCl), organic matter, organic carbon, cation exchange capacity (CEC), total soil N, available soil P, available soil K, total leaf N, total leaf P, and total leaf K. The experiment was arranged in a Completely Randomized Design (CRD) with five slope classes (0–8%, 8–15%, 15–25%, 25–45%, and >45%). Sampling was carried out three times: H-0, H-30, and H-60. Fertilization was conducted using a slow-release nitrogen fertilizer composed of 150 kg/ha urea, 300 ml/ha Master Booster, 0.75 kg/ha coating material, and 15 kg/ha Organic Compound Fertilizer, which represented half of the recommended dosage. The results showed that total soil N ranged from moderate to high levels and exhibited a positive correlation with the increase of N uptake in tea leaves. Available soil P slightly increased after fertilization but remained at a low level, as did P uptake in the leaves, despite some variation among slope classes. Both available soil K and K uptake in tea leaves remained very low across all slopes. Correlation analysis revealed a strong relationship between soil N and N uptake ($r = 0.43$), a moderate relationship between soil K and K uptake ($r = 0.34$), and a weak relationship between soil P and P uptake ($r = 0.17$). Overall, the application of slow-release nitrogen fertilizer at half the recommended dose effectively improved N availability and uptake but was less effective in enhancing soil P and K due to the relatively low P and K nutrient content in the fertilizer.

Keywords: Andisol, slope, slow-release, uptake, tea