

Soil fertility depletion is a serious problem in Ethiopian highlands due to leaching and erosion of topsoil by intense rainfall, which reduces potato production and productivity. The experiment was carried out for two consecutive years (including the years) with the objective of evaluating the influence of the blended NPSB fertilizer rates on the better production of Irish potato. The treatment consists of control (without fertilizers), 150kg NPSB + 91kg Urea, 200kg NPSB + 121kg Urea, 250kg NPSB + 152kg Urea and 300kg NPSB + 182kg Urea. To improve the at the soil acidity of the study site, 2 t ha⁻¹ Calcitic lime (CaCO₃) was broadcasted using hand and thoroughly mixed with the soil one month before planting the test crop. The treatments were arranged in randomized complete block design with three replications. Improved potato variety 'Belete' was used as a test crop and was planted early in the 'Belg' season. Composite soil sample was randomly collected before the application of lime in zigzag movement with the sampling depth of (0-20cm) and composited into one kg of a sample. The analysis results of the initial soil sample revealed that it was clay in texture, strongly acidic, medium in OC and available S, medium in available P, high in available K, and deficient in nitrogen and boron. The analysis of variance showed significant differences between the treatments on potato tuber yield and tuber number of tuber per plant. The maximum marketable yield (22874 kg ha⁻¹), unmarketable yield (829 kg ha⁻¹) and total tuber yield (23704 kg ha⁻¹) were obtained from the application of 200 kg NPSB + 121 kg urea fertilizers. In terms of cost, the maximum net benefit of ETB 203,640.6 ha⁻¹ with acceptable marginal rate of returns (MRR) of 5898.79% was obtained from 200 kg NPSB + 121 kg urea ha⁻¹. Therefore, application of 200 kg NPSB + 121 kg urea ha⁻¹ can be recommended for potato growers in the study area and other similar agro ecologies.


