

EFFECT OF FERTILIZATION REGIMES ON WINTER WHEAT YIELDS AND SOIL FERTILITY

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In the Republic of Serbia the impact of acid soils of arable land is over 60%. Wheat production in these soils is significantly reduced. The increasing of wheat yield on acid soils is possible by applying adequate fertilization regime (melioration and regular fertilization), as well as the growing of wheat genotypes tolerant to low pH values of these lands. The field experiment was carried out on soil type pseudogley in the Kraljevo locality, where in addition to land reclamation (lime fertilizer - 5 t ha⁻¹ and manure - 30 t ha⁻¹) applied NPK fertilizers with different proportions of nutrients (N 120 kg ha⁻¹ pure nutrients, P- 60, 80 and 160 kg ha⁻¹ pure nutrients and K-60 and 80 kg ha⁻¹ pure nutrient). The four wheat cultivars (Pobeda, Renesansa, Planeta i Nora) were investigated. The results of investigation showed a significant effect of fertilization on soil fertility improvement of soil type of pseudogley, especially in the case when melioration's lime and manure were applied together with the regular use of NPK fertilizers. By this approach pH of soil was increased for more than 1.0 pH unit, as well content of available phosphorus (more than 3.5 mg 100 g⁻¹), potassium (more than 1.0 mg 100 g⁻¹) and calcium for a few tenth mg, while the content of mobile forms Al in soil decreased from 6-8 mg 100 g⁻¹ at 0.1-0.8 mg 100 g⁻¹. Also, by application of these fertilizers in the land is reduced available forms of iron (30-50 mg kg⁻¹), manganese (10-50 mg kg⁻¹), copper (0.5-1.0 mg kg⁻¹) and insignificantly zinc content. The highest grain yield of all tested cultivars of winter wheat was achieved by applying a common mineral NPK, lime and manure. Cultivar Nora had the highest yield (7.17 t ha⁻¹) under combination of melioration's application of lime and manure in the same time of regular application of NPK fertilizers. However, on the control variant (without fertilizer) the Planeta wheat cultivar had the highest grain yield (2.12 t ha⁻¹).

Key words: Fertilization, fertility, yield, soil, winter wheat.

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