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THE EFFECT OF DIFFERENT FERTILISATION AND MOISTURE ON PHOSPHORUS CONTENT IN THE SOIL AND SWARD OF PERMANENT DRY MEADOW

Key words: mineral fertilisers, organic fertilisers, permanent meadow, phosphorus

Summary

Studies were carried out on permanent dry meadow situated on black degraded earth in Falenty in the years 2009–2011. Experimental factors consisted of four levels of mineral fertilisation, two levels of organic-mineral fertilisation at optimum moisture (irrigated objects) and at periodical water deficits (without irrigation). An additional object was fertilised with 180 kg N ha⁻¹ but phosphorus fertilisation had been abandoned since 1997 there.

The study was aimed at assessing the effect of mineral and organic-mineral fertilisation and of soils moisture on phosphorus content in meadow sward and in soil.

No significant differences were found in yielding between the object devoid of phosphorus fertilisation (N-180bis) and other objects fertilised with phosphorus and the same dose of nitrogen in both mineral (N-180) and organic-mineral (G1) form. A distinct trend of decreasing pH was found in all fertilisation variants in both analysed soil layers. The lowest pH was found in meadows fertilised with the highest doses of mineral N (N-240). Fertilisation with liquid manure mitigated the effect of soil acidification in experimental objects and stabilised soil pH.

Analysed soil was rich in phosphorus even in the object not fertilised with this nutrient for 14 years. Phosphorus content in the sward from variants fertilised with phosphorus exceeded the optimum values. Slightly smaller phosphorus content, within the optimum limits, was determined in the sward from object devoid of phosphorus fertilisation.