

## **Fertigation Use in Agriculture and Biosorption of Residual Nitrogen by Soil Microorganisms**

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**Abstract :** Present work deals with the possible use of fertigation in agriculture and its impact on the availability of mineral nitrogen (N<sub>min</sub>) in topsoil and subsoil horizons. The aim of the present study is to demonstrate the effect of the organic matter presence in fertigation on microbial transformation and availability of mineral nitrogen forms. The main investigation reason is the potential use of pre-treated waste water, as a source of organic carbon (C<sub>org</sub>) and residual nutrients (N<sub>min</sub>) for fertigation. Laboratory experiment has been conducted to demonstrate the effect of the arable land fertilization method on the N<sub>min</sub> availability in different depths of the soil with the usage of model experimental containers filled with soil from topsoil and podsoil horizons that were taken from the precise area. Tufted hairgrass (*Deschampsia caespitosa*) has been chosen as a model plant. The water source protection zone Brezova nad Svitavou has been a research area where significant underground reservoirs of drinking water of the highest quality are located. From the second half of the last century local sources of drinking water show nitrogenous compounds increase that get here almost only from arable lands. Therefore, an attention of the following text focuses on the fate of mineral nitrogen in the complex plant-soil. Research results show that the fertigation application with C<sub>org</sub> in a combination with mineral fertilizer can reduce the amount of N<sub>min</sub> leached from topsoil horizon of agricultural soils. In addition, some plants biomass production reduce may occur.

**Keywords :** fertigation, fertilizers, mineral nitrogen, soil microorganisms

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