



Microcosm experiments approach to quantify nitrogen leaching from mineral and organic fertilized soil

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The use of nitrogen inputs to improve agricultural soils fertility is a common practice in arable lands. Depending of nitrogen forms only a part of introduced nitrogen will be effectively used by the crops while another part can be leached from soil with negative impact on the environment. In temperate climate these losses are greater during spring time when rains are frequent and crop plants are in the early growth stage. In a microcosm experiments we simulated this kind of conditions in order to assess nitrogen losses from two different soils (Chernozem, Luvisol) fertilized with mineral (ammonium nitrate) and organic (mustard as green manure, slurry manure and cattle manure) fertilizers. From each microcosms we obtained 100 ml of leachate which was filtered and analyzed from $N-NO_3$ and $N-NH_4$. The leachate was obtained by adding distillate water at the microcosm surface two times during the experiment at a ten days interval.

Preliminary results showed that only small quantity of ammonium was leached from fertilized soils, mainly after 20 days of incubation. These amounts were higher in Chernozem soil than in Luvisol and registered the highest amount in cattle manure fertilized soils. In general, the nitrate was leached from soils in high quantities. The highest value was measured in Chernozem soil when cattle manure was used as fertilizer (1200 mg/l) and represents a cumulative amount. For most of the treatments the cumulative loss of nitrate nitrogen was double in Chernozem soil than in Luvisol. The highest quantity of leaching nitrate was measured for both soils in manure fertilized soil.