

Ispiranje dušika pri uzgoju šećerne repe, ozime pšenice i ozime uljane repice

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Sažetak

Postizanje visokih prinosa poljoprivrednih kultura podrazumijeva korištenje velikih količina mineralnih i/ili organskih gnojiva kako bi se maksimalno iskoristili fizikalni, kemijski i biološki potencijali tla. Najveći izvor onečišćenja tla i voda predstavljaju dušična gnojiva. Tijekom 2003.-2006. na semiglej aluvijalnom tlu kontrolnog polja Vinokovščak provedeno je istraživanje onečišćenja tla i voda mineralnim dušikom pri uzgoju različitih ratarskih kultura (šećerna repa, ozima pšenica i ozima uljana repica) i uz primjenu različitih vrsta i doza mineralnih gnojiva. Nitratni dušik u tlu varirao je od 0,06 mg $\text{NO}_3^-/100$ g tla 2005. godine do 21,43 mg $\text{NO}_3^-/100$ g tla 2003., a amonijačni od 0,26 mg $\text{NH}_4^+/100$ g tla 2004. do 8,42 mg $\text{NH}_4^+/100$ g tla 2006. Ukupni mineralni dušik u tlu se kretao od 17,37 kg N/ha 2005. do 267,79 kg N/ha 2006. godine. Nitratni dušik u vodi tenziometara varirao je od 1,40 mg $\text{NO}_3^-/\text{dm}^3$ 2004. do 135,40 mg $\text{NO}_3^-/\text{dm}^3$ 2005., a amonijačni dušik od 0,05 mg $\text{NH}_4^+/\text{dm}^3$ 2003. do 3,30 mg $\text{NH}_4^+/\text{dm}^3$ 2004. Nitratni dušik u procjednoj vodi gravitacijskih lizimetara varirao je od 4,30 mg $\text{NO}_3^-/\text{dm}^3$ 2006. do 225,10 mg $\text{NO}_3^-/\text{dm}^3$ 2004., a amonijačni od 0,20 mg $\text{NH}_4^+/\text{dm}^3$ 2005. i 2006., do 3,00 mg $\text{NH}_4^+/\text{dm}^3$ 2004. godine. Dakle, ukupno se najviše dušika iz tla ispralo tijekom 2004. godine pri uzgoju šećerne repe i ozime pšenice - 35,96 kg N/ha ili 54,5% ukupnog N dodanog gnojivom.

Ključne riječi: dušik, tlo, voda, ispiranje, onečišćenje

Nitrogen leaching in the production of sugar beet, winter wheat and winter oil rape

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Abstract

Achieving high yields of field crops implies the use of large quantities of mineral and/or organic fertilizers in order to utilize the most of soil physical, chemical and biological potentials. Nitrogen fertilizers are the major source of soil and water pollution. Soil and water pollution by mineral nitrogen was monitored in the 2003-2006 period in the production of different field crops (sugar beet, winter wheat and winter oil rape) on semigley alluvial soil of the control field Vinokovščak, involving application of different types and doses of mineral fertilizers. Soil nitrate nitrogen ranged from 0.06 mg NO₃⁻/100 g soil in 2005 to 21.43 mg NO₃⁻/100 g soil in 2003 and ammonium nitrogen from 0.26 mg NH₄⁺/100 g soil in 2004 to 8.42 mg NH₄⁺/100 g soil in 2006. Total mineral nitrogen ranged from 17.37 kg N/ha in 2005 to 267.79 kg N/ha in 2006. Nitrate N in tensiometer water ranged from 1.40 NO₃⁻ mg/dm³ in 2004 to 135.40 NO₃⁻ mg/dm³ in 2005 and ammonium N from 0.05 mg NH₄⁺/dm³ in 2003 to 3.30 mg NH₄⁺/dm³ in 2004. Nitrate N in water percolated from gravity lysimeters ranged from 4.30-NO₃⁻ mg/dm³ in 2006 to 225.10 NO₃⁻ mg/dm³ in 2004 and ammonium N from 0.20 mg NH₄⁺/dm³ in 2005 and 2006 to 3.00 mg NH₄⁺/dm³ in 2004. Thus, the highest amount of nitrogen leached from the soil was in 2004, in the production of sugar beet and winter wheat – 35.96 kg N/ha or 54.5% of total N added with fertilization.

Key words: nitrogen, soil, water, leaching, pollution