

## Ispiranje nitrata pri različitim tehnologijama uzgoja lubenica

Mario Sraka<sup>1</sup>, Dean Ban<sup>2</sup>, Ivan Bratović<sup>3</sup>, Danijela Vrhovec<sup>1</sup>

<sup>1</sup>*Agronomski fakultet Sveučilišta u Zagrebu, Svetošimunska 25, 10000 Zagreb, Hrvatska  
(e-mail: msraka@agr.hr)*

<sup>2</sup>*Institut za poljoprivredu i turizam Poreč, Carla Huguesa 8, 52440 Poreč, Hrvatska*

<sup>3</sup>*Uprava za zatvorski sustav, Valtura, Hrvatska*

### Sažetak

U radu su prikazani rezultati poljskog pokusa provedenog tijekom 2008. godine na dubokoj crvenici na području Valture o kretanju nitrarnog dušika u tlu i procjednim vodama, prilikom uzgoja lubenice na golom tlu, odnosno na tlu prekrivenim organskim (slama) i sintetskim (PE film) materijalima. U uvjetima navodnjavanja lubenice gnojidba je provedena fertirigacijom s dozama 60, 120 i 180 kg N/ha. Koncentracije nitrarnog dušika u oraničnom sloju tla varirale su od 1,05-17,73 mg NO<sub>3</sub><sup>-</sup>/100 g tla i uglavnom su bile niže na golom tlu u odnosu na tlo prekriveno slamom i PE - filmom. Koncentracije nitrarnog dušika u procjednoj vodi varirale su u širokom rasponu od 11,9-568,5 mg NO<sub>3</sub><sup>-</sup>/l, ovisno o količini procjedene vode, razini gnojidbe i potrošnji nitrata od strane lubenice. Najveće koncentracije nitrarnog dušika u procjednoj vodi utvrđene su na golom tlu. U pravilu, na najviše gnojenim varijantama zabilježene su i najveće koncentracije nitrarnog dušika u tlu i vodama. U procjednim vodama povećane koncentracije nitrarnog dušika često su prelazile maksimalno dozvoljene koncentracije za pitke vode (Prema Pravilniku o zdravstvenoj ispravnosti vode za piće N.N. 182/04). Stoga je u cilju zaštite tla, a posebice voda, nužno provoditi racionalnu upotrebu dušičnih gnojiva na poljoprivrednim površinama ovoga područja, budući da se radi o osjetljivom krškom krajobrazu. čije se podzemne vode koriste kao vode za piće.

Ključne riječi: ispiranje, nitrati, lubenica, tehnologije uzgoja

## Nitrate leaching under different production technologies of water melon

Mario Sraka<sup>1</sup>, Dean Ban<sup>2</sup>, Ivan Bratović<sup>3</sup>, Danijela Vrhovec<sup>1</sup>

<sup>1</sup>*Agronomski fakultet Sveučilišta u Zagrebu, Svetošimunska 25, 10000 Zagreb, Croatia  
(e-mail: msraka@agr.hr)*

<sup>2</sup>*Institute of Agriculture and Tourism Poreč, Carla Huguesa 8, 52440 Poreč, Croatia*

<sup>3</sup>*Department for Prison System, Valtura, Croatia*

### Abstract

In this study the results about the distribution of nitrate in soil and percolated water upon water melon growing on bare soil, on the soil covered by organic (straw) and synthetic (PE film) materials were showed. The field experiment was conducted during 2008 on the deep red soil of the Valtura area. Fertilization was achieved with fertirrigation rates 60, 120 and 180 kg N/ha. The concentrations of nitrate nitrogen in the upper layer of soil have varied from 1.05-17.73 mg NO<sub>3</sub><sup>-</sup>/100 g of soil and mainly they have been lower on the bare soil than on the soil covered with straw and PE - film. The concentrations of nitrate nitrogen in percolated water have varied in a wide range from 11.9-568.5 mg NO<sub>3</sub><sup>-</sup>/l, depending on the quantity of filtered water, level of fertilization and consumption of nitrate from water melon. The highest concentration of nitrate nitrogen in percolated water was determined on the bare soil. As a rule, the highest fertilized variants have also the highest concentration of nitrate nitrogen in soil and waters. In percolated waters the increased concentration of nitrate nitrogen often exceeded the maximum allowable concentration for drinking water (According to Croatian rules). For this reason it is necessary to use rationally nitrogen fertilizers on the agricultural areas of this region, in order to protect its soil, and especially its water, as it is a question of delicate Karst landscape, whose ground waters are used as drinking water.

Key words: leaching, nitrate, water melon, production technologies