

# Nitrogen Nutrition Impact on Tuber Mineral Composition of Early Potatoes Varieties

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## Abstract

Results for this paper research are collected from a trial field preformed in Jasenica in 2004 and 2005 year. The experiment was set up in randomized block design scheme in three replications. For side dressing we used three nitrogen doses (N 100, N 200 and N 300 kg N/ha) plus control plots (N 0 kg/ha). Data were being collected during two years 2004 and 2005. The objective of this research was to estimate the influence of nitrogen nutrition on mineral composition of potato tuber, priory yield and quality of tuber. In basic side dressing nitrogen, phosphorus and potassium are supplied from NPK nutrient (7-20-30) determinate from soil analyses. Additional dressing is submitted 45 days after the planting of crops from KAN (27% N) and UREA (46% N). Results of ANOVA test show that for season 2004 treatments have significant influence on percentage of nitrogen, as selection of varieties and their interaction, while in 2005 this relation hasn't been occurred. For 2004 it is established that percentage of potassium is influenced by different nutrition treatments and varieties while the phosphorus is influenced only by treatment. For vegetation season 2005 we didn't find significant influence by any of these traits. Percentage of nitrogen in potato tuber grows as we increase the nutrition treatments, thus potato yield is following the incensement proportionally. Significant correlation relationship has occurred between nitrogen and phosphorus but this wasn't the case with nitrogen and potassium. Also very high correlation has occurred between percentage of dry mater weight of tuber and these macronutrients for both seasons.

Key words: nitrogen, mineral composition, early potato, tuber quality

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# Utjecaj ishrane dušikom na mineralni sastav gomolja ranih sorata krumpira

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## Sažetak

Rezultati za ovaj istraživački rad prikupljeni su sa poljskog pokusa postavljenog po shemi slučajnog bloknog rasporeda 2004. i 2005. god. na obiteljskom gospodarstvu u Jasenici. Pokus je uključivao tri rane sorte krumpira (Adoru, Cleopatra i Lisetu) sa četiri različita gnojidbena tretmana (300 kg N/ha, 200 kg N/ha, 100 kg N/ha i 0 N/ha-kontrolni tretman.) primijenjenim u tri repeticije. Cilj ovog rada je da prikažemo utjecaj ishrane dušikom na mineralni sastav gomolja, odnosno prinos i kvalitetu. Dušik, kao P<sub>2</sub>O<sub>5</sub> i K<sub>2</sub>O u osnovnoj gnojidbi su podmireni iz NPK hranjiva formulacije 7-20-30, na osnovu analize tla, a u prihrani 45 dana nakon sadnje korišten je KAN (27% N) i UREA (46% N). Rezultat ANOVA testa pokazuje da u 2004. god. na% N značajno utječe primjena tretmana, kao i izbor sorte, te njihov interakcijski odnos, dok se u 2005. taj utjecaj nije pokazao signifikantnim. Za 2004. godinu je utvrđeno, da na% K<sub>2</sub>O u gomolju usjeva utječe primjena različitih tretmana, te odabir sorte, a na% P<sub>2</sub>O<sub>5</sub> signifikantan utjecaj imao je samo gnojidbeni tretman. U 2005. god. utjecaj odabira sorte i tretmana nije se pokazao značajnim na povećanje koncentracije dušika, fosfora i kalija. Koncentracija dušika u gomolju krumpira raste kako se povećavaju gnojidbeni tretmani, te se razmjerno tomu povećava i prinos usjeva. Ustanovljena je jaka korelacijska veza između N i P<sub>2</sub>O<sub>5</sub>, dok između N i K<sub>2</sub>O korelacija nije bila signifikantna. Visoko signifikantna korelacija vidljiva je između% suhe tvari i makroelementa N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O za 2004. i 2005. god.

Ključne riječi: dušik, mineralni sastav, rani krumpir, kvaliteta gomolja

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