

Utjecaj kiselosti oraničnog sloja dreniranog pseudoglejnog tla na prinos ozime pšenice u 2012. godini

Milan MESIĆ, Ivana ŠESTAK, Aleksandra JURIŠIĆ, Željka ZGORELEC, Igor BOGUNOVIĆ

Sveučilište u Zagrebu, Agronomski fakultet, Svetošimunska cesta 25, 10000 Zagreb, Hrvatska,
(e-mail: mmesic@agr.hr)

Sažetak

Na pokusnom polju u Popovači od 1996. godine provodi se istraživanje s različitim količinama gnojidbe mineralnim dušikom (0-300 kg). U vegetacijskoj godini 2011/12. kao test kultura uzgajana je ozima pšenica. S obzirom da su na pokusu u 2010. godini uzeti uzorci tla u vrlo gustoj mreži od 15x15 m, a za rad je korištena novo konstruirana sonda, dobiveni su podaci o prostornom rasporedu pH vrijednosti tla na ukupnoj pokusnoj površini od 4 ha, na temelju 200 pojedinačnih uzoraka tla. Žetva ozime pšenice u 2012. godini provedena je prema pravilima za preciznu poljoprivredu (precision farming), te je požeto ukupno 180 pojedinačnih odvaga zrna na temelju kojih je izračunat prinos u t ha⁻¹. Karta prostorne raspodjele prinosa ozime pšenice prema pokusnim varijantama izrađena je geostatističkom metodom „ordinary kriging“ s pravilnom mrežom uzorkovanja od 15x15 m (ArcGIS, ESRI, 2012.). Na temelju usporedbe prikaza karte prinosa pšenice i karte pH vrijednosti tla, može se zaključiti kako je uz dušik, bitan čimbenik visine prinosa zrna i pH vrijednost tla. Apsolutni raspon vrijednosti prinosa kretao se od 0,12 - 9,23 t ha⁻¹. Niska pH vrijednost tla djelovala je na smanjenje prinosa, dok su u slučaju povoljne reakcije tla prinos raste do maksimalno zabilježenih vrijednosti. Usporedba prostorne varijabilnosti pH vrijednosti tla ukazuje na presudan utjecaj pH vrijednosti oraničnog sloja tla na prinos pšenice u 2012. godini, bez obzira na razinu gnojidbe mineralnim dušikom.

Ključne riječi: precizna poljoprivreda, „ordinary kriging“, ozima pšenica, pH vrijednost tla, mineralna dušična gnojidba

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The effect of arable soil layer acidity in drained Stagnosols on winter wheat grain yield in 2012

Milan MESIĆ, Ivana ŠESTAK, Aleksandra JURIŠIĆ, Željka ZGORELEC, Igor BOGUNOVIĆ

University of Zagreb, Faculty of Agriculture, Svetošimunska cesta 25, 10000 Zagreb, Croatia,
(e-mail: mmesic@agr.hr)

Abstract

Since 1996, research with different amounts of mineral nitrogen fertilization (0-300 kg) is conducted on the experimental field in Popovača. During the vegetation year 2011/12 winter wheat was grown as a test crop. Given that the soil samples at the experiment in 2010 were taken in a very dense grid of 15x15 m, and the sampling was performed using newly designed probe, data on the spatial distribution of soil pH on the total experimental area of 4 ha were obtained based on 200 individual soil samples. The harvest of winter wheat in 2012 was carried out according to the rules of precision farming. Total of 180 individual grains weights was harvested and winter wheat grain yield was calculated in t ha⁻¹. Map of the grain yield spatial distribution according to the fertilization treatments was made by geostatistical method of "ordinary kriging" using a regular sampling grid of 15x15 m (ArcGIS, ESRI, 2012). Based on the comparison of the grain yield and soil pH spatial variability, it can be concluded that the soil pH was an important factor influencing winter wheat yield performance, beside the substantial effect of nitrogen. The absolute range of yield values ranged from 0.12 to 9.23 t ha⁻¹. Low soil pH value led to decrease in grain yield, whereas in the case of favourable soil pH, yield was increased to a maximum values recorded. Comparison of the soil pH spatial variability indicated decisive effect of the soil pH value in arable layer on winter wheat grain yield in 2012, regardless of the mineral nitrogen fertilization level.

Key words: precision farming, ordinary kriging, winter wheat, soil pH, mineral nitrogen fertilization

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