

Utjecaj gnojidbe na prinos i parametre tehnološke kakvoće pšenice

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Sažetak

S ciljem utvrđivanja utjecaja gnojidbe na prinos i parametre tehnološke kakvoće pšenice postavljen je u jesen 2001. u Križevcima gnojidbeni pokus po slučajnom bloknom rasporedu. Pokus je trajao tri godine i završio je u ljeto 2004. Gnojidbeni tretmani bili su: 1. Kontrola (bez gnojidbe), 2. N_1P_1 (80:100:0 kg·ha⁻¹ N:P₂O₅:K₂O), 3. N_1K_1 (80:0:100), 4. P_1K_1 (0:100:100), 5. $N_1P_1K_1$ (80:100:100), 6. $N_2P_1K_1$ (120:100:100), 7. $N_2P_2K_2$ (120:200:200), 8. $N_3P_2K_2$ (160:200:200), 9. $N_4P_2K_2$ (200:200:200) and 10) $N_5P_2K_2$ (240:200:200). Za utvrđivanje tehnološke kakvoće uzeti su sljedeći parametri: masa 1000 zrna, hektolitarska masa i koncentracija proteina.

Masa 1000 zrna bila je najmanja sušne 2003. (38,37 g), a najveća 2004. (42,17 g). Analizom varijance utvrđena je statistički vrlo značajna razlika u masi 1000 zrna između agroklimatski različitih godina (F=168,693**) i gnojidbe (F=8,790**), kao i međuzavisni utjecaj ova dva svojstva (F=14,168**). Najveća hektolitarska masa izmjerena je 2004. (80,01), a najmanja 2002. (73,29). Analiza varijance pokazuje da su razlike bile statistički značajne pod utjecajem godine (F=209,536**), dok gnojidba nije utjecala na promjenu ovog svojstva. Vrlo jak i statistički opravdan (P<0,01) utjecaj proizvodne godine na koncentraciju proteina u zrnu pšenice utvrđen je analizom varijance (F=16,575**). Utjecaj gnojidbenih tretmana bio je jači (F=37,895**), a najveća vrijednost je izmjerena na najbolje gnojenom tretmanu (152,5 g·kg⁻¹). Prinos zrna kretao se od 1,61 t·ha⁻¹ na tretmanu bez gnojidbe, sušne 2003. do 9,51 t·ha⁻¹ na tretmanu gnojenom s 240 kg N i 200 kg P₂O₅ i K₂O agroklimatski veoma povoljne 2004.

Temeljem rezultata istraživanja zaključak je da na prinos i pokazatelje tehnološke kakvoće pšenice statistički značajno utječe gnojidba i klimatske karakteristike proizvodne godine.

Ključne riječi: pšenica, gnojidba, prinos, parametri tehnološke kakvoće

Effect of fertilization on yield and technological quality parameters of wheat

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Summary

In autumn 2001 a fertilization trial in a randomized block scheme was set in Križevci in order to determine the effect of fertilization on yield and technological quality parameters of wheat. The trial lasted for three years and was completed in summer 2004. Fertilization treatments were the following: 1) no fertilization, 2. N₁P₁ (80:100:0 kg·ha⁻¹ N:P₂O₅:K₂O), 3. N₁K₁ (80:0:100), 4. P₁K₁ (0:100:100), 5. N₁P₁K₁ (80:100:100), 6. N₂P₁K₁ (120:100:100), 7. N₂P₂K₂ (120:200:200), 8. N₃P₂K₂ (160:200:200), 9. N₄P₂K₂ (200:200:200) and 10) N₅P₂K₂ (240:200:200). The following parameters were taken into consideration in determining the technological quality: weight of 1000 grains, hectolitre weight, and concentration of proteins.

Weight of 1000 grains was the smallest in the dry 2003 (38.37 g), and the largest in 2004 (42.17 g). The analysis of variance established a statistically significant difference in the weight of 1000 grain between agro-climatically different years (F = 168.693 **) and the fertilization (F = 8.790 **), as well as interdependent effects of these two parameters (F = 14.168 **). The hectolitre weight was largest in 2004 (80.01) and the smallest in 2002 (73.29). Analysis of variance showed that the differences were statistically significantly influenced by the year (F = 209.536 **), while fertilization had no effect on this parameter.

Analysis of variance (F = 16.575 **) showed a very strong and statistically justified (P < 0.01) effect of production year on the concentration of protein in wheat grain, but the effect of fertilization treatment was even stronger (F = 37.895 **) with the maximum measured on the most fertilized block (152.5 g / kg). Grain yield ranged from 1.61 t / ha in the 2003 treatment without fertilization to 9.51 t / ha in treatment fertilized with 240 kg N and 200 kg P₂O₅ and K₂O in agro-climatically very favourable 2004.

Based on the results of the research, the conclusion is that the yield and technological quality parameters of wheat are significantly affected by fertilization and climatic characteristics of the production year.

Key words: wheat, fertilization, yield, technological quality parameters