

Macronutrients content in grain of organically produced maize, wheat and soybean

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Abstract

Organically produced crops have high nutritional value, irrespective to generally lower yields. Their grains have higher contents of proteins and mineral compounds. The aim of experiment was to determine variations in macroelements: N, P, K, Ca and Mg in grain of organically produced maize (var. Rumenka), spelt wheat (var. Nirvana) and soybean (var. Lidija) during 2012 and 2013. Only in maize, organic fertilizer DIX 10N was applied.

2012 was stressful year, with extremely low precipitation during grain filling period. In regard to that, grain yields of maize and soybean were about 30-60 % lower in 2012 while spelt wheat had 15 % higher yield in 2012 than in 2013. There were no significant differences in grain yield between DIX 10N treatment and control of maize.

N content in grain of all three crops was slightly increased in 2013 as well as DIX 10N increased N in maize grain. In comparison to N, content of P and K slightly varied in both years. Spelt and soybean had increased P content in 2012 and K content was generally higher in soybean. Soybean grain was also characterised with the higher Ca and Mg level. Unfavourable 2012 expressed positive effect on Ca and Mg raise in spelt wheat, as well as on Mg accumulation in maize grain.

Drought conditions reflected on grain yield decrease with increased concentration of mineral elements, such P, Ca and Mg. Soybean grain could be considered mainly as source of N, Ca and Mg, while spelt is rich in N and P. Applied fertilizer didn't show significant influence on variation of macroelements in maize grain.

Key words: organic production, nitrogen, phosphorus, potassium, calcium, magnesium

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