

Effect of Foliar Fertilization on Sugar Beet Yield and Quality

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Abstract

The trial aimed to find out foliar fertilization efficacy on biological and technological sugar beet quality. It was set out by a randomized block design using six Hilleleshoh sugar beet varieties (Apollo, Compact, Dioneta, Dorotea, Gazeta and Sofarizo) on the production areas of PO Erdeš, Belje's co-operator. The trial was conducted in four repetitions with the variants Folifertil B 11, Megagreenn and a control. Folifertil B 11 is a liquid fertilizer with 60.56 g of the total nitrogen and 110.98 g boron. Dose of one litre per hectare should be applied in the 10 to 12 leaves phase. Megagrín is a biological natural mineral agent used for arable crops top dressing containing CaO 44.10%; MgO 2.20%; Fe₂O₃ 1.20%; Al₂O₃ 0.70%; SiO₂ 9.10%; SO₄ 0.11%; Mn 132 mg/kg; Zn 60 mg/kg; Cu 22.5 mg/kg; Pb 11.50 mg/kg; Ni 3.30 mg/kg; Cr 3.25 mg/kg and Cd 0.8 mg/kg. Basic fertilization has been done with 136 kg N/ha, 45 kg P₂O₅/ha and 90 kg K₂O/ha. Top dressing with 18.9 kg N/ha, by the chemical analysis N-min, was conducted in spring. Foliar top dressing was done according to the producers' recommendations as follows: Megagrín (5 May 2007) and Folifertil B (11 15 July 2007).

There are significant differences in biological and technological results relative to the six Hilleleshoh sugar beet varieties between Folifertil –a B 11, Megagrín and a control at 1% level.

Application of Folifertil B 11 affected sugar beet root yield increase by 6.38%, sugar concentration by 5.26% whereas αN content was reduced by 31% of the share. Low sodium level of 0.87 to 1.2 meq/100S^o was retained and dense juice coefficient was increased by 3.1% compared to the control.

Megagrín brought about sugar beet root increase by 3.99% compared to the control.

The best respond to the foliar fertilization application appeared to be with Compact variety having sugar concentration increase by 2.33% using Folifertil B11 and 1.37% applying Megagrín compared to the control.

Key words: foliar fertilization, Folifertil B 11, Megagrín, sugar beet

sa2008_a0503

Utjecaj folijarne gnojidbe na prinos i kvalitetu šećerne repe

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Sažetak

Cilj pokusa je utvrditi efikasnost folijarne gnojidbe na biološku i tehnološku kvalitetu šećerne repe. Pokus je postavljen na proizvodnim površinama PO Erdeš kooperanta Belje kooperacije po blok metodi sa slučajnim rasporedom šest sorata šećerne repe Hilleshög (Amata, Apolo, Kompakt, Dioneta, Dorotea, Gazeta i Sofarizo) u četiri ponavljanja s varijantama Folifertil B 11, Megagrין i kontrola. Folifertil B 11 je tekuće mineralno gnojivo s 60,56 g ukupnog dušika i 110,98 g ukupnog bora. Primjenjuje se u fazi 10 do 12 listova u količini od 1 l/ha. Megagrין je biološko prirodno mineralno sredstvo za prihranu biljnih kultura koje sadrži CaO 44,10%; MgO 2,20%; Fe₂O₃ 1,20%; Al₂O₃ 0,70%; SiO₂ 9,10%; SO₄ 0,11%; Mn 132 mg/kg; Zn 60 mg/kg; Cu 22,5 mg/kg; Pb 11,50 mg/kg; Ni 3,30 mg/kg; Cr 3,25 mg/kg, Cd 0,8 mg/kg. Osnovna gnojidba je obavljena sa 136 kg N/ha, 45 kg P₂O₅/ha i 90 kg K₂O/ha. U proljeće prema kemijskoj analizi N-min obavljena je prihrana s 18,9 kg N/ha. Folijarna prihrana je obavljena prema preporukama proizvođača: Megagrין 05.05. 2007 i Folifertil B 11 15.07. 2007.

Utvrđene su značajne razlike u biološkim i tehnološkim svojstvima šest sorata šećerne repe Hilleshög između Folifertil –a B 11, Megagrina i kontrole na razini 1%.

Primjena Folifertila B 11 utjecala je na povećanje prinosa korijena šećerne repe za 6,38%, digestije za 5,26%, sadržaj αN je umanjen za 31% - tnog udjela, zadržana je niska vrijednost natrija 0,87 do 1,2 meq/100S°, a koeficijent gustog soka je povećan za 3,1% u odnosu na kontrolu. Megagrין je imao utjecaj na povećanje prinosa korijena šećerne repe 3,99% u odnosu a kontrolu.

Najbolju reakciju na primjenu folijarne gnojidbe je pokazala sorta Kompakt s povećanjem digestije za 2,33% kod primjene Folifertila B11 i za 1,37% primjenom Megagrina u odnosu na kontrolu.

Ključne riječi: folijarna gnojidba, Folifertil B 11, Megagrין, šećerna repa

sa2008_a0503