

Effect of ZnSO₄ Application on Potato Cultivars

Reza EASAZADEH¹, Abulfazl NASSERI², Mirsaeid ABEDI², Davood HASANPANAHI³,
Mehrddad ABDI⁴

¹East Azarbaijan Jihad-Agricultural Organization, Iran

²East Azarbaijan Agricultural and Natural Resources Research Center, Iran
(e-mail: ab-nasseri@azaran.org.ir)

³Ardebil Agricultural and Natural Resources Research Center, Iran

⁴Islamic Azad University, Miyaneh Branch, Iran

Abstract

Zn deficiency is one of the most and wide spread microelements deficiencies in world which decreased production. It has been showed that zinc application increased potato dry matter by increasing starch percentage and sugar content in plant tissues. Spraying ZnSO₄ or ZnCl₂ declined Zn deficiency symptoms in potato. Interaction of ZnSO₄, K₂SO₄ and MnSO₄ increased potato high quality yield. Foliar application is not a good substitution for soil application. It can be use only in growth critical deficiency periods. A RCBD base split plot arranged 5 fertilizer levels (a1= NPK, a2= a1+ microelements soil application, a3= a2+ microelements foliar application in 4-6 leaf stage, a4= a3+ microelements foliar application before 10% blooming, and a5= a4+ microelements foliar application after blooming) in main plot and 4 cultivars (b1=Agria, b2=Granola, b3=Sante, and b4=Marquise) in sub plots. Micro element included 4% Zn. Attributes like as tuber diameter, wide and length, tuber weight and number of tubers less than 35 mm, between 35 and 55 mm and greater than 55 mm and yield measured. Analysis of variance showed that application methods had significant effects on stem length, tuber weight and diameter. Increasing nutrient applying decreased Granola stem length only but in other cultivars increased stem length. Marquise showed the least yield in spite of its higher stem length. Agria as a control cultivar had an unstable yield. Applying a3 increased tuber diameter in cultivars except in Sante. After that tuber diameter decreased in a4 and recovered in a5. This was the reason for increasing <35mm tubers weight in this cultivar. Marquise showed a good response to foliar applying and its tuber diameter increased and <35mm tubers weight decreased. That increased tuber yield but was insufficient. Foliar applying of ZnSO₄ at 4-6 leaf stage increased tuber diameter in all cultivars but decreased <35 mm tuber weight in marquise. Although foliar application continuing at a4 and a5 decreased tuber diameter in Granola but it had no effect on Granola tuber yield. It may be depend on decreasing stem length in Granola.

Key words: *Solanum tuberosum* L., microelements, foliar, tuber diameter

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