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
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Integrated Weed Control in Sugar Beet through Combinations of Tractor
Hoeing and Reduced Dosages of a Herbicide Mixture

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Abstract: Weed control is performed by hand in 83% of the sugar beet growing area in Turkey. Due to the movement of the labour force to industry recently, the lack of labour has led to a huge problem. Therefore, the completely mechanised alternative methods must be introduced into the weed control of sugar beet. In this study, the effects of alternative control methods, based on the use of a tractor hoe combined with post-emergence reduced herbicide dosages, on weeds and on the yield and quality of sugar beet were investigated. Our data indicated that tractor hoeing twice + thinning (96.2%) resulted in very good weed control, as good as the control treatment (i.e. hand hoeing twice + thinning) (98%). The other combinations differed significantly from the control. However, weed control via combinations of i) herbicide once + thinning + tractor hoeing once (86.6%), ii) herbicide 3 times + tractor hoeing once (86%), iii) herbicide 3 times (83.1%) and iv) herbicide twice + tractor hoeing once (76.8%) were satisfactory. In terms of root and sugar yields, following the control treatment (67.9 and 10.1 t ha⁻¹), these combinations were most effective: i) tractor hoeing twice + thinning (67 and 10 t ha⁻¹), ii) herbicide application 3 times (67 and 10 t ha⁻¹), iii) herbicide application 3 times + tractor hoeing once (64.3 and 9.7 t ha⁻¹), iv) herbicide application twice + tractor hoeing once (63.7 and 9.7 t ha⁻¹) and v) herbicide application once + thinning + tractor hoeing once (65 and 9.6 t ha⁻¹), although there was no significant difference among them. The other treatments produced significantly lower root and sugar yields compared to the control. One of the following alternatives, tractor hoeing twice + thinning, herbicide application 3 times, herbicide application twice + tractor hoeing once and herbicide application once + thinning + tractor hoeing once, may be applied to control weeds in a large proportion of land in which hand hoeing twice plus thinning is used.

Key Words: Sugar beet weed control, low-dose herbicide application, tractor hoeing

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