

## Possibilities of Weed Management in Organic Carrot

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### Abstract

*In our research, we compared two weed management methods: herbicide free methods that fit into strict terms of organic farming, and a technology that uses herbicides. Simultaneously, an herbicide-saving method was tested, when herbicide is applied only in crop rows. We compared the effects of weed management methods on carrot production, and tried to reveal the limits of work-saving weed management.*

*The research was implemented in a four-year experiment from 2000 to 2003 in a randomized complete block design with four replicates. Precipitation differed between years. 2000 and 2003 were extremely arid and warm. In 2001 and 2002, the data did not differ from the average of the last 50 years.*

*During the study, four intrarow and ten inter-row weed management methods were examined. Intrarow treatments were: herbicide treatment (pre-emergent application of 20mL 100 m<sup>-2</sup> S-metolachlor (Dual Gold 960 g a.i. L<sup>-1</sup>) and 20 g 100 m<sup>-2</sup> chlorbromuron (Maloran a.i. 50%); hand weeding (once and two times), and pre-emergent flaming. Treatments in the inter-rows were: pre-emergent herbicide with the same combination, pre-emergent flame weeding, and cultivator, hoeing, or brush weeding one or two times per growing season. Changes in weed cover and the dry matter production of carrot roots were analyzed.*

*Hand weeding the rows two times did not give significantly higher dry matter of carrot roots than hand weeding once, which is why considering work saving, hand weeding can be skipped the second time. Hand weeding once is a better work sparing solution than exclusively applied pre-emergent flame weeding, even regarding its effect on total weed cover or dry yield of carrot. Therefore, results of the research showed that work efficiency could be improved if hand weeding is done only once. Single hand weeding is more effective than the sole application of pre-emergent flame weeding, regarding their effect on total weed cover or the dry yield of carrot.*

*Continuous relatively weed free status of the herbicide treated rows gave higher dry matter production of carrot than hand weeding two times, where the lowest total weed cover was found at the end of the growing season. Since the increment of dry yield in the herbicide treated rows was not verifiable, as statistically compared to the rows that were hand weeded twice, we can say that herbicide free intrarow weed management methods are reasonable.*

*Higher weed occurrence was observed in all cases when the cultivator or brush hoe was combined with flame weeding of inter-rows. So inter-row flame weeding does not seem feasible.*

*Cultivator treatment and hand hoeing were more effective than the weed brush in decreasing total weed cover and increasing dry weight of carrot roots. Cultivator and hoeing meant higher and deeper soil moving, which could control a wider spectrum of weed development states.*

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