

## **Weed Control in Sugarbeet Grown for Seed**

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### **Introduction**

Sugarbeet must go through a vernalization period in order to flower. When sugarbeet is grown for seed in central Oregon, seed is planted from late July to early August and is then harvested the following August. Also, when seed production fields are planted, a blank row is left between male sterile and pollinator lines. The combination of a long cropping season and the amount of open soil surface that is left for hybrid seed production creates a long period of time for weeds to successfully proliferate. Summer-annual weeds that emerge around the time of sugarbeet flowering can be especially difficult to control because once sugarbeets bolt and initiate flowering, no more cultivation can be done.

Soil-residual herbicides applied shortly before or after the last cultivation could reduce summer-annual weed infestations that tend to interfere with harvest. The objective of this research was to evaluate dimethenamid-P (Outlook<sup>®</sup>), pendimethalin (Prowl<sup>®</sup>), and ethofumesate (Nortron<sup>®</sup>) for sugarbeet tolerance and control of summer-annual weeds.

### **Methods and Materials**

Two field trials were conducted in commercial fields of sugarbeet grown for seed, one near Metolius, Oregon and the other near Madras, Oregon. Both trials consisted of 10-ft by 30-ft plots arranged in randomized complete blocks replicated four times. Herbicides were applied on April 16, 2008 at both locations with a CO<sub>2</sub>-pressurized backpack sprayer delivering 20 gal/acre at 40 psi. Herbicide rates and tank-mixes are shown in Table 1. The trial at Madras was furrow irrigated and the trial at Metolius was sprinkler irrigated with wheel-lines. Crop injury and weed control were evaluated visually with a 0 to 100 percent rating scale.

### **Results and Discussion**

All three of the herbicides tested require some sort of incorporation with water or tillage to work well according to the labels. In both fields, herbicide treatments were applied prior to cultivation and the first irrigation of the spring. Sugarbeets appeared to be dormant on April 16 at the time of application. Sugarbeets at Madras received the first spring irrigation on May 12, 2008, and at Metolius on May 15, 2008.

None of the herbicide treatments resulted in any visual injury at either location (data not shown). Only the trial at Madras had a population of weeds that emerged after the herbicide application (Table 1). Control of redroot pigweed (*Amaranthus retroflexus*) was best with dimethenamid-P plus ethofumesate. Control of redroot pigweed was poorest with pendimethalin plus ethofumesate. Overall, summer-annual weeds were not large problems in either of these fields, but all three of the herbicide tank-mixes we evaluated improved control of the summer-annual redroot pigweed compared to the check.

### Acknowledgements

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Table 1. Redroot pigweed control with herbicides in sugarbeet grown for seed near Madras, Oregon, 2007-2008.

Treatment <sup>1</sup>	Rate lb/acre	Redroot pigweed % control 9/Jul/08
Dimethenamid-P + pendimethalin	0.84 + 0.475	72
Dimethenamid-P + ethofumesate	0.84 + 1.88	90
Pendimethalin + ethofumesate	0.475 + 1.88	53

<sup>1</sup> Treatments were applied 16 April 2008 prior to final cultivation and first spring irrigation. Dimethenamid-P = Outlook 6 EC. Pendimethalin = Prowl H<sub>2</sub>O 3.8 CS. Ethofumesate = Nortron 4 SC.