

POST HARVEST GROUNDSEL CONTROL IN MINT

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Abstract

Groundsel control is a major concern to mint growers in central Oregon. Herbicide trials were conducted at four locations, in both peppermint and spearmint, to evaluate four materials alone and in combination. Buctril at 1/2 pts provided excellent control alone, as well as with 4 oz of Goal. Stinger at % pt was phytotoxic to peppermint, without providing adequate groundsel control. The Buctril treatments alone and in combination with Goal produced injury on spearmint, while Buctril at 1/2 pt with 1 qt of Basagran provided adequate control with minimal injury.

Introduction

Control of common groundsel (*Senecio vulgaris* L.) is a major concern to mint growers in central Oregon. Groundsel can germinate, flower, and produce seed nearly all year around. Properly applied post-harvest herbicide treatments are recommended for control of groundsel through the fall and winter months.

Materials and Methods

The objective of this research was to evaluate the efficacy and phytotoxicity of post-harvest treatments of four materials, alone and in combination, for control of groundsel in peppermint and spearmint. Materials shown in Table 1 were applied October 16 and 17, 1992, to two peppermint fields on the Agency Plains and one field near Culver. Application to a spearmint field in the Trail Crossing area was made on October 26, 1992. Materials were applied to 9 ft by 25 ft plots using a CO₂ pressurized boom sprayer at 40 psi and 20 gals/a. The peppermint plots were replicated four times and the spearmint plots replicated three times in a randomized complete block design.

Daytime temperatures just prior to applications on peppermint were in the 40-60°F, with lows around 25°F. The daily high temperatures following application to the peppermint were 60-70°F, with nights 30-50°F. Following application to the spearmint, daily temperatures had cooled to near 50°F with sub-freezing temperatures at night. Six-tenths of an inch of

rain fell October 20 and 21, with another seven-tenths October 27 through 31.

When materials were applied at the Boyle location the groundsel was at two growth stages, the four to six leaf stage and 8-10 inches high with flowers. Groundsel at the Johnson location was at the six to eight leaf stage, and at the Macy location groundsel was 1-3 inches high with flower buds. At the High Country location groundsel was two to four leaves, and six to eight leaves when materials were applied.

Evaluation of peppermint plots were made November 11, 1992, using a visual rating of percent groundsel control, based on reduction in biomass. Evaluation of the spearmint plots on November 23 included a rating of percent injury to the crop.

Ten groundsel seed heads were collected from 8-10 inch plants in one replication at the Boyle location. These were used for germination testing to determine if seed viability was affected in herbicide treated plots.

Results and Discussion

In the peppermint plots, Buctril at 1 1/2 pints provided the same control with and without Goal, which is not currently registered for post-harvest application. The control provided by Buctril at 1 pint was somewhat less, but acceptable. Buctril at 1/2 pint with 1 quart of Basagran provided inadequate control, as did Stinger, which damaged the peppermint by turning it reddish purple with light green tips. Control of the 8-10 inch plants at the Boyle location was only slightly less than for the 1-2 inch plants.

On spearmint, which is a more sensitive crop to herbicides, the plots with Buctril alone and Buctril with Goal provided excellent control of groundsel but resulted in approximately 40 percent injury to the crop. The Buctril and Basagran combination provided good control in these later plots, which experienced colder temperatures following application. Stinger continued to provide inadequate control, but was less phytotoxic at this location.

Although groundsel seed heads were collected from only one replication and therefore cannot be evaluated in the study statistically, seed viability did appear to be dramatically reduced as a result of herbicide application. Germination of groundsel seed in the untreated plot was 50 percent, 20 percent in the Stinger plots, and 4-10 percent for plots treated with Buctril alone or in combination with other herbicides. This would seem to indicate that although seed head development continues after application of a slow-acting contact herbicide like Buctril, seed viability is nevertheless affected.

Further research is necessary to confirm these results.

Table 1. Percent control of groundsel in peppermint with materials applied in central Oregon, October 16-17, 1992.

Treatments	Herbicide Rate	Location			Macy 1-3"gr.
		Boyle		Johnson	
		1-2"gr.	8-10"gr.	2-3"gr.	
	product	percent control			----
Buctril	1 pt	96 a	91 a	100 a	86 ab
Buctril	1 1/2 pts	100 a	99 a	100 a	98 a
Buctril + Basagran	1 qt	86 b	74 b	65 b	73 b
Buctril + Goal	1 h pt	99 a	97 a	100 a	100 a
Stinger	4 oz	79 c	63 c	60 b	45 c
Untreated	1 h pt	0 d	0 d	0 c	0 d

Percent control were statistically different with Duncan's Multiple Range test at Ps0.01

Table 2. Percent control of groundsel and percent crop injury with materials applied to spearmint in central Oregon, October 26, 1992.

Herbicides	Rate	High Country Mint	
		Control	Injury
	product	==== percent	====
Buctril	1 pt	100 a	27 be
Buctril	1 1/2 pts	100 a	37 ab
Buctril + Basagran	1 qt	98 a	7 d
Buctril + Goal	1 1/2 pts	100 a	42 a
Stinger	4 oz	28 b	20 c
Untreated	1 h pt	0 c	0 d

Percent control were statistically different with Duncan's Multiple Range test at Ps0.01