

OREGON mint

UPDATE

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Weed Control in Central Oregon

Combining Pre-Emergence and Spring Applied Herbicide Treatments in Mint with Minimal Crop Restrictions for Small Grains

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A field study was conducted in Culver, Oregon in 2013 in order to evaluate the viability of combining pre-emergence herbicides with minimal cropping restrictions for small grains with post-emergence applications during the spring. The pre-emergence treatments included were oxyflourfen, pendimethalin, sulfentrazone and trifluralin. All pre-emergence treatments provided similar weed reduction (37 percent) before the post-emergence application in May. Weed control improved to 90 percent across all treatments after the post-emergence application and remained until harvest. Prickly lettuce and dandelion were the most difficult species to control with these weed control programs.

Introduction

Mint weed control programs in Central Oregon usually include herbicides that provide long residual control. As a consequence, planting options after mint harvest are restricted due to herbicide carryover. The potential for injury in the following crop increases if local environmental conditions slow herbicide breakdown. In order to address this problem several weed control programs based on spring applications capable of providing good weed control with limited residual effects for Central Oregon were evaluated in the years 2012 and 2013. These programs were based on the use of bromoxynil (Buctril®), bentazon (Basagran®), clopyralid (Stinger®), clethodim (Select Max®), sethoxydim (Poast®) and quizalofop (Assure II®). All these programs required sequential applications of the herbicides due to the lack of residual control increasing the chances of crop injury. In order to reduce weed pressure, broaden the weed control spectrum and reduce the need of two sequential applications of post-emergence herbicides in spring it is necessary to compliment weed control treatments with pre-emergence applications early in the season. Available herbicide options with replant restrictions that would allow planting small grains after mint harvest include oxyflourfen (Goal 2XL®), pendimethalin (Prowl H₂O®), sulfentrazone (Spartan®) and trifluralin (Treflan®). Several of these herbicides are viable options only if they are applied early in December in order to avoid cropping restrictions following mint in fall.

The objective of this study was to evaluate which pre-emergence herbicides labeled for use in mint can provide early weed control and can be used to complement post-emergence spring applications with minimum cropping restrictions following mint.

Materials and Methods

A field study was conducted in Culver, Oregon during 2013 in an irrigated mint field belonging to Jim and Mike Cloud. The study design was a randomized complete block with four replications. Plot size was 10 ft. wide by 30 ft. long. Herbicides were applied with a backpack sprayer calibrated to deliver 20 gallons of spray solution per acre at 30 psi pressure using XR 8002 Teejet® nozzles. Application dates, environmental conditions and crop stage are detailed in Table 1. Weed counts from a six square foot area were done in May before the spring application and before harvest in August. The list of pre-emergence herbicides treatments, rates, time of application and adjuvants used are detailed in Table 2. All treatments included the application of Paraquat® at 2 pt/A plus a NIS at 0.25 percent v/v as tank mix partner when crop was dormant and on May again all treatments were followed with an application of Basagran® at 4 pt/A + Stinger® at 0.3 pt/A + Assure II® + COC at 1 percent v/v. Plots were mechanically harvested and the fresh weight of a 60 square foot section was recorded. Soil samples from each treatment were collected following harvest. Currently soil samples have been placed in trays and planted to wheat in the greenhouse facilities at COARC to detect potential carryover from the tested treatments that can affect wheat growth.

Results and Discussion

The early weed control provided by the pre-emergence herbicides was similar between treatments and averaged a 37 percent reduction when compared to the non-treated checks. The weed species accounted during the first count were prickly lettuce (*Lactuca serriola* L.), dandelion (*Taraxacum officinale* Weber in Wiggers), kochia (*Kochia scoparia* (L.) Schrad.) and western salsify (*Tragopogon dubius* Scop.).

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