

# Metam Sodium for Weed Control During Establishment Period of Chewings Fine Fescue

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## Introduction

Weed control during the establishment period of seedling grasses for seed production is particularly difficult due to a lack of availability of selective herbicides for certain hard to control weed species such as common groundsel, henbit, and common mallow. Metam sodium (Vapam®), which is used for soil borne plant disease control, also has herbicidal properties that might be used to reduce grass and broadleaf weed seed numbers in the soil immediately prior to seeding a grass crop. A study was conducted to evaluate the weed control effects of metam sodium at different product and water rates during the seedling establishment period of chewings fine fescue.

## Procedure

The experimental area was located at the Hermiston Agricultural Research and Extension Center, OR during late summer 2002. Metam sodium treatments were applied preplant on August 26, 2002 using a chemigation simulator designed to apply water to small plots with an intensity similar to that achieved with the center pivot irrigation systems commonly used in the Columbia Basin region of northeastern Oregon. Air temperature at time of application was 67 F, soil temperature was 75 F at 0", 72 F at 1", and 70 F at 2" depth. Treatments included three rates of metam sodium (10, 20 and 30 gal/a) in 2 rates of irrigation water carrier (0.15 and 0.30 acre-inches). All treatments were applied through the simulator at 59 psi with flood nozzles. Plots were 8 ft by 35 ft, in an RCB arrangement, with 4 replications. Soil at the site was a sandy loam (71.2% sand, 25.6% silt, 3.2% clay, 1.0% organic matter, 6.6 pH, and CEC of 9.7 meq/100 g). Soil was left undisturbed after treatment until crop seeding. The objective of the chemigation treatment was to use a low amount of irrigation water in an attempt to concentrate metam sodium near the soil surface where weed seeds are most likely to germinate and establish. Chewings fescue (var. Tiffany) was seeded on September 12, 2002 at 5 lb/a on 11 in. row spacing. Crop stand counts were made October 7, 2002 and crop injury and weed control were rated December 10, 2002.

## Results

Stand counts were variable but were not significantly different when counted 25 days after crop planting ([Table 1](#)). Crop stand variability was not related to metam sodium treatment. Slight crop injury was noted when evaluated on December 10th, but differences were not significant, and not well correlated with metam sodium treatment (data not shown). Control of common mallow, henbit, and common groundsel populations were visibly estimated on Dec. 10, 2002. The high rate of metam sodium with the high rate of water generally gave the best control of the three weed species evaluated. There appeared to be a consistent trend toward improved weed control with the higher amount of irrigation water carrier volume. The 30 gal/a metam sodium rate resulted in slightly better weed control, but not at a significantly greater level than the 10 gal/a rate. These results indicate that metam sodium may facilitate weed control during the establishment period of chewings fescue under conditions similar to those in this study. However, treatment with metam sodium should not be considered as an alternative for selection of fields with a history of slight weed problems.

**Table 1. Seedling chewings fescue response to metam sodium chemigation treatment. Exp. #03-720.**

	Product	Crop
Treatment*	per acre	stand count

(plants/m of row)

Control (L)	--	112
Control (H)	--	126
Vapam (L)	10 gal	116
Vapam (H)	10 gal	120
Vapam (L)	20 gal	118
Vapam (H)	20 gal	84
Vapam (L)	30 gal	100
Vapam (H)	30 gal	132
LSD 0.05		NS

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\* L = 0.15 acre-inch and H = 0.30 acre-inch irrigation water.  
NS = not significant at a 5% probability level.

**Table 2. Weed control response to metam sodium during establishment of seedling chewings fescue. Exp. #03-720.**

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Treatment*	Product per acre	Common	Henbit	Common
		mallow control	control	groundsel control
		(%)		
Control (L)	--	0 b	0 b	0 b
Control (H)	--	b	0 b	0 b
Vapam (L)	10 gal	46 ab	45 a	33 ab
Vapam (H)	10 gal	84 a	85 a	59 a
Vapam (L)	20 gal	60 ab	80 a	53 a
Vapam (H)	20 gal	45 ab	63 a	40 a
Vapam (L)	30 gal	53 ab	63 a	63 a
Vapam (H)	30 gal	90 a	86 a	73 a
LSD 0.05		43	35	29

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\* L = 0.15 acre-inch and H = 0.30 acre-inch irrigation water.  
Visible control ratings followed by the same letter are not significantly different at the 5% probability level.

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*This report has been published with a grant from the Oregon Seed Council*

[\[Contents\]](#) [\[Author Index\]](#) [\[Credits\]](#) [\[Home\]](#)

2003 SEED PRODUCTION RESEARCH  
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