

Comparing the Safety of Tenacity 4SC Formulation to a New 2SC Formulation on Fineleaf Fescue at Seeding

Final Report (Protocol #: HMS804A4-2008US)

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October 15, 2008

A field study was conducted at the Washington State University Turfgrass and Agronomy Research Center (TARC), in Pullman, WA, during the summer of 2008 to evaluate the safety of Tenacity 4SC compared to a new 2SC formulation of mesotrione applied as a spray at planting and at first mowing on 'Treasure' chewing fescue. The research site was planted on 28 May 08 at a seeding rate of 5 lbs/M. After planting and the spray application, the research area was irrigated with several short cycles per day until the grass seed had germinated and established. After establishment the research site was irrigated to prevent stress. The spray applications at planting (28 May 08) and at first mowing (8 Jul 08) were made with a bicycle-wheeled CO₂ pressurized sprayer with 11002 flat fan spray tips at 25 GPA. The research site was mowed 2 times per week following the initial mowing with a Toro 22" rotary rear bag push mower at a mowing height of 1.5". Beginning at 2 weeks after initial treatment (WAIT) and up to 12 WAIT (20 Aug 08), percent turfgrass cover, percent weed control as a % coverage of plot, and percent weed control as compared to the check were recorded. Weeds in the study area were naturally occurring. The following weeds were present in the study area: pigweed *Amaranthus spp.*, common lambsquarter *Chenopodium album*, prickly lettuce *Lactuca serriola*, pineappleweed *Matricaria matricarioides*, mayweed chamomile *Anthemis cotula*, dandelion *Taraxacum officinale*, shepardspurse *Capsella bursa-pastoris*, witchgrass *Panicum capillare*, and barnyardgrass *Echinochloa crus-galli*. There were no weeds present at the time of planting. Phytotoxicity (turfgrass injury) was rated using a scale of 0-10, with 10 = dead turf and levels above 1.5 (15%) as unacceptable. A randomized-complete block design was used with 3 replications and individual treatment plots were 10' x 10'. There was no data taken 4 WAIT.

Up to 6 WAIT the check had more turfgrass cover than any of the Tenacity treatments (Table 1). However, by 8 WAIT and up to 12 WAIT the 175 + 175 g ai/ha split application of Tenacity 4SC or 2SC had the same or significantly higher percentage

of fineleaf fescue coverage than the check. At all rating dates except at 12 WAIT the 280 + 280 g ai/ha treatments of Tenacity 4SC and 2SC had less turfgrass cover than the check. Overall Tenacity 4SC or 2SC applied at the same rates resulted in similar percent turfgrass cover levels at each rating date. One may anticipate a decrease in percent turf cover after the split application (8 Jul 08) but that did not happen.

All Tenacity 4SC and the new 2SC formulation treatments resulted in excellent weed control (Table 2 and 3).

Tenacity applied either at the 280 or the 175 g ai/ha rate resulted in considerable turf injury at 2 WAIT and then again at 8 WAIT (2 weeks after the split application) (Table 4). The different formulations applied at the same rate showed similar levels of turf injury at all rating dates.

This study shows that there is no difference between Tenacity 4SC and the new 2SC formulation when applied at the same rate on fineleaf fescue at planting. All treatments provided excellent weed control. The application of Tenacity 4SC or the 2SC formulation at either 175 or 280 g ai/ha does cause a considerable amount of turfgrass injury especially 2 weeks after an application is made. By 8 WAIT the 175 + 175 g ai/ha split application treatments and the check have the same percentage of turfgrass coverage and at 10 to 12 WAIT these treatments have a significantly higher percentage of turfgrass coverage than the check.

Table 1. The effect of Tenacity 4SC formulation compared to a new 2SC formulation on percent turfgrass cover of a newly planted fineleaf fescue stand.

Treatment	Type	Tenacity	Tenacity	% Turfgrass cover				
		Rate (g ai/ha)	Rate (oz/A)	6/11/08 2 WAIT	7/9/08 6 WAIT	7/23/08 8 WAIT	8/6/08 10 WAIT	8/20/08 12 WAIT
CHECK		0	0	19 a*	71.7 a	78.3 a	80.0 ab	80.0 b
A12738 + Activator 90	4SC	175 + 175	5 + 5	15 b	55.0 b	83.3 a	88.3 a	91.3 a
A12738 + Activator 90	4SC	280 + 280	8 + 8	10 c	31.7 c	60.0 b	70.0 b	81.7 b
EXC3895 + Activator 90	2SC	175 + 175	10 + 10	15 b	58.3 b	83.3 a	89.0 a	90.7 a
EXC3895 + Activator 90	2SC	280 + 280	16 + 16	10 c	36.7 c	63.3 b	66.7 b	83.3 ab

* Values within a column followed by the same letter are not significantly different LSD $P = 0.05$.

Table 2. The effect of Tenacity 4SC formulation compared to a new 2SC formulation on percent weed coverage of a newly planted fineleaf fescue stand.

Treatment	Type	Tenacity	Tenacity	Weeds (% coverage of plot area)				
		Rate (g ai/ha)	Rate (oz/A)	6/11/08 2 WAIT	7/9/08 6 WAIT	7/23/08 8 WAIT	8/6/08 10 WAIT	8/20/08 12 WAIT
CHECK		0	0	1.0 a*	15 a	18.3 a	20 a	20 a
A12738 + Activator 90	4SC	175 + 175	5 + 5	0 b	0 b	0.3 b	0.3 b	0 b
A12738 + Activator 90	4SC	280 + 280	8 + 8	0 b	0 b	0 b	0.3 b	0 b
EXC3895 + Activator 90	2SC	175 + 175	10 + 10	0 b	0 b	0 b	0 b	0 b
EXC3895 + Activator 90	2SC	280 + 280	16 + 16	0 b	0 b	0 b	0.3 b	0 b

* Values within a column followed by the same letter are not significantly different LSD $P = 0.05$.

Table 3. The effect of Tenacity 4SC formulation compared to a new 2SC formulation on percent weeds compared to the check of a newly planted fineleaf fescue stand.

Treatment	Type	Tenacity	Tenacity	% Weeds compared to check				
		Rate (g ai/ha)	Rate (oz/A)	6/11/08 2 WAIT	7/9/08 6 WAIT	7/23/08 8 WAIT	8/6/08 10 WAIT	8/20/08 12 WAIT
CHECK		0	0	100 a*	100 a	100 a	100 a	100 a
A12738 + Activator 90	4SC	175 + 175	5 + 5	0 b	0 b	0.3 b	1.7 b	0 b
A12738 + Activator 90	4SC	280 + 280	8 + 8	0 b	0 b	0 b	1.7 b	0 b
EXC3895 + Activator 90	2SC	175 + 175	10 + 10	0 b	0 b	0 b	0 b	0 b
EXC3895 + Activator 90	2SC	280 + 280	16 + 16	0 b	0 b	0 b	1.7 b	0 b

* Values within a column followed by the same letter are not significantly different LSD $P = 0.05$.

Table 4. The effect of Tenacity 4SC formulation compared to a new 2SC formulation on fineleaf fescue phytotoxicity (turf injury).

Treatment	Type	Tenacity	Tenacity	Phytotoxicity (rated 0 - 10)				
		Rate (g ai/ha)	Rate (oz/A)	6/11/08 2 WAIT	7/9/08 6 WAIT	7/23/08 8 WAIT	8/6/08 10 WAIT	8/20/08 12 WAIT
CHECK		0	0	0 a*	0	0 a	0 a	0
A12738 + Activator 90	4SC	175 + 175	5 + 5	5.0 b	0	4.7 b	1.3 b	0
A12738 + Activator 90	4SC	280 + 280	8 + 8	8.0 c	0	5.3 bc	2.0 c	0
EXC3895 + Activator 90	2SC	175 + 175	10 + 10	5.0 b	0	5.0 b	1.7 bc	0
EXC3895 + Activator 90	2SC	280 + 280	16 + 16	8.0 c	0	6.0 c	2.0 c	0

* Values within a column followed by the same letter are not significantly different LSD $P = 0.05$.

