The Seed Head
Fact sheet # 26

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Effects of Infinity FX and Infinity FX + MCPA Ester on Established Creeping Red Fescue Grown for Seed

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PRFSA 1-877-630-2198
PRFSA Fact sheet 24

Please Note:

The URMULE indicates herbicide tolerance trials on a specific crop have been conducted and the crop has shown good tolerance to the herbicide in trials conducted to date. The company with the herbicide does not assume any responsibility if there is damage to the crop from using the herbicide. URMULE are useful to inform growers, seed companies and agronomists what herbicides are available for use on grass and legume seed crops.

Introduction

Controlling broadleaf weeds in established grasses grown for seed production is necessary to ensure a high-yielding and high-quality seed crop is produced. The Peace Region Forage Seed Association, AAFC Beaverlodge and SARDA Ag Research conduct herbicide tolerance trials on established grass seed crops each year. The information generated from the trials is used to inform growers, seed companies and crop input businesses as to what herbicides can safely be used on grass seed crops. If data collected from herbicide crop tolerance trials show good potential for use on a particular grass seed crop, the trials are summarized and used to prepare and submit a User Requested Minor Use Label Expansion (URMULE) as long as the herbicide company selling the product agrees to it.

Infinity (pyrasulfotole+bromoxynil) is a Bayer Crop Sciences herbicide for broadleaf weed control in cereal crops. There are several URMULE for the use of Infinity on both seedling and established grasses grown for seed including creeping red fescue, timothy, bromegrasses and perennial ryegrass. Bayer Crop Sciences added the active ingredient fluroxypyr to Infinity which is Infinity FX. Infinity FX provides a wider range of broadleaf weed control than Infinity, particularly on weeds such as cleavers, buckwheat and kochia. Infinity FX can also be tank-mixed with MCPA Ester for stronger and more consistent weed control. Trials were initiated in 2018 to evaluate the tolerance of established creeping red fescue grass seed crops to Infinity FX and Infinity FX+MCPA Ester.

Swathing herbicide tolerance trials on established creeping red fescue

Methods

Trials were conducted on growers' fields. Uniform areas were selected to reduce variability in data collected from the trials. Experimental design for each location was a randomized complete block design with four replications. Plot size was 2 m x 10 m. Herbicide treatments were applied with a 2 m hand-held boom (4 TeeJet 80001 nozzles) pressurized by a propane sprayer. The sprayer and walking speed were calibrated to provide 100 l/ha of water at a pressure of 270 kPa. Herbicide treatments were applied at 1x and 2x the recommended rates registered for use in cereal crops (Table 1). Site information and application dates are shown in Table 2. Visual crop tolerance ratings were conducted at three dates throughout the year but are generally 7 days after treatment (DAT), 28 DAT and prior to harvest. Visual crop tolerance ratings are done using the scale shown in Table 3.

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Methods (continued)

Harvesting was done by swathing down the middle of each plot with a Zurn 540 High Clearance Tool Carrier and then combining with a Wintersteiger plot combine with a pickup header, generally a week after swathing. The harvested areas ranged from 6 to 15 m^2. Samples were dried, cleaned and weighed to determine seed yield. Germinations and 1000 SWT assessments were done on two of the three trials. Data was statistically analyzed using ANOVA means separation (p=0.05, Student-Newman-Keuls).

Table 1. Treatments applied to established creeping red fescue seed crops

Treatment	Active Ingredient (AI)	Concentration (g/l)	AI Rate (kg/ha)	Product Rate (l/ha)
Infinity FX 1x	pyrasulfotole bromoxynil fluroxypyr	31.1 174.3 72	0.031 0.174 0.072	1.0
Infinity FX 2x	pyrasulfotole bromoxynil fluroxypyr	31.1 174.3 72	0.062 0.348 0.144	2.0
Infinity FX 1x + MCPA Ester	pyrasulfotole bromoxynil fluroxypyr MCPA Ester	31.1 174.3 72 600	0.031 0.174 0.072 0.276	1.0 0.460

Table 2. Site and application information

Site	Age of Stand (years)	Application Date	Crop Stage	Harvest Date	Harvest Area (m^2)
2020 Whitemud	1	2020-05-26	Early stem elongation	2020-08-10	15
2019 Valleyview	1	2019-05-23	Shot blade	2019-08-13	15
2018 Sexsmith	1	2018-05-29	Shot blade	2018-07-26	6

Table 3. Visual crop tolerance rating of phytotoxic effects

Phytotoxicity Range (percent rating)	Assessment of Injury
0-9	Very little injury
10-20*	Just acceptable; slight discoloration and/or stunting
>20-30	Not acceptable
>30	Severe

**20% or less is considered acceptable injury*

Combining herbicide tolerance trials on established creeping red fescue

Results and Discussion

Tables 4, 5 and 6 show results from three trials evaluating the effects of Infinity FX and Infinity FX+MCPA Ester on creeping red fescue seed crops. Figure 1 summarizes yields from treatments as percent of check at all sites. No visual crop injury was observed during the trials. No significantly different seed yields, dockage, germination or 1000 SWTs were observed when compared to the check.

Table 4. Visual crop tolerance ratings, seed yield and dockage of creeping red fescue following herbicide applications, 2020 Whitemud

Treatment	Visible Injury 8 DAT	Visible Injury 30 DAT	Visible Injury 65 DAT	Seed Yield (kg/ha)	Dockage (%)
Infinity FX 1x	0	0	0	1147	11.0
Infinity FX 2x	0	0	0	1038	11.6
Infinity FX 1x + MCPA Ester	0	0	0	1071	10.7
Check	0	0	0	1199	10.5
CV%	-	-	-	13.3	13.9
LSD (p=0.05)	-	-	-	NSD	NSD

CV - coefficient of variance; LSD - least significant difference; NSD - not significantly different

Table 5. Visual crop tolerance ratings, seed yield, dockage, germination and 1000 SWT of creeping red fescue following herbicide applications, 2019 Valleyview

Treatment	Visible Injury 8 DAT	Visible Injury 23 DAT	Visible Injury 62 DAT	Seed Yield (kg/ha)	Dockage (%)	Germination (%)	1000 SWT (g)
Infinity FX 1x	0	0	0	1330	11.9	97.0	1.222
Infinity FX 2x	0	0	0	1306	11.3	98.5	1.193
Infinity FX 1x + MCPA Ester	0	0	0	1325	13.7	98.3	1.239
Check	0	0	0	1261	13.1	96.0	1.184
CV%	-	-	-	5.8	15.7	2.17	2.9
LSD (p=0.05)	-	-	-	NSD	NSD	NSD	NSD

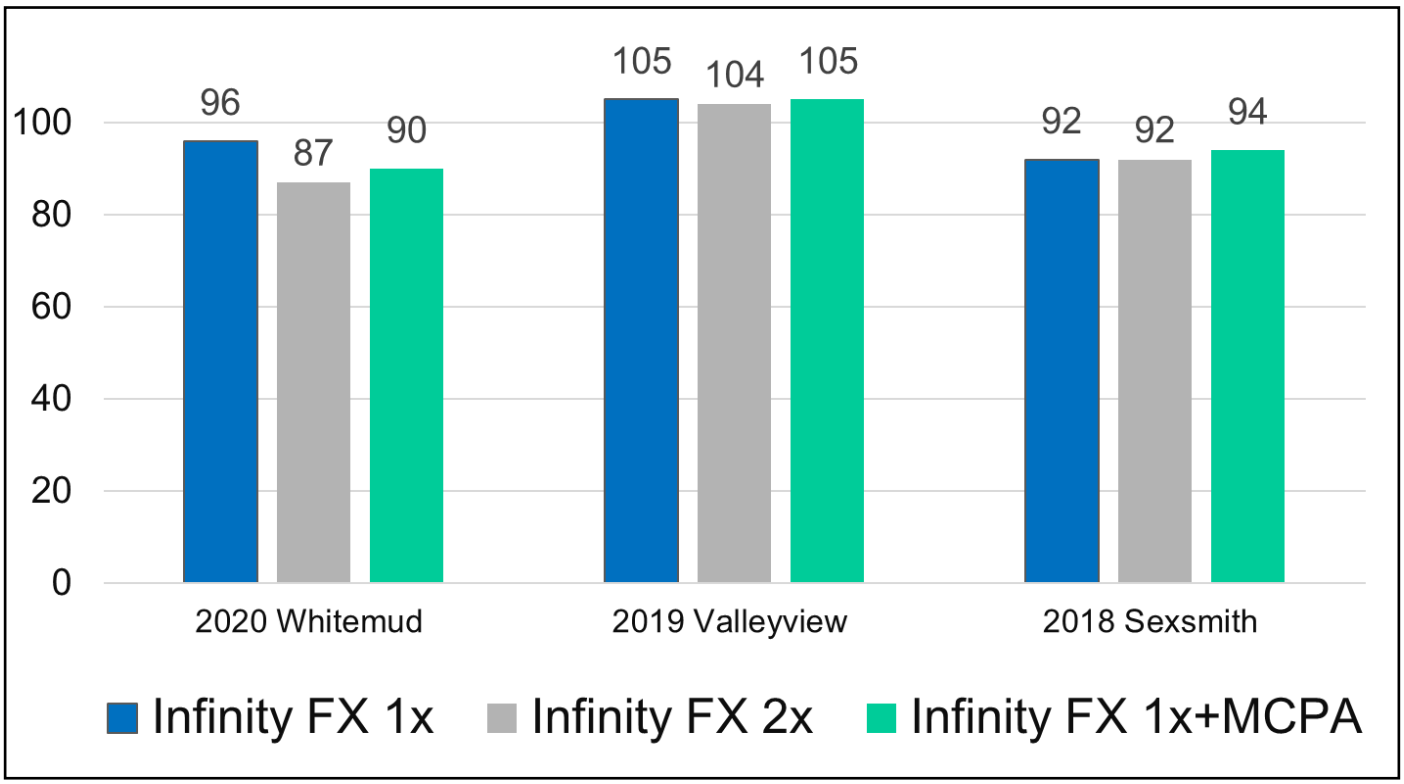
CV - coefficient of variance; LSD - least significant difference; NSD - not significantly different

Table 6. Visual crop tolerance ratings, seed yield, germination and 1000 SWT of creeping red fescue following herbicide applications, 2018 Sexsmith

Treatment	Visible Injury 7 DAT	Visible Injury 36 DAT	Visible Injury 91 DAT	Seed Yield (kg/ha)	Germination (%)	1000 SWT (g)
Infinity FX 1x	0	0	0	591	85.5	1.344
Infinity FX 2x	0	0	0	590	88.5	1.249
Infinity FX 1x + MCPA Ester	0	0	0	602	84.3	1.264
Check	0	0	0	643	82.3	1.251
CV%	-	-	-	15.9	7.9	3.9
LSD (p=0.05)	-	-	-	NSD	NSD	NSD

CV - coefficient of variance; LSD - least significant difference; NSD - not significantly different

Figure 1. Tolerance of established creeping red fescue seed crops to Infinity FX and Infinity FX+MCPA Ester (% seed yield of check)



Summary

- Infinity FX at 1x, Infinity FX at 2x and Infinity FX+MCPA Ester at 1x the recommended rates used in cereal crops applied to established creeping red fescue seed stands did not cause any visual injury, seed yield loss, reductions in germination or reductions in 1000 SWTs. Germination and 1000 SWT assessments were conducted on two of the three trials.
- Infinity FX with or without MCPA Ester appears to be a safe herbicide for use on established creeping red fescue grown for seed production.
- A URMULE is now in place for the use of Infinity FX on seedling and established creeping red fescue grown for seed production.

References

Yoder, C., and SARDA. 2020. *Tolerance of Established Creeping Red Fescue to Infinity FX and Cirpreme, 2020, Whitemud. ARM DAT File.*

Yoder, C., and SARDA. 2019. *Tolerance of Established Creeping Red Fescue to Infinity FX and Cirpreme, 2019, Valleyview. ARM DAT File.*

Yoder, C., and AAFC Beaverlodge. 2018. *Tolerance of Established Creeping Red Fescue to Infinity FX and Cirpreme, 2018, Sexsmith. ARM DAT File.*

Bayer Crops Sciences Canada. Infinity FX Label

Compiled & Circulated by: Calvin Yoder, Talon Gauthier and Shelley Kirk in February 2022.
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