

## Smooth scouringrush control with Finesse® in winter wheat/spring wheat/no-till fallow rotations – continued.

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Smooth scouringrush is a problem in no-till wheat/fallow rotations in the intermediate to low rainfall areas of eastern Washington. In spring wheat, smooth scouringrush has the potential to be more competitive than in winter wheat as the stems can emerge close to emergence of the wheat (Figure 1). We are evaluating control following applications of Finesse (chlorsulfuron + metsulfuron) or Rhonox® (MCPA LV ester) during the no-till fallow phase, and Amber® (triasulfuron) or Rhonox during the crop phase. We have demonstrated that chlorsulfuron, one of the active ingredients in Finesse, is effective for controlling smooth scouringrush for at least two years after application. However, the question remains: is a second application in a subsequent fallow phase needed for long-term control? Furthermore, this study evaluates the application of Amber during the crop phase. Amber is molecularly similar to chlorsulfuron and may be a bridge application between the two fallow Finesse applications.

Rhonox is a control treatment for broadleaf weeds in both the fallow and crop phases when either Finesse or Amber are not applied. It initially burns down smooth scouringrush stems, turning them black but does not appear to reduce smooth scouringrush stem density in the year following application.

Two trials were initiated in 2019, one near Edwall on the Camp farm and a second near Steptoe on the Hall farm. Each site is in a no-till winter wheat/spring wheat/ fallow rotation. The Edwall site is in

the bottom of a gentle-sloping northwest-facing draw with good moisture and well-drained soil, which is classified as a Broadax silt loam. Soil organic matter and pH measured 2.9% and 5.0, respectively. The Steptoe site is on a low-lying flat with inundated soil during winter and early spring. Soil at Steptoe is classified as a Caldwell silt loam. Soil organic matter and pH measured 3.4% and 7.2, respectively. Both sites average around 16 inches of precipitation per year.

At each site, plots measure 10 by 30 ft and are arranged in a randomized complete block design with four replications per treatment. All herbicide treatments were applied with a hand-held



Figure 1. Smooth scouringrush emerging with spring wheat.

spray boom with six TeeJet® XR11002 nozzles on 20-inch spacing and pressurized with a CO<sub>2</sub> backpack at 3 mph. Spray output was 15 gpa at 25 psi. Treatment sequences and herbicide rates are presented in Table 1.

Table 1. Herbicide sequences for long-term study for control of smooth scouringrush in winter wheat/spring wheat/fallow cropping systems in eastern Washington.

Edwall and Steptoe herbicide sequences*							
Seq	Fallow 2019	WW 2020	SW 2021	Fallow 2022	WW 2023	SW 2024	Fallow 2025
1	Finesse	Amber	Amber	Finesse	Amber	Amber	Final evaluations
2	Finesse	Amber	Rhonox	Finesse	Amber	Rhonox	
3	Finesse	Amber	Amber	Rhonox	Amber	Amber	
4	Finesse	Rhonox	Rhonox	Rhonox	Rhonox	Rhonox	
5	Finesse	Rhonox	Rhonox	Finesse	Rhonox	Rhonox	
6	Rhonox	Rhonox	Rhonox	Rhonox	Rhonox	Rhonox	

\*Seq=sequence; WW=winter wheat; SW=spring wheat

Finesse (chlorsulfuron/metsulfuron) is applied at 0.5 oz/A.

Amber (triasulfuron) is applied at 0.56 oz/A.

Rhonox (MCPA) is applied at 34.6 oz/A in fallow and 24 oz/A in crop.

All treatments include NIS surfactant at 0.33% volume/volume concentration.

At each evaluation, stem density was measured in each plot and is presented as number of stems/yd<sup>2</sup>. Identical sequences at the time of evaluation are grouped together for each analysis. All applications in 2021 were applied in the spring wheat phase of each rotation. The Edwall site had been managed without any tillage, whereas the Steptoe site was plowed following the 2020 winter wheat crop. At both Edwall and Steptoe, Finesse applied in 2019 resulted in low smooth scouringrush density in the 2021 spring wheat compared with the Rhonox only sequence (Table 2). At Steptoe, the 2020 fall plowing resulted in delayed smooth scouringrush emergence and lower density compared with Edwall; however, at both sites, smooth scouringrush had emerged by the time Amber was applied to the crop.

Spring wheat yields at Steptoe were overall higher than at Edwall as the Steptoe field site was sub-irrigated, which kept the wheat more competitive and productive given the 2021 regional drought. At Edwall, spring wheat in the Rhonox only sequence yielded 22 bu/A and was statistically lower than sequences where Finesse had been applied in 2019, which all ranged between 33 to 36 bu/A. Harvest yields at Steptoe were not different between the various herbicide sequences and ranged between 56 to 60 bu/A. Greater smooth scouringrush stem density at Edwall likely reduced wheat yield in the Rhonox only sequence, and stem density at Steptoe was apparently not great enough to reduce wheat yield.

This research continues to show that Finesse results in good control of smooth scouringrush. The three-year rotation will stretch the time between Finesse applications, which may be a good test for long-term control. In the spring wheat phase, smooth scouringrush has emerged by the time

Amber is applied, thus providing a better opportunity to test the efficacy of this herbicide than in winter wheat.

Table 2. Control of smooth scouringrush in winter wheat/spring wheat/no-till fallow rotations with Finesse – Edwall and Steptoe, WA.

Herbicide sequence*	2021 density and yield measurements**	
	Smooth scouringrush stems/yd <sup>2</sup>	Spring wheat yield bu/A
2019 - 2020 - 2021		
----- <i>Edwall</i> -----		
Finesse – Amber – Amber	2.5 b	34 a
Finesse – Amber – Rhonox	1.9 b	36 a
Finesse – Rhonox – Rhonox	3.6 b	33 a
Rhonox – Rhonox – Rhonox	92.8 a	22 b
----- <i>Steptoe</i> -----		
Finesse - Amber - Amber	0.2 b	56 a
Finesse - Amber - Rhonox	0.3 b	60 a
Finesse – Rhonox – Rhonox	0.3 b	56 a
Rhonox - Rhonox - Rhonox	9.4 a	60 a

\*See Table 1 for application rates.

\*\* Means are based on four replicates per treatment. Means within a column for each location followed by the same letter are not significantly different at the 95% probability level, which means that we are not confident that the difference is the result of treatment rather than experimental error or random variation associated with the experiment.