

## Smooth Scouringrush control in no-till winter wheat/fallow at Omak, WA – year three.

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This report covers results for year three of a multi-year study initiated in June 2017 to examine control of smooth scouringrush in no-till winter wheat/fallow near Omak, WA. The study compares applications of

Finesse® (chlorsulfuron plus metsulfuron) or Rhonox® (MCPA) during the fallow phase and Amber® (triasulfuron) or Rhonox during the crop phase. From previous research we know that chlorsulfuron controls smooth scouringrush, but a single application will not maintain control over time. This study compares application of Finesse in one and in two fallow years of the rotation. Amber is molecularly similar to



Figure 1. Smooth scouringrush in no-till fallow near Omak, WA

chlorsulfuron and is included to determine its activity during the crop phase. 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 control smooth scouringrush over time.

The study site is near Omak, WA on the Townsend farm in a no-till winter wheat/fallow rotation; however, winter canola sometimes replaces winter wheat. 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 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.

The first-year treatments were applied June 25, 2017 in the no-till fallow phase (Table 1). In 2018, herbicide treatments were applied April 25 in the crop when the wheat was 6 to 9 inches high and had 1 tiller; however, the smooth scouringrush had not yet emerged. The 2019 fallow treatments were applied June 28 at the same time of the 2019 stem density counts. In the check plots (Rhonox only) stems were counted in four ¼ m<sup>2</sup> quadrats per plot. In all other plots, stems were counted in four 1-m<sup>2</sup> quadrats due to low stem density across the plots. Data is shown in plants/yd<sup>2</sup>.

Table 1. Application and soil data.

Application date	June 25, 2017	April 25, 2018	June 28, 2019
Growth stage, smooth scouringrush	stems with strobili	not emerged	stems with strobili
Growth stage, wheat	n/a	6 to 9 leaves, 1 tiller	n/a
Air temperature	85	76	70
Relative humidity (%)	23	24	33
Wind (mph, direction)	0-3, NW	2-4, N	2-6, SW
Cloud cover (%)	70	0	50
Soil temperature at 6 inches (F)	86	65	65
Soil texture	Ferrell fine sandy loam		
Soil organic matter (%)	0.98 to 1.1		
Soil pH (0-6 inches)	5.7 to 6.3		

Results from this year's counts show that the 2017 Finesse application is still keeping stem density low. Plots treated with Finesse in 2017 followed by Rhonox in 2018 averaged only 5.4 stems/yd<sup>2</sup> compared with 73 stems/yd<sup>2</sup> in the plots treated only with Rhonox (Table 2). However, plots treated with Amber in the 2018 crop year average 3.5 stems/yd<sup>2</sup>, which was less than the plots treated with Finesse in 2017 and Rhonox in 2018. This would suggest that Amber has some residual activity on smooth scouringrush because the stems had not yet emerged at the time of application.

Table 2. Control of smooth scouringrush in winter wheat/no-till fallow with Finesse.

Application Timing	Sequence* (2017/2018)	Phase	Smooth scouringrush density**			
			Summer 6/25/2017	Spring 5/25/2018	Summer 8/13/2018	Summer 6/28/2019
			------(stems/yd <sup>2</sup> )-----			
6/25/2017	Initial	Fallow	289			
6/25/2017	Finesse	Fallow		0 b		
6/25/2017	Rhonox	Fallow		105 a		
4/25/2018	Finesse/Amber	Wheat			0.4 b	
4/25/2018	Finesse/Rhonox	Wheat			0.4 b	
4/25/2018	Rhonox/Rhonox	Wheat			210 a	
4/25/2018	Finesse/Amber	Fallow				3.5 c
4/25/2018	Finesse/Rhonox	Fallow				5.4 b
4/25/2018	Rhonox/Rhonox	Fallow				73 a

\*Finesse (chlorsulfuron/metsulfuron) is applied at 0.5 oz/A with 0.33% NIS surfactant. Amber (triasulfuron) is applied at 0.56 oz/A with 0.33% NIS surfactant. Rhonox (MCPA) is applied at 34.6 oz/A in fallow and 24 oz/A in crop.

\*\*Numbers in each column followed by the same letter are not different (Pvalue≤0.05).