

## **Long-term control of smooth scouringrush control with RT 3<sup>®</sup> and Finesse<sup>®</sup> in wheat/fallow cropping systems two years after treatment at Dayton and Steptoe, WA.**

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Smooth scouringrush (*Equisetum laevigatum*) control in wheat/fallow rotations in eastern Washington has been difficult because of limited effective herbicide options. In different studies, we have shown that applications of Finesse (chlorsulfuron + metsulfuron) can have activity on smooth scouringrush at least two years after application; however, tank mixing RT 3 (glyphosate) with Finesse in fallow-year applications may increase control of smooth scouringrush into the following crop year and beyond. RT 3 has been effective when applied at a high rate and with an organosilicone surfactant. In contrast, Finesse is effective for at least two years after application, but when applied alone, does not control some other weeds that might be present in the fallow. This study examines the effect of Finesse and RT 3 applied alone or in combination at different rates of RT 3 two years after application in fallow.

Study trials were initiated in 2020 on the Lambert farm near Dayton, WA, and the Hall farm near Steptoe, WA. The Dayton site is on a 30-40% northwest facing slope with a Walla Walla silt loam well-drained soil with pH 5.4 and 2.1% soil organic matter in the top 6 inches. The Steptoe site is on a low-lying flat with a Covello silt loam that is sometimes inundated with water during winter or early spring. Soil pH measured 5.8 and organic matter measured 2.9% in the top 6 inches. Treatments were applied July 6, 2020, in no-till fallow at the Dayton and Steptoe sites. All plots measured 10 by 30 ft and were arranged in a randomized complete block design with four replications per treatment. All treatments were applied with a hand-held spray boom with six TeeJet<sup>®</sup> XR11002 nozzles on 20-inch spacing and pressurized with a CO<sub>2</sub> backpack at 3 mph.

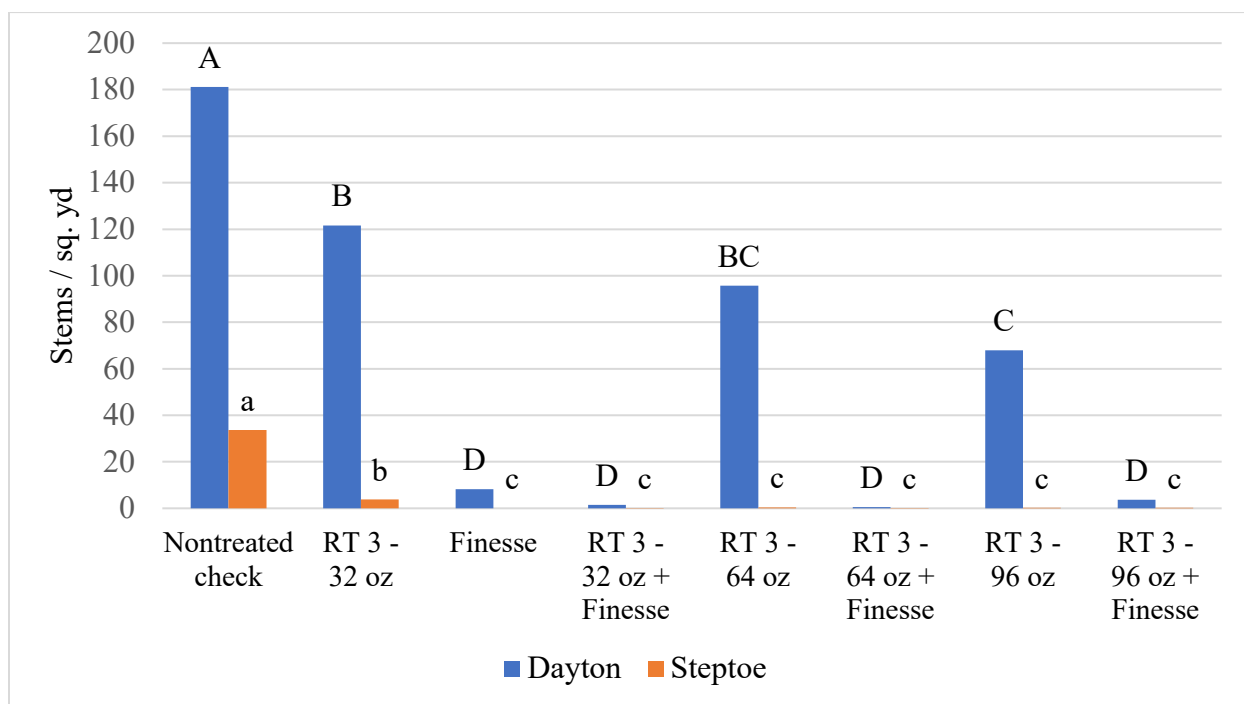


Figure 1. Smooth scouringrush in 2022 at the Dayton site is essentially absent from plots treated with Finesse in 2020.

Spray output was 15 gpa at 25 psi. All treatments included an organosilicone surfactant (Silwet® L77). Initial smooth scouringrush density in 2020 averaged 326 and 279 stems/yd<sup>2</sup> at the Dayton and Steptoe sites, respectively. In 2021, winter wheat was harvested on both farms. In 2022, spring peas were planted at the Dayton site, and spring wheat was planted at the Steptoe site.

In 2022, smooth scouringrush stems were counted in two subplots per plot at each location. At the Dayton site, stems were counted on June 23 when the spring peas were 6 to 8 inches high but had not yet flowered (Figure 1). Smooth scouringrush density in all plots treated with Finesse remained near zero and were statistically less dense than all treatments without Finesse (Figure 2). The RT 3 treatments without Finesse were less dense than the nontreated check but had greater stem density than the treatments with Finesse. The 96 oz/A rate of RT 3 was less dense than the 32 oz/A rate, but not statistically different from the 64 oz/A rate. The recommended plantback for peas following a Finesse application is 24 months and with at least 35 in. precipitation. Although these two restrictions were not met because of the research nature of this study, we could not easily see carryover damage on the peas at the time of counting but we did not collect pea yield data. It is important to consider all plantback intervals and restrictions when using Finesse for smooth scouringrush control.

Figure 2. Smooth scouringrush density in spring peas (Dayton) and spring wheat (Steptoe) in 2022, two years after applications of RT 3 and Finesse in fallow at Dayton and Steptoe, WA.\*



\*All herbicide treatments included Silwet L77 organosilicone surfactant at 0.5% v/v. Rates of RT 3 are in fluid oz/A; Finesse was applied at 0.5 oz/A. Means are based on four replicates per treatment at each location. Columns for each location with the same letter are not significantly different at the 95% probability level, which may result from similar treatment effects, but can also result from experimental or random error associated with the trial.



At Steptoe, smooth scouringrush stems were counted on July 8, 2022, as the spring wheat was heading. Smooth scouringrush density was considerably lower than at the Dayton site, likely due to tillage following the 2021 winter wheat crop, and the competition from a very thick spring wheat crop. However, unlike the Dayton site, the treatments of RT 3 alone at the 64 or 96 oz/A rates were not different from the treatments with Finesse (Figure 2). It is unclear why all treatments at the Steptoe site performed as well or better than in any of our other trials (Figure 3). The Steptoe site had warmer soil temperature at application and is located on a low-lying flood plain with potentially high soil moisture. In contrast, the Dayton site is on the upper part of a steep north-facing slope and had cooler temperatures at the time of application. At both locations, it is difficult to determine if RT 3 aided Finesse since all applications with Finesse resulted in near-zero stem counts, but stem counts will be repeated in 2023.



Figure 3. Early injury symptoms were easily visible on smooth scouringrush stems following applications of RT 3 and Finesse at the Steptoe site in 2020 when the field was in fallow.

## **Disclaimer**

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