Long-term control of smooth scouringrush control with RT 3® and Finesse® one year after application - Reardan, WA.

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In 2021, we initiated a trial near Reardan, WA comparing applications of RT 3 and Finesse for control of smooth scouringrush (*Equisetum laevigatum*) in a wheat/fallow cropping system. Smooth scouringrush has been very difficult to control, especially in no-till cropping systems, as the routine herbicide applications for annual weed control in fallow have been ineffective (Figure 1). Previous research has shown that Finesse (chlorsulfuron + metsulfuron) can have activity on smooth scouringrush at least two years after application, and RT 3 (glyphosate) has been effective when applied at high rates and with an organosilicone surfactant. This study examines the effect of Finesse and RT 3 applied alone or in combination at different rates of RT 3 in the fallow phase of the grower's crop rotation for three years following application.

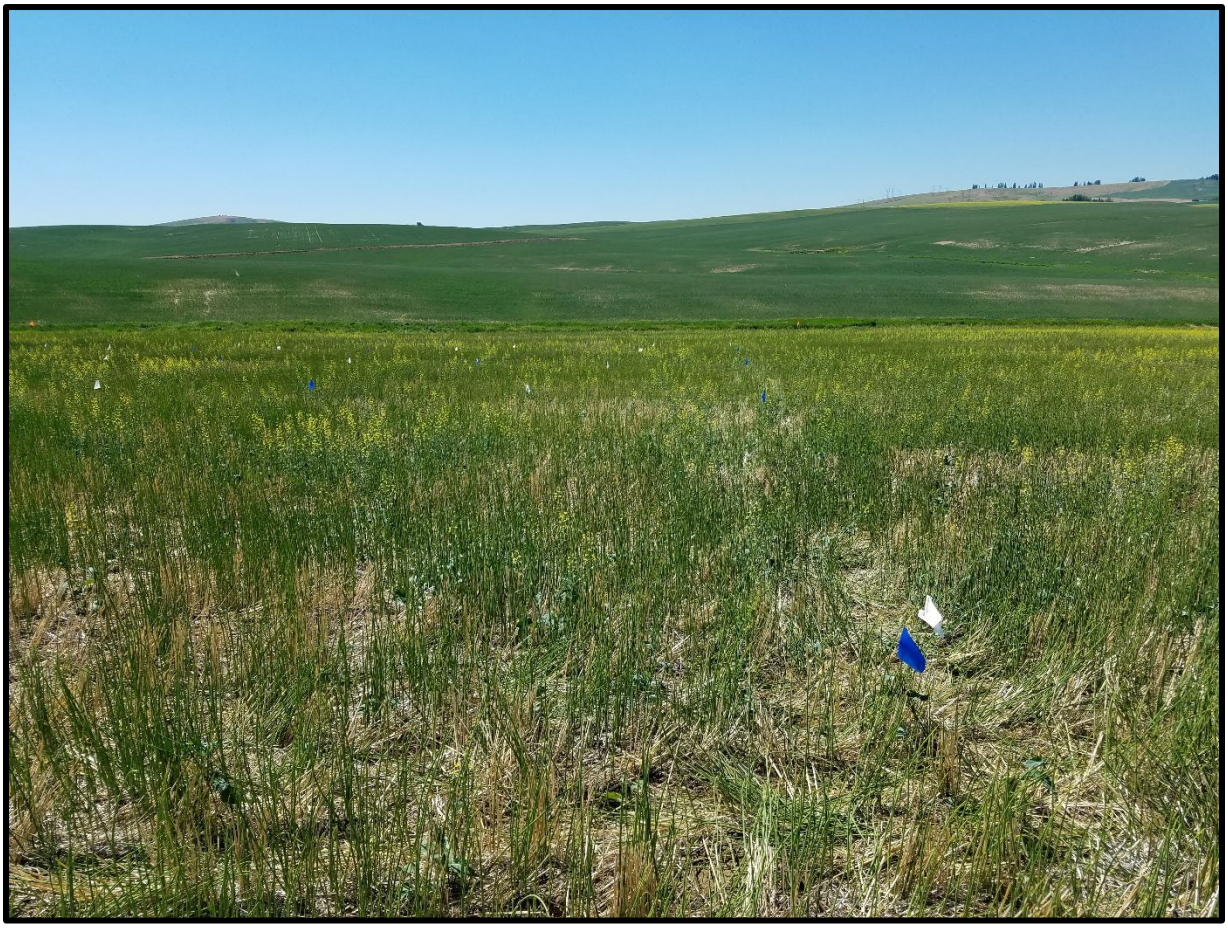


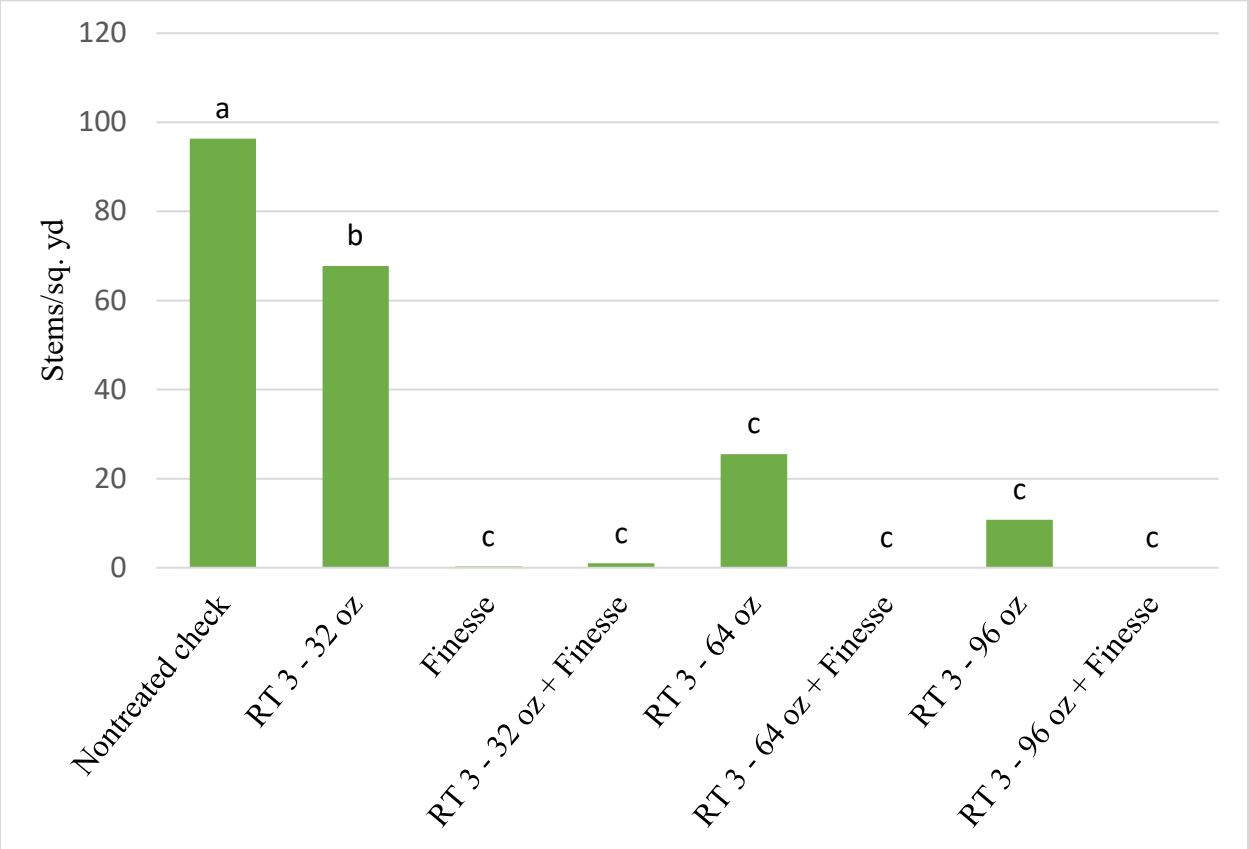
Figure 1. Smooth scouringrush in winter wheat fallow near Reardan, WA.

The trial was initiated on July 9, 2021, in no-till fallow near Reardan, WA on the Carstens farm. The Reardan site is on a northwest-facing slope with an Athena silt loam soil and pH of 4.9 and 2.4% organic matter in the top 6 inches. All plots measure 10 by 30 ft and are arranged in a randomized complete block design with four replications per treatment. Treatments are applied with a hand-held spray boom with six TeeJet® AIXR110015 nozzles on 20-inch spacing and pressurized with a CO_2 backpack at 3 mph. Spray output is 15 gpa at 40 psi. All treatments included an organosilicone surfactant (Silwet® L77). Initial smooth scouringrush density averaged 248 stems/yd^2 in July 2021. In October 2021, the site was seeded to winter wheat.

In the July 2022 winter wheat crop, one year after treatments were applied, smooth scouringrush stems density in the nontreated check plots averaged 96 stems/square yard, 39% of the initial density in the 2021 fallow (Figure 2). This decline in density is likely due to competition from the winter wheat, which is frequently seen in all our smooth scouringrush trials in wheat/fallow systems. Furthermore, all treatments with Finesse reduced density to near zero (Figure 3), which has also been a common outcome. However, RT 3 applied at the 64 and 96 oz/A rates without Finesse were not statistically different from treatments with Finesse. The 32 oz/A rate of RT 3 only reduced density to 68 stems/square yard. This is consistent with the problem growers are experiencing where smooth scouringrush is persistent in no-till wheat/fallow systems. Herbicides and/or rates are applied for control of normal annual weeds and are inadequate for smooth scouringrush. In this trial, applying 64 or 96 oz/A rate of RT 3 with an organosilicone surfactant was as effective as Finesse alone; however, a tank mix of RT 3 and Finesse in fallow may be desirable to control smooth scouringrush as well as other common weeds present at the time of application. The advantage of Finesse is long-term control is likely greater than with RT 3 alone.

Figure 2. Winter wheat with smooth scouringrush on the left; on the right, winter wheat where Finesse had been applied the previous year in fallow.

Figure 3. Smooth scouringrush stem density in 2022 winter wheat, one year after treatments of RT 3 and Finesse were applied in fallow at Reardan, WA.*



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