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Michigan Wheat Program Virtual Field Day

## Roughstalk bluegrass in winter wheat: Should we be concerned?

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### Problem Statement:

Roughstalk bluegrass (*Poa trivialis*) has become more prevalent in several Michigan wheat fields. Roughstalk bluegrass (RSBG) is a cool-season perennial grass weed that is primarily a problem in turfgrass. However, RSBG is becoming more of a problem in hay and more recently in winter grains in many Midwestern states. This perennial grass can survive in turf year-to-year by creeping, above-ground stems, known as stolons. However, we believe that in hay and in wheat most of the spread is by seed. As roughstalk bluegrass grows it becomes 1 to 3 feet tall and often exceeds the wheat canopy once it flowers in May. However, roughstalk bluegrass really becomes apparent in winter wheat once the plants start to mature and turn a golden-brown color in June just prior to seed shed, while wheat is still green. While there has been some general knowledge on the biology and growth of roughstalk bluegrass in turf, there has been very little information available about how it grows in wheat. Over the last three years with funding from the Michigan Wheat Program we have been able to address the following questions.

### Research Questions:

- When does roughstalk bluegrass emerge in winter wheat in Michigan?
- What herbicides and when is the best time to apply them to manage roughstalk bluegrass in winter wheat?

### Roughstalk Bluegrass Herbicide Options Examined in 2020:

- **Osprey** (*mesosulfuron*): SOA Group: 2, Rate: 4.75 oz/A, Labeled timings: between Feekes 1 and 6, Additives: NIS + AMS, Strengths: grasses (including windgrass, annual bluegrass (that has not started to flower)). Will not control ALS-(Group 2) resistant weeds.
- **Osprey Xtra** (*mesosulfuron + thiencarbazone-methyl*): Osprey Xtra is a newer premixture that contains two SOA Group: 2 + 2 herbicides, Rate: 4.75 oz/A, Labeled timings: between Feekes 1 and 6, Additives: NIS + AMS, Strengths: grasses (including windgrass, annual bluegrass (that has not started to flower)), and some broadleaf weeds including common chickweed, henbit, and several mustard species including field pennycress. Will not control ALS-(Group 2) resistant weeds.
- **PowerFlex HL** (*pyroxsulam*): SOA Group: 2, Rate: 2 oz/A, Labeled timings: between Feekes 1.3 and 6, Additives: NIS + AMS, Strengths: grasses (including windgrass, cheat, downy brome, annual bluegrass (that has not started to flower)), chickweed, mustards, common lambsquarters. Will not control ALS-(Group 2) resistant weeds.
- **Axial Bold** (*pinoxaden + fenoxaprop-p-ethyl*): SOA Group: 1 + 1, Rate: 15 fl oz/A. This is a newer premixture labeled for use in winter wheat that replaces the Axial XL (*pinoxaden*).

Labeled timings: between emergence and Feekes 8 (preboot), Additives: none, Strengths: grasses (including annual ryegrass, windgrass).

- **Osprey, PowerFlex HL, and Axial Bold:** were all applied in the fall (wheat Feekes 1.2-1.3), early spring (Feekes 4) and late spring (Feekes stage 5). **Osprey Xtra** was applied in the spring at both the early and late application timings. Tank-mixes with Huskie were also examined at the early application timing to determine if there was increased crop injury, decreased roughstalk bluegrass control, and broadleaf weed control.

### Results:

- From the three years of our research, the majority of roughstalk bluegrass emerged in the fall; however, a small percentage of roughstalk bluegrass can emerge in early spring.
- In the spring, roughstalk bluegrass progresses quickly through its life-cycle. Over the three years of our research, roughstalk bluegrass generally started to head out between the 1<sup>st</sup> and 3<sup>rd</sup> weeks of May, seed heads generally were visible one to two weeks later, and roughstalk bluegrass tended to mature and turn a golden-brown by the 1<sup>st</sup> or 2<sup>nd</sup> weeks of June.
- Roughstalk bluegrass can reduce winter wheat yield by over 50% when it was not effectively controlled.
- Herbicide application timing influenced roughstalk bluegrass control. Across all treatments roughstalk bluegrass control was greatest from early spring applications when wheat was at Feekes stage 4 (mid- to late-April) and roughstalk bluegrass height ranged between 1 and 3-inches.
- At this timing, Osprey, Axial XL/Axial Bold, or Osprey Xtra provided the greatest roughstalk bluegrass control (>90%). Roughstalk bluegrass control was generally 20% lower with PowerFlex HL (65-75%).
- Control was reduced dramatically (~60%) when applications were made in late-spring, as roughstalk bluegrass started to head out.
- Fall applications of Osprey or Axial Bold provided ~90% control early in the spring. However, by late May roughstalk bluegrass control was reduced to 85 and 70%, respectively.
- Tank-mixtures with Huskie in early spring did not affect RSBG control, however, wheat injury was slightly greater between 10-15% greater two weeks after treatment than any herbicide alone. However, within the next month this injury was not apparent.

### Take Home Message:

Growers should be on the lookout for roughstalk bluegrass in winter wheat. If roughstalk bluegrass is anticipated in wheat, a grass herbicide like Osprey, Osprey Xtra or Axial XL/Axial Bold should be included as a component of the overall weed management program.



Roughstalk bluegrass seedling in wheat in early April (right).

Roughstalk bluegrass control in early June from early spring applications of Huskie (a) and Osprey + Huskie (b).

