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Michigan Wheat Program Wheat Field Day

Fall Herbicide Applications and Wheat Planting Date

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EARLY- AND LATE-PLANTED WHEAT AND FALL HERBICIDES

Problem Statement:

The planting window for winter wheat in Michigan can vary each year. Delays in harvest and rainy fall weather can push an ideal planting date of mid- to late-September into late-October or further. This range in planting dates could have an impact on how to best manage weeds. This window can affect both weed and winter wheat growth and where fall herbicide applications may best fit. As planting dates get pushed to later October there are questions regarding the benefits of fall herbicide applications. Also, with earlier planted wheat growers have asked: *Will fall herbicide applications eliminate the need for a spring herbicide application?* Fall herbicide applications may also become more important, as we have struggled over the past several years in finding the ideal time to apply wheat herbicides in the spring, due to colder weather.

Trial information:

This is the second season that we have examined the effects of fall herbicides applications on crop tolerance and weed control in early and late-planted wheat. Winter wheat was planted in mid- to late-September and in late-October (+4 weeks). Fall herbicide applications were made at two different times for the early planted wheat when winter wheat had 2- to 3-leaves (Feekes 1.2 to 1.3) and then approximately two weeks later (considerably more winter annual weed growth). Only one application was made to the later planted wheat, which usually occurred the first week of December. Herbicides examined included: Huskie, Talinor, Affinity BroadSpec, and Quelex for broadleaf weed control and Osprey and PowerFlex for winter annual grass control. Tank-mixtures of Huskie + Osprey and Huskie + PowerFlex were also examined. These treatments were compared with spring applications of Huskie, PerfectMatch (premixture of PowerFlex + Stinger + Starane Ultra), and Huskie + PowerFlex.

This year this study is being conducted at the Saginaw Valley Research and Extension Center (SVREC) and at MSU.

- At SVREC, 'AM Mackinaw' soft white wheat was planted on Oct. 4 and Nov. 3, 2023.
 - Fall herbicides were applied on Nov. 3 (Feekes 1.2, 44°F) and Nov. 16 (Feekes 2, 51°F) to early planted wheat and Dec. 8 (Feekes 1.1-1.2, 46°F) to late-planted wheat.



Figure 1. MSU (A) No herbicide (B) Fall-applied Huskie + Osprey in late-April for early planted wheat.

- Spring herbicide applications were made on April 18; 9-10 inch tall (Feekes 5, 54°F) early planted wheat and 6-8 inch tall (Feekes 4, 54°F) later planted wheat.
- At MSU, 'Warf' soft red wheat was planted on Sept. 20 and Oct. 24, 2023.
 - Fall herbicide applications Oct. 24 (Feekes 1.2, 55°F) and Nov. 14 (Feekes 2, 39°F) for early planted wheat and Dec. 8 (Feekes 1.1, 38 °F) later planted wheat.
 - Spring herbicide applications were made on April 15. Early planted wheat was 10 inches (Feekes 5, 67-°F), and the late planted wheat was 6 inches (Feekes 5, 67°F).

Key Research Findings:

- There was no apparent herbicide injury at SVREC to wheat from any of the herbicide treatments. Additionally, due to low weed pressure there were no differences in winter annual weed control.
- At MSU, fall herbicide applications that contained Osprey or PowerFlex caused some injury (7-11%) to wheat (yellowing and stunting), 14 days after application to early planted wheat. However, by spring this injury was not apparent. Similar results were found in 2023 (Year 1).
 - Similar injury was also observed 10 days after application for spring applications of PerfectMatch and Huskie + Osprey.
 - Wheat stunting from fall herbicide applications of PowerFlex and Osprey alone and tank-mixed with Huskie to late planted wheat continued through to the early spring with ~15% injury from PowerFlex and ~5% from Osprey applications. Spring herbicide applications also caused more injury to the late-planted wheat.
 - Wheat planting date also had a major effect on the number, size, and type of weeds that needed to be controlled. Early planted wheat had more weeds that needed to be managed.
 - Fall herbicide applications to early planted wheat provided greater control of winter annual weeds than applications made in the spring.
 - Fall applications, regardless of timing, of the combinations of Huskie + Osprey or Huskie + PowerFlex HL provided good control of all weeds, including annual bluegrass. Similar results were found in 2023.
- In 2023, herbicide selection did not affect wheat yield from fall herbicide applications. However, planting date had more of an effect on yield and the early planted wheat yielded approximately 20 bu/A more than the later planted wheat, regardless of herbicide selection.

Take Home Message:

Fall herbicide applications particularly for early planted wheat may be the best option to control weeds as spring weather often impacts the time of herbicide application. Additionally, early planting of wheat likely will provide the greatest benefit for early canopy closure to help suppress summer annuals and maximize winter wheat yield.



Figure 2. MSU. Canopy Closure May 2, 2024.
 (A) Early planted ~ 66%
 (B) Late planted ~ 52%

Acknowledgements

