Figure 1 - Wheat spike/head showing typical symptoms of FHB

FHB Management Coordinated Project: Uniform Fungicide Trials for 2022 -2024

The information in this handout was authors by PIs of the USWBSI Integrated Management Coordinated Project. For the list of authors see the full publication (https://scabusa.org/pdfs_dbupload/2023_Coordinated-Project_UFT.pdf).

Fusarium head blight (FHB), or head scab, is an economically important disease that affects the spikes or heads (Figure 1) of wheat, barley, and other small grain crops worldwide. FHB not only reduces grain yield but also lead to grain contamination with harmful toxins such as deoxynivalenol (DON) that pose a threat to human and animal health. Fungicides are an essential tool for managing FHB and reducing DON contamination. However, the success of fungicides depends on the product, applicaion rate, and and timing. Recently, two new fungicides – Prosaro Pro (a mix of tebuconazole, prothioconazole, and fluopyram) and Sphaerex (a mix of metconazole and prothioconazole) – were introduced to help manage FHB and DON. Research was carried out in 2022, 2023 and 2024 to compare the efficacy of these new products against FHB and DON to the efficacy of established fungicides like Prosaro, Caramba, and Miravis Ace.

The fungicide programs evaluated were an application of Prosaro, Caramba, Miravis Ace, Prosaro Pro, or Sphaerex at early anthesis (Feekes 10.5.1); or an application of Miravis Ace at Feekes 10.5.1 followed by an application of Prosaro Pro, Sphaerex, or Tebuconazole at 4-6 days after Feekes 10.5.1, plus a non-treated check (CK). All fungicides were applied a label-recommended rates. All fungicide programs significantly reduced FHB and DON compared to the non-treated check. When applied at Feekes 10.5.1 alone, Miravis Ace resulted in significantly lower FHB than Prosaro, Caramba, or Sphaerex, and significantly lower DON than Prosaro and Caramba. The lowest levels of FHB and DON were achieved by applying Miravis

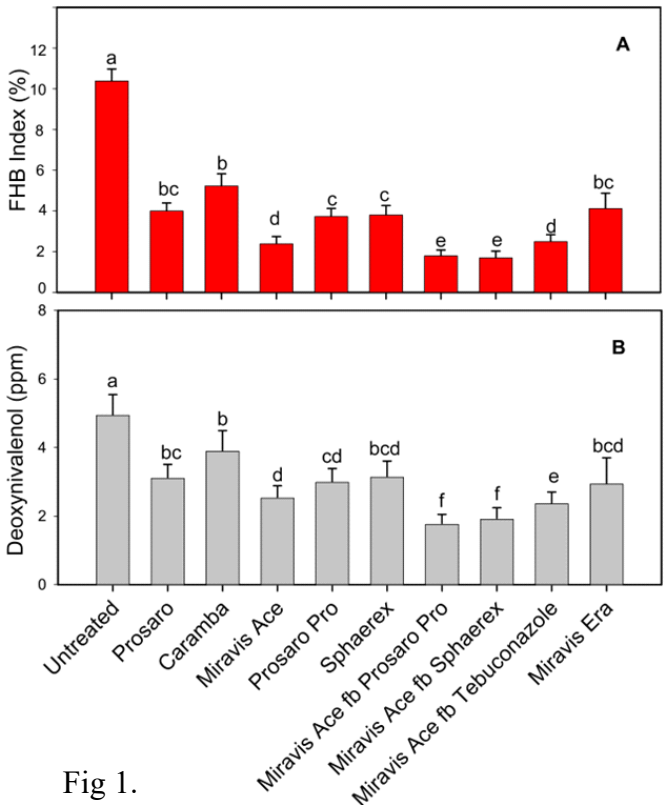

Fig 1.

Ace at Feekes 10.5.1 followed by an application of either Prosaro Pro or Sphaerex 4 to 6 days later.

On average, across different environments, Miravis Ace applied at flowering (anthesis) provided the best control of Fusarium head blight (FHB) and DON toxin when used as a single spray. It reduced disease severity (IND) by 76% and DON contamination by 48%, compared to untreated fields (Fig. 2A and 2B). Using a two-spray program—starting with Miravis Ace at flowering and following up with Prosaro Pro or Sphaerex 4-6 days later—gave even better results. These combinations reduced FHB by 82-83% and DON toxin levels by 61-63%. This result shows that applying Miravis Ace at flowering followed by a second spray of Prosaro Pro or Sphaerex a few days later can provide better control of FHB and DON toxin than a single spray of any fungicide. These results help farmers understand how newly available fungicides compare to older ones and highlight the benefit of using two sprays instead of one. Additional research will help fine-tune these findings and figure out how the fungicides work together to improve control.

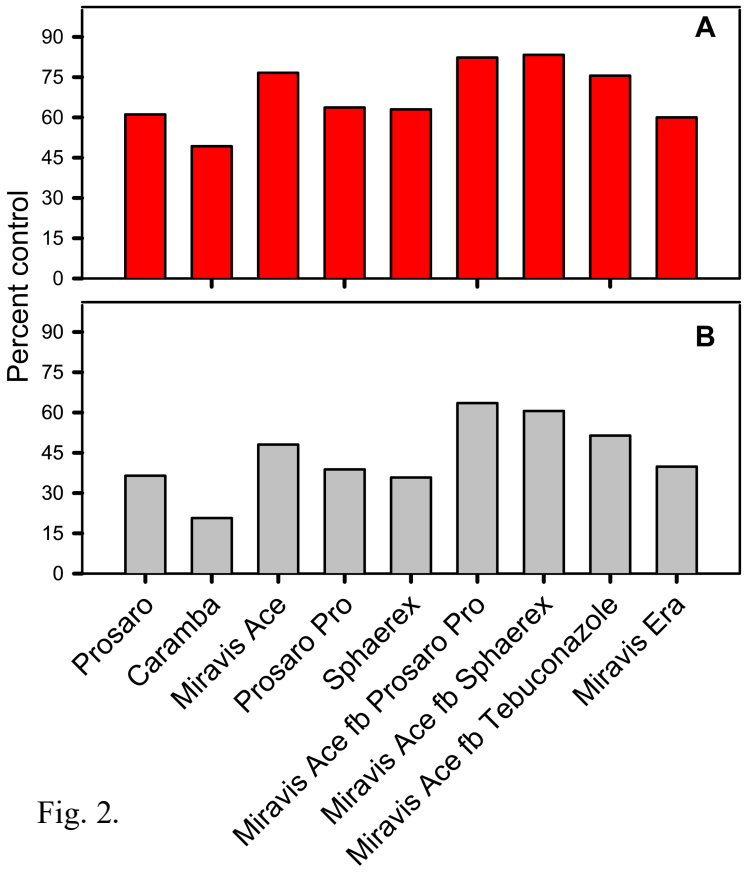

Fig. 2.