Michigan Wheat Field Day

Plant Pathology Farm,

East Lansing, MI

Michigan State University

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Wheat Pathology Team:

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 [www.pestid.msu.edu](http://www.pestid.msu.edu)

**Fusarium head scab management recommendations**

1. Select variety with highest possible resistance (no varieties are completely resistant)
2. Manage residue and avoid planting into corn residue
3. Monitor conditions and use fungicide as needed. Spray timing should be approximately 2 to 5 days after 50 percent of the heads have begun flowering, or 5 to 7 days after most heading (pictured).
4. Forecasting model [www.wheatscab.psu.edu](http://www.wheatscab.psu.edu), which can give you an idea of your area’s risk based on weather data
5. Fact sheet: Managing Fusarium head blight: [www.fieldcrop.msu.edu/wheat/](http://www.fieldcrop.msu.edu/wheat/)

**Fungicide efficacy and timing**

The Chilvers lab conducts fungicide testing to determine product efficacy and best application timing. The fungicide efficacy table on the next page is derived from multiple university fungicide data, including that collected at MSU.

**New fungicide registered for head scab management**

Syngenta labeled Miravis Ace in 2019. Miravis Ace is a premix of propiconazole (i.e. Tilt) and Adepidyn. The Adepidyn (pydiflumetofen) component is an SDHI mode of action, which is different to the current triazole (DMI) mode of action that we have in Caramba, Proline and Prosaro. This should be good news for resistance management, giving us an alternate option to the current triazole mode of action.

**MSU Plant and Pest Diagnostics**

Need help diagnosing problems in your wheat? The MSU Plant & Pest Diagnostics provides plant health analyses and identification of nematodes, weeds, and insects. Sample processing

**Microbiome studies of wheat yield promising strains for bioprotection against scab**

The wheat microbiome (bacteria and fungi) under four management strategies (conventional, no-till, organic, and reduced chemical inputs) was characterized at four different growth stages. Microbes living in and on roots stems and leaves were identified. Most of these studies examine roots only, but we have found that the above ground parts have more fungi and very distinct microbes from the roots. More than 2000 individual microbial isolates were collected and tested for antagonism to the scab pathogen. A handful of these have been found to protect wheat plants from head blight in limited testing. These are being studied further to determine their potential to protect plants in the field. See the full article on this work in the *Phytobiomes* journal, https://apsjournals.apsnet.org/doi/full/10.1094/PBIOMES-05-17-0023-R.

**Fungicide Efficacy for Control of Wheat Diseases (NCERA-184 - 2020 May 7, Final)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Fungicide(s)** | | | |  |  |  |  |  |  |  |  |  |
| **Class** | **Active ingredient** | **Product** | **Rate/A**  **(fl. oz)** | **Powdery mildew** | **Stagonospora**  **leaf/glume blotch** | **Septoria leaf blotch** | **Tan spot** | **Stripe rust** | **Leaf rust** | **Stem rust** | **Head scab4** | **Harvest Restriction** |
| **Strobilurin** | **Picoxystrobin 22.5%** | **Aproach SC** | **6.0 – 12.0** | G1 | VG | VG2 | VG | E3 | VG | VG | NL | Feekes 10.5 |
| **Pyraclostrobin 23.6%** | **Headline SC** | **6.0 - 9.0** | G | VG | VG2 | E | E3 | E | G | NL | Feekes 10.5 |
| **Triazole** | **Metconazole 8.6%** | **Caramba 0.75 SL** | **10.0 - 17.0** | VG | VG | -- | VG | E | E | E | G | 30 days |
| **Tebuconazole 38.7%** | **Folicur 3.6 F5** | **4.0** | NL | NL | NL | NL | E | E | E | F | 30 days |
| **Prothioconazole 41%** | **Proline 480 SC** | **5.0 - 5.7** | -- | VG | VG | VG | VG | VG | VG | G | 30 days |
| **Prothioconazole19%**  **Tebuconazole 19%** | **Prosaro 421 SC** | **6.5 - 8.2** | G | VG | VG | VG | E | E | E | G | 30 days |
| **Propiconazole 41.8%** | **Tilt 3.6 EC5** | **4.0** | VG | VG | VG | VG | VG | VG | VG | P | Feekes 10.5.4 |
| **Mixed modes of action6** | **Tebuconazole 22.6%**  **Trifloxystrobin 22.6%** | **Absolute Maxx SC** | **5.0** | G | VG | VG | VG | VG | E | VG | NL | 35 days |
| **Cyproconazole 7.17%**  **Picoxystrobin 17.94%** | **Aproach Prima SC** | **3.4 - 6.8** | VG | VG | VG | VG | E | VG | -- | NR | 45 days |
| **Prothioconazole 16.0%**  **Trifloxystrobin 13.7%** | **Delaro 325 SC** | **8.0** | G | VG | VG | VG | VG | VG | VG | NL | Feekes 10.5  35 days |
| **Pydiflumetofen 13.7%**  **Propiconazole 11.4%** | **Miravis Ace SE** | **13.7** | VG | VG | VG | VG | VG | VG | VG | G7 | Feekes 10.5.4 |
| **Fluxapyroxad 2.8%**  **Pyraclostrobin 18.7%**  **Propiconazole 11.7%** | **Nexicor EC** | **7.0 - 13.0** | VG | VG | E | E | E | E | VG | NL | Feekes 10.5 |
| **Fluoxastrobin 14.8%**  **Flutriafol 19.3%** | **Preemptor SC** | **4.0 - 6.0** | -- | -- | VG | VG | E | VG | -- | NL | Feekes 10.5 and  40 days |
| **Fluxapyroxad 14.3%**  **Pyraclostrobin 28.6%** | **Priaxor** | **4.0 - 8.0** | G | VG | VG | E | VG | VG | G | NL | Feekes 10.5 |
| **Propiconazole 11.7% Azoxystrobin 13.5%** | **Quilt Xcel 2.2 SE5** | **10.5 - 14.0** | VG | VG | VG | VG | E | E | VG | NL | Feekes 10.5.4 |
| **Prothioconazole 10.8%**  **Trifloxystrobin 32.3%** | **Stratego YLD** | **4.0** | G | VG | VG | VG | VG | VG | VG | NL | Feekes 10.5  35 days |
| **Benzovindiflupyr 2.9%**  **Propiconazole 11.9% Azoxystrobin 10.5%** | **Trivapro SE** | **9.4 - 13.7** | VG | VG | VG | VG | E | E | VG | NL | Feekes 10.5.4 |
| **Flutriafol 18.63%**  **Azoxystrobin 25.30%** | **Topguard EQ** | **4.0-7.0** | VG | NL | VG | VG | E | E | VG | NL | Feekes 10.5.4  30 days |

*1Efficacy categories: NL=Not Labeled; NR=Not Recommended; P=Poor; F=Fair; G=Good; VG=Very Good; E=Excellent; -- = Insufficient data to make statement about efficacy of this product.*

*2 Product efficacy may be reduced in areas with fungal populations that are resistant to strobilurin fungicides.*

*3Efficacy may be significantly reduced if solo strobilurin products are applied after stripe rust infection has occurred.*

*4Application of products containing strobilurin fungicides may result in elevated levels of the mycotoxin Deoxynivalenol (DON) in grain damaged by head scab.*

*5Multiple generic products containing the same active ingredients also may be labeled in some states.*

*6Products with mixed modes of action generally combine triazole and strobilurin active ingredients. Miravis Ace, Nexicor, Priaxor, and Trivapro* *include carboxamide active ingredients.*

*7Based on application timing at the beginning of anthesis (Feekes 10.5.1).*

The North Central Regional Committee on Management of Small Grain Diseases (NCERA-184) has developed the following information on fungicide efficacy for control of certain foliar diseases of wheat for use by the grain production industry in the U.S. Efficacy ratings for each fungicide listed in the table were determined by field testing the materials over multiple years and locations by the members of the committee. Efficacy is based on proper application timing to achieve optimum effectiveness of the fungicide as determined by labeled instructions and overall level of disease in the field at the time of application. Differences in efficacy among fungicide products were determined by direct comparisons among products in field tests and are based on a single application of the labeled rate as listed in the table. Table includes most widely marketed products, and is not intended to be a list of all labeled products.