U.S. Wheat and Barley Scab Initiative

FHB Tool Talk

Extension Specialists, Crop Consultants, and Grower Organizations,

Management practices can help reduce the impact of fusarium head blight (FHB) on wheat and barley. The causal agent of FHB, *fusarium graminearum*, is also a pathogen of corn and can overwinter on crop residue. Here are some management tips for irrigated wheat and barley following corn in the arid climates of the Intermountain West.

Preventing FHB in irrigated wheat/barley following corn in the Intermountain West: common questions, answered.

Are you planting wheat or barley following corn? Typically spring wheat or barley is planted in the year following corn production.

> Tip #1: To till or not to till? Reducing the surface residue will reduce the inoculum and reduce the risk of infection. Even with tillage, there could still be enough residue that it's recommended to follow up with Tip #2.
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> Tip #2: Plant with the most resistant spring wheat and barley varieties. Heading and anthesis of spring wheat and barley varieties will be later than winter crops, making them more vulnerable to infection during the warmer weather. Winter wheat and barley flower when nighttime temperatures are usually too cool for optimal growth and infection by *Fusarium graminearum*.
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> Tip #3: Plan to use effective fungicides at anthesis. Fungicide application regardless of tillage is recommended. Whether by aerial or ground, proper fungicide application has been proven to lead to effective control. This is true even in the Pacific Northwest where there have been no trials comparing the effectiveness of aerial applications with ground rig applications.

What if I plant my small grains following sileage corn? While the majority of the corn foliage is removed with harvest, there is still a lot of residue remaining (*i.e.* crown and roots).

> Tip #1: Plant winter wheat or barley. Heading and anthesis for winter small grains occur earlier in the season when temperatures are not favorable for infection.

Tip #2: Plan timely fungicide applications. Depending on available water resources, irrigation may not be feasible following the removal of corn for sileage and growers may be obliged to wait until the following spring to plant. Depending on weather conditions, fungicide application should be planned for more susceptible spring varieties and is suggested for all others (MS and MR).

Does planting small grains following small grains increase my risk? In areas with limited rotation options, back-to-back years of small grains occurs very frequently. However, this is generally not a high-risk situation in the high plains desert for FHB. As you move into more humid areas, like the MonDak region, wheat after wheat becomes high-risk and fungicide application in combination with resistant varieties becomes standard.

Tip #1: Plant winter wheat or barley in back-to-back production of small grains. Anthesis and heading occur earlier in the season when temperatures are not favorable for infection.

Tip #2: Plant with the most resistant spring wheat and barley varieties in the second year of grain production.

Tip #3: Plan to use effective fungicides at anthesis for spring varieties in the second year of production if weather conditions favor infection and corn residue is in fields of the local production area. See the Fungicide Efficacy Guide for Control of Wheat Diseases for more info.

What if I'm planting hard white spring wheat and durum? Hard white spring wheat and durum are the most susceptible to infection by *F. graminearum*. Even with the least susceptible varieties of hard white spring wheat, growers should consider standard applications of effective fungicides at anthesis. That risk increases when corn production occurs locally. In some years, corn residue can serve as a source of inoculum from 10-30 miles away.

Finally, can I modify irrigation practices? As center pivot irrigation has increased, the incidence of FHB has also increased. Center-pivot systems often cannot deliver to meet maximum evapotranspiration (ET) rates of small grains at anthesis, which is the growth stage of the greatest ET demand for small grains. As a result, the center pivots are never turned off and the humidity and free moisture is highest during the most vulnerable growth stage of wheat and barley. In those areas where the soil type can hold enough moisture, **the center pivot can be shut off** for seven days to almost eliminate the risk of infection (depending on the weather). This will not work in sandier soils or those volcanic-derived soils with large pore spaces.

Tip #1: Where soil moisture reserves can be built up in finer textured soils, shut off the irrigation for 5-7 days during anthesis.

Tip #2: "Farm the donut hole." Apply an effective fungicide to the circle surrounding the first tower of the center pivot where the highest duration of irrigation and disease occurs.



Center-pivot irrigation of wheat growing in Yuma County, Colorado. Photo by Gene Alexander, USDA, Natural Resources Conservation Service.

Special thanks to Juliet Marshall, University of Idaho plant pathologist, on providing irrigation expertise for this issue.

Thank you for reading!

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