



## Fusarium Head Blight and Associated Mycotoxins Problematic in 2024, Predominately in Northern and Eastern Climates

By Dr. Amber Hoffstetter



FHB found in USWBSI supported management wheat trials located at the Agronomy Center for Education and Research in West Lafayette, Indiana. (Darcy Telenko, photo)

Fusarium head blight (FHB or scab), caused by the fungus *Fusarium graminearum*, was more prevalent this season compared to recent years, primarily for those in the northern and eastern states of the U.S. While many reports were received by experts in spring wheat, the fungus was also observed in winter cereals. A few states also reported dockages due to increased levels of the mycotoxin deoxynivalenol (DON) in grain lots. In the southern regions along with the Pacific Northwest, FHB occurrence was more limited due to weather events not coinciding with the growth stages that the crop is vulnerable to the fungus. Where FHB was prevalent, the [USWBSI FHB Risk Tool](#) predicted high risk and growers were able to mitigate their risk and reduce losses through the use of a timely fungicide application. However, there were reports of late season infections or kernel termination, even with the use of a fungicides, causing yield reductions. The

[U.S. Wheat and Barley Scab Initiative \(USWBSI\)](#) reached out to state experts for an assessment of FHB during the 2024 growing season; an overview of each region is presented below.



# Pockets of Moisture Cause FHB in Northeast Spring Wheat

(Malting Barley, Spring Wheat, and Soft Winter Wheat)

Northeast growers had a better season overall with less FHB than in 2023, at least for winter grains. Spring wheat growers had varying degrees of FHB depending on the amount of moisture received during flowering. FHB posed few problems for winter cereals and spring barley growers in the region with no reports of dockage for these crops. Overall, crop quality in the Northeast was minimally impacted by FHB this season.

Variable weather conditions in **Vermont** along with erratic storms produced varying levels of FHB throughout the state. Spring type grains seemed to face the most challenges. Vermont, along with most regions of New England, experienced above average precipitation and temperatures during planting. Many growers reported poor germination, low tillering, and spotty stands. Seeding of spring grains was often later than desired as wet ground made planting difficult. The wet weather continued in pockets with above average rainfall during the months of June, July, and August. “Infection rates of *Fusarium graminearum* varied across locations,” said Heather Darby, University of Vermont extension agronomist. Rain events at flowering created optimal conditions for FHB and resulted in higher levels of DON in the harvested grain for the northern part of the state. Fields in the southern part of the state were drier throughout the summer and in some cases experienced drought like conditions, with little to no FHB was detected.

Darby’s lab also tests samples of corn, einkorn, spring barley, spring wheat, winter wheat, triticale, and rye from all Northeastern states annually. This year, DON levels have been extremely variable within regions and grain types. The bulk of the samples the lab tested were spring wheat, which averaged 2.2 ppm DON compared to winter wheat at an average of 0.5 ppm. Overall, 42% of the spring wheat samples were over the 1 ppm threshold while only 10% of the winter wheat samples fell over this threshold.

Growers in **New York** were pleased with their 2024 soft winter wheat crop after last year’s issues with FHB which left many fields unable to be harvested or resulted in the grain being sold as livestock feed. This season however, warmer weather in spring allowed the crop to develop quicker, by a week or more, from stem elongation through maturity. Dry conditions prevailed through flowering and grain development and both yield and grain quality were high.

**“Most wheat producers made an anthesis-timed fungicide application for FHB/DON suppression as well as protection of flag leaves from fungal pathogens.”**

**Gary Bergstrom**

FHB symptoms were rarely found, and mills in the state reported generally high falling number scores, indicating the absence of sprout damage, and very low levels of DON contamination within the delivered grain. “Most wheat producers made an anthesis-timed fungicide application for FHB/DON suppression as well as protection of flag leaves from fungal pathogens,” said Gary Bergstrom, professor emeritus of plant pathology at Cornell University. Powdery mildew, fungal leaf spots, as well as stripe and leaf rusts were all observed in 2024 but not to concerning levels.



The winter malting barley crop followed a similar pattern to the winter wheat in terms of crop growth with even earlier development and maturation. Both the yield and quality of the malting barley were very good with nearly every grain lot meeting malt house purchase standards, including low levels of DON. Some winter barleys had issues with winter survival in the more northern areas of the state due to an 'open' winter with less than adequate snow cover.

Yields and quality for the spring malting barley crop also pleased the growers and malt houses. Well timed fungicide applications suppressed FHB but also protected the flag leaves limiting the cases of leaf rust, powdery mildew, scald, spot blotch, and other leaf spots. With harvest of soybeans, corn silage, and certain vegetable crops progressing well this fall, the state is seeing an increase in the acreage planted to winter small grains for 2025.

## Most Mid-Atlantic States Report Issues with FHB

*(Malting Barley and Soft Winter Wheat)*

For growers in the Mid-Atlantic states growing conditions were challenging. Variable weather conditions not only created optimal conditions for FHB development but also reduced stands and impacted kernel numbers resulting in lower yields. Reported DON levels were variable with some levels being high enough to result in dockages.

**Pennsylvania's** small grains growing season saw regionally variable environmental conditions impacting the overall performance of the wheat and barley crops within the state. Thin stands and reduced kernel number resulted in lower yields for those in the south-central part of the state. FHB incidences were generally low (< 1%), except for Franklin County, where it was estimated around 5%. The FHB Risk Tool predicted moderate to high risk for this region during flowering, however, growers reported using resistant varieties and applying timely fungicides to effectively manage the disease. In the Southeast, yields were average compared to prior years. However, regular rain throughout flowering created ample conditions for FHB and disease pressure was high. Despite growers applying fungicides for FHB, incidence was 7%. Yield in other areas of the state was better than average, likely due to suitable spring conditions and well-timed fungicide applications for FHB. "DON levels were variable given the different conditions, although we did hear ranges from 0 to 15 ppm, and we saw higher DON in our research trials this year compared to the past several years," said Alyssa Collins, associate research professor at Pennsylvania State University and the director of the Southeast Agricultural Research and Extension Center. Some rather unique challenges in wheat and barley included Barley Yellow



**Fusarium head blight infected wheat head in Dillsburg, Pennsylvania (York County).** *(Heidi Reed, photo)*



Dwarf Virus, Pythium root rot, wheat leaf rust, and cold injury which varied by location, planting date, and variety.

Winter in **Delaware** was very wet, causing root rot problems, particularly in certain malting barley varieties. Conditions dried out for a few weeks, but the spring rains returned just in time for flowering causing Fusarium head blight incidence and severity to be much higher than in recent years. “Wheat varieties with partial resistance could be separated from more susceptible varieties,” said Alyssa Koehler Betts, University of Delaware extension plant pathologist. Stripe rust, caused by *Puccinia striiformis*, also entered the region around the time of anthesis. However, the arrival of stripe rust timed well with when growers were making fungicide applications for FHB, so high levels of stripe rust were not observed. After 2023’s record breaking season, yields this year were average.

This season was an unusual one for small grains in **Maryland**. Fluctuations in the weather started occurring in winter and continued through the end of the growing season causing plant stress. In some regions of the state, malting barley had patchy stands which could be attributed to a mild winter followed by frost, injuring the plants in early spring. *Pythium* infections were confirmed in some fields. A period of drought coupled with high temperatures during the summer further stressed plants. For most of the state, the FHB Risk Tool predicted low risk during wheat flowering. “The risk increased towards the end of flowering season, but mostly the crop managed to escape the infections. Consequently, FHB was not a major concern this year,” said Nidhi Rawat, University of Maryland small grains pathologist. Growers also applied fungicides recommended by USWBSI researchers and DON levels remained mostly low in harvested grain.

The start of the soft red winter wheat season in **Virginia** was turbulent with prolonged periods of dryness followed by wet conditions. “Tight profit margins put a strain on the use of additional management inputs such as fungicides,” said Doug Higgins, assistant professor of plant pathology and extension specialist at Virginia Tech. FHB occurrence was low in the Eastern Shore. However, in the Northern Neck and Middle Peninsula, moderate FHB outbreaks were reported occurring mostly in susceptible varieties but, DON levels remained low overall. In the Shenandoah Valley, growers reported higher-than-normal levels of FHB this season with DON levels causing dockages at sale.

## Southern Atlantic Finds Trace Amounts of FHB

*(Malting Barley and Soft Winter Wheat)*

In the Southern Atlantic, a few instances of FHB were found in North Carolina and research plots in Georgia. However, no reports of issues with grain rejection due to DON were reported. Growers not actively working to control stripe rust focused efforts on making timely fungicide applications for FHB during flowering, reducing the impact to small grains in the region.

It was an abnormal year for FHB in **North Carolina**. Spring was very dry and the FHB Risk Tool forecast was uniformly low across the state during flowering. The Tidewater Region, located in the northeast corner of the state, is the only region to typically have FHB and this year there were no reports of FHB or DON rejection from this region. In the Coastal Plain, there was a small amount of DON detected in wheat research plots and in Robeson County, a local





extension agent reported very light or sporadic FHB damage observed in a field, but no issues with grain rejection were reported.

**“Whether fungicides had been applied and at the right timing also seemed to have been an important factor [this year].”**

**Christina Cowger**

It was a different story for the Piedmont region. This region typically plants wheat into no-till corn or soybean debris. Despite the low-risk forecast for FHB, some fields had high levels. Fields showing symptoms of FHB often contained undecomposed corn debris, a factor that could be attributed to dry fall weather, and dense canopies creating high relative humidity. “Whether fungicides had been applied and at the right timing also seemed to have been an important factor [this year],” said Christina Cowger, USDA-ARS plant

pathologist located at North Carolina State University.

The season was abnormally hot and dry in **South Carolina** this year. Rain events were localized and yields across the state were down on dryland acres. Only one report of FHB was received in triticale. “Just across our northern border, in North Carolina, I heard of some cases but for whatever reason it did not cross into South Carolina,” said Alex Coleman, Clemson University extension small grains specialist.

Wheat acreage in **Georgia** has remained constant the past few years, and FHB incidences were low to non-existent. The University of Georgia’s Plant Disease Clinic did not receive any samples with FHB this season, nor were any reports received from county extension agents and/or crop consultants. “After an extensive search, we did collect a few [infected] heads intended for research purposes at the University’s Southwest Georgia Research and Education Center near Plains, Georgia,” said Alfredo Martinez-Espinoza, University of Georgia small grains extension plant pathologist. While issues with FHB were limited for growers, stripe rust was prevalent and severe, in some cases requiring immediate fungicide applications. Those growers that did not have issues with stripe rust, focused their fungicide applications towards preventing FHB. As always, growers, county agents, and crop consultants were encouraged to monitor the FHB Risk Tool.

## **FHB Observed in Midwest States with Instances of Dockage**

*(Malting Barley & Soft Winter Wheat)*

Acreage was down for small grains in the Midwest. Many state specialists reported FHB being observed to varying degrees and in some cases causing dockage due to high levels of DON, that reduced test weights and quality. Growers implemented management strategies, including the use of fungicides, to mitigate the degree of loss.

Challenging planting conditions in the fall of 2024 kept **Michigan**’s 2024 harvested acres down. However, yields were still good with estimates comparable to the previous record high of 89 bushels per acre. “There were some delays in harvest due to a wet July, but little FHB or DON issues were reported,” said Martin Chilvers, Michigan State University extension plant pathologist. FHB risk was low during flowering which reflected the prediction by the FHB Risk Tool.



Fusarium head blight was the major disease concerning growers in **Indiana** this season. In early May, the FHB risk forecast was low, but increased to moderate and high by mid-to late-May. Disease pressure was much higher in 2024 than in previous years and FHB was found in many fields across the state. Incidence and severity were highly dependent on variety and the local weather. Conditions were good for harvest and the state's average wheat yield was 88 bushels per acre, 4 bushels lower than 2023. Approximately 85,000 fewer acres were harvested compared to last season. A number of reports of dockage because of DON levels were received by local experts. "In our USWBSI supported research trials in both central and southern Indiana, we recorded DON values anywhere from 0.8 ppm to 9.4 ppm in grain samples," said Darcy Telenko, extension plant pathologist at Purdue University.

Approximately 390,000 acres of wheat were harvested in **Kentucky** this season with an estimated average yield of 75 bushels per acre. Despite a low risk forecast of FHB going into anthesis, rainy weather increased the risk and provided good conditions for late season infections by *Fusarium graminearum*. High levels of DON were observed in some fields. "The use of integrated management practices, such as planting moderately-resistant varieties and spraying an effective fungicide at early anthesis helped protect against losses due to FHB and DON," said Carl Bradley, University of Kentucky extension plant pathologist. But in some cases, losses were observed in those late season infections by the pathogen.

Wheat acres planted for the 2023-2024 season were at 380,000 in **Tennessee**, a slight decrease compared to the previous season. Acres harvested remained approximately the same with only 16% being used as a cover crop. Very little to no FHB was observed in 2024, similar to a typical wheat season in the state. "Low disease severity, along with improved variety selection likely contributed to the statewide average of 75 bushels per acre," said Heather Kelly, extension plant pathologist at the University of Tennessee.

Cereal disease levels, including FHB, were higher this season in **Wisconsin** compared to the past several seasons. "We saw the highest levels of Fusarium head blight since 2021," said Damon Smith, University of Wisconsin extension plant pathologist. Hotspots for FHB were apparent in a few regions of the state and dockage due to DON occurred for some growers this season. Stripe rust was found at damaging levels in several areas of the state, a first since 2017. Occasional reports of powdery mildew and tan spot could be found, but not to the level of impacting yield except occasionally in highly susceptible varieties.

Risk for FHB in central and southern **Illinois** remained low until early May, when conditions became favorable for development. "During the May plot tour, FHB symptoms were observed in nearly all fields, with severities ranging



FHB found in a commercial field near Mode, Illinois (Shelby County) during the 2024 wheat tour.  
(Boris Camiletti, photo)



from low to medium, thanks in part to fungicide applications,” said Boris Camiletti, an assistant professor of plant pathology at the University of Illinois Urbana Champaign. For many growers, FHB was severe enough to reduce test weights and accumulate DON. According to Jessica Rutkoski, University of Illinois small grains breeder, reports of elevated DON levels were widespread in Central and South-Central Illinois with averages around 2 ppm. Some growers reported FHB infections severe enough to reduce yield and grain quality.

Compared to 2023, **Missouri** saw a 13% decrease in winter wheat production with an estimated 520,000 acres harvested. Estimated yields were at 70 bushels per acre, one bushel less than the 2023 average. Wet spring conditions were conducive for FHB development unlike the drought conditions growers experienced during the previous two seasons. Several cases of FHB were confirmed throughout the state. “The more favorable conditions for FHB in 2024 resulted in increased farmer interest in fungicide applications to limit the impact of FHB and DON accumulation,” said Mandy Bish, University of Missouri’s extension specialist for field crop pathology.

## FHB Incidence Reduced in the Southern States

*(Soft Winter Wheat)*

Overall, acres were down across the southern soft winter wheat growing states in 2024. Few reports of issues with FHB were received. A couple states reported extreme rain during maturity delaying harvest which, in some cases, caused lodging, shattering, and preharvest sprouting.

Pressure for FHB was very low in **Alabama** for 2024. The Plant Diagnostic Lab at Auburn University received no samples for FHB associated with either wheat or barley. “Reductions to yield from FHB and DON were limited across the state,” said Amanda Strayer-Scherer, Auburn University assistant professor and extension plant pathologist. According to the [Small Grains 2024 Summary](#), production was down compared to 2023, with 110,000 acres planted, a 46% reduction, and only 70,000 acres harvested, a decrease of 52% from 2023, respectively. Average yield was comparable to prior years at 71 bushels per acre.

Pressure from FHB was very low in **Mississippi** for 2024. “In random scouting trips throughout some of the wheat acres in Mississippi there were almost no bleached heads observed,” said Tom Allen, extension plant pathologist at Mississippi State University. Wheat acres were down compared to the previous two years. The Small Grains 2024 Summary estimates area planted to winter wheat at 60,000 acres for 2024 with 35,000 acres harvested. The average yield this season was comparable to prior years at 50 bushels per acre. An estimated 1.75 million bushels of wheat was produced by growers this season, a 65% reduction compared to 2023.



Soft red winter wheat planted acres in **Arkansas** declined this season with approximately 130,000 acres planted in the fall of 2023, an almost 43% decrease from 2022, due to lower grain prices. Foliar diseases were higher in the spring than in the past years due to ample rainfall. High incidences of stripe rust were observed in susceptible varieties in many yield performance trials; however, in producer fields, stripe rust levels were relatively low due to the widespread planting of resistant varieties. *Septoria tritici* blotch and leaf rust were at high enough levels in some fields to encourage growers to apply a foliar fungicide. “Fusarium head blight levels were relatively low throughout the state, and there were few, if any, reports of dockage due to DON,” said Jason Kelley, University of Arkansas extension agronomist. The quality and test weight of the crop were overall lower than the previous year due to rainfall occurring after maturity and delaying harvest in some areas of the state.



There were ample conditions for FHB development this spring, but dry conditions limited development in the wheat fungicide by variety trial located at the Lon Mann Cotton Research Station near Marianne, Arkansas. (Jason Kelley, photo)

The winter wheat crop in **Louisiana** got off to a good start with decent fall planting conditions for most areas of the state. Acreage was down to 22,094 acres, from 48,800 acres in 2023. Little disease pressure was noted around the state. Growers did observe stripe rust early on but damaging levels were not reported. Severe levels of FHB, or other diseases, were not reported by producers. “Most producers I collaborate with routinely apply a fungicide for Fusarium head blight,” said Boyd Padgett, a plant pathologist at Louisiana State University Agricultural Center. Producers did report observing Hessian fly, but not to the severity as seen in 2023. In the LSU AgCenter official variety trials, significant levels of stripe rust and tan spot were observed in some varieties at certain locations. Several regions of the state received excessive rains (11 to 14 inches) during May and June which interfered with harvest, but, overall, yields were still good. On-farm variety demonstration yields ranged from 62 to 85 bushels per acre.

The **Texas** Blackland Prairies suffered from continuous rain throughout most of the growing season. Rain events during wheat maturity caused lodging, head shattering, and preharvest sprouting in many of the fields. A Texas A&M trial site located in the northeastern part of the state recorded over 50” of rain during the growing season based on radar estimates. Brandon Gerrish, the small grains extension specialist at Texas A&M University, heard of no reports of issues with FHB in soft winter wheat.





# FHB Occurrence High in the Northern Great Plains Spring Wheat

(Durum, Hard Winter Wheat, Hard Spring Wheat and Malting Barley)

FHB affected all small grains to some capacity this season in the Northern Great Plains, but was especially problematic for spring wheat growers. Levels were some of the highest seen in over 30 years and high levels of DON led to dockages for many loads.

Incidence of FHB in **Minnesota** was statewide in 2024 with reports in winter rye, winter wheat, winter triticale, barley, spring wheat, and oats. “Severity was the highest seen in years with some elevators and mills rejecting as much as half of the loads brought in,” said Jochum Wiersma, University of Minnesota extension agronomist. Areas hit the hardest included oats in the southeastern part of the state and spring wheat in west central and the southern half of the Red River Valley. Nearly 25% of the spring wheat crop was planted with a susceptible cultivar and this year FHB in trials not protected by fungicides approached levels not seen in yield trials since 1994. While most growers applied fungicides, the combination of a very susceptible variety, coupled with early infections resulted in near complete losses of affected heads. Fortunately, very few tombstone kernels ended up in the grain bins enabling growers to deliver without any problems.

In terms of grain yield, the growing conditions were nearly ideal for almost the entire season. The state’s average yield is estimated at 68.5 bushels per acre, 1.7 bushels higher than the previous record set in 2017. Other pathogens that were successfully observed this season include: stripe, leaf, and stem rust and Bacterial leaf streak.

In **North Dakota**, cool weather and above average rainfall occurred throughout May into early June. High winds kept the relative humidity low throughout the first couple of weeks and the vast majority of the winter wheat crop reached heading in the middle of June. No reports of issues with FHB were received from winter wheat growers in the state.

The planting of spring small grains was spread out from the middle of April into late May resulting in a wide range of heading and flowering dates. Higher relative humidity values and higher risk of FHB started to occur for most areas during the last week of June and first week of July. *Fusarium head blight* risk was variable throughout the state with the highest levels occurring in the eastern third of the state where the number one seeded variety was very susceptible to FHB. DON levels generally stayed below the 2 ppm threshold, but some grain loads were docked due to elevated levels exceeding 10 ppm. “I think the bigger issue with FHB this year is yield loss,” said Andrew Friskop, extension plant pathologist at North Dakota State University. In highly susceptible varieties, *Fusarium graminearum* infected early resulting in termination of the developing kernels or tombstone kernels which never made it into the grain lots resulting in lower-than-expected DON levels and higher yield losses. Reports from the eastern part of the state are estimating a 10 to 15 bushel per acre yield loss due to scab in highly susceptible varieties even with the use of a fungicide at early flowering.

Fungicide use for FHB is a common practice of North Dakota’s barley growers. While FHB was commonly found in fields within the state this season, DON levels generally remained below 1 ppm. Sprouting tended to be the biggest quality issue growers faced this season.



The risk for FHB in durum was moderate to high during the first week of July however, extremely high temperatures and dry conditions quickly diminished any concerns for scab in the northwestern part of the state. There were some reports of FHB in irrigated durum, but the most limiting factor for this season's crop was temperature stress during grain fill.



Symptoms of FHB observed in a wheat field located in Volga, South Dakota. (Madalyn Shires, photo)

The risk of FHB in **South Dakota** was very low this season for winter wheat. Very little FHB was observed and the FHB Risk Tool predicted low risk throughout the critical infection period. FHB and DON issues were reported in spring wheat in isolated areas. "Due to unpredictable weather, our spring wheat flowering varied by location and much of the northeastern part of the state was at high risk of scab according to the prediction tool," said Madalyn Shires, South Dakota State University assistant professor and extension plant pathology specialist. Many of the spring wheat fields did not show high levels of FHB, but moisture at harvest caused concerns for late season infections. Overall, FHB levels were low, yet problematic for spring wheat growers.

FHB incidence and impact was low this season in **Montana**. Environmental conditions across the state were not conducive to disease development. The summer started off cool but then turned very hot and dry for three weeks in July and FHB risk remained low throughout the remainder of the growing season. No suspected samples were received at the Schutter Diagnostic

Lab. Frankie Crutcher, a plant pathologist at Montana State University Eastern Agricultural Research Center, only received one minor report of FHB in contracted malt barley. One contributing factor to lower FHB could be educating the growers. "We have done a lot of grower education on FHB in the past and growers have gotten better at identifying the disease and managing it with crop rotations and fungicide applications," said Uta McKelvy, a wheat extension plant pathologist at Montana State University. Crutcher also addressed FHB management strategies at the biannual Montana/Wyoming Malt Barley and Sugar Beet Symposium this past January.

## FHB Levels Low in the Great Plains

*(Hard Winter Wheat)*

Production of hard winter wheat in the Great Plains was up this season. FHB was of little concern to many growers in the region as rain events did not coincide with the growth stage



needed for optimal infections to occur. Rusts and viruses were the major diseases on growers' radar, through impacts were limited.

Low levels of Fusarium head blight developed in **Nebraska** in some fields located in the southeast, south-central, and southwest and DON levels also remained low. "Some wheat growing areas of the state received rainfall, but the amount and timing were not optimal for FHB development," said Stephen Wegulo, extension plant pathologist at the University of Nebraska. Stripe rust was the predominant disease in all wheat growing regions of the state. Stripe rust arrived later than usual, in early May, and developed quickly to severe levels (> 70% severity on the flag leaf) in fields planted with susceptible cultivars with no preventative fungicide application. Fungal leaf spot diseases, mainly *Septoria tritici* blotch, developed to moderate levels in unsprayed fields. Wheat streak mosaic disease complex also occurred at severe levels in several fields in the southeast, south-central, and southwest. Bacterial leaf streak could also be found at low levels in some fields. In the cases of wheat streak mosaic virus, the disease was highest when planting occurred next to fields containing volunteer wheat that was uncontrolled, contributing to higher disease levels.

In **Kansas**, 7.60 million acres of winter wheat were planted for the 2024 season with 7.15 million harvested for a total production estimated at 307.5 million bushels. "Yield losses due to FHB were generally below average throughout the state, likely due to unfavorable weather for disease development around the critical growth stages for infection," said Kelsey Andersen Onofre, Kansas State University's wheat and forage crops plant pathologist. All three rusts (stripe, leaf, and stem) were active in the crop with severe cases of stripe rust observed in areas that received rainfall in early May. Rust pressure was highly variable between fields due to variability in moisture patterns. Wheat streak mosaic virus was widespread across the state, with high prevalence in the northern tier of counties. Interestingly, the virus was active at high levels again in the central corridor of the state with pockets of severe infection. Several fields tested positive for Triticum Mosaic Virus (TriMV) which appears to be increasing in prevalence. Notable levels of dryland foot rot and Fusarium foot rot were also observed this season through south central Kansas.

Approximately 4.4 million acres of wheat were planted for 2024 in **Oklahoma** with harvested acres estimated at 2.7 million, up 10% from 2023. Production is estimated to be around 105 million bushels. Precipitation during fall and winter was adequate for most regions to support the crop growth. However, rain was limited during the spring months especially in the north-central, northwest, and Panhandle regions, reducing yield potential. "Despite the relatively dry conditions, widespread and significant disease pressure occurred as early as mid-to-late March in southwest Oklahoma," said Meriem Aoun, Oklahoma State University small grains pathologist. The most prevalent disease observed was stripe rust, which was reported in multiple locations across the state in April. The first reports of leaf rust were received in the south-central and north-central regions around late April and early May. Due to the leaf rust fungus infecting wheat later in crop development, widespread damage was not observed. There were reports of common root rot caused by *Bipolaris sorokiniana*, and Fusarium crown and root rot in multiple fields where dry conditions prevailed, especially western and northwestern Oklahoma, but also in the south-central region. No observations or reports of issues with Fusarium head blight were received this season.



Planting season for hard winter wheat in **Texas** was met with severe drought. Conditions improved when December rains brought some much-needed relief to many areas, though central Texas and the western Panhandle remained very dry. Mild to warm winter temperatures caused some issues with vernalization in sensitive varieties in the southern part of the state. Damage from Hessian fly infestations was reduced compared to previous years, most likely due to the adoption of resistant varieties and the increased number of parasitoids. Late season leaf rust infections limited yield losses from the fungus. “I did receive one question from a grower in this region which I believe was *Fusarium*, though he never dropped off a sample for confirmation,” said Brandon Gerrish, Texas A&M University small grains extension specialist. On the other hand, stripe rust pressure was the highest it has been in many years and susceptible varieties saw significant reductions in yield.

For **Colorado**, growers had an average harvest with 71 million bushels of hard winter wheat produced and an average yield of 39 bushels per acre. Drought conditions were sporadic with some areas receiving average rainfall while other regions were pretty dry. “The Seed Certification Lab saw no evidence of FHB in seed, and I only found one example of FHB in Colorado fields,” said Robyn Roberts, a field crops plant pathologist at Colorado State University. As for other diseases, viruses were the major issue with high levels of TriMV being the most prominent. While stripe rust was also present it was not as big of an issue for growers as it was the past season.



**Image of a wheat kernel from a grower in the Texas Blackland region with suspected *Fusarium* infection. (Brandon Gerrish submitted photo provided by grower)**

## Efforts to Educate Limited by Low Occurrence in the Pacific Northwest

*(Malting Barley and Hard Spring Wheat)*

Moisture in the Pacific Northwest was adequate this season and FHB is becoming more of a common problem for growers in the region. Efforts are being made by some states to educate growers about the impact of this disease and how to effectively manage it.

Impacts associated with FHB and DON contamination in **Idaho** grain production was low for the 2024 growing season. “FHB was reported and confirmed early on in the season in winter





**“FHB was reported and confirmed early on in the season in winter barley in the Rupert area, and was found in winter and spring wheat as well.”**

**Juliet Marshall**

barley in the Rupert area, and was found in winter and spring wheat as well,” said Juliet Marshall, University of Idaho plant pathologist. However, high levels of the disease, as well as DON, were not received nor were any reports of grain rejected for exceeding thresholds. Education efforts continue at field days, and the FHB nursery at the University of Idaho’s Aberdeen Research and Extension Center is regularly highlighted at industry and grower tours.

The wheat crop in **Oregon** benefited from adequate moisture this season. FHB was a reoccurring problem for growers in 2022 and 2023 therefore, Christina Hagerty, Oregon State University cereal pathologist, worked to offer an extension event in grower’s fields in 2024 to provide education on the emerging issue. However, the opportunity to host in a growers’ field never came to fruition due to several factors. The major limiting factor was that FHB seemed to be a minor issue in 2024, although those impacted by FHB seemed reluctant to host an event. Hagerty plans to organize a similar opportunity in the Spring of 2025.

## **Overall, Growers were Proactive in Mitigating FHB Losses in 2024**

While 2024 was not reported to be as hot and dry as the past couple seasons, it had its own set of challenges for small grains producers. Conditions in most northern states were conducive for the development of FHB, through for most growers FHB did not reach damaging levels. There were reports, as always, of FHB impacting small grains through the production of high levels of DON and cases of dockage and yield reductions were received. Many growers are opting to use fungicide applications and are communicating with their state extension specialists to make well-timed management decisions. Consulting the FHB Risk Tool to assess the risk of FHB in the area has also helped growers mitigate their losses due to the disease. There are still regions of the U.S. where FHB is a relatively new disease for growers and thus experts continue working to educate on effective management strategies, including the use of tools and resources made available in part by the support of the USWBSI. ■





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*The USWBSI is a national multi-disciplinary and multi-institutional research consortium whose goal is to develop effective control measures that minimize the threat of Fusarium head blight (scab), including the production of mycotoxins, for producers, processors and consumers of wheat and barley. The USWBSI's more than \$8.6 million annual allocation comes from Federal funds appropriated through the USDA-ARS and is distributed to nearly 125 research projects in more than 30 states.*



**U. S. Wheat & Barley Scab Initiative (USWBSI)**

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