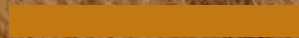
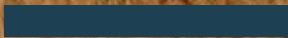
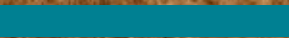


# Identifying Wheat Diseases

*Affecting Heads and Grain*

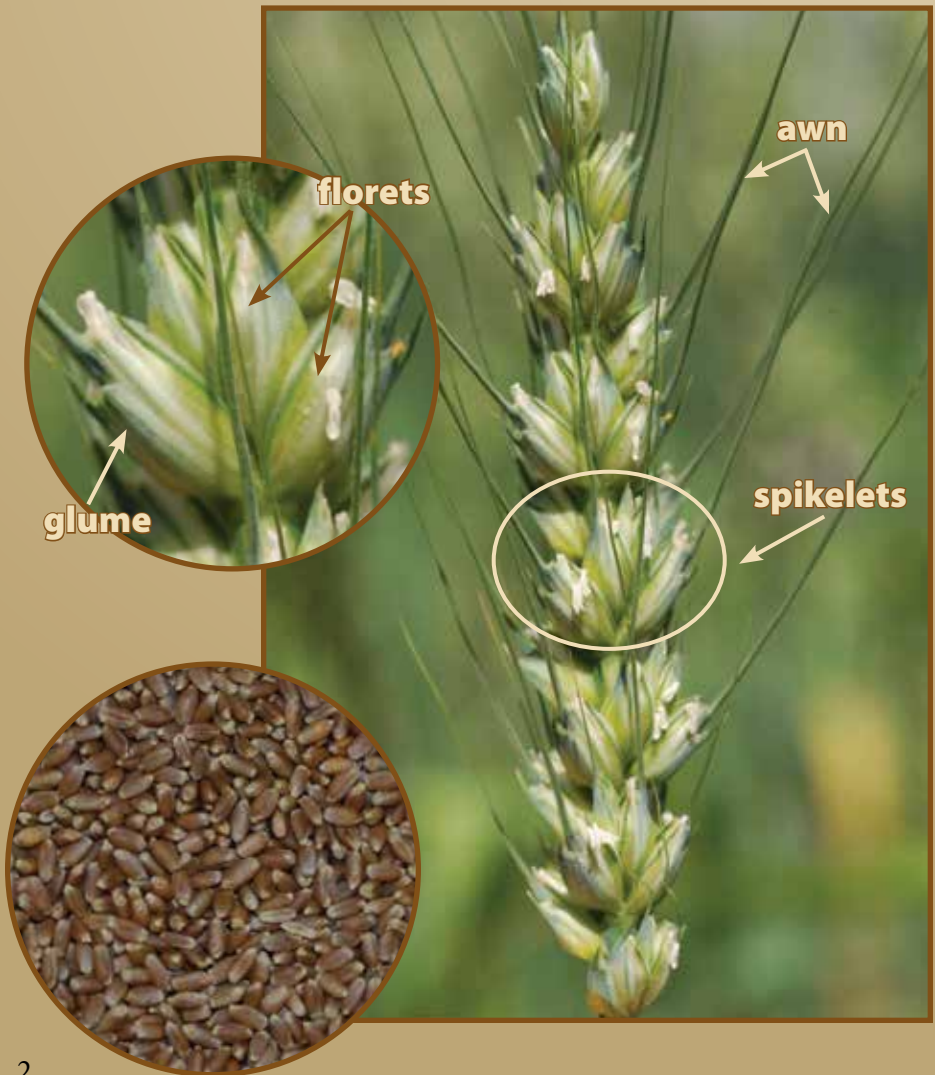


# Healthy Wheat

## Normal Wheat Head

Diagnosis of disease begins with an understanding what a healthy wheat plant looks like.

Notice the uniform green color and absence of blotches or spots.



# Diseases Visible at Head Emergence

## Loose Smut

Black, powdery fungal spores replace normal head tissues.

Infected heads produce no grain.





# Diseases Visible During Grain Development

## Fusarium Head Blight

Large tan or brown lesions affect the entire spikelet or a large section of the wheat head.

The central stem of the head is often brown at the base of spikelet, and florets may have an orange mass of fungal spores.

Grain often has a white, chalky appearance and some kernels may have a pink or reddish discoloration.



# Diseases Visible During Grain Development

## Stagonospora Glume Blotch

Dark brown or purple lesions form near the tip of the glume.

The central stem is often not affected.

Small, brown reproductive structures of the fungus may be visible with magnification.



# Diseases Visible During Grain Development

## Black Chaff

The glume has a purplish-black discoloration.

Symptoms are often most severe near the base of the glume, but lesions may have streaks running the full length of the floret.

Awns and stem just below the head often have dark-colored lesions.



# Diseases Most Visible Just Before Harvest

## Sooty Molds

A grayish-black or dark-green mold grows on the surface of spikelets.

Symptoms normally develop when rain delays wheat harvest.

Grain may develop a discoloration known as “black point.”





# Diseases Most Visible Just Before Harvest

## Common Bunt / Dwarf Bunt

Black, powdery fungal spores are visible near the tip of florets of mature wheat.

The seed coat is easily broken to reveal black, powdery fungal spores.

Grain may have an unpleasant, fishy odor.





# Diseases Most Visible Just Before Harvest

## Ergot

Dark-purple or black fungal structures replace wheat kernels.

Dark-colored fungal structures are visible in grain after harvest.



# Diseases Causing Problems in Other Countries

## Wheat Blast

Tan lesions affecting entire spikelets result in premature death of sections of the wheat head.

The central stem of the head often has dark-brown or black lesions and a discoloration at the base of the spikelets.

Infected spikelets may have areas of gray, fluffy fungal spores at their base.

Grain is often shriveled and pale. Infected kernels may have dark discoloration or irregular blotches.



Wheat blast is an emerging problem in the South American countries of Brazil, Bolivia, and Paraguay.

The disease is not known to occur in North America.

The symptoms of wheat blast often resemble those of other diseases affecting wheat.



# Acknowledgments

The multi-state committees on small grain diseases in North America (NCERA-184, WERA-097) developed this publication as part of an effort to prepare for the possible introduction of wheat blast. Publication author: Erick De Wolf, Department of Plant Pathology, Kansas State University. Photo credits: Erick De Wolf, Kansas State University; Tim Murray, Washington State University; Guillermo Barea, COPERAGRO; and Kenji Bravo, CACICO LTDA.

This project was supported by Agriculture and Food Research Initiative Competitive Grant 2013-68004-20378 from the USDA National Institute of Food and Agriculture.


## For help with diagnosing wheat diseases contact:

Albert Tenuta  
OMAFRA Field Crop Pathologist  
albert.tenuta@ontario.ca  
(519) 674-1690

Dave Hooker, PhD  
UG Ridgetown Field Crop Agronomist  
dhooker@ridgetownc.uoguelph.ca  
(519) 674-1500 x63559

OMAFRA Agricultural Information Contact Centre  
1 (877) 424-1300

Growing Forward 2 

 Ontario Canada



UNIVERSITY  
of GUELPH  
RIDGETOWN CAMPUS