NEWSLETTER

COVID-19 & MARA Extension

We cancelled our extension events scheduled for March and April to compliance with Alberta health recommendations. As an alternative we started virtual meetings/ webinars since last April to make sure producers in the region are up to date with the new information. Producers have the opportunity to directly interact with the expert/speaker during Q & A. Your laptop computer, desktop with a head set and smart phone can be used to join these meetings. We hope everything will be back to normal so that we can do field tours.

Cereal Diseases to Watch in 2020

1: Leaf Spots
Tan Spot, Septoria Complex: Speckled Leaf Spot, Leaf and Glume Blotch, Spot blotch

2: Rusts
Strip rust, Leaf rust

3: Fusarium Head Blight

4: Root Rots
Common root rot, Take –all root rot

"A good farmer cares about the land he uses and always wants to leave it better than it was handed to him, always improving and making things better"

- Louis Morton. OK

Photo Caption: BASF Canada

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Leaf Spots

Identifying leaf diseases correctly is the key to manage them effectively and efficiently. The leaf spot diseases are polycyclic which means pathogens causing these diseases can produce more than one infection per crop cycle (in one season). Fungal pathogens have the ability to produce host selective toxins (HST) that will induce necrosis (browning) or chlorosis (yellowing) in the leaf which helps infection process.

Tan Spot

This is the first disease that growers should be looking out for this spring . This fungus disease thrive well under wet/ humid conditions within favorable temperatures (15—28 ^{0}C).

Symptoms

Tan brown flecks develop on lower leaves which can expand up to 12 mm brown blotches surrounded by a chlorotic/yellow border. These can move onto the middle and upper leaves gradually and often coalesce when the conditions are favorable. These blotches develop a small, dark-brown center because of the production of air-borne spores.

Septoria Complex

Septoria complex of diseases occurs mainly on wheat but common on other cereal crops such as barley, oats, rye. All the symptoms can present in the all above ground plant parts of the same plant or different plants in the same field.

A. Speckled Leafspot (caused by Septoria tritici)

Yellow spots normally first appear in lower leaves and expand into red-brown irregular lesions and restricted to leaf veins. Spores will appear tiny black pepper like dots on those lesions.

B. Leaf and Glume blotch (caused by Septoria nodorum)

Small chlorotic lesions starts on the lower leaves of the plant and then become yellow and eventually turns brown. Mature lesions are lens shaped and no yellow border and spores at the center appears as black-pepper grains.

Grain head and kernels: After flowering wet whether can lead to develop lesions on the glumes. Symptoms start at the tip. Eventually, whole areas of glume can be covered with dark brown to dark purple lesions with ash gray areas which calls Glume Blotch.

Severe infections of glume blotch or leaf blotch can result in light weight, shriveled kernels.

Control Tips

Crop rotation with Barley and oats or non-host crops (canola, flax, corn, potatoes)

Use adequate but not excessive fertilizers

Wide row spacing to reduce in-crop humidity

Tillage to burry infested wheat residue or residue management at harvest to aid residue decomposition

Use Resistance verities

Use good quality and pathogen free seeds

Seed treatment with fungicide to reduce the risk of seedling infection

Fungicides available for early and late season control. Fungicide Application can increase yield by 15%. Years with moderate to low disease pressure, single application at head blight stage can manage leaf spot but years with high disease pressure require two fungicide applications

Photo Caption : Glume Blotch by Koppert Biological Systems

Overwintering structures of Tan spot are bigger than structures of Septoria complex

Photo Caption : Over wintering structures of Tan Spot on wheat residue by No Till Farmer

Rusts

Rust symptoms can start from mid-June to early July (especially can be a problem in Barley)

Strip Rust– can overwinter on fall seeded winter wheat showing up as early as April. Spores can survive in a mild winter with a good snow cover.

Rusts don't require extreme wet conditions and can develop on a crop under heavy dues.

Fungicides should be applied as soon as rust symptoms are observed and before it covers 5% of the flag leaf.

References:

Grain News

NSDU Fungal Leaf Spot Disease of Wheat

Photo Caption: FHB, Grain Central.com

Fusarium Head Blight

Fusarium head blight can cause a significant yield loss, but chiefly causes concerns as a downgrading factor in wheat when the fungus cause fusarium damaged kernels (KDK). This fungus produces a mycotoxin called deoxy nivalenol (DON), also known as vomitoxin. Seeds infected with DON can't be sold into the food market and cause serious health problems if fed to livestock.

In Barley fusarium can cause discoloration and affect malting and brewing quality. In both crops mycotoxin contamination can also have a significant negative impact.

Control: Spray timing recommendations typically call for application right after head emergence, but there is a reasonable control up to the end of flowering in both wheat and barley

If leaf spot is your main concern consider spraying earlier at flag leaf stage to control both, otherwise spray at Anthesis to control FHB, not advisable to spray twice for two diseases.

Root Rots

Common Root Rot: this is an issue in both Barley and wheat. Fungus overwinter in crop residue or soil as spores and thrives in warm dry conditions, especially with over application of Nitrogen fertilizer.

Take-all Root Rot: As name implies this can affects all parts of the plant; roots, crown and basal stem (foot) rot . Primarily affects wheat but can also affect barley, oats, rye as well as other grass crops and weeds.

Some producers prefer to increase soil pH to address Clubroot in canola. As soil pH reaches close to neutral, the risk of take-all also increases.

Fungus can infect relatively early in the season due to wet soil conditions and can destroy most of the root tissues.

Control: Frequent scouting is recommended, tools to manage this are pretty limited, extended rotation is the main control method while adequate copper fertilization reduces its impact.

Knowing what's happening in the field gives information whether you need in-crop application, while also having implications on future crop planning.

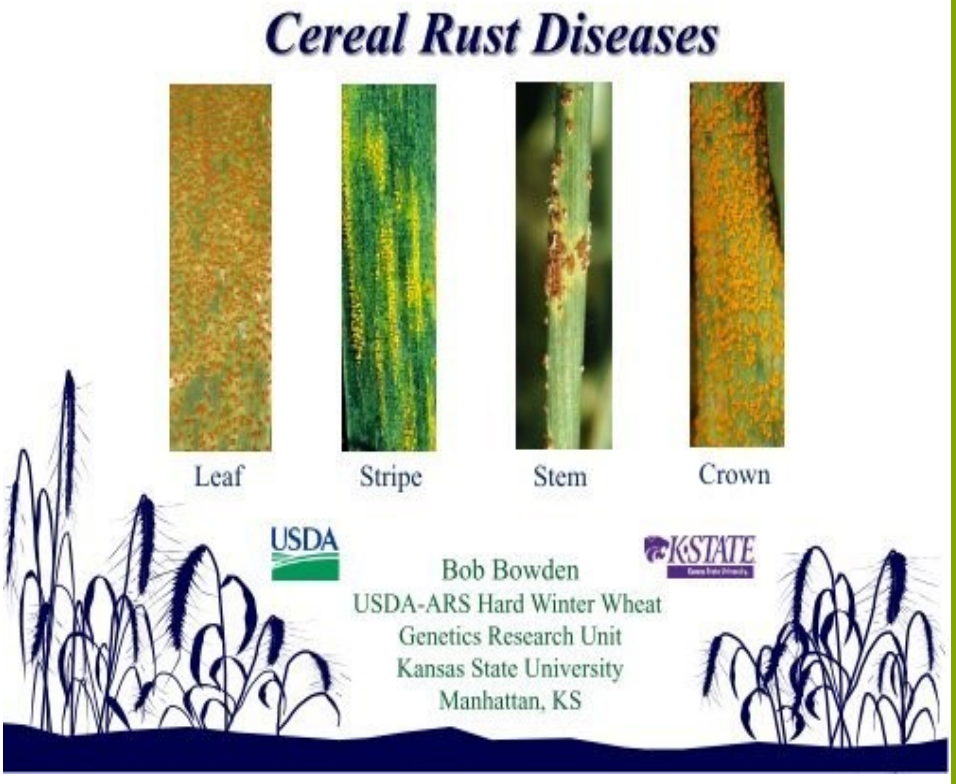

Photo: Different rust types

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