CROP FOCUS

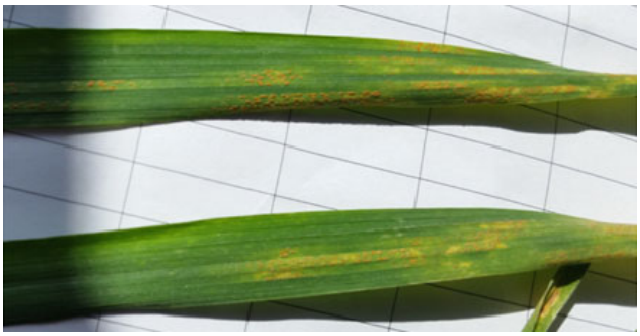
Stripe Rust in Winter Wheat

Disease Facts

- Stripe rust is caused by the fungus *Puccinia striiformis.*
- Stripe rust does not typically overwinter in Canada and the northern U.S., it travels on air currents from the southern U.S.
- It affects the leaf and head of wheat.
- The lesion colour (pustule) is yellow and stripe shaped.
- Is favoured by cooler temperatures from 10^{o} to 15^{o} C (50^{o} to 60^{o} F).

Disease Symptoms

- Yellow coloured pustules form in stripes on the leaves, often looking like stitches from a sewing machine



Disease Life Cycle

- Stripe rust takes 10 to 14 days to cycle, meaning under ideal conditions, a spore landing on a leaf and infecting the leaf can produce a lesion that spreads new spores in 10 to 14 days.
- Ideal temperatures are 10^{o} to 15^{o} C (50^{o} to 60^{o} F); at temperatures below 5^{o} C (40^{o} F) the fungus cannot produce new spores, and at temperatures above 29^{o} C (84^{o} F) the pathogen will die.
- Remember, the most critical leaf to protect is the flag leaf. Unless disease pressure is so high that tillers are being killed, the plant can tolerate infection without much yield loss.
- In the case of highly susceptible varieties if flag leaf lesions are observed on most plants spraying is warranted as defoliation can occur rapidly.

We saw it in 2016; why again in 2017?

- Another warmer than usual winter likely had the greatest impact for what we are seeing in fields.
- Adequate moisture in the Southern U.S. and a milder winter allowed stripe rust to overwinter further north, thus allowing for a more rapid build-up of inoculum this spring.
- The mild winter also allowed for better leaf survival of seedling wheat leaves providing greater leaf surface area for inoculum to be produced on.

Scouting Practices

- Scout your fields and note the severity across the whole field. It is important to understand the scope of the infection, weather forecast and variety susceptibility before making a decision on whether or not to spray.

Variety Differences

- There are significant differences in susceptibility to stripe rust in the Pioneer® brand wheat line up. See chart below. In the Pioneer lineup, only Pioneer variety 25R46 is below average.

Pioneer® brand Variety	Stripe Rust Score
25R34	8
25R39	8
25R40	8
25R46	2
25W31	5

NUMERIC RATINGS: 9 = Excellent; 1 = Poor

Disease Management

- Ontario researchers recommend that only triazole fungicides (e.g. Caramba®, Folicur®, Tilt®, Prosaro®) be used at the boot stage or later because of increased risk of high DON levels with the use of a strobilurin (e.g. DuPont™ Acapela®, Quadris®).
- Many fungicides provide excellent control of stripe rust, please read and follow label directions for rates, timing and coverage recommendations.
- Depending on how the disease progresses, in 2017 fungicide timing for head blight may also be well timed for stripe rust.

Conclusion

- Stripe rust thrives in cooler temperatures, warmer temperatures will decrease infection potential and spore production.
- Many fungicides can be used to control stripe rust, be sure to follow label directions.