

## Stripe Rust of Wheat

### Pathogen Facts

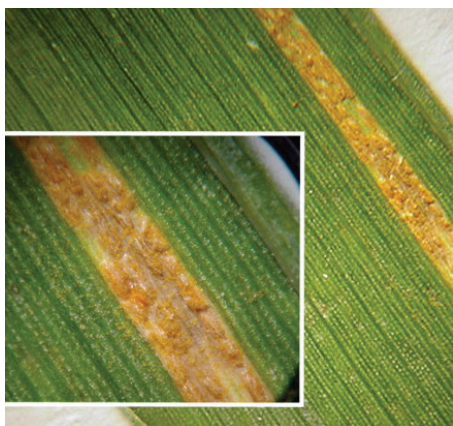
- Stripe rust, also called yellow rust, is caused by the fungal pathogen *Puccinia striiformis*.
- This disease can be distinguished from stem and leaf rust by the formation of the pustules and the coloration of the urediniospores.
- This pathogen is common in areas with higher elevations due to the cooler climate with frequent leaf wetness.



*Puccinia striiformis* infection of wheat. Photo courtesy of Sam Tragesser, Senior Research Associate.

### Symptoms and Signs

- Initial symptoms are circular to oval yellow spots on upper leaf surfaces at the infection sites.
- These develop into yellow-orange pustules bearing urediniospores that dust off when disturbed.
- Lesions elongate, forming a notable stripe shape on leaf surfaces.
- Photosynthesis is reduced as functional leaf area decreases, which can reduce head fill and yield.
- Darker colored teliospores form later in the season.



Urediniospores from *Puccinia striiformis*. Photo courtesy of Matt Montgomery, Field Agronomist



Stripe rust pustules forming elongated lesions. Photo courtesy of Craig Herzog, Senior Agronomist

### Conditions Favoring Disease

- Stripe rust can develop at lower temperatures than other rust diseases. Development is favored by 50-64 °F (0-18 °C) temperatures with at least six hours of dew present.
- Stripe rust can survive winter temperatures above 23°F (-5°C).
- Urediniospores can travel long distances, spreading from field to field via wind.

### Management Considerations

- Planting resistant wheat varieties is the primary method to reduce losses to stripe rust.
- There are two types of genetic resistance to stripe rust: seedling resistance and adult plant resistance.
  - Seedling resistance is effective throughout the life of the plant, but is usually only against some races of the pathogen
  - Adult plant resistance develops as plants mature.
- If growing a susceptible variety, and infection occurs on the flag leaf, then foliar fungicide application may be justified.
- Decreasing irrigation in fields also limits the amount of water available for leaf wetness, disfavoring disease development.

### References

- CAHNRS & WSU Extension. (n.d.). *Wheat & Small Grains*. Retrieved from Washington State University College of Agriculture, Human, and Natural Resource Sciences: <http://smallgrains.wsu.edu/disease-resources/foliar-fungal-diseases/stripe-rust/>
- Martinez, A., Youmans, J., & Buck, J. 2009. *Stripe Rust (Yellow Rust) of Wheat*. Retrieved from University of Georgia Extension: [https://extension.uga.edu/publications/detail.html?number=C960&title=Stripe%20Rust%20\(Yellow%20Rust\)%20of%20Wheat](https://extension.uga.edu/publications/detail.html?number=C960&title=Stripe%20Rust%20(Yellow%20Rust)%20of%20Wheat)

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