



**RAHA**  
Andish Kavan

# *Wheat Diseases*

## *Part one: Rusts*



**GOLSAM GORGAN**  
CHEMICALS Co.



# Wheat Rusts

<b>Kingdom:</b>	<b>Fungi</b>
<b>Phylum:</b>	<b>Basidiomycota</b>
<b>Class:</b>	<b>Pucciniomycetes</b>
<b>Order:</b>	<b>Pucciniales</b>
<b>Family:</b>	<b>Pucciniaceae</b>
<b>Species</b>	<b><i>Puccinia</i></b>



*Puccinia striiformis*  
Yellow Rust



*Puccinia graminis* f.sp. *tritici*  
Black Rust



*Puccinia triticina*  
Brown Rust





# Yellow Rust (Glume Rust, Stripe Rust)

- Caused by: *Puccinia striiformis*
- Hosts: wheat, Barley and some perennial grasses
- Can travel on wind from other wheat-producing regions
- Favored by cool, wet conditions

## Symptoms:

- Appearance of yellow-colored stripes produced parallel along the venations of each leaf blade (Uredinia)
- The infected tissues may become brown (teliospore production)



Yellow Rust usually occurs early in the growth season





## Brown Rust (Leaf Rust)

- ⦿ Caused by: *Puccinia triticina*
- ⦿ Occurs commonly in areas where wheat and barley are grown
- ⦿ Can travel on wind from other wheat-producing regions
- ⦿ favored by hot days 15-22°C and wet leaves from rain or dew.

### Symptoms:

- ⦿ Orange brown elliptical pustules are found scattered at random on the leaves (Uredinia)





## Black Rust (Stem Rust)

- Caused by: *Puccinia graminis f.sp. tritici*
- It requires two unrelated host plants, such as wheat and barberry (and some additional *Berberis*, *Mahoberberis*, and *Mahonia* spp.) to complete their life cycle.
- favored by hot days 25-30°C and wet leaves from rain or dew.

### Symptoms:

- The oval pustules of powdery, brick-red urediniospores produce through the epiderm on both leaf surfaces and stems of hosts (Uredinia).
- Later in the season, pustules of black teliospores begin to appear in infected hosts (Telia).





## Management of Wheat Rusts

- ➊ Growing resistant varieties
- ➋ Applying the Potassium fertilizers
- ➌ Do Not apply Nitrogen fertilizers more than needed
- ➍ Choosing the appropriate planting time
- ➎ Applying the foliar fungicides.



Fungicides	Recommended Rate
Propiconazole 25 % EC	0.5 l/ha
Tebuconazole 25 % EW	1 l/ha
ARTEA 33% EC (Cyproconazole + Propiconazole)	0.3- 0.5 l/ha
AMISTAR XTRA 28% SC (Azoxystrobin + Cyproconazole)	0.75 l/ha





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*From planting to harvesting, by GOLSAM*