**Leaf (Brown) Rust of Wheat:**

**Description:**

* Most prevalent\*(found frequent occurrence) where dews are common
* Disease severity increases prior to heading
* Early infection results in weak plants, poor roots & tiller formation.
* Appears in February after yellow rust.
* Leaf rust causes damage by reducing number of kernels per head and kernel size.

**Importance:**

* Cause losses up to 50% in severe cases.
* Estimated losses over $350 million in USA alone.

**Etiology:**

Causal organism: *Puccinia recondita* f.s.p. *tritici*

Order: Uredinales

Family: Puccinaceae

**Symptoms:**

* Pustules have uredia that develop as points of bright orange color on leaves.
* Spots are rare on sheath & stalk.
* These pustule are bigger in size than of yellow rust, scattered irregularly.
* Infected plants take longer time to produce mature ears\*(grain bearing part).
* Rust pustules can be distinguished from other leaf spot diseases by rubbing finger on leaf surface.

**Disease cycle:**

* Uredia\*(sac like structure that bears urediniospores) over seasons on volunteer plants.
* Alternate host *Thallactrum flavum* (bushy plant) also harbors fungal spores.
* Aeciosporesfromalternate host dispersed by wind.

**Epidemiology:**

* Free water on leaf & 18.3-23.9°C favors the spore germination.

**Management:**

* Destruction of alternate host.
* Use fungicides i.e. carbendazim, propiconazole, difenoconazole.
* Sow resistant varieties i.e. Anaj 2017 and Akbar 2019.