

MB Sunflower Crop Report

Friday August 16, 2013

Crop

Warmer weather this past week, has aided in sunflower development after cool conditions for most of July. Early planted fields are at the R-6 stage, where flowering is complete and ray flowers are wilting.

Insects

Seed head insects continue to be found in sunflower fields around the province. Continue to monitor fields for **Banded Sunflower Moth** and **Lygus Bug** until the seed shells are sufficiently hard to prevent penetration by the insect.

Banded Sunflower Moths: Economic threshold is 1 adult per 100 sunflower heads during the day. Adults appear about mid-July to mid-August. Larvae present in heads from mid-July to mid-September.

Lygus bug: Economic threshold is 1 adult per 9 sunflower heads during the afternoon. It is important to continue monitoring sunflower fields as canola or hay is swathed in neighboring fields.

Disease

Most producers have or will complete their second application of fungicide this week as a preventative for sclerotinia head rot and rust.

Rust has developed and the **uredinia** (economical) stage is present in the province. Uredinia can be found on both the upper-side and underside of leaves, and can be rubbed off easily often leaving a 'streaky' appearance when agitated. Pustule coverage is generally greater on the underside of the leaves. A fungicide application is likely warranted when average disease severity reaches 1 percent on the upper four, fully expanded leaves prior to or during bloom (R5). Fungicide applications after bloom have not proven to impact yield. For this reason many of the earlier fields will not require application. Continue to monitor for rust as it may spread quickly in idea conditions.

See attached the [*Identification and Management of Sunflower Rust*](#) card to assist in assessing damage.

A fungicide application is most economical when disease severity is 1 percent on the upper four leaf prior to or during flowering.

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Limiting Factor



Figure 1. Rust uredinia on the upper surface of a leaf. Control is not necessary until the upper 4 leaf leaves are 1% infected.



Figure 2. Sunflowers finished bloom are past the economical stage for rust and insect control. Continue to monitor for head rot.



Figure 3. Verticillium wilt has developed in isolated patches of fields across the province.

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Disease

Verticillium wilt is present at very low incidence in scattered fields. The symptoms are necrosis (browning) of leaf tissue between the leaf veins with yellow margins. The veins remain green making the symptoms very characteristic. Symptoms begin on the lower leaves and progress slowly upwards and may encompass all leaves. Affected leaves rapidly become completely dry, but do not wilt at the same degree as with Sclerotinia wilt. Typically, confection type sunflowers are more susceptible to infection than oilseed sunflowers.

Management: There are no fungicide control methods available to treat Verticillium wilt. Genetic resistance, as found in most oilseed hybrids and rotation aid in the management of verticillium. The disease will cause some yield loss.

Sclerotinia basal rot incidence can be found in most fields at low levels on average. Despite the presence of basal rot, the incidence of **mid-stalk rot** is very low. This may be an indication that the level of spores in the air is low. It is currently hard to predict the risk for **sclerotinia head rot** in flowering fields. Despite some areas receiving rain, significant soil moisture is required for the sclerotia bodies to germinate and release spores.

Rhizopus **Head Rot** tends to enter the head during cool, wet weather and requires organic debris, such as flower parts or tissue, to initiate growth. Head rot symptoms start as brown spots on the back of the head. These spots become covered with gray powder, giving the head a "fuzzy" appearance.

Management: The current fungicides available for Sclerotinia Head Rot are preventative and therefore timing of application is important. Application timing is R5.1 with a second application 7 to 14 days after the first application, if environmental conditions and pressure remains high.



Early Stages – Pycnia (L) and Aecia (R)

This is the earliest visible stage of rust. The bright orange lesion is called *pycnia* and is found on the upper surface of the leaf. These bright orange lesions are easily spotted and are often surrounded by a yellow halo. This stage rarely appears with the exception of years like 09/10 which saw high local inoculum levels and favorable conditions (free moisture and warm temperatures). Early appearance of rust provides the opportunity for multiple infections throughout the season.

The pycnial stage gives rise to the aecial stage. Directly below the bright orange pycnia lesion, *aecia* form on the underside of the leaf. When looked at very closely, they are 3D upside down cups filled with spores. These spores give rise to the economical and most recognizable stage of rust – the brown pustules.



Economical Stage—Uredia (Above)

The most common and recognizable stage of sunflower rust is the uredial stage. This stage appears as cinnamon red/brown pustules which *protrude from the leaf surface and rub off*. The pustules will generally appear first on the lower leaves and move up that plant as new spores are produced. This is the economical and repeating stage of rust which can cause significant yield losses depending on:

- a. Where the infection is present
- b. % infection
- c. Crop staging

The upper three to four leaves of sunflower plants are responsible for the majority of photosynthesis and contribute the most to yield. You want to *protect the upper leaves* from rust infection during flowering to minimize yield impact.



Management with Fungicide

Scout fields to determine;

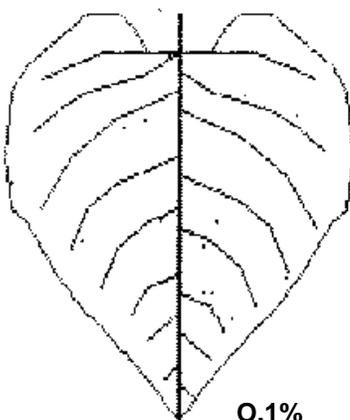
1. Is rust present (the brown pustules)?
2. Where is it present (lower, middle, upper leaves)
3. What is the severity (% infection)?
4. What stage is the crop at?

If rust is present in the reproductive stages (R-1 thru R-5);

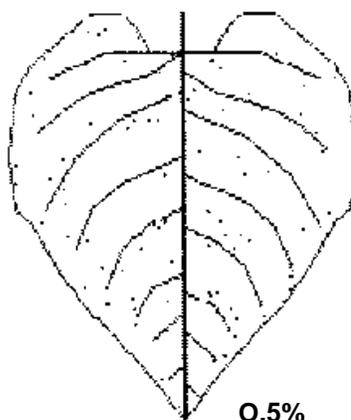
- ⇒ A single, well timed application is very effective and timing depends on % infection of upper leaves.
- ⇒ 0-1% infection on upper four leaves is a good threshold for Headline®, assuming that rust is present on middle leaves. If at 0% on upper leaves, use 1-2% infection on middle leaves as a threshold.
- ⇒ If possible, waiting for early flower is ideal (R-5.2 or 20% flower).

If rust is not showing up on upper leaves or shows up after flowering (R-6);

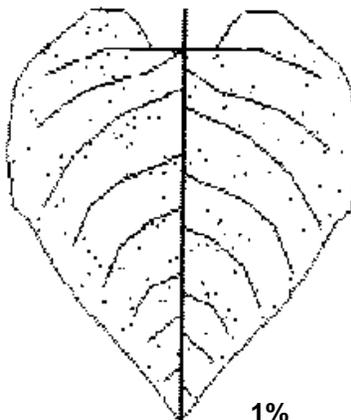
- ⇒ A fungicide application is not likely warranted.



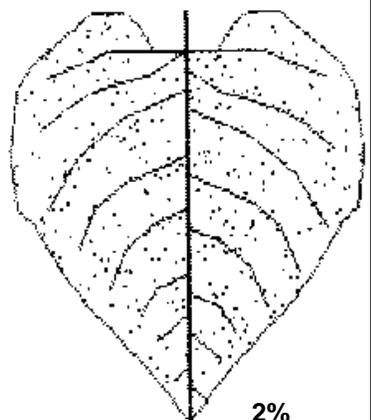
0.1%



0.5%



1%



2%