Sunflower

White Rust

Howard F. Schwartz and David H. Gent

Identification and Life Cycle

White rust is caused by the fungus-like pathogen *Albugo tragopogonis*. This pathogen is more closely related to downy mildew-type pathogens than the true rust pathogens. The source of the white rust pathogen that initiates epidemics is not known, but the pathogen can survive in infested crop debris as dormant resting structures (oospores) and, in milder climates, as mycelia and sporangia. Oospores are thought to be disseminated by splashing rain and irrigation water, and possibly by blowing soil. In warmer climates, sporangia produced on weeds can be deposited onto sunflower by wind, whereupon they germinate and produce a mobile spore called a zoospore. Zoospores penetrate plants through natural openings, eventually germinate, and form mycelia in sunflower tissues. Disease is favored by cool to moderate temperatures (50 to 68ºC) and abundant rainfall.

Diseased sunflowers produce windblown sporangia that serve as secondary inoculum, infecting other plants and beginning the disease cycle again. Oospores eventually form in diseased tissue and overwinter in infested crop debris and the soil.

Plant Response and Damage

White rust symptoms first appear on the lowest leaves in the canopy as raised yellow-green spots on the upper leaf surface. Cream-white pustules later form on the bottom side of the leaves directly opposite these initial spots. Pustules move upward in the canopy, occasionally causing gray lesions on stems. Plants can lodge if stem lesions cause a collapse of the vascular tissue.

Yield losses from white rust have not been reported in the High Plains, but a damaging systemic phase of the disease occurs in southern Africa. Disease management strategies are probably not necessary in the High Plains.

Management Approaches

Biological Control

No biological control strategies have been developed for white rust.

Cultural Control

Practice long rotations between sunflower with thorough weed and volunteer control.

Chemical Control

Fungicides may not be economical nor necessary for white rust control.

Product List for White Rust:

Pesticide	Product per Acre	Application Frequency (days)	Remarks
Metalaxyl/Methoxonam			
Allegiance FL	1.5-3.0 fl oz	Seed treatment	May provide some white rust control
Allegiance LS	2.4-4.9 fl oz	Seed treatment	May provide some white rust control
Apron XL LS	1.28 fl oz	Seed treatment	May provide some white rust control
Neem			
Trilogy	2 pt	7-14 days	Maximum of 2 gallons; 0 day PHI
Pyraclostrobin			
Headline	6-12 fl oz	7-14 days	Maximum of 24 fl oz/Acre; rotate with other fungicide chemistry; 21 day PHI

Categories: Sunflower, Disease, White Rust

Date: 04/10/2007