

Canola and Mustard

White Rust

Howard F. Schwartz and David H. Gent

Identification and Life Cycle

White rust is caused by the fungus-like organism *Albugo candida*. 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 dormant resting structures (oospores) formed in diseased plant tissues and seed. 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 host plants 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 plant tissues. Disease is favored by cool to moderate temperatures (50 to 68°F) and abundant rainfall.

Diseased plants 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 initially appear as white, blister-like pustules on the lower surface of leaves. Opposite these pustules on the upper surface of the leaf may be a yellowish spot. The disease can be found wherever canola and mustard are grown.

Management Approaches

Biological Control

No biological control strategies have been developed for white rust.

Cultural Control

Plant seed free from the white rust pathogen. Practice a three-year or longer crop rotation to non-hosts with strict sanitation of weeds and volunteer crop plants. Plant resistant varieties where available.

Chemical Control

Seed treatments can reduce the incidence of white rust, but are most effective when integrated with sound cultural practices.

Product List for White Rust:

Pesticide	Rate per 100 lb seed	Application Frequency (days)	Remarks
Metalaxyl/Methoxonam			
Allegiance FL	1.5-3.0 fl oz	Seed treatment	Suppression of <i>Pythium</i> and <i>Phytophthora</i> spp.
Allegiance LS	2.4-4.9 fl oz	Seed treatment	Suppression of <i>Pythium</i> and <i>Phytophthora</i> spp.
Apron XL LS	1.28 fl oz	Seed treatment	Suppression of <i>Pythium</i> and <i>Phytophthora</i> spp.
Thiram			
42-S Thiram	8 fl oz	Seed treatment	Broad spectrum
Thiram 50WP	8 oz	Seed treatment	Broad spectrum

The information herein is supplied with the understanding that no discrimination is intended and that listing of commercial products, necessary to this guide, implies no endorsement by the authors or the Extension Services of Nebraska, Colorado, Wyoming or Montana. Criticism of products or equipment not listed is neither implied nor intended. Due to constantly changing labels, laws and regulations, the Extension Services can assume no liability for the suggested use of chemicals contained herein. Pesticides must be applied legally complying with all label directions and precautions on the pesticide container and any supplemental labeling and rules of state and federal pesticide regulatory agencies. State rules and regulations and special pesticide use allowances may vary from state to state: contact your State Department of Agriculture for the rules, regulations and allowances applicable in your state and locality.

Categories: Canola and Mustard, Disease, White Rust

Date: 12/31/2004