

Technical Bulletin

Fusarium Wilt in Canola

Fusarium wilt is an emerging canola disease causing significant economic yield loss across Western Canada. In 2002, Advanta Seeds began implementing a disease screening strategy for assessing the tolerance of our material against this disease. Advanta is also a participant in industry wide efforts to develop standardized methods for evaluating Fusarium wilt. Although no official screening or rating method exists, Advanta remains committed to screening its varieties for Fusarium wilt. This document presents initial results from Advanta's screening program and some basic information about this important disease.



Photo taken by Alberta Research Council

What is Fusarium wilt in canola?

Fusarium wilt is a fungal disease that can cause serious crop damage in some circumstances. It is caused by the soil borne organisms *Fusarium avenaceum*, and *Fusarium oxysporum*. These pathogens infect the plants through the roots and grow up through the stem in the vascular tissue of the plant. Crop damage occurs when the fungus significantly impedes the flow of water and nutrients within the plant. When the plant dies, the fungus continues to develop, producing spores that return to the soil to infect future susceptible crops.

Canola crop damage can range from minimal yield loss to premature plant death causing complete crop failure. Fusarium wilt develops under hot (>26 C) or stressed environmental conditions. The severity of the disease is affected by many factors including timing of infection, environmental conditions and canola variety susceptibility.

This disease has only been identified in the last few years, but has been reported in fields from eastern Manitoba to western Alberta.

Is this like Fusarium in wheat?

No. The organisms responsible for both diseases are from the same family; different Fusarium species are responsible for causing Fusarium head blight in wheat.

What symptoms do I look for?

It is difficult to visibly detect Fusarium early since infection occurs through the plant roots. Infected crops can appear normal until late in the season. Once the fungus has grown through the stem, a characteristic brown stripe may appear on one side of a branch or stem. Infection may also cause small-shriveled seed, increased shattering due to premature pod ripening or plant death prior to pod development.

What can I do about Fusarium wilt?

There are currently no fungicides registered to control this disease. The most effective control practices are crop rotation and variety selection. Good rotation practices are one of the best methods for controlling the spore population in the soil. Several varieties have genetic resistance to this disease. Choosing resistant varieties will help reduce the severity of the disease even under conditions that favour disease development.

Are Advanta's canola varieties resistant to Fusarium?

In 2003, Advanta identified significant infection of Fusarium wilt in two trial locations – St. Brieux, SK and Vermillion, AB. The susceptible canola line 45A55 was measured to have an average infection rate of over 75% at these sites. The high level of infection made these sites ideal for determining the genetic tolerance of Advanta's varieties to Fusarium wilt. Although these results are based on limited data, all of Advanta's lines showed significant tolerance to Fusarium wilt. Refer to the chart below titled *2003 Fusarium Wilt Disease Incidence*.

