

Fusarium wilt



GRAINS FARM
BIOSECURITY
PROGRAM

EXOTIC PEST – CALL THE EXOTIC PLANT PEST HOTLINE IF SUSPECTED

What is Fusarium wilt of soybean?

Fusarium wilt of soybean (*Fusarium oxysporum* f. sp. glycines) is a soil-borne and seed-borne fungal disease that poses a threat to Australian soybean and other rotational crops.

The fungus can survive in soil without a host for many years and can cause wilting at any time from the seedling to the podding stage.

Fusarium wilt has had a serious economic impact on the world's largest soybean producer, the United States of America.

Although the disease is not currently present in Australia, if established, it will not only affect soybeans, but another 150 plant species including cotton, peanut and other rotational crops.

What does it look like?

Fusarium wilt can occur in irregular patches in fields, causing infected plants to wilt. Affected soybean plants will show brown discoloration starting at the base of the stem, which is also visible internally in the vascular tissue when the stems are cut lengthways. Roots will show brown/black decay.

Other symptoms are yellowing leaves with green veins (interveinal necrosis), premature leaf loss and death of shoots. Infected seeds appear slightly irregular in shape, with whitish mould over the seed coat.

What should I look for?

If Fusarium wilt is severe, stem tips will appear wilted with stunted leaves.

Upper foliage will look scorched whilst leaves in the middle and lower canopy will turn chlorotic (yellow leaves with green veins) and may drop prematurely from the plant.

Fusarium wilt infection causes reddish/brown discoloration of the plant stems and roots with red, orange, or white fungus visible.

What can it be confused with?

Fusarium wilt of soybean is often confused with phytophthora root rot or stem canker and brown stem rot (BSR). *Fusarium oxysporum* is different to *Fusarium virguliforme* which is responsible for Sudden Death Syndrome (SDS).

The leaf symptoms are different from SDS or brown stem rot. SDS symptoms are rarely noticeable before flowering and while leaves also show interveinal necrosis and fall, their petiole remains attached to the stem, unlike in Fusarium wilt of soybean.

In brown stem rot, leaf symptoms tend to appear after early pod set. Stems look healthy on the outside but have a brown centre (pith and vascular tissues) when cut open.

How does it spread?

Fusarium wilt fungus can survive in soil and plant residue for five to 10 years. The disease can be spread in contaminated soil, infected seed and water-borne spores (conidia) through rain splash and irrigation.

Where is it now?

Fusarium wilt has been reported in North and South America, Europe and China. The pathogen is not known to occur in Australia. If it enters and establishes in Australia, soybean production could be at serious risk.



Symptoms of Fusarium wilt on soybean seedlings



EXOTIC PEST – CALL THE EXOTIC PLANT PEST HOTLINE IF SUSPECTED

How can I protect my farm?

To avoid fusarium wilt, farmers are advised to:

- rotate crops every three to five years
- plant resistant soybean varieties
- monitor crops on a regular basis to spot anything unusual
- source seed, feed and fertilizer from reputable suppliers
- employ good farm hygiene practices.

Ensure that clean, certified soybean seeds treated with fungicide are planted during optimal germination conditions, improve soil drainage and reduce soil compaction.

Acidic and sandy soils are particularly conducive to fungal infection, so it is advised to regularly check soil pH. Minimise crop stress from roundworms, water, and fertiliser to reduce the entry of fungus into damaged roots.

Early detection is crucial in stopping or slowing progress of a new disease. Monitor your crops regularly for anything unusual and call in a specialist without delay to help identify anything unfamiliar.



Symptoms of Fusarium wilt in soybean leaves and stems



Foliar symptoms caused by Fusarium oxysporum in soybean

If you see anything unusual, call the **Exotic Plant Pest Hotline on 1800 084 881**.

**EXOTIC PLANT
PEST HOTLINE
1800 084 881**

Visit grainsbiosecurity.com.au for more resources to implement practical biosecurity measures. For a full list of Grains Biosecurity Officers in your region, visit grainsbiosecurity.com.au/contact

DISCLAIMER: The material in this publication is for general information only and no person should act, or fail to act on the basis of this material without first obtaining professional advice. Plant Health Australia and all persons acting for Plant Health Australia expressly disclaim liability with respect to anything done in reliance on this publication.