

# Fact sheet

## Sudden Death Syndrome of Soybean

### What is Sudden death syndrome?

Sudden death syndrome (*Fusarium* spp.) is a soil-borne fungal disease causing yield losses of up to 80%. The disease is caused by four different species of fungus in South America (*Fusarium virguliforme* (also known as *F. solani* f. sp. *glycines*), *F. brasiliense*, *F. cuneirostrum* and *F. tucumaniae*) and only one in North America (*F. virguliforme*). None of these pathogens are currently present in Australia. Where co-infection of *F. virguliforme* and the Exotic Soybean cyst nematode (*Heterodera glycines*) occurs the disease symptoms are exacerbated, leading to more severe symptoms and rapid plant death.

### What does it look like?

Symptoms of Sudden death syndrome are not usually visible until the beginning of flowering. The symptoms include crinkling and chlorotic mottling of leaves. After this, interveinal (between the veins) chlorosis occurs, followed by interveinal necrosis and leaflet death where the petioles generally remain attached to the plant. The root system of infected plants is less vigorous than healthy plants and in advanced cases pale blue spore patches may be visible. The vascular tissue in the lower part of the stem of infected soybeans is generally brown rather than creamy white as in healthy plants. This is an important characteristic for disease diagnosis.

### What can it be confused with?

The symptoms of Sudden death syndrome can easily be confused with Phytophthora root rot (*Phytophthora sojae*), charcoal rot (*Macrophomina phaseolina*), stem canker (*Diaporthe phaseolorum*), fungicide burn (particularly triazoles), nutrient deficiency and the exotic disease, Brown stem rot (*Phialophora gregata*).

### What should I look for?

Look for symptoms of Sudden death syndrome such as interveinal necrosis, leaflet death particularly where petioles remain attached to the plant, browning of the root cortex while the pith remains white.



Interveinal chlorosis and necrosis.

Daren Mueller, Iowa State University, Bugwood.org



White cysts of the Exotic Soybean cyst nematode which can exacerbate Sudden death syndrome symptoms.

Paul Bachi, University of Kentucky Research and Education Center, Bugwood.org



Soybean Sudden Death Syndrome in the field.

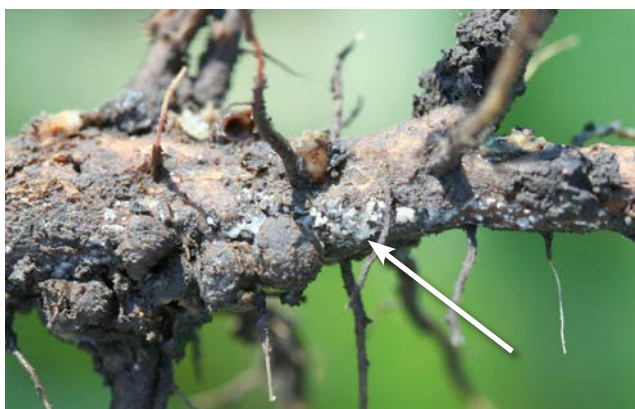
Daren Mueller, Iowa State University, Bugwood.org





Leaflet death.

Daren Mueller, Iowa State University, Bugwood.org



Root system of plant affected by Sudden death syndrome. Note patches of pale blue spores.

Daren Mueller, Iowa State University, Bugwood.org



Interveinal chlorosis and necrosis.

Daren Mueller, Iowa State University, Bugwood.org

If you see any unusual symptoms in your crop please contact the Exotic Plant Pest Hotline on 1800 084 881.

### How does it spread?

The pathogen is soil borne and, like other soil borne pathogens, is spread through the movement of soil, crop debris or vehicles, machinery and shoes contaminated with soil from fields where the pathogen is present.

### Where is it now?

All four *Fusarium* species causing Sudden death syndrome are found in Argentina, Bolivia, Brazil, Canada, Paraguay and Uruguay. In the United States only *F. virguliforme* has been found causing Sudden death syndrome in soybean.

### How can I protect my farm from Sudden death syndrome?

You can protect your farm from Sudden death syndrome by checking your property regularly for the presence of new pests and by closely examining poorly performing plants for signs of interveinal necrosis and leaflet death.

Make sure you are familiar with the symptoms of common pests so you can tell if you see something different.

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



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