Agronomy Factsheet:

RED CROWN ROT IN SOYBEANS

Red crown rot (RCR) is a soil borne fungal disease that has not been confirmed in Ontario but has been identified in several nearby states: Kentucky, Illinois, Indiana and Ohio. Due to the fungus persisting in the soil, the disease affects the stem, root and leaves causing premature senescence, with up to 70-80 per cent yield loss in severe situations. There are no known commercial soybean varieties with resistance to RCR.

IDENTIFICATION:

Red crown rot affects the roots, stems and leaves of the soybean plant.

Leaves: Symptoms begin as small light green to yellow blotches between the veins in the upper canopy often after flowering begins which leads to interveinal necrosis (death between the leaf veins). The leaves will often remain attached to the plant, but will die prematurely.

Stem: Symptoms begin with a reddish discolouration at the stem base and crown near the soil. With high humidity, later in the season the stem can become covered with a white fungal growth and reddish-brown spore producing fruiting bodies (perithecia). When scouting, dig up plants, paying particular attention to the crown and roots, splitting the stem open. *Note: can be washed off by rain, making it harder to identify when scouting.

Roots: Rotted roots will allow infected plants to be pulled easily from the soil. White fungal growth may be visible on roots before the characteristic red fruiting bodies appear. Root symptoms can occur without other symptoms, causing infected plants to be shorter and yield less than healthy plants.

Stem discolouration can begin as early as the V2 stage and appear up to maturity. Foliar symptoms can often be identified around R1. Red fruiting structures on the stem can appear earlier in the season but often appear around R6. Overall, most symptoms begin later in the season as the plant reaches reproductive stages.

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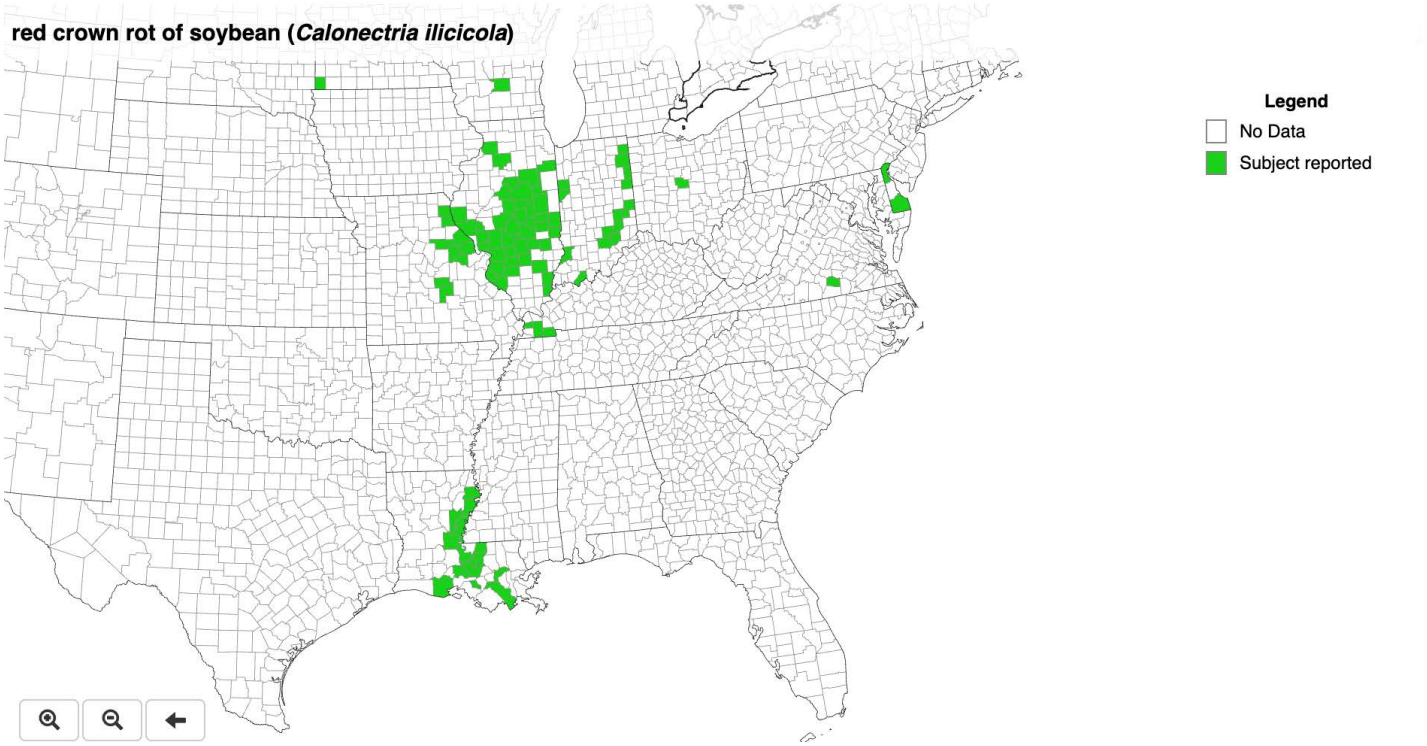
Initial leaf symptoms resemble that of sudden death syndrome but can also be mistaken for brown stem rot and stem canker. Stem symptoms can be misdiagnosed as charcoal rot, rhizoctonia root rot and phytophthora stem rot.



Source: https://cropprotectionnetwork.org/maps/red-crown-rot-map

FAVOURABLE CONDITIONS:

- Infection typically occurs with wet conditions and warm soil temperatures (25 to 30 C).
- Highly susceptible during warm, wet weather during the growing season.
- The fungus can survive years without a host.

CONTROL:

- Accurate diagnosis is key. Should RCR be suspected, contact Albert Tenuta, OMAFA, for confirmation. (albert.tenuta@ontario.ca)
- Manage SCN! Fungicide seed treatment research is currently being conducted for efficacy to RCR.
- Equipment moving from areas where the pathogen is found could carry contaminated soil and spread the disease.
- Should the disease be identified, it is imperative to contain it; cleaning equipment is one way to limit the spread.
- Rotate crops for two or more years away from soybeans to reduce inoculum.
- Improve soil drainage and compaction.

WHAT TO DO TODAY:

Good management is the best option. Scout and remain vigilant when moving equipment from areas, such as the midwest US, that might have the disease.

More information

[Red Crown Rot of Soybean]

[Red crown rot: No cure for this soybean disease]

[Red Crown Rot Symptoms Emerging in Illinois Soybeans]

[Plant pathology fact sheet: Red crown rot of soybean]

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