

# MESSENGER-INQUIRER

 Cooperative  
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## Farm Update

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AGRICULTURE & NATURAL RESOURCES  
EDUCATION

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Red crown rot is a soybean disease that was first confirmed in Kentucky in 2021 and first confirmed in Illinois in 2018. Historically, red crown rot had been considered a disease that occurred in southern soybean production areas such as Louisiana and Mississippi.

Measurements conducted in 2021 of infected Kentucky soybean fields, indicated that areas affected by red crown rot had grain yields that were 70% less than areas in the field that did not express symptoms. Although the current distribution of red crown rot in Kentucky appears to be limited, the disease has the potential to cause major yield losses.

Symptoms of red crown rot can occur on leaves, lower stems, and roots of soybean plants. On leaves, symptoms first appear as yellow flecks that develop into yellowing between the leaf veins, while veins remain green, and eventually, dead areas between the leaf veins, while veins remain green. These are similar foliar symptoms to sudden death syndrome. Leaf symptoms are caused by a phytotoxin produced by the causal fungus, which moves through the plant and accumulates in leaves. These leaf symptoms generally are not observed until soybean plants reach the reproductive stage of beginning flowering and beyond.

Lower stem and root symptoms may be observed prior to leaf symptoms. Infections result in a reddish discoloration of lower stems just above the soil line and roots. During the pod and seed development stages and later, white fungal growth may develop on roots and lower

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stems. The visual confirmation of red crown rot are fungal fruiting structures called perithecia. Perithecia are red to reddish-orange, spherical, and less than 1/16 inch in diameter.

Areas of symptomatic plants in fields generally occur randomly. Soybean plants that are severely affected by red crown rot may die prematurely, while non-affected plants remain green. Potential look-alike diseases that share symptoms of interveinal chlorosis/necrosis on soybean leaves include sudden death syndrome (SDS), southern stem canker, and brown stem rot. Of these three diseases, only SDS and southern stem canker are currently known to occur in Kentucky, while brown stem rot occurs further north than Kentucky. Although these diseases have similar leaf symptoms to red crown rot, red crown rot generally can be distinguished by the reddish discoloration of lower stems and roots. Observance of the red, spherical perithecia on lower stems and roots is also distinctive to plants affected by red crown rot. Lower stem and root symptoms caused by *Rhizoctonia* root rot can also potentially be confused with symptoms caused by red crown rot. *Rhizoctonia* root rot may cause reddish-brown lesions on roots and hypocotyls; however, these lesions tend to be sunken and girdling, whereas the red discoloration caused by red crown rot generally is not. In addition, *Rhizoctonia* root rot is more likely to first be observed when plants are in the seedling to early-vegetative stages, and red crown symptoms may appear later in the season. Also, perithecia will only be present on lower stems and roots of plants affected by red crown rot.

Rotating to a non-host crop for 2 or more years may help reduce inoculum levels of the red crown rot fungus in the soil. Treating soybean seeds with a fungicide seed treatment that includes red crown rot on the label may help protect against early infections by the red crown rot fungus. Planting soybeans when the soil temperature is less than 77°F may help reduce

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infections by the red crown rot fungus. Management of soybean cyst nematode (SCN) may help reduce potential interactions between SCN and the red crown rot fungus, which have been shown to have an antagonistic effect on soybean plants when both are present. Currently, no commercial soybean varieties are marketed with resistance to red crown rot. Additionally, no foliar fungicides include red crown rot on their labels, and fungicides will not be effective in managing red crown rot if applied.

## **Daviess County Agricultural Development Council**

The Daviess County Agricultural Development Council will meet at 6:00 p.m. December 12 at the Daviess County Extension Office to review recently submitted funding requests. If you have a project idea that represents the purpose of the KADF, contact my office or visit <https://www.kyagr.com/agpolicy/>.

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