

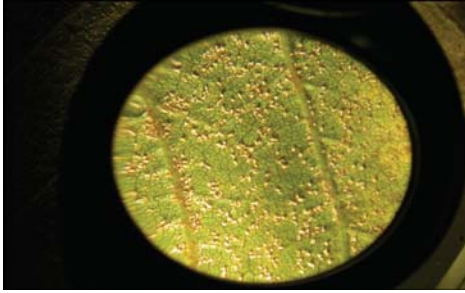
PEST ALERT

WEST VIRGINIA DEPARTMENT OF AGRICULTURE

Gus R. Douglass, Commissioner

Asian Soybean Rust

Phakopsora pachyrhizi



Pustules (spores) magnified by 20x hand lens.



Symptoms on upper leaf surface.



Soybean leaf & petiole affected by soybean rust

Asian soybean rust (SBR) is a fungus belonging to a group of fungi typically known as rust fungi. In nature, these rusts must have a living host to survive and reproduce. SBR has been a significant disease of soybeans in Africa, Asia, Australia, and South America. Its fungal spores depend on air current and/or tropical systems for means of dispersal and can travel very long distances. In 2004, SBR was first confirmed in the Continental U.S. where it was detected in the Gulf Coast states, probably due to the active tropical weather that year. West Virginia has yet to encounter SBR.

Life Cycle

The life cycle of rust fungi, particularly SBR, is unique in that most species depend on two hosts (an alternate- where beginning sexual stages occur and a primary- where either asexual and/or mature sexual stages occur) to complete all reproductive stages. The alternate host serves as an overwintering site for the fungi. For the fungus to successfully overwinter, it must have an alternate host that maintains green vegetation year-round.

It is the Uredinia stage on the primary host that causes the most problems, because the fungus can either proceed further into the sexual stage or keep reinfesting the same primary host by asexual reproduction, which creates mass sporulation.

Host Plants

Primary hosts- soybean, snap and kidney bean, green and lima bean.

Alternate hosts- many legumes serve as the alternate host for SBR. Kudzu, lupine, lespedeza, white & crimson clover, ticktrefoil, winter vetch, and purple crownvetch are some of the well known alternate hosts.

	Conditions	Early infections	Typical symptoms
Soybean rust	Cool and rainy	Lower leaves	Pustules
Bacterial pustule	Dry and hot	Upper leaves	Pustules
Bacterial blight	Cool and rainy	Upper leaves	Rigged leaves
Brown spot	Rainy	Lower leaves	No pustules

SBR compared to other common soybean diseases.

Damage

First symptoms that form on the primary host occur as lesions on the lower leaves. Two lesion formations are possible: tan lesions, when mature, consist of small pustules with masses of tan-colored spores on the leaf surface; or reddish-brown lesions with reddish-brown necrotic areas surrounding the pustules.

Control

Early detection of SBR is critical for effectively managing this disease. For updated information about controlling SBR, visit the other SBR links on the WVDA website, or contact:

All pictures courtesy of USDA

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