Asian Soybean Rust On Legume Vegetables:

A Homeowner's Guide to Management

Asian soybean rust was first found in the southeastern United States in 2004 in southern Louisiana, Mississippi, and seven other southern states. We think the fungus spores were blown in from South America by Hurricane Ivan. The fungus has not yet become firmly established in the United States. It should take three or more years before the disease becomes widespread. We are closely watching this potentially devastating soybean disease, and we have distributed management and control plans to soybean growers.

This publication alerts homeowners and small growers of the potential for soybean rust damage to commonly grown vegetable crops.

Alternative Host Plants

Asian soybean rust causes disease on many alternative host plants—plants other than soybean that support the growth and reproduction of the fungus. One of these is kudzu. In areas where kudzu is not killed by cold weather, it might serve as an important source for fungal survival through the winter months.

Other alternative host plants include commonly grown legumes popular with the Mississippi homeowner. Among these are hyacinth bean, lima or butter bean, green and kidney bean, cowpea, black-eyed pea, and purple hull peas. Other potential alternative hosts commonly found around homes include yellow sweet clover, white clover, and crimson clover. Of these alternative hosts, lima beans, cowpeas and purple hull peas are probably the most susceptible to the rust fungus.

How To Identify Soybean Rust

Leguminous vegetable crops infected with soybean rust have small, raised pustules mostly on the undersides of the lower leaves on the plant. At first the small, irregular shaped lesions are gray and turn tan to brown or red as the disease grows. The disease causes premature defoliation, fewer pods per plant, and undeveloped pods, thus greatly reducing quality and yield. Under the right environmental conditions of high humidity and cooler temperatures, the disease may progress rapidly and can destroy the crop rapidly. One way to detect soybean rust on a plant is to rub the diseased plant tissue with a white paper towel or handkerchief. If rust spores are present, they will turn the white paper towel brownish-red. Early symptoms of soybean rust may be confused with some bacterial diseases on bean. The presence of sporulating pustules on the undersides of leaves is one sign of the disease.

Top

7x

25x

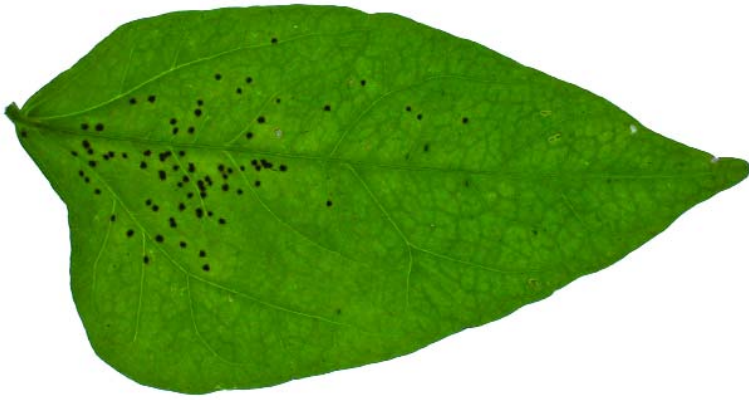
Bottom

7x

25x

Cowpea *Vigna Savi*, multiple species

Soybean rust lesions on upper and lower leaf surface of cowpea at different magnification.



Top

7x

25x

Bottom

7x

25x

Green Bean *Phaseolus vulgaris L.*

Soybean rust lesions on upper and lower leaf surface of green bean at different magnification.

Top

7x

25x

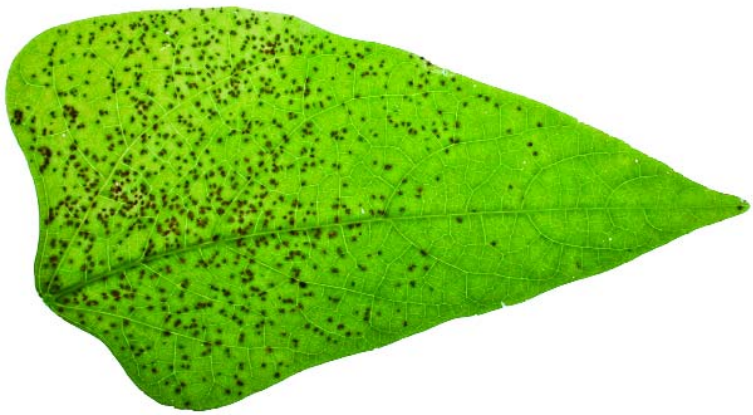
Bottom

7x

25x

Lima Bean *Phaseolus lunatus L.*

Soybean rust lesions on upper and lower leaf surface of lima bean at different magnification.



What To Do If You Suspect Soybean Rust

If you suspect soybean rust is affecting legumes in your vegetable garden, contact your Mississippi State University Extension Service immediately. Or you can place a sample of the diseased plant material in a zip-lock plastic bag with a piece of moist paper towel inside. Then place that plastic bag inside another plastic bag and mail to the Extension Plant Pathology Lab at Room 9, Bost Extension Center, Mississippi State, MS 39762. Do not handle suspect plants and then travel to your neighbor's house to discuss the finding, because this may move the disease from one place to another. The fungus poses no human health threat.

How To Manage Soybean Rust on Vegetable Legumes

As of this date, we don't know of any resistant varieties of leguminous vegetable crops. It is extremely important that you scout gardens frequently and closely for the rust fungus to detect the disease in the early stages so you can apply preventive fungicide sprays.

Moist leaves greatly increase fungal infection. If possible, do not irrigate with overhead irrigation. If you do, please refer to Extension information sheet 1670, "Watering and Plant Disease." Managing soybean rust on vegetable crops is mainly by preventative fungicide applications. It is important to have thorough coverage of all plant surfaces. This means spray to just before runoff, not drench until dripping off the plant.

Homeowner Fungicides To Manage Soybean Rust on Vegetable Legumes

Trade Name*	Active Ingredient	Mixing Instructions	Pre-Harvest Interval
Bonide Flowable Mancozeb Fungicide	Mancozeb	2-5 tsp/gal	5 days
Hi-Yield Maneb Garden Fungicide	Maneb	1.5 tbsp/gal Repeat @ 5-7 Days	30 days
Fertilome Dusting Sulfur	Sulfur	Dust plants or mix 4 tbsp/gal	1 day
Headline**	Pyraclostrobin	6-9 oz per acre	7 days
Quadris**	Azoxystrobin	6.2-15.4 oz per acre	0 days

* Read and follow all label instructions carefully. Other fungicides may be available that are not listed here.

** Headline and Quadris are available in large quantities and are more suited to growers with two or more acres.

By **Dr. David Ingram,** associate Extension/research professor Central Mississippi Research & Extension Center; and **Dr. Alan Henn**, associate Extension professor, Entomology & Plant Pathology. All photos courtesy of Bonde, Nester, Tipton, and Frederick, USDA, ARS, NAA, FDWSRU.

Publication 2393
Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. VANCE H. WATSON, Interim Director (5M-10-05)