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Soybean Rust Fungicide Use Guidelines for Nebraska¹

By Loren J. Giesler, Extension Plant Pathologist, John A. Wilson, Extension Educator,
and Jennifer M. Rees, Extension Educator

While the impact that soybean rust will have on Nebraska's soybean crop is unknown, producers should be prepared to manage the disease. When soybean rust occurs or is expected to occur shortly in Nebraska, growers can use the decision-aid flow chart on page 2 to determine whether to treat and, if treating, which class of fungicide (chlorothalonil, strobilurin or triazole) to use. *Tables I and II* can be used to help determine growth stages. When soybean rust is present or there is a high risk of occurrence, consider treating high yielding and/or irrigated soybean fields first. These fields would be at greater risk and have greater potential for returns than lower yielding and/or rain-fed fields in many parts of the state.

When making treatment decisions, consider the stage of development when soybean rust arrives, the potential yield loss, and implications of treating or not treating if carrying crop insurance. Current soybean rust conditions are available from the University of Nebraska Soybean Rust Web site at soybeanrust.unl.edu.

Table I. Number of days between soybean growth stages.

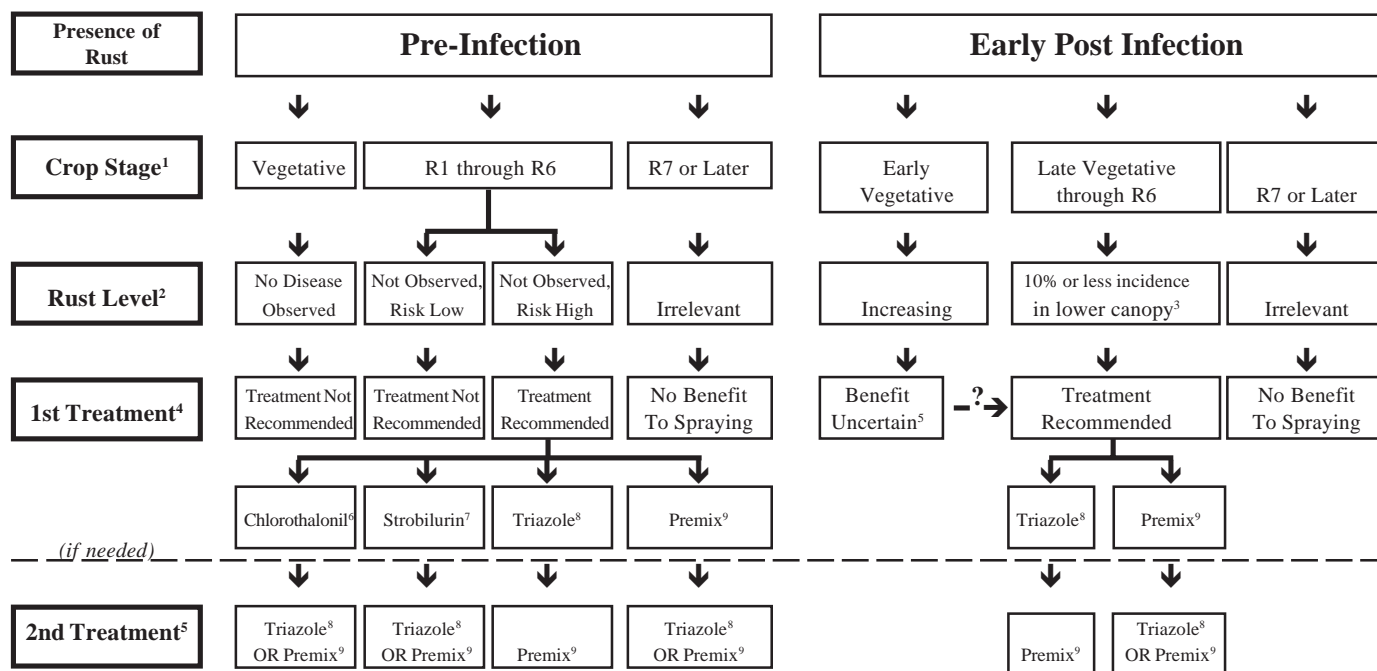
Stages	Average No. of days	Range No. of days
Planting to VE	10	5-15
VE to VC	5	3-10
VC to V1	5	3-10
V1 to V2	5	3-10
V2 to V3	5	3-8
V3 to V4	5	3-8
V4 to V5	5	3-8
beyond V5	3	2-5
R1 to R2	3	0-7
R2 to R3	10	5-15
R3 to R4	9	5-15
R4 to R5	9	4-26
R5 to R6	15	11-20
R6 to R7	18	9-30
R7 to R8	9	7-18

Table II. Reproductive stages of soybean development.

Stage	Description
R1 Beginning bloom	One open flower at any node on the main stem
R2 Full bloom	Open flower at one of the two upper most nodes on the main stem with a fully developed flower
R3 Beginning pod	Pod 3/16 inch long at one of the four uppermost nodes on the main stem with a fully developed leaf
R4 Full pod	Pod 3/4 inch long at one of the four upper most nodes on the main stem with a fully developed leaf
R5 Beginning seed	Seed 1/8 inch long in a pod at one of the four uppermost nodes on the main stem with a fully developed leaf
R6 Full seed	Pod containing a green seed that fills the pod cavity at one of the four uppermost nodes on the main stem with a fully developed leaf
R7 Beginning maturity	One normal pod on the main stem that has reached its mature pod color
R8 Full maturity	Ninety-five percent of the pods have reached their mature pod color. Five to ten days of drying weather are required after R8 for the soybean moisture levels to be reduced to less than 15 percent

¹Adapted from "Soybean Rust Fungicide Use Guidelines" developed by D. Hershman, A. Dorrance, and M. Draper, 2005.

Table III. Decision-making aid for managing soybean rust.



1. Vegetative = collective stages before flowering; R1 = beginning flowering; R6 = full seed; R7 = beginning maturity.
2. Incidence is the percent of leaves with rust lesions. Risk is determined according to national, regional, and local reports of rust activity and disease forecasts. **Yield loss is very likely once rust can be found in the mid-crop canopy.** Numerous factors affect the decision as to how late a fungicide should be applied. Consider crop stage, disease level, yield potential, crop insurance and other factors.
3. Fungicide labels specify upper limits for their products and product efficacy will be reduced as disease levels increase above 10 percent incidence.
4. One or two applications may be needed, depending on when disease development begins and at what crop stage the first application is made. Spray coverage and canopy penetration are essential for success. Before making late-season applications, check the product label for "days to harvest" restrictions. Labels also indicate specific intervals between sprays for different disease situations. These spray intervals must be followed or rust control may be lost. **Consecutive applications of a strobilurin following a strobilurin or a triazole following a triazole should not be made due to resistance concerns.**
5. Most reports from Africa and Brazil indicate soybean rust does not need to be controlled when detected in the vegetative crop stages as long as a curative spray program is initiated as soon as flowering begins. Spraying before crop flowering, however, may be prudent if the disease is increasing and the crop is approaching R1. This is especially true for late-planted crops and/or very late-maturing varieties that may develop a large canopy before flowering.
6. Chlorothalonil (e.g., Bravo, Echo) is a protective fungicide that **has no curative activity**. An application of a chlorothalonil should be restricted to the first application in a pre-infection program.
7. Strobilurins (e.g., Quadris, Headline) are protective products that **have no curative activity**. An application of a strobilurin alone should be restricted to the first application in a pre-infection program.
8. Triazoles (e.g., Bumper, Domark, Folicur, Laredo, PropiMax, Tilt) **have curative activity**, but may not perform well if more than 10% disease exists in the lower plant canopy.
9. Premixes (e.g., Quilt, Stratego) are manufactured combination products containing a strobilurin and a triazole. You may also use label-approved tank mixes of a strobilurin and a triazole the same as you would a premix.

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