

Fight Against Soybean Rust by Calibrating Your Sprayer

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The spring months are the best time to thoroughly check the sprayer and calibrate it properly. Do this now before the arrival of Asian Soybean Rust. This disease has been detected in 9 southern states, as far north as Missouri. Currently, there are no soybean varieties available that have high levels of resistance to soybean rust. This leaves producers with only one option: be prepared to do a good job spraying fungicides registered to control this disease.

Successful fungicide control will largely depend on proper application. Proper application starts with selecting the right equipment, specifically nozzles, and spraying the right amount of fungicide uniformly across the field.

Pesticide manufacturers have invested heavily to determine the most effective and economical application rate for the fungicides labeled for Soybean Rust. However, the applicator must assure the recommended amount is applied.

Why calibrate? Calibration is the best way to assure you are delivering the desired rate. The window of opportunity to spray for soybean rust is much narrower than for most pests. You may not have the time to calibrate after the rust has arrived.

Results of many "Sprayer Calibration Clinics" show that only a third of applicators are applying chemicals at a

rate within 5 percent (plus or minus) of the intended rate. Calibration takes about 30 to 60 minutes and requires only three "tools": a stopwatch, a measuring tape, and a jar graduated in ounces. Several calibration methods are available but the one described below is simple, straightforward, and does not require cumbersome equations.

“Ounce” Calibration Method: When the spray tank is clean, fill it at least half full with water since the amount of water in the tank may affect travel speed. Measure the distance between nozzles in inches and then drive a designated distance depending on the nozzle spacing. For a nozzle spacing of 20 inches, drive 204 feet at normal spraying speed. Drive 136 feet for 30-inch spacing; 113 feet for 36-inch spacing; and 102 feet for 40-inch spacing. Run the parked sprayer at the same pressure level for the same amount of time it took you to drive the designated distance, and collect the output of each nozzle. Calculate the average nozzle output by dividing the total output from all nozzles by the number of nozzles tested. The average nozzle output in ounces equals the gallons per acre applied. For example, if you catch 20 ounces the rate is 20 gallons per acre (gpa).

The next step is to minimize the application error. If the difference between your intended application rate and the actual rate is greater than ± 5 percent of your intended rate you should

make some adjustments. For example, if your intended application rate is 20 gpa, the calibrated rate should be between 19 and 21. For small changes in the application rate try adjusting the pressure. For larger changes either adjust the travel speed or replace nozzles with the appropriate size. You need to repeat the calibration process until your application error is no greater than ± 5 percent.

The “Ounce” calibration method is explained in detail in Virginia Extension (VCE) Fact Sheet 442-453, available from your local Extension Office, or from the VCE web site: <http://www.ext.vt.edu/pubs/bse/442-453/442-453.html> .

Just spraying the right amount of fungicide on each acre is not enough to achieve effective control of soybean rust. Uniform deposition on the spray target is as important as the total amount deposited. Each nozzle type produces a unique spray pattern. Some nozzles require precise overlapping of patterns from adjacent nozzles. Check the nozzle catalog to find out the appropriate boom height for your nozzle spacing that will produce uniform spraying across the boom.

Calibrate frequently! Sprayers should be calibrated several times a year. Changes in operating conditions and the type of chemical used may require a new calibration. A survey showed that the more often a sprayer was calibrated, the more accurate the application rate. Be prepared to spray for soybean rust before it arrives and have your sprayer calibrated.