

Hardin County Extension News Release

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To Spray or Not to Spray Foliar Products

Hardin County – When should I spray a foliar fungicide? First, consider the disease triangle. For a disease to develop, there must be a susceptible host (Is your soybean variety resistant or susceptible?), a virulent pathogen (Is there a history of a certain disease in your field? Do you see any visual symptoms of disease?), and conducive environmental conditions. Most foliar diseases, such as brown leaf spot and frogeye leaf spot, are favored by wet conditions.

In OSU trials, brown leaf spot and frogeye leaf spot tend to be the two most common soybean diseases. In these trials, we've measured a yield response to foliar fungicide applied at R3 in 9 out of 28 environments, ranging from 4 to 8 bushels per acre. At the responsive locations, which tended to be in central and southern Ohio, there were foliar disease present (brown spot and frogeye leaf spot). Additionally, these positive yield responses occurred in years with greater precipitation. Very little to no yield response occurred in dry years and in years when soybeans were flooded. If you have visual symptoms of disease, a conducive environment, and susceptible variety, R3 is a good time to spray a foliar fungicide.

Next, we must decide what fungicide to use and there are several products available for control of foliar diseases. Researchers across the U.S. constantly compare and evaluate fungicide efficacy for control of major soybean foliar diseases. The North Central Regional Committee on Soybean Diseases annually updates this information.

Finally, if you decide to spray, we recommend using fungicide products that contain active ingredients from different fungicide mode of action groups. This will minimize the risk of developing fungicide resistance by the pathogen. For example, resistance to the strobilurin fungicides has been reported in the fungus that causes frogeye leaf spot in Ohio; therefore, strobilurin fungicides alone should be avoided when managing this disease. Please contact your extension educator if you suspect that fungicide resistance is an issue in your field.

When should I spray a foliar insecticide? Often, if a farmer plans on spraying a foliar fungicide, they will tank-mix a foliar insecticide. Over the past several years, we've tested foliar insecticide

in 28 Ohio environments. Out of those 28 environments, we've only found a yield response in one environment (+5 bushels per acre) with an insecticide applied at the R3 growth stage. In the other 27 environments, soybean yield was unaffected by foliar insecticide with defoliation levels in the mid- to upper canopy at less than 15%. For soybean, insecticide application is advised when defoliation levels reach 30% in pre-bloom stages, 10% in bloom, and 15% during pod fill to harvest. Keep in mind that defoliation is measured and averaged across the entire plant—not just the leaves that look the worst. Defoliation may be isolated to one portion of the canopy and sometimes just the field edge.

When should I spray foliar fertilizer? In Ohio, the most common micronutrient deficiency is manganese. However, even then, OSU has only measured a yield response to manganese foliar fertilizer in two out of 20 Ohio environments. Soybeans are most likely to respond to foliar fertilizer when there are visual symptoms of deficiency. Interveinal chlorosis is a visual symptom of manganese deficiency. Manganese deficiency tends to occur in fields with high pH or high organic matter (muck), especially if soils are droughty. In dry soil, manganese is converted to a form that is unavailable for plant uptake.

Recently, soybean agronomists across the U.S. evaluated foliar fertilizers in 46 environments and found no soybean yield increase when the products were applied prophylactically (no visual deficiency symptoms). In most situations, foliar fertilizers are unnecessary.

Multiple trials in Ohio and across the U.S. have shown that prophylactic applications of foliar fungicide, insecticide, and fertilizer provide no yield benefit. Before applying these products, it's important to scout your fields for disease, insects, and nutrient deficiencies. If you decide to spray, we recommend leaving untreated strip checks (at least three per field). Comparing treated and untreated areas will improve decision making in the future.

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