ASSESS SOYBEAN FIELDS AS A STEP IN BETTER MANAGEMENT

by Bruce Erickson

As late summer turns to fall and soybeans start showing signs of maturity, an assessment of soybean fields to check plant health, possible weed escapes, and the consequences of earlier management decisions can provide valuable information for assessing yield differences later. “The differences that you will see at harvest won’t have any meaning unless you can begin to tie a reason to those yield differences,” said Shawn Conley, Soybean Production Specialist at Purdue. At this summer’s Top Farmer Crop Workshop, Conley outlined a series of recommendations for producers to think more intensively about the management of their soybean crop.

Conley’s recommendations are timely, considering many farmers’ frustrations in increasing soybean yields. While corn yields nationally have trended upward, soybean yields have also increased, but at a slower rate. This year both crops will drop down compared to last year’s records—the August 12 USDA Crop Report is predicting corn yields to average 139 bu/A nationally, and soybeans 39 bu/A.

So to boost returns, growers are looking where they usually look—in ways to increase yields, or to cut costs.

It has been difficult to shave input costs in soybeans without sacrificing yields, but one area of intense interest in recent years has been in lowering seeding rates to reduce input costs. To make each seed count for more, growers have been moving more to the exact seeding rates of planter units vs. drills, and are finding more utility in seed applied fungicides and insecticides. It is well documented that soybeans can do well within a broad range of planting rates.

But protecting soybean yields probably has more potential for increasing returns. Added Conley, “The threat of Asian soybean rust captured our attention this year, but it will be the more familiar soybean pests that will cause the differences seen this fall.” Beyond the obvious lack of water in many parts of the Midwest, soybean cyst nematode, Phytophthora Root rot, sudden death syndrome, charcoal rot, soybean leaf aphids, and other anomalies will contribute to the yield differences seen at harvest.

The risk of yield losses to Asian soybean rust has largely passed, except for double-crop soybeans. At the R7 stage, where at least one pod on a plant has turned from green to tan/brown, the plants are safe from frost or any damage after that point from leaf loss due to insects or disease. The “windshield survey” general rule of thumb that indicates that...
soybeans are done filling is when soybean leaves are more yellow than green.

But windshield surveys won’t help you fine-tune soybean management—you may need to spot check fields and do some digging to get a feel for soybean performance. Roundup Ready™ soybeans have taken some of the complexity out of soybean production, but as a consequence growers may be watching their fields less intensively.

Soybeans that didn’t quite fully canopy, or which are showing unusual signs of stress during some of the warmer late-season afternoons may be suffering from Phythopthora root rot (PRR), charcoal rot, soybean cyst nematode (SCN), or a combination of the above. PRR and charcoal rot both cause individual plants to wilt and die prematurely. PRR is favored more by earlier wet conditions, while charcoal rot is prevalent with drier conditions. The symptoms of SCN are usually more elusive, with plants often showing few above-ground symptoms, unless another situation weakens them. To check for SCN, carefully dig soybean roots, and check for the presence of small, cream-colored lumps on roots, much smaller than nitrogen nodules.

Note weed escapes also as you survey fields. And while late-season weed competition is important, earlier competition that could be completely invisible now can have lasting effects. Research at Southern Illinois University (15 trials) points to an average of a 10% yield improvement from a two-pass weed control system vs. a one-pass application, largely due to lessened weed competition from using the two pass system. At a 40-50 bu/A yield level, a 10% benefit can quickly pay for herbicide and application costs! The two pass system could be two post-emerge applications, or a pre-emerge residual application followed by a post-emerge application. Monitoring weed escapes could be of increasing importance in future years. With very few new herbicides coming into the marketplace, it is going to be important to protect the weed-killing ability of the herbicides currently in use.

Although much attention has been focused on soybean leaf aphids, now is the time to also watch for bean leaf beetle feeding in soybeans. Bean leaf beetles can be identified by the spots on their backs, and come in many colors, most commonly light yellow. The second generation emerges in August and September. Soybeans can handle extensive leaf feeding now with minimal loss, but pod feeding can be serious. Pod feeding can cause seeds to be shrunked, discolored or rotten, leading to losses of both grain yield and quality.

It is hard to get around the advantages of the ubiquitous corn/soybean rotation. Increasing returns from the soybean portion of that rotation is one way to bolster profits. Other growers see more opportunities on the other side and are looking to increase corn acres, adding corn more often in the rotation, or converting some fields to continuous corn. “Soybeans respond to management differently than does corn, but they do respond to management,” noted Conley.