

Walk Your Cornfields

Summer scouting can reveal a host of corn maladies.



To an outsider, corn farming looks like a sweet deal. A few weeks spent planting, a few more spent spraying, followed by a fishing trip thrown in before harvest. Then it's off to Florida for the winter.

Yeah, right.

Fact is, producing corn is a year-round program these days. That's particularly true during the growing season in between field operations. It's then time to walk your fields, to inspect plants, and to identify crop maladies. Here are some things to consider during 2011.

Roots

Asian cultures name years after Zodiac signs. If corn producers could name 2010, it would be known as the year of the roots. Prolific rainfall in June led to roots in saturated soils or standing water in many areas.

"Even if corn didn't die in standing water, the roots were badly injured," says Emerson Nafziger, University of Illinois

Extension agronomist. "The problem wasn't lack of soil water or lack of nitrogen (N). Even if the crop looked drought-stressed, the reason it looked that way was because it didn't have a root system."

Once the die is cast during the growing season, you can't change your corn's rooting patterns. Still, taking a shovel into your fields and digging up plants can reveal corn and root maladies and how to correct them in future years. Such digs can show the effects of earlier standing water or soggy soils

and the way drainage can alleviate this.

"Expenses for drainage are normally paid back over a five-year period. But in a year like 2010, they may be returned in the first season," says Bob Streit, a Boone, Iowa, crop consultant.

Diseases

Summer scouting also can pinpoint disease. Recently, farmers have used fungicides as a disease-control tool. Fungicides particularly shine in wet years like 2010, when disease is prevalent.

"This past year, yield comparisons showed that there were positive results across Iowa when corn was sprayed at the right time," says Streit. "Increases of 15 to 30 bushels per acre were quite common."

University of Illinois (U of I) trials in 2010 found that the most profitable use of strobilurin fungicides occurred when application was based on:

- Disease risk, such as hybrids susceptible to disease or hybrids planted in corn-on-corn situations with reduced tillage.
- Scouting that shows disease is present on the third leaf below the ear or higher on at least 50% of plants prior to tasseling.

"The most consistent profitable use of a fungicide occurs when disease is targeted," says Carl Bradley, U of I Extension plant pathologist.

Fungicides have improved yields in the absence of disease. Industry officials say double-digit yield increases often occur. ➤

Root digs during the growing season can help reveal root health and help identify production problems, says Bob Streit, a Boone, Iowa, crop consultant. Summer scouting can also confirm disease presence.



left: Japanese beetles can damage pollination by clipping silks. below: Nitrogen deficiencies can be corrected by late-season N applications.

"We see increased photosynthetic rates, better nitrogen utilization, and reduced ethylene production," says Randy Myers, fungicide product manager for Bayer CropScience. "The fungicide helps the corn plant better use the resources it has."

Still, yield increases due to physiological impacts or stress tolerance reduction aren't automatic. If resources like N or water are limited, farmers may not see a plant or yield response, Myers says.

Insects

Compared to the pretrait era, insect-resistant corn traits have pretty much nixed European corn borer (ECB) and corn rootworm.

Still, vigilance is required. "No one

passed a law saying corn borer is extinct," quips Nafziger. He notes that ECB infestations resulted in some nontransgenic corn in eastern Iowa and western Illinois.

Wet late-spring weather helped significantly slice corn rootworm populations in 2009 and 2010. Don't bank on it for 2011, though.

"There is lots of potential risk out there," says Bruce Battles, Syngenta agronomy manager. "Even though corn rootworm was not widespread last year, there still were lots of microclimates – such as northeastern Iowa – with high elevated numbers last year."

That's why it's key for farmers to use a rootworm-resistant trait or soil-applied insecticide to protect their corn in 2011.

Other pests exist. Ever experience new folks who move into the neighborhood and immediately become pests? That's the case with Japanese beetles that have infested states like Missouri.

"They used to be concentrated in suburban areas like Kansas City and St. Louis," says Wayne Bailey, University

of Missouri Extension entomologist.

Japanese beetles have since moved into rural areas. This year's wet weather favored high grub populations that later surfaced as Japanese beetles.

High Japanese beetle populations can curtail corn yields by silk clipping during pollination. Treatment thresholds can vary among states. In Missouri, insecticide treatment is recommended on corn when four or more beetles are present on each plant and if pollination is less than 50% complete.

Nutrient Shortages

Walking your fields later in the growing season can reveal nutrient deficiencies.

"Saturated soils will denitrify – even those with good organic matter," says Greg Luce, technical product manager with Pioneer Hi-Bred.

One bright spot in such situations is that high-clearance equipment is now available that can add N as corn nears tasseling and beyond.

"Normally, you can get a response," says Luce.

University of Missouri and University of Nebraska research have demonstrated that in years with nitrogen shortages, there is a strong yield response to N even through the R2 (blister) growth stage.

Responses are contingent, however, on having a healthy root system, Nafziger reminds.

"If roots cannot take up enough water, they cannot take up N," he says. □



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– Emerson Nafziger, University of Illinois

