



PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

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Last Issue of the Growing Season

As August fades into September and crops mature toward harvest time, the intensity of pest problems diminishes. At this time of year we busy ourselves with appraisals of the pest problems that occurred during the summer of 2001 and with compilations and analyses of research data. Our hope is that we can learn from our experiences and research and build better “mouse-traps” for the growing seasons in the future.

This is the last issue of the *Bulletin* this month; the next issue will be published during the week of September 3. If the need arises, we will provide critical updates on the Web version of the *Bulletin*.—Kevin Steffey

Reminder: University of Illinois 45th Annual Agronomy Day

The 45th annual Agronomy Day presented by the University of Illinois will be held at the Crop Sciences Research and Education Center (South Farm) on Thursday, August 23, 2001. Tours will begin every 30 minutes between 7:00 a.m. and 12:00 noon. The theme for this year’s program is *Agriculture Is for Everyone*. A complete list of topics was published in issue no. 8 (May 18, 2001) of the *Bulletin*. The field crop pest-related topics include discussions of SDS, Diplodia ear rot, western corn rootworms, soybean aphids, growth regulator herbicides, Roundup-Ready crops, remote sensing for weeds, and waterhemp.

For more information about Agronomy Day at the South Farm, contact Sharon Conatser, Department of Crop Sciences, at (217)333-4424. Or check the Web at <http://www.cropsci.uiuc.edu/agronomyday/>.

We hope to see you there!—Kevin Steffey

INSECTS

Reports of Bizarre Western Corn Rootworm Behavior Continue

As reported in last week’s (issue no. 20) *Bulletin*, western corn rootworm densities have reached astonishing levels in many locations of central and northern Illinois. “Swarms” of western corn rootworm adults also have been reported in the gardens of homeowners who reside in metropolitan areas. On August 15, Ellen Phillips, crop systems educator, Countryside Extension Center, reported that western corn rootworms essentially destroyed her 1/8-acre garden. Western corn rootworm adults were observed feeding on a great variety of plants that included ash trees, ornamental cherry trees, roses, marigolds, beets, broccoli, cabbage, black and red raspberries, pumpkins, winter and summer squash, cucumber, redroot pigweed, and velvetleaf. In addition, the western corn rootworm adults showed a remarkable “fondness” for spinach and snap beans. These observations are quite remarkable because western corn rootworms are generally reported to have a much narrower host range (primarily grass-related species). In addition to corn, western corn rootworm larvae are capable of surviving on a number of grass-related species, such as foxtails. Adult western corn rootworms are known to

have a strong evolutionary relationship with plants that belong to the family Cucurbitaceae. Western corn rootworm adults have co-evolved with cucurbits and have specific host-plant recognition abilities for the extremely bitter and toxic cucurbitacins (oxygenated tetracyclic triterpenoids, "Cucs"). These compounds generally serve as protectants against other insect herbivores. So, it's not unusual to observe western corn rootworm adults feeding on pumpkin and squash blossoms; however, it is a bit bizarre to witness the consumption of foliage on plants not related to members of this family.

Why are these unusual observations occurring? At this point we can only speculate. In the 1960s as the resistant strain (to the chlorinated hydrocarbon soil insecticides) of western corn rootworm spread across the Corn Belt, it was suggested that the new strain was more "aggressive" and dispersed more readily than the nonresistant strain. The resistant strain reportedly moved eastward at the rate of about 50 miles per year. Since the mid-1990s, we have observed the loss of crop rotation as an effective pest management tool across many fields in east-central Illinois and northern Indiana. Results from our research efforts clearly indicate that this new strain is capable of laying eggs in a variety of crops that include alfalfa, corn, oat stubble, and soybean. In essence the egg-laying behavior has changed. Indeed, it has broadened considerably to include many crops. Is this new and expanded ovipositional behavior linked to a greater range of acceptable hosts by adult western corn rootworms? Are densities of western corn rootworm adults so great this year that they simply "spill" into suburban gardens and, once there, remain in place because of their "fondness" for cucurbits? After the cucurbit crops are consumed, do they begin to feed on unrelated plants due to hunger? Again, these questions remain unanswered.

We have much to learn about this interesting species of corn rootworm. We also continue to welcome your reports on these peculiar observations.—Mike Gray and Kevin Steffey

Aphids Invade Akron

Apparently Toronto, Ontario, doesn't have anything on Akron, Ohio. We received a report from Ron Hammond, Ohio State University, of another soybean aphid invasion. The presence of the soybean aphid in Ohio was confirmed just last month, but already these pests have made the news in Akron, Ohio, as they have descended on the city. The *Beacon Journal* reported that the Akron Fire Department may have responded to a cloud of aphids mistaken for smoke. Reports from Cleveland, Ohio, indicated that the soybean aphid made an appearance in that city last week, too. The *Beacon Journal* newspaper article is available on-line at <http://www.ohio.com/aol/aolns/027147.htm>. Will this happen in other urban areas? We don't know, but we will keep you informed of any further movements of the winged generations.

Chris DiFonzo, Michigan State University, reported that the aphid populations are crashing in parts of Michigan, but many fields still appear black due to the sooty mold that remains on the soybean leaves. The sooty mold may prevent sunlight from reaching plant cells, thereby limiting photosynthesis in the affected plants. Chris and others will continue to monitor fields with severe infestations to determine the impact of sooty mold. We have received reports of some aphid population crashing in fields in Illinois, too, but populations in many fields in the northern part of the state remain high. Data from the University of Illinois soybean aphid insecticide efficacy trials will be available soon.—Sue Ratcliffe

PLANT DISEASES

Sudden Death Syndrome on Soybean

As reported in the *Bulletin* (issue no. 19), sudden death syndrome (SDS) on soybeans is beginning to appear around the state. Doug Gucker, in Piatt

County, reports finding scattered plants instead of large areas of plants in soybean fields with foliar symptoms characteristic of SDS. Dennis Epplin, in the Mt. Vernon Center, and Omar Koester, in Randolph County, report a little SDS in some areas of soybean fields that were wetter this spring. Robert Bellm reports some SDS appearing in a few fields in southern Illinois. So basically, symptoms of SDS are appearing throughout the entire state. At this time, and it is still a little early, the amount of symptoms being reported seems less than the amount of SDS appearing in fields around this time last year.

Last year SDS was responsible for approximately \$400 million in yield loss. This pathogen typically is more severe during years in which conditions favor optimum soybean growth. Soil moisture is an environmental parameter that influences soybean growth, and the amount of SDS occurring in the field as disease development appears to be favored by high soil moisture or rainfall and irrigation. From this year's reports, SDS symptoms are starting first in fields that received more rainfall this spring.

Symptoms produced by SDS begin as chlorosis and necrosis of the interveinal tissue of leaves, which then coalesce, forming large yellow and brown areas between a green midvein and green lateral veins. Initially, however, foliar symptoms begin as slight yellow mottling or flecking of the leaf. Other symptoms are rotting of roots, necrosis of the crown, discoloration of the vascular tissue in roots and stems, premature defoliation of the soybean plant, and abortion of the flowers and pods. The effects of root infection are not as apparent, and they can occur without the presence of foliar symptoms.

Infected plants in the field prematurely turn yellow and then brown, whereas healthy plants remain green. Leaves drop off the soybean plant, often from the top, leaving the petiole attached to the stem. The foliar symptoms of SDS seen in the field are similar to those of

brown stem rot, but internal symptoms differ in that with SDS there is no pith discoloration. Some uniform reddish brown vascular discoloration without a streaking pattern can occur with SDS, but the pith remains white. Leaf symptoms on plants with stem canker can also be confused with SDS; however, soybeans with stem canker have cankers on the lower stem, and plants with SDS do not have cankers. When observing foliar symptoms that appear to be SDS, be sure to cut open the stem and check for the lack of brown discoloration in the pith. This will ensure that the foliar symptoms are not caused by brown stem rot. In addition, check the stem of the plant for the presence or lack of cankers to distinguish the foliar symptoms for stem canker.

This disease is difficult to control in part because infection of the root system occurs in the spring by a soilborne organism and foliar symptoms are not seen until around August. Therefore, it is best to try to manage SDS by lessening the impact of the disease.

1. Learn to identify SDS in the field, as symptoms may appear similar to more common diseases, such as brown stem rot or stem canker.
2. Select soybean varieties that mature at different times. Use either different maturities within a maturity group or different maturity groups. Early-maturing cultivars appear better.
3. Delay planting or extend planting time so that all soybeans are not at the same growth stage at the same time. However, do not wait past the suggested time for your area of the state.
4. Use cultural practices to improve drainage in low spots, reduce cyst nematode populations, and reduce soil compaction.
5. Crop rotation is of limited value because this organism can persist in the soil for many years. However, planting continuous soybeans is *not*

recommended because this can increase other diseases.—*Loretta Ortiz-Ribbing*

REGIONAL REPORTS

Extension center educators, unit educators, and unit assistants in northern, west-central, east-central, and southern Illinois prepare regional reports to provide more localized insight into pest situations and crop conditions in Illinois. The reports will keep you up to date on situations in field and forage crops as they develop throughout the season. The regions have been defined broadly to include the agricultural statistics districts as designated by the Illinois Agricultural Statistics Service, with slight modifications:

- North (Northwest and Northeast districts, plus Stark and Marshall counties)
- West central (West and West Southwest districts, and Peoria, Woodford, Tazewell, Mason, Menard, and Logan counties from the Central district)
- East central (East and East Southeast districts [except Marion, Clay, Richland, and Lawrence counties], McLean, DeWitt, and Macon counties from the Central district)
- South (Southwest and Southeast districts, and Marion, Clay, Richland, and Lawrence counties from the East Southeast district)

We hope these reports will provide additional benefits for staying current as the season progresses.

East-Central Illinois

Overall, corn looks pretty good. Some fields are showing a significant amount of “firing.” Ear checks show a high degree of kernel abortion in these fields.

Large numbers of corn rootworm beetles are present in cornfields and bean fields.

Soybeans are also looking good. Many are a little hole-y from Japanese beetle feeding, and SDS is showing up across the region in scattered patches.

Northern Illinois

Dry conditions continue throughout the region.

Five producers from Lee and Ogle counties brought diseased soybean plants to a recent Ogle County Extension Soybean Cyst Nematode Screening Clinic. Four field samples were diagnosed as sudden death syndrome and one sample as brown stem rot. Also, an additional soybean field sample expressed significant soybean aphid damage. However, no live aphids were observed on the leaves, only aphid skin casts.

Several reports have been received of declining or disappearing spider mite populations in soybean fields.

Southern Illinois

Southern Illinois is enjoying a little relief from the high temperatures that had been common over the past 2 weeks. Rains have continued to be spotty, and most areas could really benefit from a good soaking rainfall.

Corn is quickly completing the season and is R5 to approaching maturity. There may be a very small amount of corn harvested by next week. Soybeans are R4–R5, depending on maturity and planting date. Double-cropped soybeans, although not as far along, have shown good growth.

Soybean sudden death syndrome continues to be a concern. In general, SDS has not progressed as rapidly as might have been expected, but there are some problem fields with significant infestations.

Remember to check out the new weekend AgriLand, August 25–27, 2001, at Du Quoin, Illinois.

West-Central Illinois

Crop conditions have deteriorated rapidly in most areas of the region due

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to the continuation of warm temperatures and dry soil conditions. Corn and soybean yield estimates are now considered average at best.

The corn crop has stopped progressing and is now drying down prematurely. Farmers have observed a number of fields with poor pollination and poor ear-tip development. Some fields have reached maturity and will be ready to harvest soon. No major pest problems have been reported.

Soybean seed size will be small unless rain comes very soon. Pods on the upper part of the plant will not fill well, and seed size will be very small in those upper pods. Pest problems reported include bean leaf beetle, grasshoppers, Septoria brown spot, spider mites, and SDS.

Potato leafhoppers continue to be a major problem in alfalfa.

Farmers are preparing grain storage facilities for the upcoming harvest.

Upcoming meetings include University of Illinois Field Day, August 23, in Urbana; and Lincoln Land College Field Day, August 24, in Springfield.

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