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Submitting Samples to the Plant and Insect Diagnostic Clinic

Edward R. Zaworski
Iowa State University, zaworski@iastate.edu

Lina M. Rodriguez Salamanca
Iowa State University, lina@iastate.edu

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Abstract
With the crops of Iowa in the ground, it is time to start thinking about seedling diseases. The Plant and Insect Diagnostic Clinic is a resource for corn and soybean growers assessing their field throughout the season.

Disciplines
Agricultural Science | Agriculture
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Making a diagnosis

The first step in managing a plant problem is to know what is causing the symptoms observed. Accurate pathogen or insect pest identification is one of the most important integrated pest management (IPM) tactics leading to a successful management strategy.

So how do you determine what is causing a particular set of symptoms? Sometimes different pests and disorders cause similar symptoms. How can these be differentiated? One option that many farmers and agribusiness affiliates take advantage of is the Iowa State University Plant and Insect Diagnostic Clinic (PIDC). At the PIDC, we diagnose plant problems, identify insects and provide management advice. Our team in the lab includes an entomologist (Dr. Laura Jesse) and two plant pathologists (Dr. Lina Rodriguez Salamanca and Ed Zaworski). As diagnosticians, it is our job to help solve the issues for you. Send us a sample, we are here to help.

Sending in a good sample

Once you have decided to send a sample, it is very important to submit a sample that is of good quality.
If the sample we receive is in poor condition, we may not be able to make an accurate diagnosis (Figure 1). Also, if the sample is allowed to degrade (left in a warm vehicle for example), secondary fungi and bacteria can colonize the plant tissue. After these organisms colonize a sample, it is often difficult to detect the pathogen or insect pest that was harming your crops.

Figure 1a. Good sample submission
In many situations, it is important to submit the whole plant, especially during the early stages of plant development. Sending the whole plant gives us the opportunity to examine both the roots and the foliage of the plant. When you send the entire plant, it is a good idea to dig up the roots rather than to pull the plant from the ground. Pulling a plant from the ground can rip away the infected tissue, reducing the likelihood of us finding the pathogen. An important tip: when digging up a root ball, wrap the soil in something like newspaper or a plastic bag. Wrapping up the roots will keep the soil off the plant foliage.

Other times you may not need to submit the whole plant. If you are concerned only about a foliar problem, just the leaves are needed.

We need plenty of plant tissue to work with as it allows us to see a range of symptoms and run multiple types of diagnostic tests. When submitting foliage samples, make sure to gather lots of plant tissue. Send at least 6-8 plants when sending a whole plant sample.

As a reminder, we do not test for herbicide or other residues in plant tissue, but we can examine the symptoms to determine if it appears to match symptoms associated with exposure to herbicides or other chemicals.

General tips

- DO NOT add water to the sample!
- Submit sample in plastic bags rather than paper (paper bags allow the sample to dry out)
- Wrap root balls in newspaper or plastic to keep the soil separate from the foliage
- Take pictures in the field, especially of symptom patterns, and close-ups of symptom details (see our guide on how to send us samples)
- Provide lots of written information - the more, the better: seed treatment, crop variety or cultivar, chemical application history, the pattern observed or distribution in the field, crop history (or rotation), etc.
- More general tips are available.

Category: Plant Diseases

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Crops:
Corn  Minor crops  Soybean  Biomass and Forage  Cover Crop

Tags:  Corn diseases  soybean diseases

Authors:

Edward Zaworski  Plant Pathology Diagnostician
Edward R. Zaworski is a plant diagnostician in the Iowa State University Plant and Insect Diagnostic Clinic. He earned his master's degree in plant pathology in 2010, with a focus on field crop diseases.

Lina Rodriguez Salamanca  Plant Pathology Diagnostician
Dr. Lina Rodriguez-Salamanca is an extension plant pathologist and diagnostician with the Iowa State University Plant and Insect Diagnostic Clinic (clinic.ipm.iastate.edu), a member of the National Plant Diagnostic Network (NPDN, ...