General tips for submitting plant samples to the Plant Disease Clinic

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Abstract
- Provide plenty of plant material. When possible send the entire plant, including roots and top growth.
- Provide lots of information, such as a description of the soil, nearby plants, cropping history, pattern of symptoms in the field, and a history of the problem. Remember to include information about chemicals used.
- Include photos when possible.
- Provide freshly collected specimens.
- Be sure the specimen represents the problem.
- Include enough plant material to show all stages of the disease from healthy to very sick.
- Wrap specimens in paper towels or clean newspapers. Do not add moisture. Pack loosely in a plastic bag to reduce drying.

Keywords
Plant Pathology

Disciplines
Agricultural Science | Agriculture | Plant Pathology

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Managing residue
Strip tillage or removing residue above the planting row may be worth considering in high risk disease situations. Once again, the history of disease in each field will help in this decision. In situations where disease severity in the previous crop was high, strip tillage should reduce disease risk by burying some residue and removing residue from direct contact with the crop.

Planting date
In cooler soils, germination, seedling emergence, and seedling development are delayed thus lengthening the period when germinating seedlings are vulnerable to infection by seedling pathogens and insects. Delaying planting until soil temperatures are above 55 °F will reduce the risk of poor stand establishment due to seedling disease. Consider planting your corn-on-corn fields after planting the corn-on-soybean fields.

Fungicides
Seed treatment fungicides are a critical component of an integrated disease management strategy on corn. New active ingredients continue to be developed and adopted by the seed industry. Currently, there are additional options to purchase seed with insecticidal seed treatments as well as fungicidal seed treatments; these may contribute to seedling disease management by protecting the seed and seedling against root feeding by insects, which can be followed by fungal infection.

Over the past decade or so, the use of foliar fungicides in hybrid corn has rarely been economically feasible. However, since foliar disease incidence/severity tends to increase in high residue environments, and corn prices are more favorable, application of a fungicide in corn-following-corn fields may be warranted. The goal of any fungicide application should be to protect the ear leaf and leaves above the ear from leaf diseases during the grain fill period (silking to black layer), because these leaves contribute more than 75 percent of the carbohydrates. Since all fungicides have limited period of activity (14–21 days), timing of fungicide application is critical. Applications are necessary if a few lesions are observed on the leaves below the ear leaf prior to or at silking. Therefore, fields must be scouted regularly to determine if a fungicide application is needed, and the appropriate time for that application. Hybrid susceptibility and imminent weather conditions also should be considered before applying a fungicide.

Alison Robertson is an assistant professor of plant pathology with extension and research responsibilities in field and forage crops. Gary Munkvold is an associate professor of plant pathology and seed science endowed chair in the ISU Seed Science Center with research and teaching responsibilities in seed pathology.

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to the Iowa State University Plant Disease Clinic

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- Be sure the specimen represents the problem.
- Include enough plant material to show all stages of the disease from healthy to very sick.
- Wrap specimens in paper towels or clean newspapers. Do not add moisture. Pack loosely in a plastic bag to reduce drying. Mail in a sturdy container.
- A $10 fee is charged for plant samples. Soil samples to check for corn nematodes (request a complete nematode count) cost $30 for Iowa residents and $60 for out-of-state residents. Checks should be made payable to Iowa State University.
- Please submit samples with the appropriate forms: http://www.extension.iastate.edu/Publications/PD31.pdf (plant samples) http://www.extension.iastate.edu/Publications/PD32.pdf (soil samples for complete nematode tests)

*When herbicide injury is suspected, the samples should go to the extension weed specialists: www.extension.iastate.edu/Publications/AG146.pdf

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