Instructions to Help Collect Foliar Corn Disease Samples in Indiana
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We are tracking the movement of both southern corn rust and tar spot in Indiana. In order for an official designation of the disease in a county – myself or the Purdue Plant Pest Diagnostic Lab (PPDL) needs a physical sample. Therefore, we are asking your help to track the movement of both diseases.

Ideally, the PPDL would like to receive fresh samples as soon as possible, but I know at this time of the year you may be scouting various field and on the road long hours. Therefore, to encourage you to send samples for both southern corn rust and tar spot we are going to give some pointers on how you can collect corn leaf samples and ship them weekly. We do not want them to sit over the weekend so it is suggest you ship samples **Monday through Wednesday**.

How to collect foliar disease leaf samples:
Items to have on hand in your truck or car: cooler with ice pack, gallon plastic bags, marker, notebook paper, and newspaper.

1. When scouting a field and you identify a potential sample please try to grab 4-6 leaves from that field that are exhibiting the symptoms.
2. Take a quick image of the diseased leaf to document (most images will also give you a GPS location if turned on).
3. Document field location (address, county and GPS location), in addition if possible hybrid/variety, other management practices and or field comments. Fill out a sample submission form [Physical Sample Submission Form (PPDL-1-W)](https://example.com)
   - If you have multiple samples please try to include as much information as possible to help us distinguish between samples.
4. Either fold or wrap the corn leaves flat in a piece of newspaper (this will keep the sample from molding especially if waiting to send for a few days).
5. Once wrapped in the newspaper you can place in a plastic bag. It is possible to layer leaves from different fields into on bag. **Please note this on the sample bag if it does contain multiple locations.** (See images below).
6. These samples then can be stored in a cool place (cooler with ice packs) or refrigerator until shipped.
7. Make sure to include your contact information in case we have further questions about the sample.
8. Mailing samples: The PPDL is not open on the weekend. Ship early in the week (Monday-Wednesday) using a next day deliver option to make sure you sample gets to us before the weekend. For Thursday shipments **DO NOT use USPS overnight delivery.** Your package may arrive at Purdue’s central receiving dock by Friday but will not get to our lab by close of business on Friday. Instead use only UPS or FedEx if shipping on Thursday.

   **Ship sample to:** Plant and Pest Diagnostic Laboratory
   LSPS-Room 116, Purdue University
   915 W. State Street
   West Lafayette, Indiana 47907-2054

As long as samples are from Indiana double bagging is not required. If samples are from out of state or being mailed from out-of-state a double plastic bag is required to prevent the escape of pathogens/pests during shipping.

Please contact me at dtelenko@purdue.edu or the PPDL ppdl-samples@purdue.edu if you have any questions.
1. Place corn leaves flat on newspaper. 2. Lay all samples from one field together. 3. Include a label to designate field if putting multiple samples. 4. Rollup bottom edge to make a pocket. 5. Fold over a few layers of paper and add second collection site and repeat 1-4. 6. Carefully fold paper keeping leaves flat. 7. Place in plastic bag – use two if needed. 8. Add label to bag. 9. Place all samples in a box and ship to the PPDL. 

1. A single sample of leaves can be placed in a newspaper and folded. 2. Place in separate bag with label and field information. 3. Place all samples in a box and ship to the PPDL.
Southern Rust

What to look for: Southern rust pustules generally tend to occur on the upper surface of the leaf, and produce chlorotic symptoms on the underside of the leaf (Figure 1). These pustules rupture the leaf surface and are orange to tan in color. They are circular to oval in shape. We are seeing a lot of common rust as well and both diseases could be present on a leaf.

There are a few characteristics to use to try to distinguish southern rust from common rust. Common rust will form pustules on both sides of the leaf. In addition, common rust pustules tend to be spread out across the leaf, and less densely clustered. Common rust pustules have a brick red to brown coloration and may be more elongated than southern rust pustules. Check out the southern rust publication for more images of southern rust and other diseases that might mimic it. This publication also has good information on determining when a fungicide application will be beneficial. The publication is at following link: https://crop-protection-network.s3.amazonaws.com/publications/cpn-2009-southern-rust.pdf.

![Figure 1. A - Southern rust pustules on corn leaf, and B- chlorosis on the underside of the leaves from southern rust. Pustules generally form and erupt on upper surface. C- Common rust pustules. Photo credits: A. Sisson, Iowa State University at https://cropprotectionnetwork.org/resources/articles/diseases/southern-rust-of-corn, and K. Wise Purdue Extension Publication BP-82-W.](image)

Tar Spot:

What to look for: Small, black, raised spots (circular or oval) develop on infected plants, and may appear on one or both sides of the leaves, leaf sheaths, and husks. Spots may be found on both healthy (green) and dying (brown) tissue. Often, the black spots are surrounded by a tan or brown halo; this is especially obvious on healthy leaves (see Fig. 2).

![Figure 2. Tar spot lesion on corn in lower canopy, high resolution of the stroma formed on the leaf and a leaf with multiple stroma forming. Photo credit: Darcy Telenko and Tiffanna Ross, Purdue.](image)