

## Guidelines for Submitting Plant Disease Samples Using the Distance Diagnostic and Identification System (DDIS)<sup>1</sup>

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Tim Momol, Tom Kucharek and Hank Dankers<sup>2</sup>

The Distance Diagnostic and Identification System (DDIS) will be used to transmit digital images with related information to enhance plant disease diagnostic capabilities. Images, by themselves, are one aspect of diagnosis. They should be used in conjunction with laboratory assays if necessary. Sending digital images rapidly and over long distances can reduce the turn around time for diagnoses for possible earlier implementation of control. It can also provide opportunities in teaching and professional improvement. Digital images and photographs should be considered as tentative for plant disease diagnoses.

Basic rules for imaging and submitting samples:

1. For any symptoms, take a picture of the entire plant or sample using a digital field camera. It is necessary to send a good overall picture of general symptoms. Several images should be taken from different angles and distances or of different specimens. Select the best one for submission.
2. Leaf and fruit spots and blights: If fungal structures are present under stereoscope, take a picture. Cut the fungal structures and examine it under a compound microscope (100 and 400x) to determine the kind of fruiting structures and spore shapes and types (take another picture). If a bacterial disease is suspected, perform an ooze test with these samples under a compound microscope and take a picture. Bacterial ooze tests are useful but should be considered tentative.
3. General decline or wilt: These symptoms may be the result of soilborne diseases, root stress, or improper growing conditions. Wash the roots with tap water and examine the tissue with the stereoscope and compound microscope. Examine tissue samples with a stereoscope until fungal structures (mycelium, sclerotia, fruiting structures and/or spores) are found. Then examine under 400x for a close-up image of these structures, especially spores and other fungal structures that are useful for identification. If bacterial wilt of tomato is

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2. Tim Momol, assistant professor, North Florida Research and Education Center (NFREC), Quincy, FL 32351; Tom Kucharek, professor, Plant Pathology Dept.; and Hank Dankers, senior biologist, NFREC, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

suspected, perform a bacterial streaming test on freshly cut stems in a glass container with water. Digital images may not be adequate to accurately diagnose soilborne diseases. Clinical tests may be required.

4. Turf diseases: Examination of roots, stolons, leaf blades, and sheath is required. Sample from a marginal area that has both green and dead portions of symptomatic grass, not from the center of the dead area. For the leaf blades, stolons, and sheath symptoms, apply leaf spot rule (2), for root symptoms apply general decline or wilt rule (3). Use of digital images for diagnoses of turf diseases will be extremely tentative. Clinical tests will most likely be required.

Submit at least 4 images (entire plant and close-up --handheld camera, from stereo microscope, and compound microscope) through the UF/IFAS/DDIS Web site (<http://ddis.ifas.ufl.edu/>) to Plant Pathology Extension specialists. Fill out the DDIS sample submission form as completely as possible.