

University of Missouri Plant Diagnostic Report - 2008

The Plant Diagnostic Clinic was established in 1965 and handles samples submitted for disease, insect, and weed identifications, as well as management recommendations. The clinic supports county extension specialists, but in recent years 65-75% of samples have been received directly from other agencies, businesses and private citizens throughout the state. Most clinic operations are handled by clinic staff, however other MU Division of Plant Science faculty assist when needed. Samples are diagnosed by visual observation or microscopic examination. When necessary, samples are also diagnosed by culturing plant tissues, limited ELISA serological testing, the BIOLOG bacterial identification system, and PCR. Use of ELISA and PCR testing methods is dependent on significant sample volume for economic reasons.

In 2008, we have had 575 samples, approximately the same number of sample submissions as 2007. Most samples were submitted through the mail while some were personally delivered to the clinic or submitted digitally by e-mail. Samples were submitted from 79 Missouri counties. Approximately 80% of the samples were received between May and September.

In 2008, horticultural crops including herbaceous and woody ornamentals, turf, fruits and vegetables made up 69% of samples submitted to the clinic (fig. 1). The most commonly submitted horticultural plant samples include oak species, tomatoes, maples, mixed cool season turf species, and pine species respectively. We had an increase in biotic (living) disease issues this year, perhaps due to wet weather, resulting in 61% of our samples with biotic disease issues (fig. 2). Sample submissions to the plant diagnostic clinic have often been examined by experienced horticulturists, and consequently do not necessarily represent the most common plant problems occurring in the state. Samples diagnosed by

the diagnostic clinic are described in Missouri Environment and Garden updates during the growing season, however significant numbers of the following samples were received and are also described below:

Many of the tree problems were probably related to wet conditions this year. Many leaf spot samples were submitted, including anthracnose on a variety of species. Tubakia leaf spot was frequently submitted on several different oak species. Needle diseases were also submitted, especially brown spot needle blight on Scots pine in Christmas tree plantations, Dothistroma needle blight on Austrian pine, Stigmata and Rhizosphaera needlecast on spruces. A few pine tip moth and pine wilt nematode samples were also submitted from Scots pine. While many of the yew and arborvitae samples had root rots and environmental injuries, sometimes Pestalotiopsis was detected in the dead areas. In addition two yew samples with some branch dieback had the fungus *Cryptocline taxicola*, recently reported in Missouri. We have continued to receive white pine samples with "white pine decline" that display general wilting, chlorosis, bark beetle injury, and death resulting from root problems and environmental stress (<http://www.ppd.l.purdue.edu/ppdl/weektypics/8-16-04.html>). Many of the oak sample submissions were requests for oak wilt testing. Several were positive including four in Boone, two in St. Louis, and one each in Audrain, Clay, Johnson, and Pike Counties. Several white oak samples had jumping oak gall infestations.

On fruit crops, cedar apple rust and peach leaf curl were frequently submitted as well as fruit rots including black rot on grape, brown rot on stone fruits, and various strawberry fruit rots (especially leather rot and Rhizoctonia).

Vegetable sample submissions had a large variety of problems, although bacterial diseases were common,

including bacterial leaf spots on peppers, tomatoes and pumpkins, as well as common bacterial blight on green beans, and bacterial pith necrosis on tomato. We had a few potato and tomato samples with southern blight. We received a large number of tomato samples this year. Several leaf mold (*Fulvia fulva*) were submitted from greenhouse and high tunnel plantings. Unlike last year, we did not receive samples with this disease from backyard gardeners. Also common were chemical injuries, Septoria leaf spot, and early blight.

This year a majority of our turf submissions were cool season grasses from homeowner lawns, and included a variety of abiotic problems (soil fertility, compacted soils, thatch etc), although brown patch was frequently found on fescue samples, and anthracnose basal rot was found on some bentgrass samples. In addition, yellow patch and Pythium blight were detected on bentgrass, rust diseases were found on a few different turf species, summer patch was detected on Kentucky bluegrass, large patch and chinch bug infestations were detected on zoysiagrass.

More information on the University of Missouri Plant Diagnostic Clinic, fees and services are available at: <http://soilplantlab.missouri.edu/plant/index.htm> You can also contact the lab at plantclinic@missouri.edu or 573-882-3019.

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Figure 1. Plant sample submissions in 2008

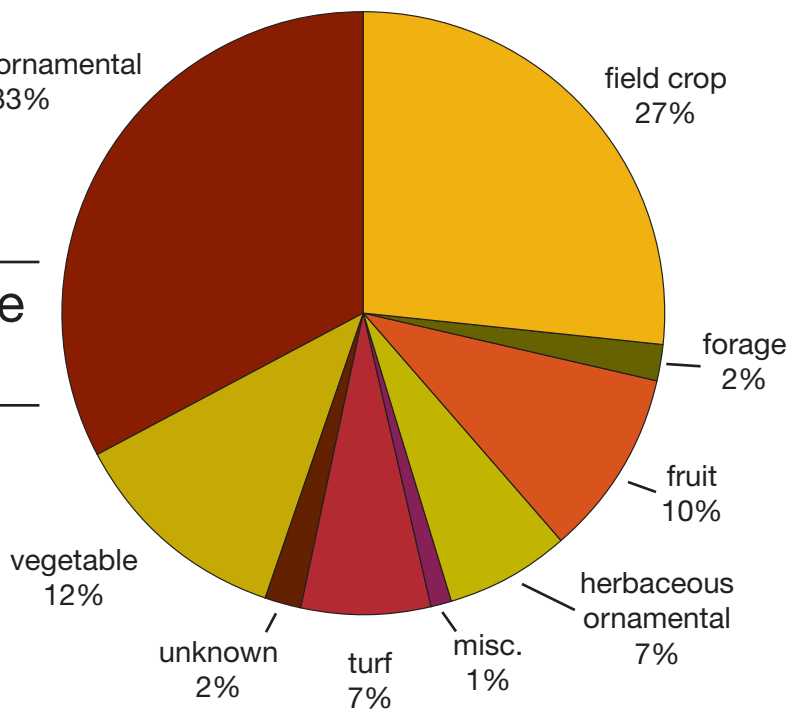


Figure 2. Primary diagnosis for samples submitted for plant problem analysis in 2008

