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Team investigates plant problems

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Team investigates plant problems

Abstract

Do you know the difference between Phytophthora root rot and gray leaf spot? If not, you may want to contact the Iowa State University Plant Disease Clinic. Last year almost 5,000 Iowans did just that. The clinic, located on the third floor of Bessey Hall, received 1,719 samples during 2004--including whole plants, dry leaves, green leaves, stems, roots, branches, and twigs. The staff also answered 3,267 calls, e-mails, faxes, and letters about plant problems.

Keywords

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INTEGRATED CROP MANAGEMENT

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Do you know the difference between Phytophthora root rot and gray leaf spot? If not, you may want to contact the Iowa State University Plant Disease Clinic. Last year almost 5,000 lowans did just that. The clinic, located on the third floor of Bessey Hall, received 1,719 samples during 2004--including whole plants, dry leaves, green leaves, stems, roots, branches, and twigs. The staff also answered 3,267 calls, e-mails, faxes, and letters about plant problems.

Paula Flynn and Christine Engelbrecht, the two clinic diagnosticians, investigate and answer each inquiry with possible solutions or questions for more information. "We're crime scene investigators when it comes to plants," said Flynn, extension program specialist in plant pathology. "We put all the clues together to come up with the best answer."



Paula Flynn (left) and Christine Engelbrecht, clinic diagnosticians, examine some of the 1,719 samples they received.

Diagnosing a problem can take 30 seconds or several weeks. Flynn said it's important to offer answers as quickly as possible so gardeners, farmers, and landscapers can tackle potential problems. "We get a lot of garden and ornamental plant samples. We also get many samples from extension offices," Flynn said. "Gardeners often go to the county office and if those offices need more assistance or laboratory tests, they send samples to our clinic."

During the growing season the daily mail brings in boxes filled with mysteries. Some include photographs of plants and their surroundings, which provide additional diagnostic clues. "The more we have in terms of samples and pictures the more we can do," Flynn said. "We also need detailed descriptive background information, such as chemicals used, cropping history, and variety of crop."

Flynn has one photo that accompanied a sample of soybeans. It shows the pattern of the affected area, the contour of the field, and the density of plants. This information can help distinguish between living factors such as root rot and nonliving factors such as herbicide injury.

Plant problems can be caused by an endless number of factors that include insects, diseases, soil conditions, and weather. "You would think we would have the same diseases show up over and over. But there are so many combinations of contributing factors, and some problems have four or five. Those are the hard ones," Flynn said.

The clinic staff are preparing for a busy growing season. Asian soybean rust was discovered in North America for the first time in November. The disease was first found in Louisiana and since has been found in eight southern states after being carried into the area by hurricanes. Flynn and Engelbrecht are members of the Iowa Soybean Rust Team, which was formed two years ago to collect and disseminate information on how to manage the disease. The clinic staff, along with the rust team, began training crop specialists last summer on how to diagnosis the disease. Iowa leads the nation in soybean production, and if soybean rust moves into Iowa, it could cause increased production costs and decreased yields. "It's an uncertainty, but we're prepared to answer questions," Flynn said.

The clinic opened in 1956 in response to another major problem--Dutch elm disease. For 32 years faculty and graduate students handled client questions. In 1989, Flynn was hired as the first full-time diagnostician. Widespread diseases such as Dutch elm, which are imported into North America, prove to be the most harmful, Engelbrecht said. "Native plants don't have resistance to new diseases and that's why they are so devastating," she said.

The clinic's turnaround time was less than five days for 73 percent of the inquiries it received last year. Tree samples made up half of the inquiries and field crop questions totaled 13 percent, followed by questions about perennials, annuals, woody ornamentals, fruit trees, turfgrass, and vegetables.

The newest disease threat to trees in Iowa is sudden oak death. Last spring, an alert went out to several states after seedlings carrying sudden oak death were shipped from California. Engelbrecht helped inspectors analyze woody plant samples from area landscape and garden stores, which helped prevent the disease from entering Iowa.

So what's the difference between Phytophthora root rot and gray leaf spot? Engelbrecht's answer: Phytophthora root rot is a fungal disease that affects corn and soybeans and causes roots to turn black and collapse. Gray leaf spot is a fungal disease that affects corn and causes rectangular-shaped, gray lesions to appear on the leaves.

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