

Diagnosing Plant Problems

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Diagnosing plant problems can be challenging. It requires a basic knowledge of plant culture and physiology, how environmental factors influence plant health and the ability to identify the possible causes of plant problems. Developing the best solution or remedy for the problem depends on proper diagnosis, a process that first requires recognition of a problem, then determination of the cause or causes of the problem.

Symptom recognition

Before you can recognize symptoms, you must be familiar with the "normal" characteristics for a particular variety. Characteristics such as dwarf growth habit, or variegated, mottled or puckered leaves may be mistaken for disease symptoms unless the observer knows these characteristics are normal for that plant variety.

The first step in diagnosing a plant health problem is the recognition of symptoms. A symptom is any visible, "abnormal" condition of a plant caused by living organisms, such as fungi, bacteria, viruses and insects; or non

(yellowing), necrosis (browning), stunting, dieback, distorted growth, galls, leaf drop, stem cankers, wilt and root rot. It's important to realize that any of these symptoms may be caused by multiple factors.

Look at the whole picture.

Is there a pattern to the symptoms?

After noting the symptoms, make a general assessment of the crop and the affected plant(s). A set of questions may be helpful in assessing the problem and are certainly needed if samples are sent to a diagnostic lab) What percentage of the crop is affected? Is there a pattern to the symptomatic plants in the crop (localized, random or regular)? A regular or repeating pattern is usually associated with abiotic or environmental factors. Is more than one type of plant (genera or species) affected? Pathogens are usually fairly limited in the range of host plants they can attack. Where on the plant(s) did the symptoms first appear (older or younger leaves, or outer leaves, etc)? Age limited symptoms may be due to fertility problems. One-sided symptoms are usually due to chemical injury or environmental factors. Is the problem limited to the interior or exterior portions of the plant (or planting)? Are several types of symptoms present?

After making a general assessment, take a close look at the symptoms. It is often helpful to determine the shape and pattern of leaf spots: Do they have concentric rings or a target appearance? Are the spots round or angular? Do the spots/lesions appear to be limited by veins? Angular leaf spots (limited by the major veins) are often associated with bacterial infections, downy mildew, or possibly foliar nematodes. Whenever possible, check the roots. Marginal necrosis of leaves, wilting, and what appear to be nutrient deficiencies are symptoms often associated with crown rots.

If more than one species of plant is affected, the cause is usually abiotic (nonliving) agent. If the symptoms are limited to a single plant species, the problem is more likely to be caused by a living agent or a pathogen. However, bear in mind that a particular species or cultivar of plant may be more or less sensitive to chemicals from fertilizers and pesticides. Nonliving agents are the most likely cause of symptoms appearing on only one side of a planting, or in

Diagnostic Testing