



Diagnosing Plant Problems

Proper diagnosis of a plant disease or pest is key before deciding what type of control strategies should be taken.

1. Determine if you have a problem.
Properly identify what the plant is first. Then learn what the normal characteristics of the plant is. i.e., growth patterns, variety characteristics etc.
2. Observe the entire space where the plant is located.
 - a. How many plants are affected?
 - b. On the “sick” plant observe the leaves, stems, roots, fruit, and flowers.
 - c. Are other plants having the same problems on the same part(s)?
3. How long have you been observing the problem?
 - a. Diseases tend to develop symptoms “gradually over time” based on weather patterns. Problems that show up “all at once” are probably not a disease. They may be linked to problems like weather or chemical injury.
4. Look for patterns.
 - a. Site patterns.
 - i. Diseases tend to be scattered and patchy, not in a straight line.
 - ii. Many diseases are host specific. It would be unusual for a disease to hit many different plant species in the same location.
 - b. Plant patterns- uniform or non-uniform
 - i. Are they symptoms randomly distributed, or can you observe distinct patterns?
 - ii. Can you tell the difference between healthy and affected plants?
 - iii. Uniform damage patterns are over a large area or on several plants.
Typically, this means that a non-living source was likely cause, such as a mechanical, physical, or chemical factor.
 - iv. Non-uniform damage patterns are random and only a few plants. This typically means that the cause was a living factor like an insect or pathogen.
 - v. Learn common plant symptoms.

Problem Solving by Recognizing Plant Symptoms:

Living Factors-

Pathogens: a bacterium, virus or other microorganism that can cause disease.

Insect Damage: Holes in leaves, chewing, skeletonizing, bumps on galls, yellow stippling

Pollinators- poor timing of pollinators present vs. when plants need it.

Non-Living Factors-

Mechanical Damage: Leaf tattering, wounds from equipment damage, storm damage

Deformity or Distortion: Leaf curling, cupping, tiny leaves, long strappy leaves

Temperature extremes: Too cold or too hot.

Moisture extremes: Too dry or too wet.

Nutritional disorders: Low iron can cause chlorosis (loss of coloring of leaves and plants). In soils that have a pH of 7.0 (neutral) and above, iron changes to an insoluble form that is not as available to trees.

Chemical factors: Pesticides, home remedies.

Seasonal or yearly disorders: symptoms that only show up when the conditions are right.

Galls: Usually woody or solid swollen tissue. If leaf tissue has soft galls, then it generally an insect problem.

Leaf spots: Check shape (round, rectangular, irregular), color (tan, black, yellow, orange, red, purple), size (large or small)

Scorch: Leaf browning. Can start along the leaf edges and moves inward, can ultimately cover the whole leaf.

Canker: Wood that is sunken, cracked, and discolored. Frequently results in a branch die back since water can no longer move through the damaged tissue.

Wood decay: Mushroom or conks may be present. Decayed wood or hollowing.

Yellowing: Sometimes a virus (mottling/mosaic). Sometime a nutrient deficiency.

Nitrogen is a mobile nutrient which constantly moves into the youngest leaves, so the oldest, lower leaves are yellow (nitrogen deficiency).

Secondary problems: when a symptom appears after an initial problem is established.

The following list of 20 questions are referenced from the *Diagnosing Sick Plants* publication by Sarah Williams, Michael Boehm, Jim Chatfield, Department of Pathology, Ohio State University.

20 QUESTIONS TO ASK WHEN DIAGNOSING A SICK PLANT

1. What is the plant?
2. What does a healthy plant look like?
3. What are common problems for the plant? (Example: What diseases is the plant known to get? Does it always need a lot of sun or shade?)
4. What do you see that looks abnormal? (Example: Is the plant wilting? Is the soil dry?)
5. What is the overall health of the plant? (Example: Is it only part of the plant that is sick or the entire plant?)
6. What exactly do you see? (Example: What are the signs and symptoms?)
7. What do you see on the other plants surrounding it? (Example: Are other plants sick too?)
8. What is the site? (Example: What does the environment around the plant look like?)
9. Who knows about the plants? (Example: Who has access to the plants? Does someone specific watch over the care of the plants?)
10. When did the symptoms first appear? (Example: How long have the symptoms been there?)
11. What is the horticultural history? (Example: When was it first planted there?)
12. What is the environmental history? (Example: Is the site known to be really wet or really dry?)
13. What does the client think the problem is? (Example: Did the client apply too much fertilizer or water the plant too much?)
14. What diagnostic tools are useful?
15. What additional resources are available?
16. How do you take samples?
17. What other information do you need to help you find the problem?
18. What is your diagnosis?
19. What is the significance of the problem?
20. What are your recommendations? (Management strategies or control measures.)

Follow Up Resources:

WSU Thurston County Extension website. Under Master Gardener webpage.

<https://extension.wsu.edu/thurston/gardening/resources/>