



Resources for Diagnostic Detectives: How to Determine Who Done It Workshop Ohio Florists Association Disease, Insect, and Plant Growth Management Conference

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“ . . . even if no corrective measures are available, there is satisfaction in simply knowing what the problem is and what its future development might be.”

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Summary: Systematic approach to diagnosing plant damage (last page of hand out)

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SYSTEMATIC APPROACH TO DIAGNOSING PLANT DAMAGE

I. DEFINE THE PROBLEM (Determine that a “real” problem exists):

A. PLANT IDENTIFICATION and CHARACTERISTICS. Establish what the “normal” plant would look like at this time of year. Describe the “abnormality”: Symptoms & Signs.

B. EXAMINE THE ENTIRE PLANT AND ITS COMMUNITY. Determine the primary problem and part of the plant where initial damage occurred.

II. LOOK FOR PATTERNS: On more than one plant? On more than one plant species?

A. NONUNIFORM DAMAGE PATTERN (Scattered damage on one or only a few plant species) is indicative of LIVING FACTORS (pathogens, insects, etc).

B. UNIFORM DAMAGE PATTERN over a large area (i.e. damage patterns on several plant species) and uniform pattern on the individual plant and plant parts indicates NONLIVING FACTORS (mechanical, physical, or chemical factors).

III. DELINEATE TIME-DEVELOPMENT OF DAMAGE PATTERN:

A. Progressive spread of the damage on a plant, onto other plants, or over an area with time indicates damage caused by LIVING ORGANISMS.

B. Damage occurs, does not spread to other plants or parts of the affected plant. Clear line of demarcation between damaged and undamaged tissues. These clues indicate NONLIVING DAMAGING FACTORS.

IV. DETERMINE CAUSES OF THE PLANT DAMAGE. Ask questions and gather information.

A. DISTINGUISH AMONG LIVING FACTORS

1. **PATHOGENS** - Symptoms and signs
2. **INSECTS, MITES and OTHER ANIMALS** - Symptoms and signs

B. DISTINGUISH AMONG NONLIVING FACTORS

1. **MECHANICAL FACTORS**
2. **PHYSICAL FACTORS**
 - a. Temperature extremes
 - b. Light extremes
 - c. Oxygen and moisture extremes
3. **CHEMICAL FACTORS**
 - a. Analyze damage patterns in fields and other plants.
 - b. Injury patterns on individual plants.
 - c. Pesticide-pollutant phytotoxicities – damage patters.
 - d. Nutritional disorders – key to nutritional disorders.

C. REFERENCES (check reports of damaging factors on identified plant); may need LABORATORY ANALYSES to narrow the range of probable causes.

V. SYNTHESIS OF INFORMATION TO DETERMINE PROBABLE CAUSES.

Summary: Systematic approach to diagnosing plant damage. From *A Systematic Approach to Diagnosing Plant Damage*. Green, Jim. 2003. Oregon State University.