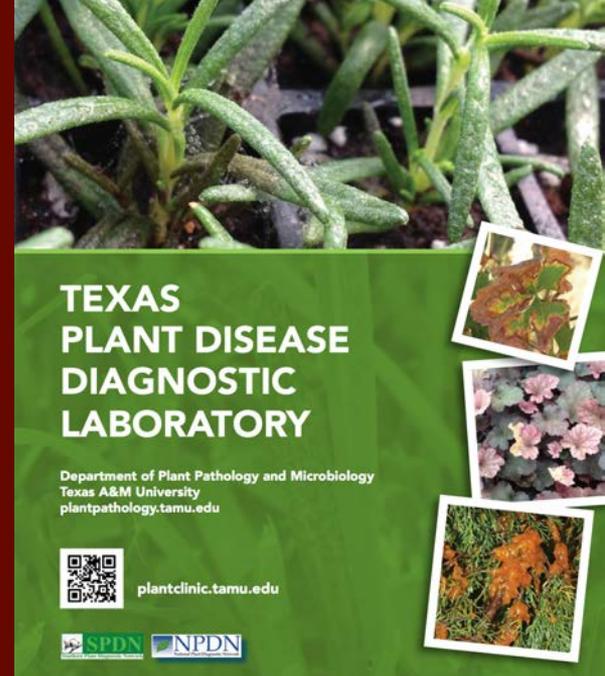


Master Gardener Intern training

Diagnostic Theory & practice

Kevin Ong, PhD.

Associate Professor and Extension Plant Pathologist
Director – Texas Plant Disease Diagnostic Laboratory
College Station, TX

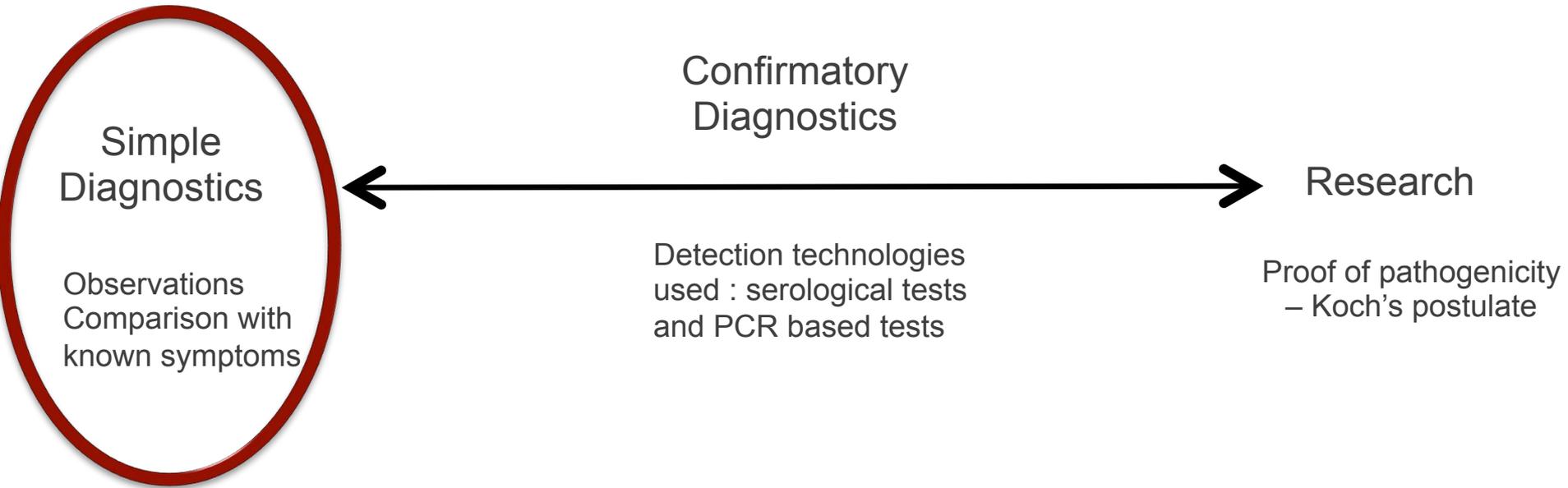


What is DIAGNOSIS?

Merriam Webster definition:

1. **The art or act of identifying a disease from its signs and symptoms**
2. Investigation or analysis of the cause or nature of a condition, situation, or problem.

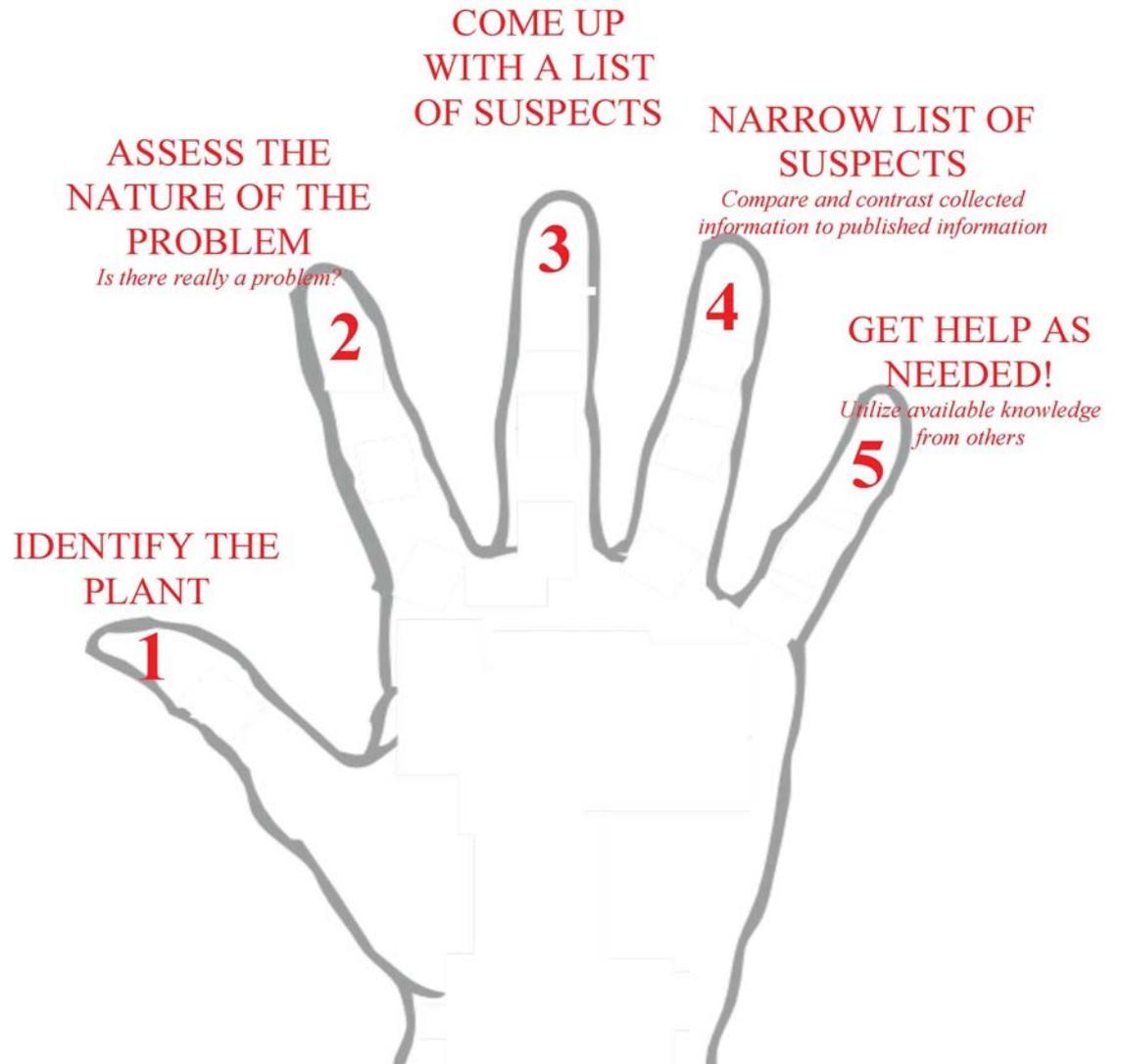
The Diagnostic Continuum



What abilities/traits are needed to be proficient in diagnostics?

- ⊙ Curiosity
- ⊙ Observation skills
- ⊙ Vigilance to clues
- ⊙ Persistence
- ⊙ Good communication skills
- ⊙ Knowing when to be done

Steps in Field Diagnostics



1. Identifying the plant

WHEN?

- As soon as possible OR whenever possible

WHY?

- Knowing the identity of the plant allow for basic understanding/ knowledge of the plant.

HOW?

- Ask the plant owner
- Consult the county agent or fellow Master Gardener
- Consult reputable reference sources

2. Assess the nature of the problem

WHEN?

- After knowing (if possible) what the plant is.

WHY?

- Need some background information to find clues that would lead to a possible answer.
- A good starting point

HOW?

- Use your senses:
 - **Hearing** (Ears) – be prepared to listen to “complaints” and the answers to your questions.
 - **Sight** (Eyes) and **Smell** (Nose) – Look, see and smell any signs or symptoms that are visible.
 - **Feel** – Texture

3. Develop a suspect list

WHEN?

- ◉ As you gather information, clues and evidences.

WHY?

- ◉ The more information you piece together, the better idea as to what could cause the damage. (* experience is valuable)

HOW?

- ◉ Evaluate the symptoms. Symptoms are most often generic.
- ◉ The patterns of symptom development and spread can point to causal agent
- ◉ Look for signs.

3. Developing a suspect list (cont'd)

Ex 1. Coming up with suspects

BIOTIC

- ◉ Symptoms is usually scattered
- ◉ Symptoms develops gradually over time (on individual and whole plantings)
- ◉ Sign of pathogen is observable

ABIOTIC

- Symptoms are uniformed
- Generally appear all at one time
- Does not appear to spread
- Affects more than 1 type of plant in immediate area

4. Narrow list of suspects

(Refining diagnosis)

WHEN?

- ◉ After you have a list of suspect. Begin to narrow it down.

WHY?

- ◉ To get to the best possible guess of the “culprit” so that you can elect to use correct treatment methods/ approaches

HOW?

- ◉ As information is gathered
- ◉ Gather information (research) on the suspects on your list. Compare key elements to current situation.

5. Optional: Get HELP!

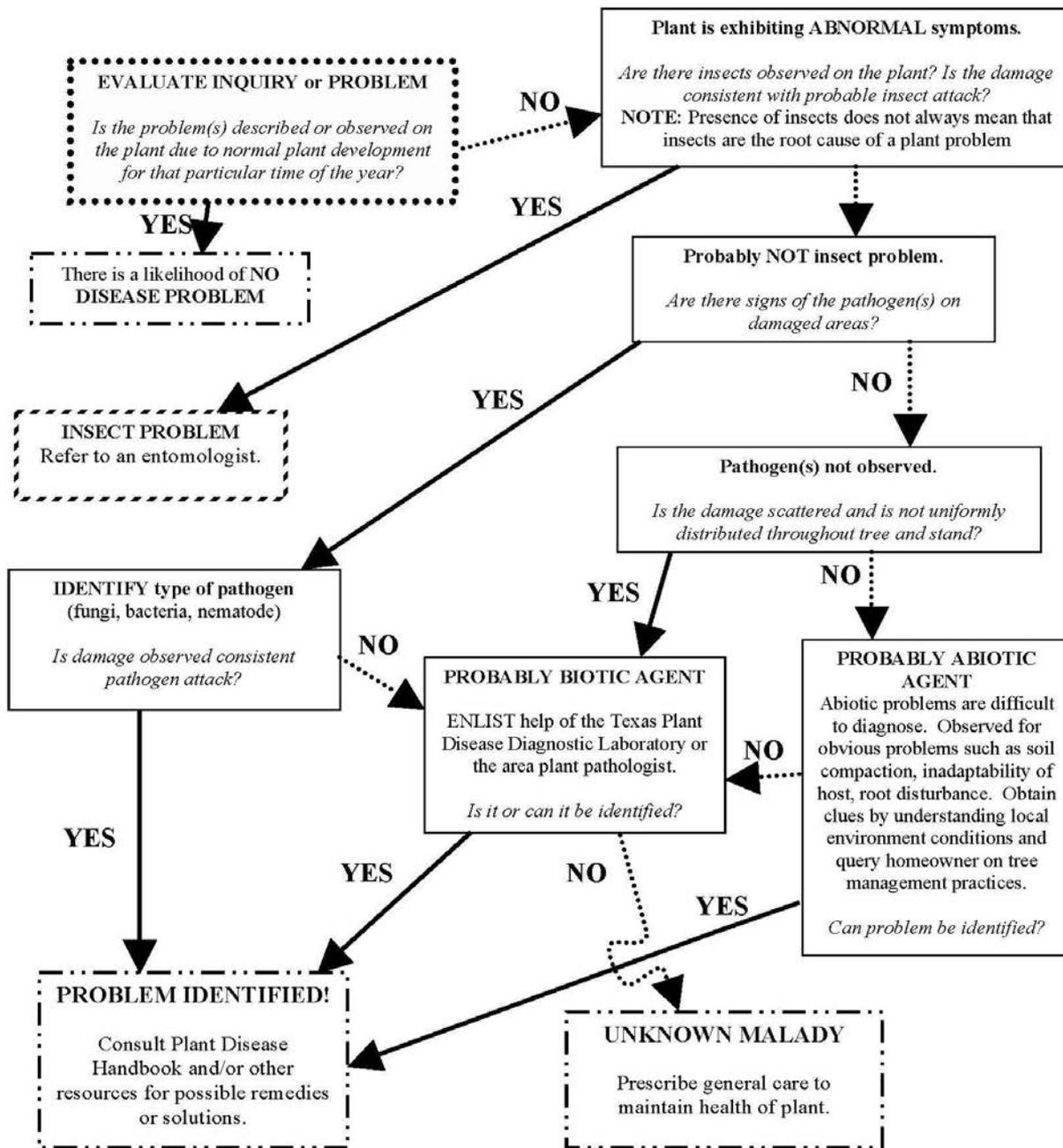
WHEN a simple observational diagnosis is NOT enough.

WHY?

- ◉ Person/plant owner want a more definitive identification of the problem

HOW?

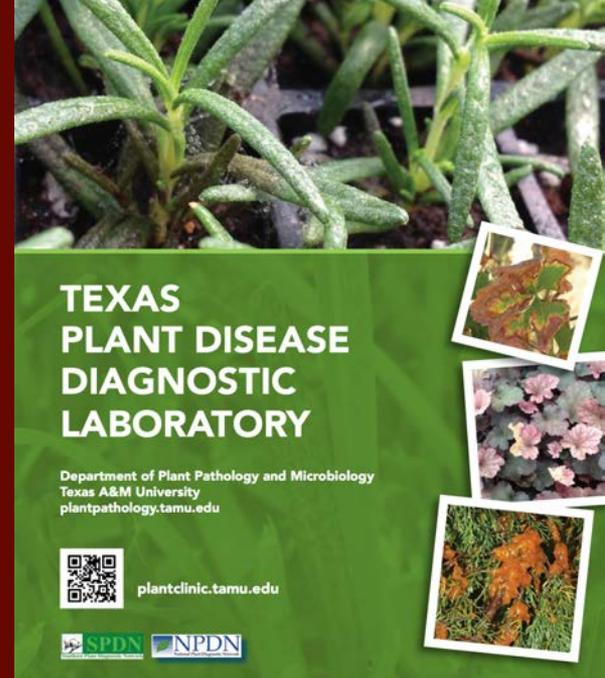
- ◉ Seek out local experts for their opinions
- ◉ Utilize Plant Diagnostic Clinic that practice confirmatory diagnosis



Document can be found in the Master Gardener training material on the TX Plant Clinic website. plantclinic.tamu.edu/links



DIAGNOSTIC EXERCISES (SCENARIOS)



TEXAS
PLANT DISEASE
DIAGNOSTIC
LABORATORY

Department of Plant Pathology and Microbiology
Texas A&M University
plantpathology.tamu.edu

plantclinic.tamu.edu



The banner features a green background with a photograph of a plant at the top. On the right side, there are three small inset photographs showing different plant diseases: one with brown spots on leaves, one with pink flowers, and one with orange rust on leaves. The text is in white, and the logos are in green and white.

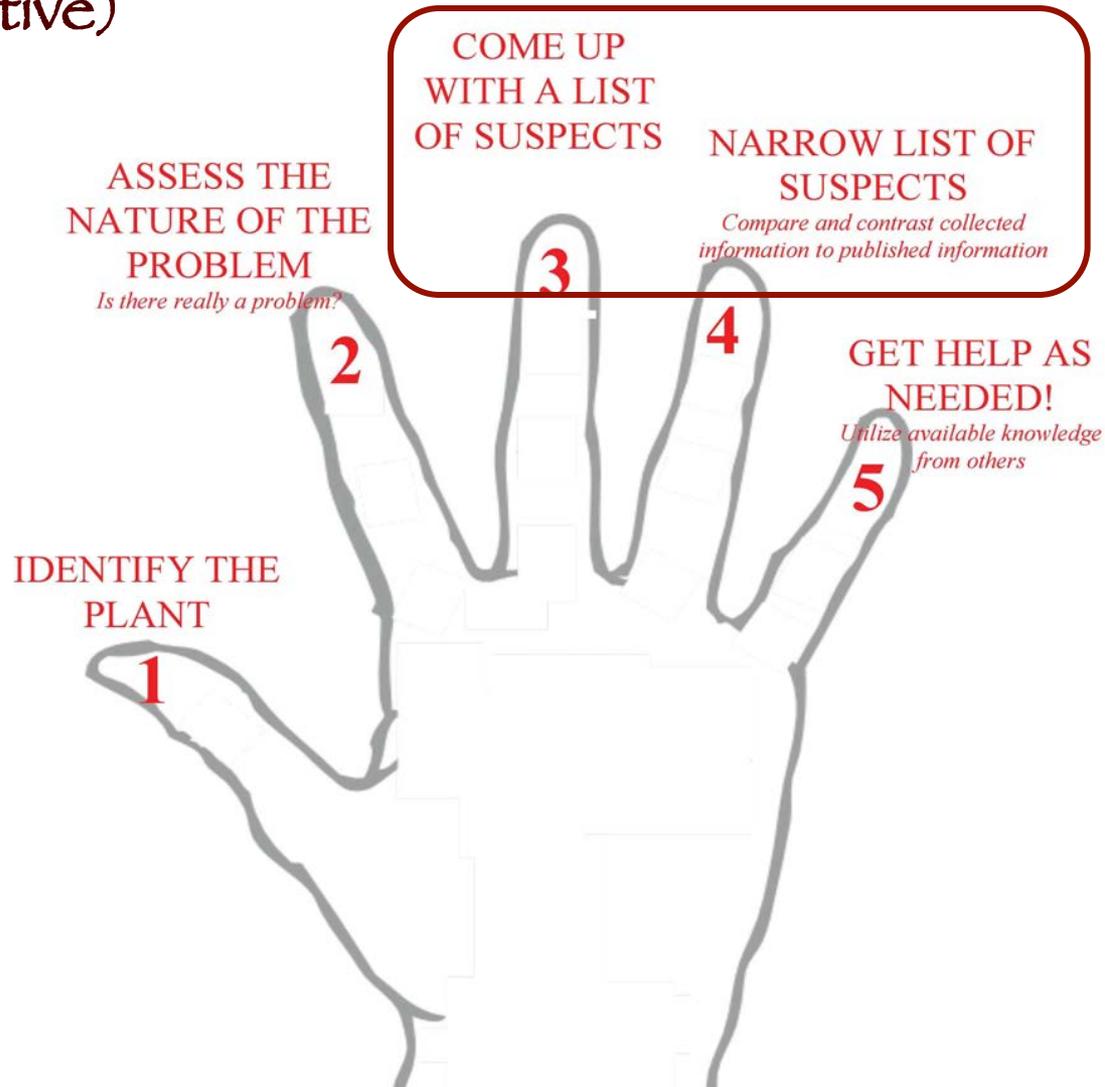
TEXAS A&M
AGRILIFE
EXTENSION

Plant Pathology & Microbiology

PLPM
TEXAS A&M UNIVERSITY

TX
PLANT
CLINIC

Steps in Field Diagnostics (in FD perspective)









Scenario

© Time: mid-summer

My Zinnias are having this spots that begins at the lower leaves and seems to be traveling upwards.



Don't
get caught
with your
plants down.

Consult a Plant Pathologist.

