DIAGNOSTICs:

TEN RULES FOR PLANT DIAGNOSTICIANS

Don't be a Victim of Your Own Knowledge (or lack thereof)

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RULE #1: DIAGNOSTICIAN, EQUIP THY SELF

Fancy equipment not required; no portable gas chromatographs or pocket electron microscopes, here. Just the basics, man/ma'am.

1. A hand lens.
2. A soil probe to take a sample or to check soil moisture or compaction.
3. Pruners to professionally cut off shoots to check for annual growth increments.
4. A knife to check for VD (vascular discoloration, this is).
5. A few plastic bags ***and*** tiny bottles for samples.
6. A pen and pocket notebook.
7. A handy trowel.
8. A wood chisel.
9. A personal favorite reference book or two.
10. A plant diagnostic sample form for the property owner to submit samples to the UF plant clinic. We are educating them on how to deal with the ***next*** diagnostic challenge on their own! See: http://plantpath.ifas.ufl.edu/pdc/Default.htm

RULE #2: ESCHEW DRIVE-BY DIAGNOSIS

Shun, avoid, resist – eschew – the tendency to identify micronutrient deficiencies or palm lethal yellowing disease or wax scale as you speed by in your new Land Rover. Keep this in mind even as you stop to begin the diagnostic process. Avoid the instant analysis. Take time to gather information and make observations. Don't unthinkingly trot out your personal scapegoat; be it root rot, transplant shock, chinch bugs or lawn care herbicides.

RULE #3: KNOW THY PLANTS

Knowing what is wrong with a plant starts with identifying the plant and how it looks when it is healthy. The term "bald" cypress is no accident. There are many weird cultivars, such as the curled leaf croton cultivar that looks like it got a dose of phenoxy herbicide. Identifying the common and uncommon plant species and

recognizing what a normal, healthy specimen should look like, and knowing common problems are a diagnostic must.

RULE #4: REVIEW THE PLANT'S NATURAL HISTORY – DOCUMENT THE BACKGROUND FACTS, JACK!

Each plant has it's own natural history. What were the winters/summers like after it was planted? This is especially important for tropical coastal plants planted at the borderline, inland portions of their hardiness ranges. Is the "soil" at this site too alkaline for ixora or gardenias? If the complaint is that a plant does not flower like it once did, see if surrounding vegetation is now providing more shade. Was the tree defoliated for two straight years, five years ago by caterpillars? The plant stores its natural history, and you need to mine this information in order to understand its present condition. Use the plant diagnosis report form so that you have a permanent record and can share information easily with others now and for future reference.

RULE #5: REVIEW THE PLANT'S UN-NATURAL HISTORY – RECORD ON DIAGNOSIS FORM

A new driveway installed near an established tree three years ago. Flooding with the plant roots underwater for a week this July. An older tree left standing five years ago when a new development went in with major soil grade changes. Oaks with branches seemingly growing out of the ground because of overly deep planting. Annual growth increments on twigs declining for the past five years after planting or after construction. These factors are not really un-natural, since people are part of nature, but our cultural practices are much more controllable than environmental events. Mulching, fertilizer, chemical applications, obtain the details and record them on the diagnosis form.

RULE #6: HORTICULTURIST, HEAL THYSELF

Checking for these natural and un-natural historical clues, by asking questions and by making observations, is the essence of diagnosis. And notice how many of the examples above deal with strictly horticultural (cultural) issues, rather than specific pests and diseases. Many new diagnosticians have the preconception of, " Its gotta be a bug or a disease." And often focus too much on the quest for pests. But, if you want to translate diagnostics into plant health management, you can't do it by simply identifying all the borer insects and canker diseases. Consider why those borers and canker fungi are thriving.
This requires investigating the underlying horticultural (cultural) issue and resolving it, at least for the future, by better plant selection, planting, and maintenance practices.

RULE #7: SEARCH FOR PATTERNS

If rows of queen palms are declining more at one end than the other, check to see if it relates to planting depth or drainage. If all the plants in a mixed vegetable garden are dying, begin to suspect a catastrophic event such as a period of freezing, drought or flooding or a chemical misuse, since most diseases and pests tend to attack a particular plant species, rather than the whole garden.

Also fine-tune your search for patterns. Symptoms of iron, manganese, magnesium, and potassium deficiencies are somewhat different with each plant species. Some palm nutrient deficiencies can be confused with ganoderma decline (wilt).

RULE #8: DON'T LET STRENGTH BECOME WEAKNESS

Do not look at the world through rose-chafer colored glasses. To often we impose our own, always limited, knowledge where it does not apply. It is probably inevitable that once we learn something we tend to see it everywhere, but that can be poison to good diagnostics. Just because we can identify every fungal leaf spot known to Indian hawthorn, it does not mean that the small, pale green to yellow leaves accompanied by poor annual growth and twig dieback is due to that leaf spot disease. It may be satisfying to put a label onto a specific pest or disease, but if it is not the main event, your recommended solution may just create another crime, one of ***omission***.

RULE #9: PRACTICE ADDITION BY SUBTRACTION, BE SYSTEMATIC

Knowing what something ***is not*** is far from a diagnostic failure. Often, good diagnosis involves systematically ruling out, to the extent possible, a long list of suspects. Often, the knowledge that there is not an infectious disease starting to wipe out all the plants in a landscape is a big step forward. Ruling out possibilities, at least provisionally, gets you closer and closer to knowing what is the cause of, and possible cure for, a particular problem. And starting to rule out possibilities can come in many ways; from having soil/roots tested for nematodes to simply learning that an irrigation head was not working.

RULE #10: DIAGNOSTICIAN, HUMBLE THYSELF

A wise man once said, "Diagnosing the maladies of plants of the fields, heath, and manor is the noblest profession of humankind". Noble though it is, getteth not carried away. The phrase **"I don't know",** being so truthful so often, should be part

of the diagnostician's vocabulary, especially to thyself. The earlier article, "Sure-Fire Rules of Diagnosis" closed with, NOTHING IS SURE-FIRE. It is so; gather as much information as possible, make as many observations as possible, tap into the experience of others, and come up with the qualified best diagnosis you can. Be as assured to the customer as you need to be for the situation at hand, but learn to always, always question your diagnosis.