

Plants for Landscape Design
HORT 608
Fall 2011



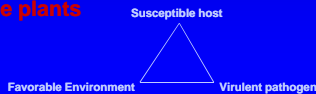
Disease, Pest, and Cultural Practices
Impact Landscape Designs

Required Reading

- There is no formal required reading with this lecture, but remember that many of the terms covered in this lecture are in the glossary of your text and you should look them up if you are not familiar with them.
- Also color images of some pest, disease, and cultural conditions referenced in this section are provided in the first color plate section of your text.

90 / 10 Rule

- Thousands of potential pathogens / pests
- A few common diseases and pests account for many of our landscape problems
- Separate pest, disease, and mechanical damage
- Important to recognize pathogen / pest damage from physiological disorders
- Often a complex of causal factors are the culprit
- Cultural conditions interact with all of the above and the plants



Case of the Horrible Hawthorns

- Conspiracy to defoliate!



Physiological Disorders

- Mineral nutrient deficiencies/toxicities
- Physiological leaf scorch
- Spray injuries
 - Intentional sprays or drift
- Lightning strike
- Mechanical injuries
- Chemical injuries
- Sunscorch
- Winter injury
- Circling roots
- Inadequate chilling



Susceptibility to physiological problems vary within a species



Provenance versus seed source!

Site Interacts With Disorders/Disease



Common Pests

• Insects

– Chewing

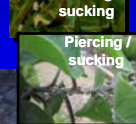
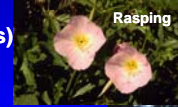
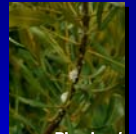
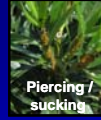
- (grasshoppers, Japanese Beetles, caterpillars, borers, bagworms, leaf miners, ants, termites)

– Rasping

- (thrips)

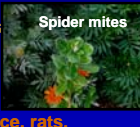
– Piercing/sucking

- (aphids, weevils, mealybugs, scales, whiteflies, leafhoppers, sharpshooters)



Common & Uncommon Pests

- Arachnida (spiders, spider mites, scorpions)
- Mollusca (slugs / snails with slim trails)
- Mammals (deer, rabbit, mole, vole, raccoon, mice, rats, wild hogs, armadillos, prairie dogs, dogs, beaver, bear ...)
- Birds, lizards, turtles, snakes ...
- Humans (particularly subhumans ... Mds)



Common Disease Problems



• Bacterial

- Leaf spots (zinnia, *Xanthmomomas* on geraniums)
- Twig dieback, cankers (fireblight)
- Phloem infections (wetwood / slime flux)
- *Xylella fastidiosa* (fastidious xylem inhabiting bacteria)
- Crown gall (*Agrobacterium tumefaciens*)



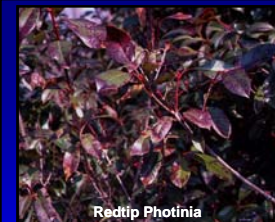
Common Disease Problems

• Fungal

- Foliar diseases (sooty mold, *Entomosporium* leaf spot, black spot, powdery mildew)
- Xylem clogging (Dutch elm disease, *Verticillium* wilt, *Fusarium* wilt)
- Cankers (chestnut blight)
- Twig dieback (juniper blight, anthracnose)
- Damping-off (*Pythium*, water molds)



Entomosporium leaf spot



Common Disease Problems

- Viral (yellow mottle & bud drop of *Camellia*, tulip breaking virus)
- Mycoplasma-like (lethal yellows of palms)
- Viroids (chrysanthemum yellows)
- Nematodes/Nemas (root knot nematodes, microscopic eelworms)



Cultural Conditions Are Often To Blame

- Weedeater / lawn mower blights
- Construction damage
- Poor site prep / design / installation
- Shade / sun patterns
- Poor maintenance practices



- Irrigation practices
- Fertility
- Pruning
- Staking
- Mulching
- Planting

Other cultural practices



Exposed Roots



Windthrow from roots only in mulches



Fill Soil & Compaction



Graft incompatibility

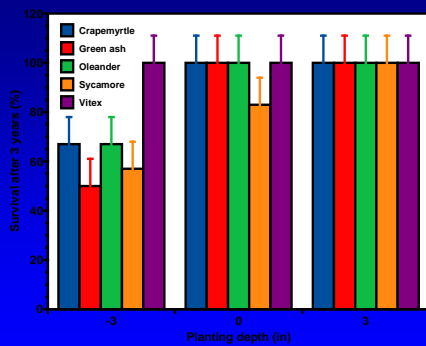


Graft incompatibility

Firewood Landscapes

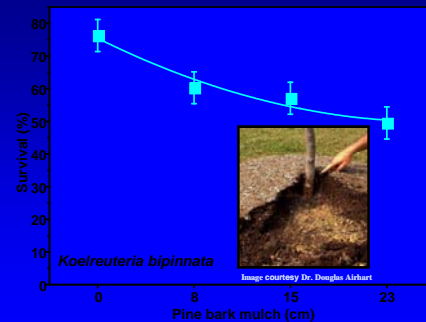


Establishment Practices Are Critical



Avoid planting too deep!

Be Sparing On Pine Bark Mulch



More is not always better!

Irrigation issues

- Zoning plants
 - Keeping the bank account in the black
 - Quantity & quality
- Salinity / pH concerns
- Subcanopy applications are critical for our region
- Interactions with soil conditions



Cost-benefits to site modifications

- Raised beds / planters



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Cost-benefits to site modifications


- Soil replacements
- Soil amendments




Typical home site in Central Texas

Traits To Consider When Selecting Adapted Plants For Our Region

- Specific challenges in our region
 - High day & night temperatures
 - Poor internal drainage in many soils
 - High salts / bicarbonates in irrigation water
 - High pH soils in many locations
 - Widely fluctuating winter temperatures



Salt crust from irrigation



Expansive clays

Be Cognizant of Hazardous Plants




Cactus 1 : boy 0 (as in ouch!)

Design Solution to Leaf Raking?



Courtesy of a former student

Questions / Comments?

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