Tree Answers

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5 Questions to Ask Before You Plant a Tree in Your Yard

- What will the tree's height be when it reaches maturity?
- How wide will the canopy be?
- Will it drop a lot of leaves in the fall or stay green all year round?
- Does it grow fruit?
- What are the trees needs to grow healthy and strong?

CHOOSING THE RIGHT TREE FOR YOUR LANDSCAPE

- Is the tree or shrub meant to attract birds?
- Does the tree need to provide shade?
- Do you need a plant for a privacy screen?
- Are you looking for a plant to enhance the appearance of your home?
- Do you want a plant that will help identify an entrance or exit?

Considerations for selecting a tree:

- Hardiness - the ability of the tree to survive extremes of cold and heat.
- Mature height and spread - will it grow large enough to serve the intended purpose, or grow too big and hinder surrounding plants or encroach on your house.
- Growth rate - will it grow at a proper rate to fulfill the purpose intended.
- Cleanliness - does it drop lots of leaves, berries, nuts, seeds, or other material that will add to regular yard clean-up or possibly harm other plants?
- Type of root system - how much space does it require, and what type of soil

Considerations for selecting a tree:

- Moisture and fertilizer requirements - how much maintenance work should be expected for the tree.
- Space available - how much room does the tree require, both below ground and above.
- Maintenance requirements - will it require regular pruning, trimming, spraying, and other care.
- Availability - is the desired tree available in your area.
- Ornamental effects - how does the tree branch out, what is its texture, the color of the bark, any flowers, fruit and foliage, and whether the tree is evergreen or deciduous.

Determine environmental conditions that may limit your selections

- Potential disease and insect problems
- Prior use of the planting site
- Soil conditions, such as drainage, and pH levels
- Local wind conditions
- Location of above and below ground utilities which must be avoided and will limit plant choice and location
- Position of plants in relation to buildings, roads, walkways, and security lighting

Is there enough space available for the new tree

- Availability of space at the site and the eventual size of trees after they reach maturity are critical considerations.
- Planting locations may be limited by community ordinances that restrict planting near power lines, parking zones, street lights, sewer pipes, traffic control signs and signals, sidewalks, and property lines.

Determine the appropriate size

- The tree you plant should be proportional to the size of your lot. If you plant huge shade trees on a small landscape, they will appear overwhelming and will not allow adequate light to enter into the house or garden.
- The general rule of thumb is that, if a tree is likely to grow to 100 feet in height, it should be at least 30 feet from the home's foundation, patio or pathways.

What kind of Trees should I choose?

- **Deciduous** trees are those that drop their leaves at the end of the growing season and produce new leaves in the spring. They are generally angiosperms, or flowering plants. Flowering trees are also known as broadleaved trees.
- **Coniferous(or Evergreen)** trees have needles or scales that **do** not fall off.

Shade Trees that do well in North Texas

Mexican White Oak-The Dream Tree

Texas Ash

Fraxinus texensis

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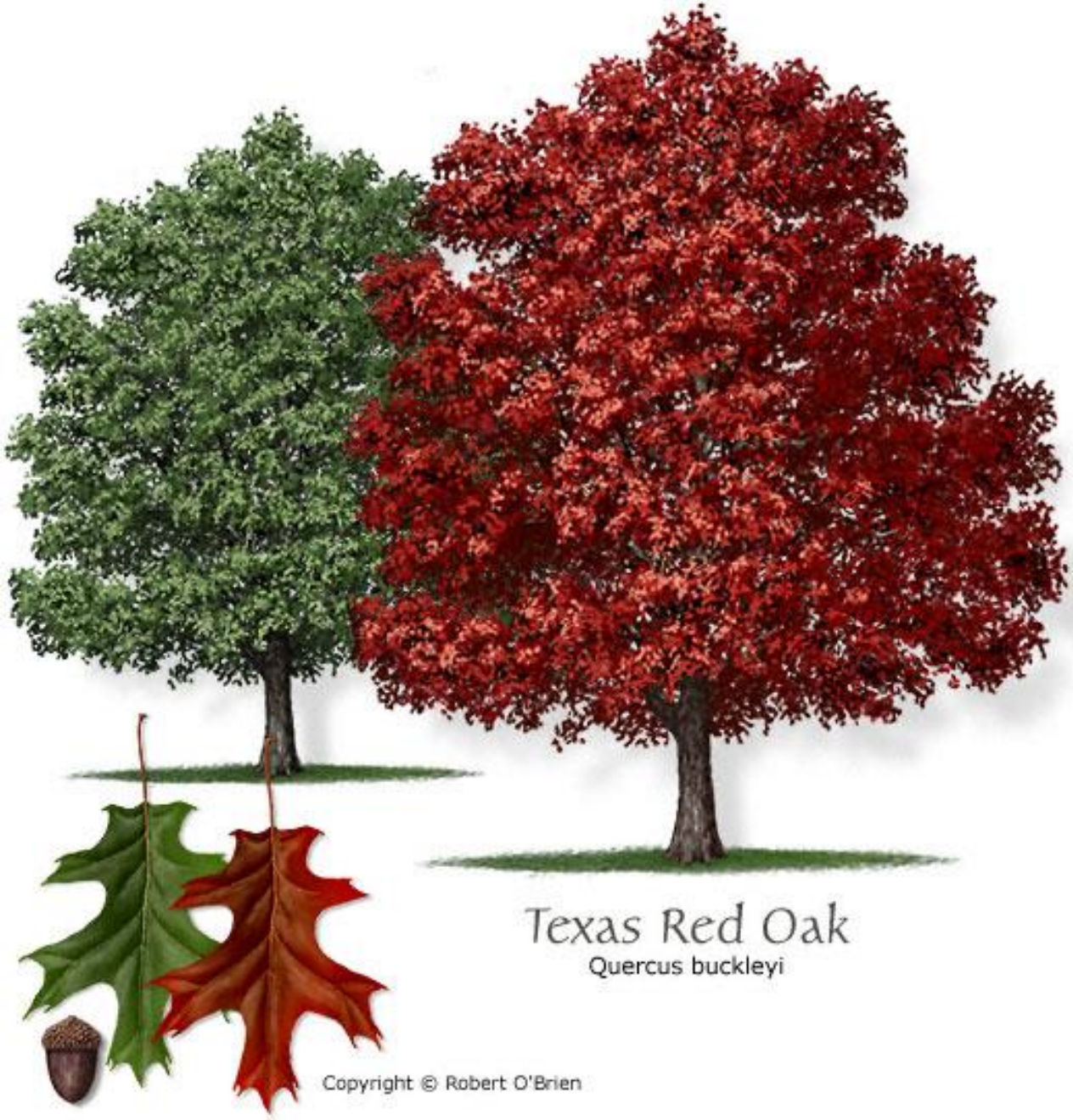

Texas Red Oak

Quercus buckleyi

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Bur Oak

Quercus macrocarpa

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Live Oak

Quercus virginiana

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Mexican Redbud
Cercis canadensis var. mexicana
Copyright © Robert O'Brien

Chinese Pistache
Pistacia chinensis
Copyright © Robert O'Brien

American Elm
Ulmus americana
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Cedar Elm
Ulmus crassifolia
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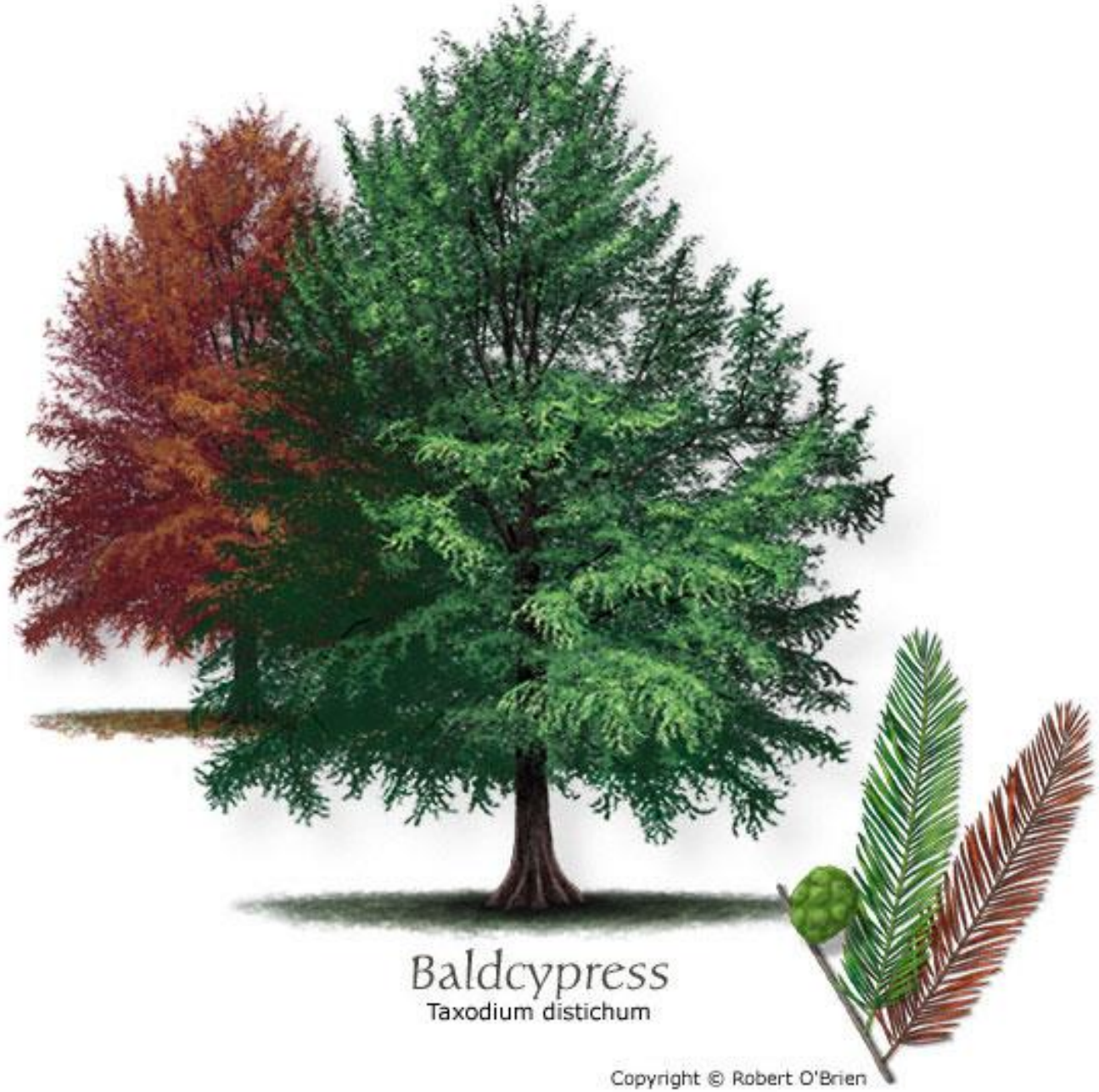

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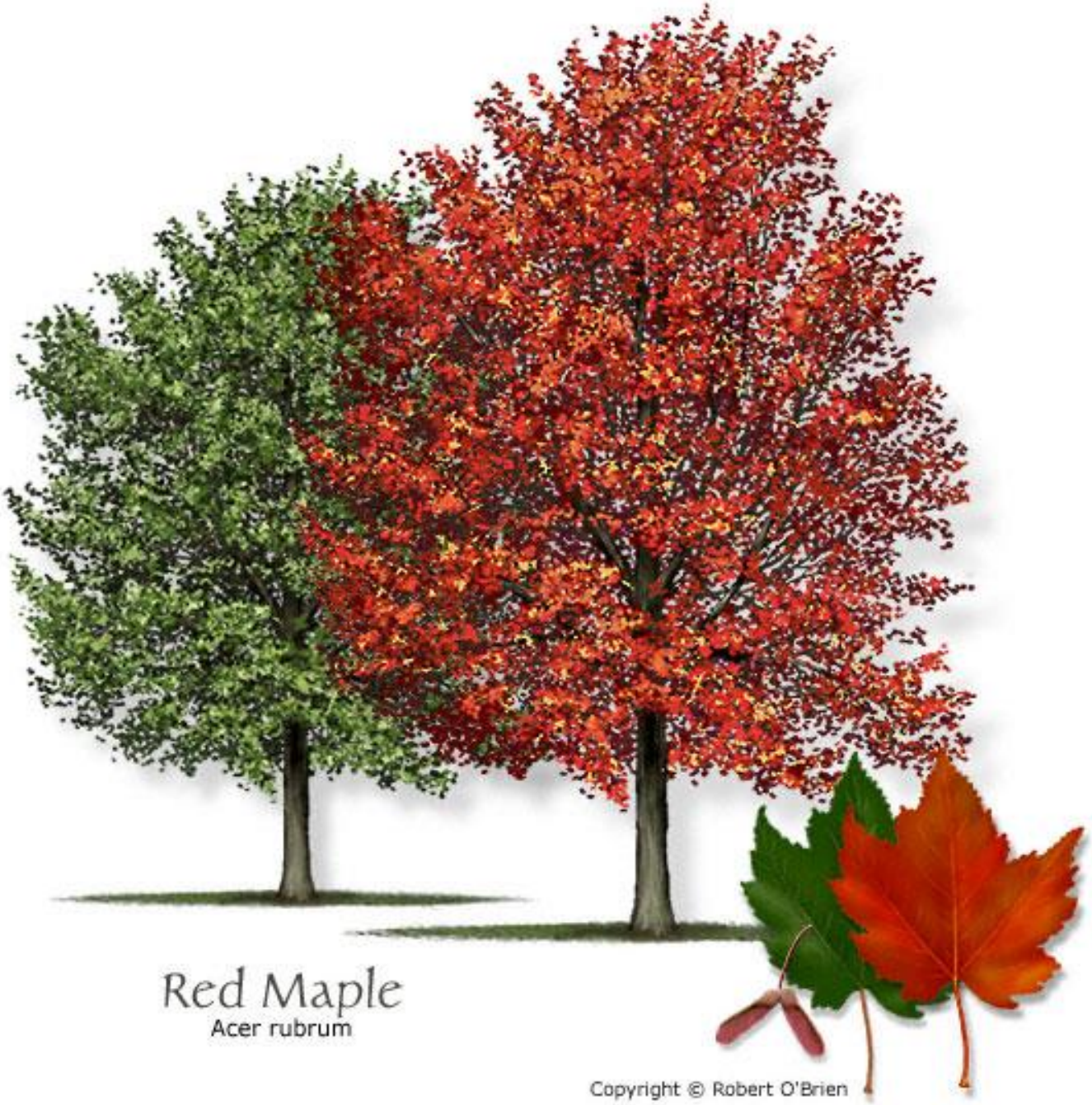
Red Maple
Acer rubrum
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Planting or placing a tree

- prepare a hole two to three times as wide as the root ball of your tree. Handle the root ball carefully to keep it intact while you place it in the hole.
- Once it's in, turn it so the best side of the tree is facing the direction you want. With burlapped root balls, cut the twine and remove the burlap (or at least push it to the bottom of the hole).

Backfill the Hole

- Backfill around the root ball, lightly packing the soil as you go. Frequently check the trunk to ensure that it's straight. Use leftover soil as a berm to create a watering well.
- A large planting hole and loose soil is vital so that the new roots can easily grow and spread

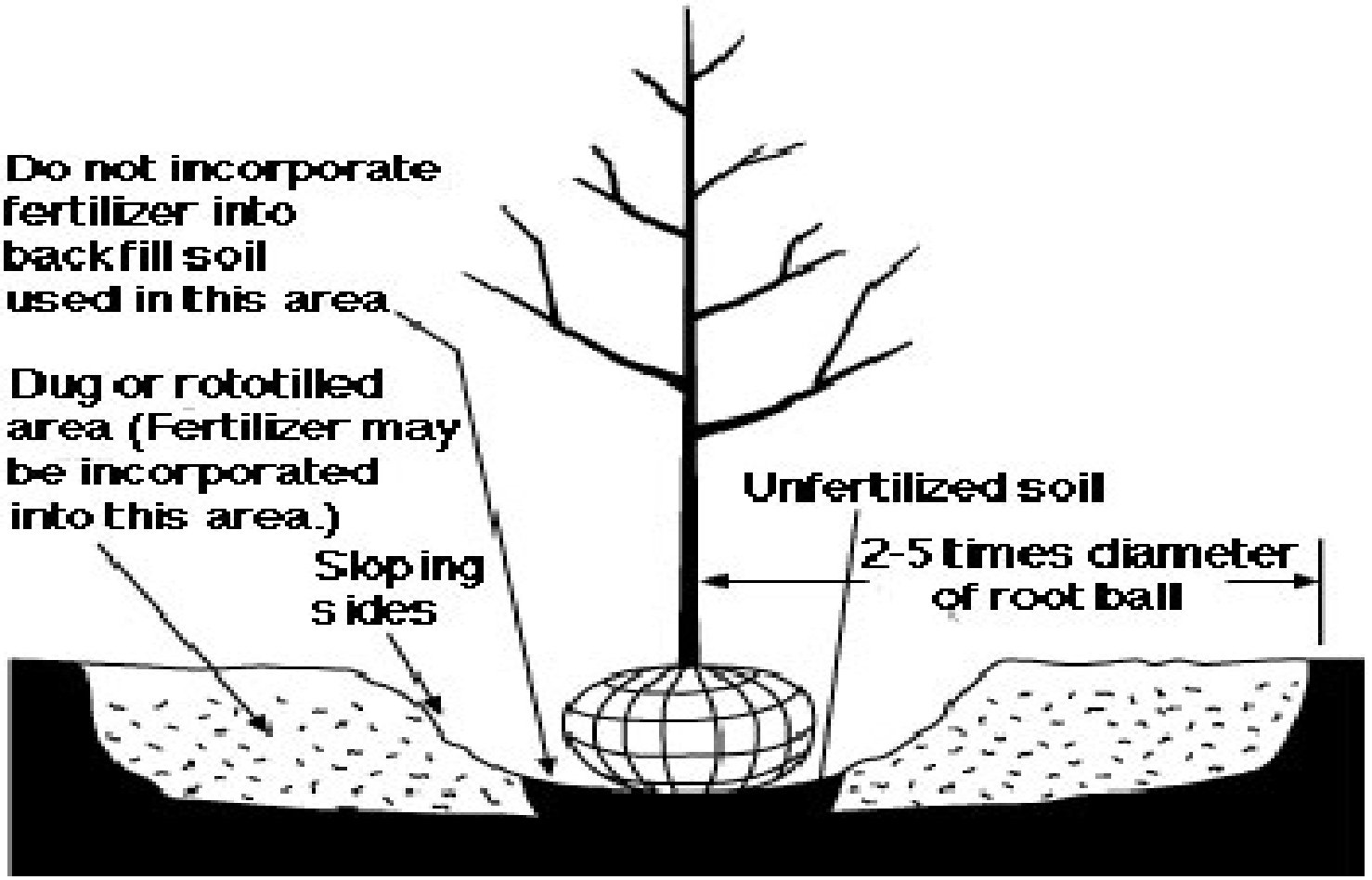
Stake the Tree

- Drive the stake through the root ball into the ground underneath. The stake should be tied *loosely* to the trunk; do not lash it tightly.
- Large trees may need two or three stakes placed several feet from the trunk.
- The size of the tree determines where to put the stakes in order to secure the tree from wind or storm damage.

Watering the Tree

- Right after planting, water the tree in by filling the bermed basin with water. This will settle the existing soil around the root ball.
- First week after planting, lightly water the tree every day (about one pint to one quart of water each day).
- Second week, water every other day with about one to two quarts of water.
- Week three, water every third day with two to three quarts of water.
- Week four and beyond, water once a week if needed.
- The goal is to wean the tree slowly off of supplemental irrigation, and produce a root system large enough for the tree to thrive on natural rainfall.

Growth stage 1 – Planting to newly planted



Amount of common fertilizers to apply application rate of 0.1 lb N/100 sq. ft.

Product analysis[1]	Chemical name	lbs/100 sq. ft.
45-0-0	Urea	0.2
38-0-0	Urea form	0.3
33-0-0	Ammonium Nitrate	0.3
21-0-0	Ammonium Sulfate	0.5
18-6-12	Osmocote	0.5
14-14-14	Osmocote	0.7
12-12-12	– – –	0.8
10-10-10	– – –	1.0

[1]Other fertilizers are available. To calculate the amount to use for an application rate of 0.1 lb N / 100 sq. ft. use the formula
[0.1 / (Percent of N in the fertilizer / 100)].

Growth stage 2 – Rapid growth on young trees

- On young landscape trees where rapid growth is desirable, use the high maintenance rate given in Table 3.
- During the rapid growth phase, the N rate should be 0.2 to 0.4 lb N/100 sq. ft. per year. A low maintenance level should be used in situations that restrict growth
- For trees in lawn areas, do not exceed 0.1 lb N/100 sq. ft. per application unless a slow release or natural fertilizer is used. Higher rates will burn the grass.

Growth stage 2 – Rapid growth on young trees and shrubs

	Maintenance level	
Soil organic matter level[3]	**Low[1]**	**High[2]**
	Amount of nitrogen (N) to apply (lb. N/100 sq. ft.)	
Low	0.10	0.20
Medium to high	0.07	0.05
Organic soils	0.10	0.15

[1]Use the low maintenance level:

- For newly planted landscape plants
- To maintain health of mature trees and shrubs where rapid growth is not desirable
- For young trees and shrubs under restricted growing conditions

[2]Use the high maintenance level on young trees and young landscape plants when rapid growth is desired.

[3]Low organic matter = less than 3.1%, medium to high = 3.1 to 19%, organic soil = greater than 19% organic matter. Organic matter may be determined by a soil test.

Growth stage 3 – Maintaining maturing trees and shrubs

- As trees and shrubs mature and growth rate naturally slows down, the need for N drops.
- The low maintenance level in Table 3 should be used for established trees and shrubs.
- The purpose of this low maintenance level is to maintain landscape plants in a healthy condition without excessive vegetative growth.

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When to fertilize

- Most trees experience a single flush of growth during spring followed by slower growth throughout the summer and fall. Because of this single flush of growth, it is desirable to have nutrients available to the tree as this growth is about to occur.
- The most beneficial time to apply fertilizer is from when the ground is workable in the spring until just before trees start growing in early May.
- On sandy soils, applications should be split, half in early spring and half in mid- to late May.

How to Apply Fertilizer

- Plants respond best to surface applications of nitrogen fertilizer which are broadcast over the area where the roots of the tree lie, a radius of about 12.5 feet from the center of an established tree (encompassing about 500 square feet).
- Dry or granular fertilizers can be applied by hand or with the use of a mechanical spreader.

Water Fertilizer in

- Trees should always be watered around the area of fertilizer application soon after fertilizer has been applied. This helps to ensure that the fertilizer will move down to the trees' root system before it can be taken up by weeds or grass.
- A good rain (1-2") will also be sufficient to move fertilizer to the trees root zone.

Fertilizer Balance

- Remember that plant nutrition is a balancing act and that too much fertilizer, as well as too little, can negatively affect the growth and well being of your trees and lawn.
- The correct amount will keep trees healthy and enhance landscape beauty.

What causes Trees to get sick or die?

- **ADVERSE ENVIRONMENT--STRESS**-droughts, floods, temperature changes all weaken their immune system and ability to fight off pathogens
- **HARMFUL INSECTS AND DISEASE**
- **OVER WATERING & Fertilizer**
- **Chemical exposure** -from spraying to close, drift, using herbicides in your yard
- **Mechanical Harm** -damaged from machinery etc..
- **OLD AGE**

Oak Decline

- Trees affected by the fungus first show signs of thinning out and twig dieback in their upper canopy.
- Dieback will generally increase each year. As dieback reaches the larger limbs, which comprise the main canopy, sucker growth becomes evident on the main scaffold limbs.
- As the disease continues to progress, only the main scaffold limbs remain alive, however, they will eventually die. This may take from five to ten years on live oaks, but less on other oaks after the first visual symptoms are observed.

UGA5039047

Post Oaks in various stages of decline

Root Rots

- Texas Root Rot, Crown Rot, Cotton Root Rot
- Armillaria Root Rot, Phytophthora Root Rot
- symptoms of root rot include the dulling of normal leaf color and the loss of a tree's growing vigor. Often leaves may wilt and turn yellow or brown. Major branches can also die or show excessive signs of wilt
- Root rot, if left untreated, can cause rapid tree decline and death. Trees sometimes live for many months in a weakened state, while others will die very quickly.

Three Oaks Ranch

Southeast of Mountain Springs

4 weeks later

Hypoxylon Canker

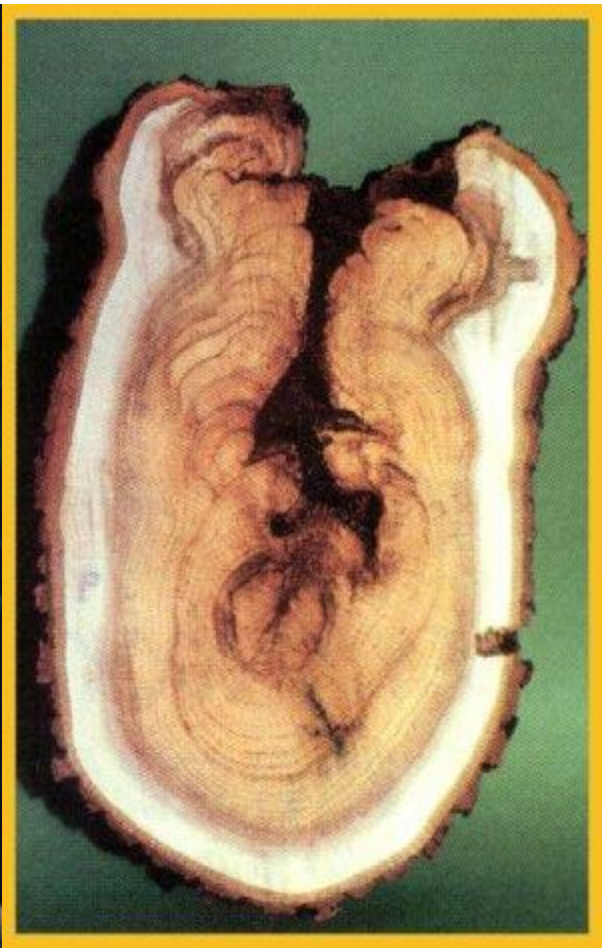
- Hypoxylon canker occurs primarily on trees which are or have been in stressed conditions.
- The fungus invades the tree through injured surfaces on its limbs and trunk.
- The disease is first evident as a dieback of one or more branches. The foliage of the diseased limbs turns yellow and dries.
- This dieback continues from branch to branch until the tree dies.
- The fungus infects the inner bark causing the outer bark to slough off..

- Trees die from Hypoxylon canker in a random pattern with no movement of the fungus from one tree to another through root grafts
- Trees with Hypoxylon canker first appear chlorotic and develop thin foliage. In severe cases leaves die quickly and turn a light brown
- In final stage which lasts 1-2 weeks trees go from yellow to brown

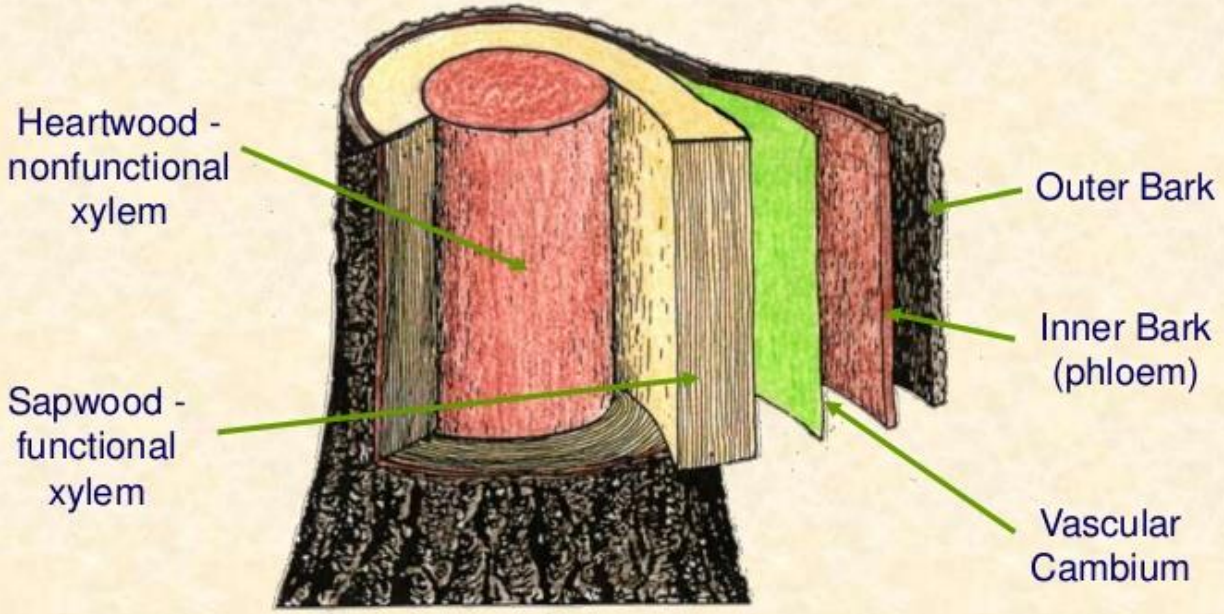
Northwest of Callisburg

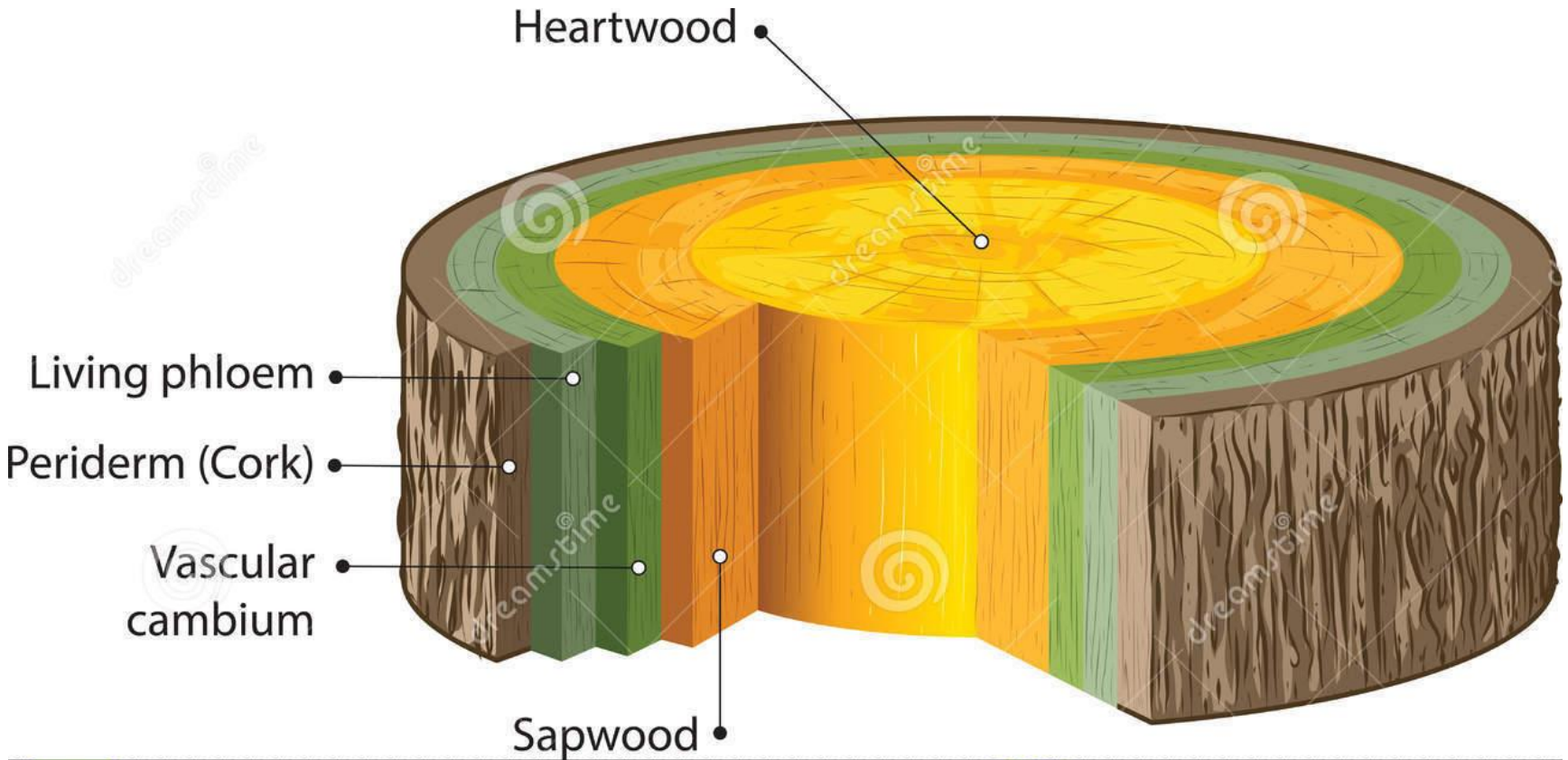
West of Callisburg

Basically rots the tree



Woody Stem Anatomy



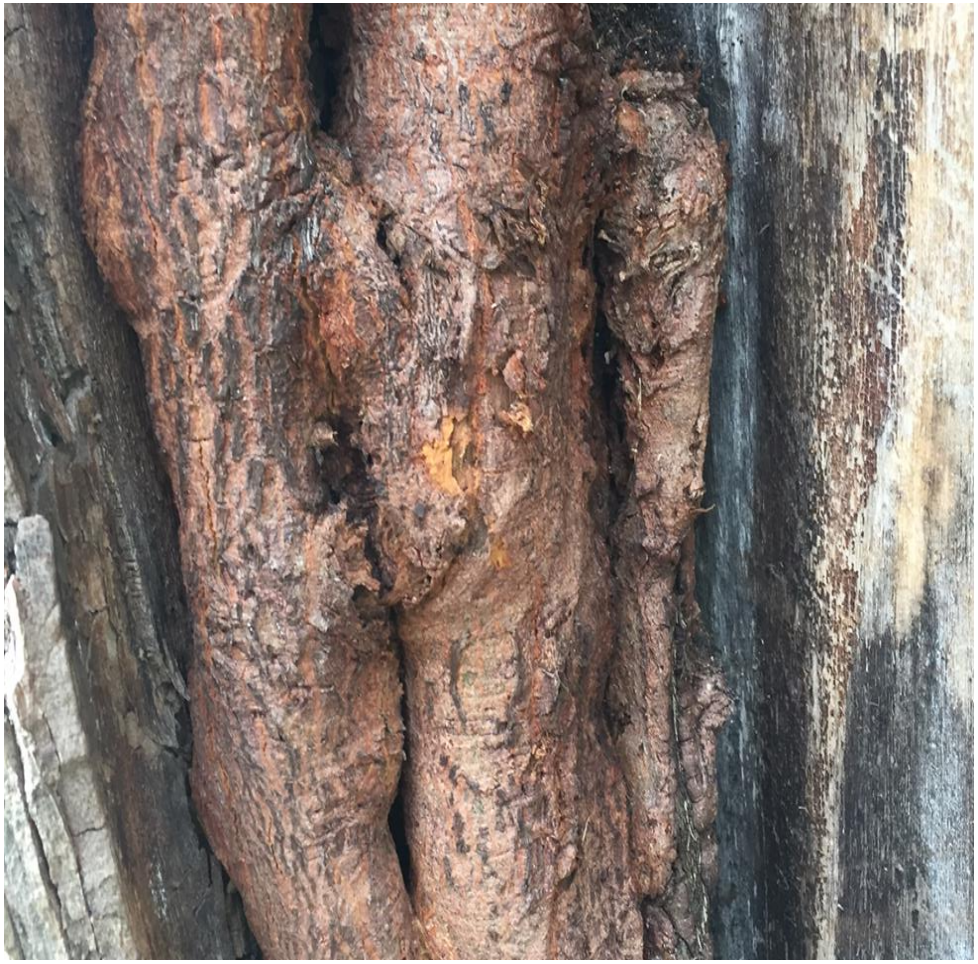

Heartwood
Living phloem
Periderm (Cork)
Vascular cambium
Sapwood

Phloem & Xylem

- Plants have two different types of transport tissue. **Xylem** transports water and solutes from the roots to the leaves
- **phloem** transports food from the leaves to the rest of the plant.
- Transpiration is the process by which water evaporates from the leaves, which results in more water being drawn up from the roots.

Cambium Tubors

What caused this?



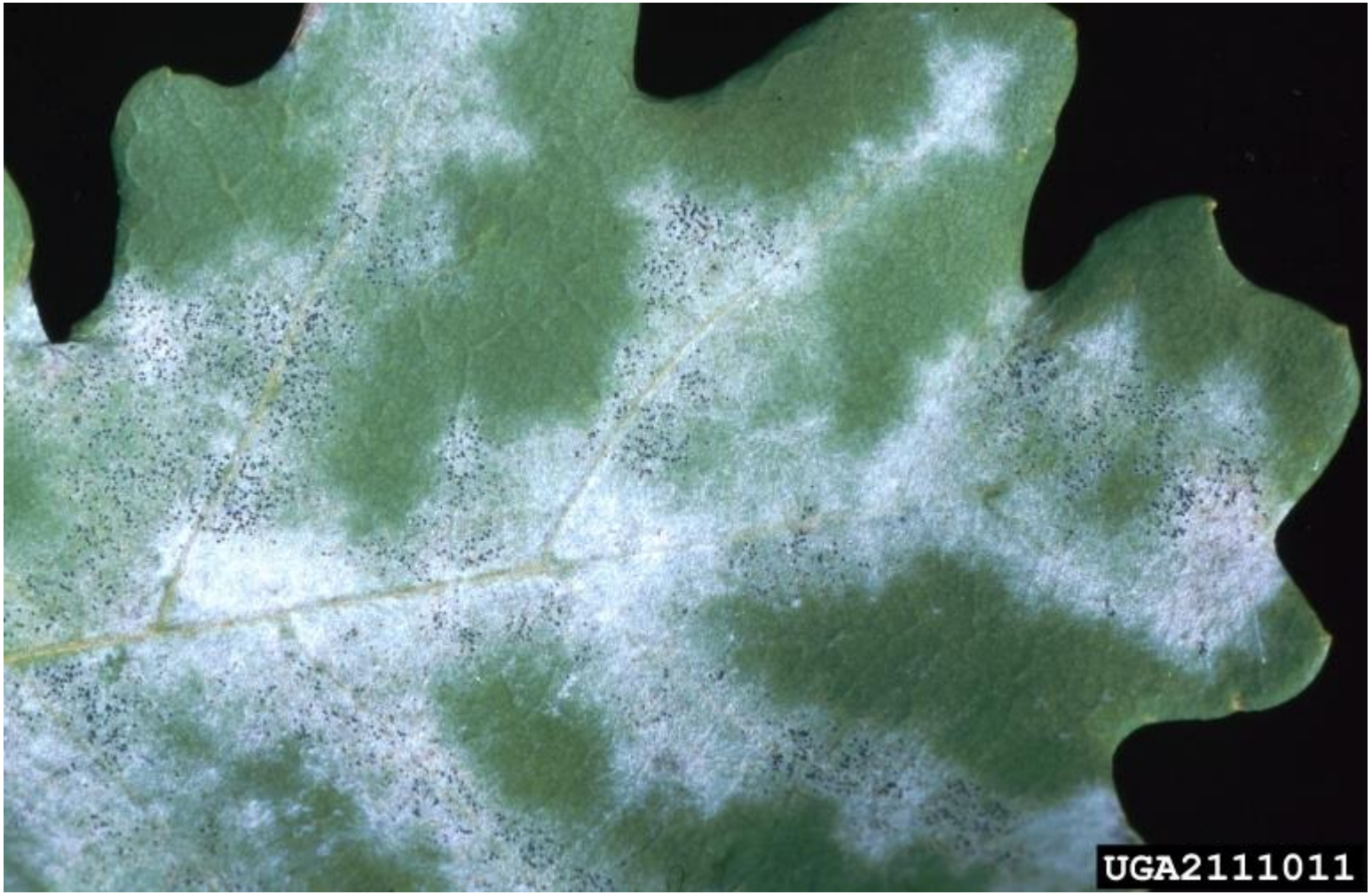
Bacterial Leaf Scorch

- a systemic disease caused by the **bacterium** Xylella fastidiosa, which invades the xylem (water and nutrient conducting tissues) of susceptible trees
- Trees may display dieback, branch death, and die prematurely
- There is no cure for BLS, but good management practices can delay onset and extend longevity of the tree.

Leaves of Red Oak

Leaves of American Elm & Maple

Powdery Mildew



Leaf Spot diseases

- Leaf spot diseases weaken trees and shrubs by interrupting photosynthesis, the process by which plants create energy that sustains growth and defense systems and influences survival.
- most leaf spot diseases affect only a small percentage of the tree's overall leaf area, and are a minor stress on the health of the tree.
- Leaf loss during several consecutive growing seasons can result in reduced growth and increased susceptibility to opportunistic pests and pathogens.

Tar Spot

Tubakia Leaf Spot

Anthracnose

Oak Leaf Blisters

White, Slime or Alcohol Flux

What is Slime Flux?

- **Slime flux** is a bacterial disease of certain trees, primarily elm, cottonwood, poplar, boxelder, ash, aspen, fruitless mulberry and oak. A wound to the bark,**caused** by pruning, insects, poor branch angles or natural cracks and splits, **causes** sap to ooze from the wound.

Treatments for these tree diseases

- Oak Decline—Agri-Fos & Arbotect is effective in reducing symptoms of oak decline
- Hypoxylon Canker—Agri-Fos will help but good care is the best prevention
- Root Rots---Agri-Fos works good, Alamo Broad Spectrum Fungicide Injectable into the trunk
- Others--Copper based fungicides will work on some tree diseases, read the label

Agri-Fos Systemic Fungicide with Pentra Bark

- boosts a trees natural immune response against pathogenic attack and stimulates the tree to tolerate higher levels of environmental stress and pathogen attack
- an effective and easy way to control for Oak decline, cankers, root and collar rot, and phytophthora and phythium-related diseases
- Is transported throughout the trees vascular system

Helpful Websites

- http://texastreeplanting.tamu.edu
- https://plantdiseasehandbook.tamu.edu/landscaping/trees/oak/
- http://texastreeid.tamu.edu/
- https://www.treehelp.com/