The mission of the Central Texas Food Bank is to nourish hungry people and lead the community in ending hunger.

Fruit & Nut Trees
for the
Home Landscape

Greg Mast, Gardener
Central Texas Food Bank
What we’ll cover

• Introductions
• Site and selection
• Planting
• Pruning
• Pests
• Diseases
• Notes on specific trees
Who is Greg?

- Gardener - Central Texas Food Bank
- ISA Certified Arborist
- TDA Licensed Pesticide Applicator for Fruit, Nut and Vegetable crops
- MS Geography – Motivations of Community Gardeners
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- 21 counties
- 46,000 clients / week
- 38 million lbs of food /yr
- $1 = 4 meals
- 1.25 acre teaching and production garden
Choosing a site – Soil quality

The Ideal Soil:

- Loose, loamy texture
- Neutral to slightly acidic (pH 6.5 – 7.0)
- >24” deep
Choosing a site – Soil depth

- Trees get big
- Roots are shallow and wide
- Trees compete with other plants

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Choosing a site– Water Needs

<table>
<thead>
<tr>
<th>Specie</th>
<th>Daily water use @ maturity</th>
<th>Inches of Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pecan</td>
<td>150 gal</td>
<td>2” per week during growing season</td>
</tr>
<tr>
<td>Peach</td>
<td>40 gal</td>
<td>1” per week during growing season</td>
</tr>
<tr>
<td>Fig</td>
<td>30 gal</td>
<td></td>
</tr>
<tr>
<td>Citrus</td>
<td>50 gal</td>
<td>45-50” annually</td>
</tr>
</tbody>
</table>

High Water Use: Pecan, Peach, Apple, Paw Paw, Citrus
Medium Water Use: Fig, Persimmon, Plum, Mulberry, Loquat, Pear
Low Water Use: Pomegranate, Jujube

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Choosing a site—How to water

- Slow and Deep
- Infrequent
- Drip line or wider

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Choosing a site—When to water

- Year 1: 1x / week
- Years 2-3: Every other week
- Years 3+: As needed
- All Years: Delay watering by 1 week for rainfall over 1”
Choosing a site – Light

- Light = Photosynthesis = Sugar = Growth = Fruit
- 8 hours of full, direct sun
- Morning sun is best if you have to choose
- Balanced growth

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Choosing a site – Climate - Chilling Hours

- Chilling Hours
  - Required time between 32 – 45 F while dormant
  - Bud development
  - 500 – 800 for Austin

Choosing a site – Climate - Hardiness

- Cold Hardiness
  - Avg. min temp
  - Mature plant
  - Survive ≠

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Planting trees – Girdling roots

• Girdling roots kill trees
• Roots get thicker over time
• Trees cannot ‘choose’ which roots grow
• Only one chance to fix it
Keeping trees healthy

- Pruning
- Pests & Diseases
- Fertility


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Keeping trees healthy - Pruning

• Why prune?
  – Air circulation
  – Sunlight
  – Branch strength
  – Fruit production
  – Disease
  – Access
  – Space

Prunus = Prune Us
Keeping trees healthy - Pruning

- Open Center
  - Light penetration
  - Fruit within reach
  - Low profile to wind
  - Min. dripping
  - Weak branches
  - Shorter lived

- Central Leader
  - Strong structure
  - Longer lived
  - Ladders, poles
  - Dripping
  - Shade on branches

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Keeping trees healthy - Pruning

- **Open Center**
  - Peach
  - Plum
  - Apple (dwarfed)

- **Unpruned**
  - Fig
  - Citrus
  - Pomegranate

- **Central Leader**
  - Pear
  - Persimmon
  - Apple (standard)
  - Nut
  - Mulberry
  - Jujube

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Keeping trees healthy – Open Center Pruning

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Keeping trees healthy – Central Leader Pruning

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Keeping trees healthy - Pruning

Proper location of pruning cut to remove a branch is outside the branch collar.

The branch collar is the wrinkled, raised area of bark at the base of the branch where it connects to the trunk or a larger branch.

Use hand pruners to remove branches up to 3/4” thick.

The cut should leave a small, circular wound just outside of the branch collar. You do not need to spray, seal, or treat your pruning cuts.

The outside face of the blade of the pruners should be closest to the trunk or branch that will remain on.
Keeping trees healthy - Pruning

Vegetative Bud

Flower Bud (Spur)

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Keeping trees healthy – Pest and Disease

Avoidance, Acceptance, Exclusion, Extermination

https://commons.wikimedia.org/wiki/File:Plant_Disease_Triangle.svg

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Keeping trees healthy – Pest and Disease Avoidance

“Don’t grow plants that are susceptible to the pests in your area, and change the environment to be less conducive.”
Keeping trees healthy – Pest and Disease

Acceptance

“Accept a certain level of damage and loss.”

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Keeping trees healthy – Pest and Disease Exclusion

“Physically block pests from being able to reach your plants with nets, coatings, fabric, or scare devices.”

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Keeping trees healthy – Pest and Disease Extermination

"Use biological controls to kill or discourage pests."

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Plum Curculio

http://www.extension.umn.edu/garden/yard-garden/fruit/apple-pest-management/img/M1235-23.jpg
http://s202.photobucket.com/user/mark_bucket/media/peaches/weepingPeach3.jpg.html
http://www.goodfruit.com/wp-content/uploads/fad8cc0b0176c7eda9ff934db0b1c1846.jpeg

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Stink Bugs

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Leaf Footed Bugs

https://farm8.staticflickr.com/7725/17474735046_b2e103afa2_z.jpg
https://torquehitting.files.wordpress.com/2015/08/squash-the-bug.jpg
http://4.bp.blogspot.com/-a2wz3BJExqY/T9Ehj4We-FL/AAAAAAAAABA/KXGag0EkbYg/s1600/spinosad-products-arbico.jpg

The mission of the Central Texas Food Bank is to nourish hungry people and lead the community in ending hunger.
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Brown Rot

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Fire Blight
Keeping trees healthy - Fertility

- Peak N demand is during fruit ripening and spring growth flush
- Apply organic fertilizers 1-4 months ahead of nutrient demand
- Apply organic fertilizers/compost during full dormancy and after petal drop
- If soil pH binds a nutrient, it must be applied as spray
Keeping trees healthy – Fertility

<table>
<thead>
<tr>
<th></th>
<th>Alfalfa Meal or Pellets</th>
<th>Corn Gluten Meal</th>
<th>Cottonseed Meal</th>
<th>Soybean Meal</th>
<th>Bat guano (high N)</th>
<th>Blood meal</th>
<th>Bone meal</th>
</tr>
</thead>
<tbody>
<tr>
<td>N – P – K</td>
<td>2 – 1 – 2</td>
<td>9 – 0 – 0</td>
<td>6 - 0.4 - 1.5</td>
<td>7 – 2 – 1</td>
<td>10 – 3 – 1</td>
<td>12 – 0 – 0</td>
<td>3 – 15 – 0</td>
</tr>
<tr>
<td>Release Time</td>
<td>1-4 months</td>
<td>1-4 months</td>
<td>1-4 months</td>
<td>4+ months</td>
<td>1-4 months</td>
<td>1-4 months</td>
<td>1-4 months</td>
</tr>
<tr>
<td>Pros</td>
<td>Available at feed stores, Contains natural plant growth hormones</td>
<td>Very high N</td>
<td>High N</td>
<td>High N, available at feed stores</td>
<td>Stimulates soil microbes</td>
<td>Available at feed stores</td>
<td>Plant available P</td>
</tr>
<tr>
<td>Cons</td>
<td>May contain seeds</td>
<td>Germination inhibitor, some are GMOs</td>
<td>Pesticide residues, GMO</td>
<td>~50% is GMO</td>
<td>Cost</td>
<td>Can burn; cost</td>
<td>Cost</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Feather Meal</th>
<th>Fish Emulsion</th>
<th>Enzymatic Fish Liquid</th>
<th>Fish Meal</th>
<th>Fish Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>N – P – K</td>
<td>Varies</td>
<td>5 – 2 – 2</td>
<td>4 – 2 – 2</td>
<td>10 – 6 – 2</td>
<td>12 – 0.25 – 1</td>
</tr>
<tr>
<td>Release Time</td>
<td>4+ months</td>
<td>1-4 months</td>
<td>1-4 months</td>
<td>1-4 months</td>
<td>Immediate</td>
</tr>
<tr>
<td>Pros</td>
<td>Long term fertility</td>
<td>Micronutrients, mixable in water</td>
<td>More nutrients than 'plain' fish</td>
<td>N and P source</td>
<td>Micronutrients</td>
</tr>
<tr>
<td>Cons</td>
<td>Slow to release</td>
<td>Smells like dead fish</td>
<td>Cost</td>
<td>Heat processed</td>
<td>Heat processed</td>
</tr>
</tbody>
</table>


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Notes on Specific Trees

• Apple and Pear
  – Central Leader
  – Soil pH and drainage
  – Usually not self fertile
  – Lots of pests and diseases
  – Pears are a little easier
  – Fruiting spurs on 2+ year old wood

Notes on Specific Trees

• Citrus
  – Cold sensitive
  – Highly productive
  – Lots of N
  – Lots of H2O
  – Self pollinating
  – Fruits on new and old wood
  – Prune for size and structure
Notes on Specific Trees

• Fig
  – Fruits on new growth
  – Hardy to mid teens
  – No pollination required
  – Rust in wet years
  – Prune to shape and size
Notes on Specific Trees

• Mulberry
  – Native and exotic varieties
  – Fruits on new growth
  – Fall webworm, ‘popcorn’ fungus
  – Birds
Notes on Specific Trees

• Stone Fruit
  – Peach, Plum, Nectarine
  – Should be aggressively pruned every year
  – Open center
  – 12-15 years
  – Lots of pests and diseases
  – Fruits on 2 year old wood
    • Plums also make spurs, prune less aggressively

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Notes on Specific Trees

• Pecan
  – Central leader
  – 7-10 years until harvest
  – Squirrels, scab
  – Weak wood
  – Messy
  – Wind pollinated, not self pollinating
  – Deep, rich soil and lots of water

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Notes on Specific Trees

• Asian persimmon
  – Astringent and Non-astringent varieties
  – Self pollinating
  – Central leader
  – Fruits on new growth
  – No major problems

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Notes on Specific Trees

• **Pomegranates**
  – Hardy to mid teens, some varieties lower
  – Commercial production prunes to 4-12 trunks
  – Home production can be left unpruned
  – Fruits on new growth coming off of old growth
  – Black heart in humid areas
  – Self pollinating
Notes on Specific Trees

• Jujube
  – Fruit is sweet but kind of dry
  – Better fruit set with multiple varieties
  – No pests or diseases
  – Super drought hardy
  – Has thorns
  – Central leader
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