PECAN MANAGEMENT
OSU Extension

Tips for a Successful Pecan Planting

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Business Plan?

- Native grove/Improved orchard?
- Wholesale/Retail?
- Cattle grazing/No grazing?
- Irrigation/Dry land?
- High Intensity Inputs/ Minimal Inputs?

Typical Management Programs

Low-Input

- Minimal fungicides
- Minimal insecticides
- Lower N & K fertilization
- Infrequent fruit thinning
- Not irrigated
- Shelling market
- Grazing?

High-Input

- Up to 8 fungicide applications
- IPM program
- Higher N & K fertilization
- Fruit thinning
- Moderate to well-drained soil
- Infrequent flooding
- Ground cover management
- Irrigated
- Premium market
- No grazing

Orchard Site Selection

- Soil type and depth
- Water availability & quality
- Air and water drainage
- Location
- Orchard design
- Overall goal

Establishing a Pecan Orchard – HLA-6247

Site Selection

Although pecans may exist at a site, there may be problems with the site:

- Delayed production
- Low survivability
- Reduced yield potential
- Increased management and input requirements

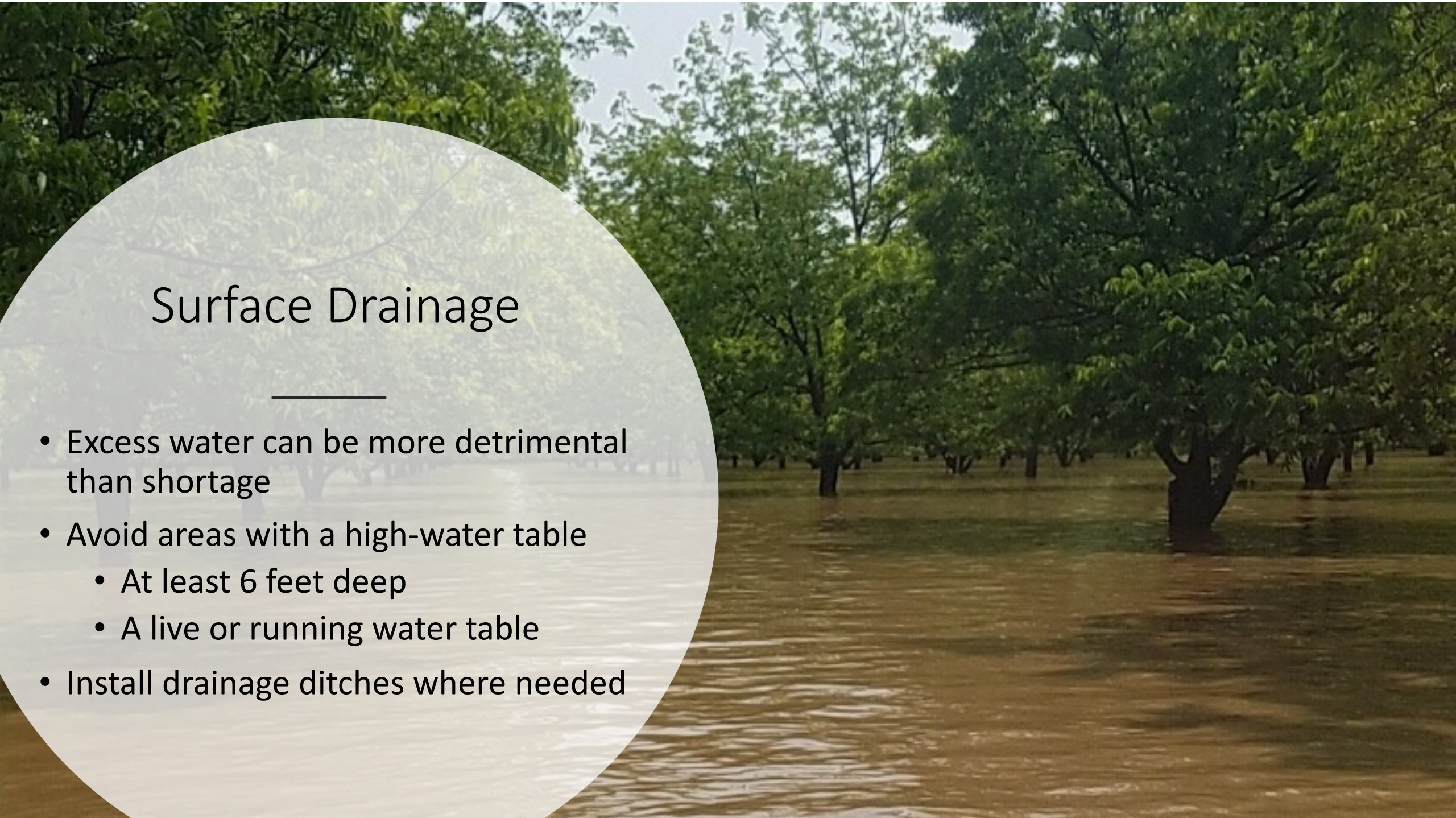
Soil Type

Soil Infiltration Rate is the rate at which water enters bare soil at a specific time during the irrigation cycle.

Texture	Intake Rate (in/hr)
Coarse Sand	0.75 –1.00
Fine Sand	0.50 – 0.75
Fine Sandy Loam	0.35 – 0.50
Silt Loam	0.25 – 0.40
Clay Loam	0.10 – 0.10

Soil Depth

- Ideally, soil depth should be at least 72 inches to allow tap root penetration
- Soils at least 24 inches deep can be productive with adequate irrigation
- Shallower soils are suitable for ornamental trees



Surface Drainage

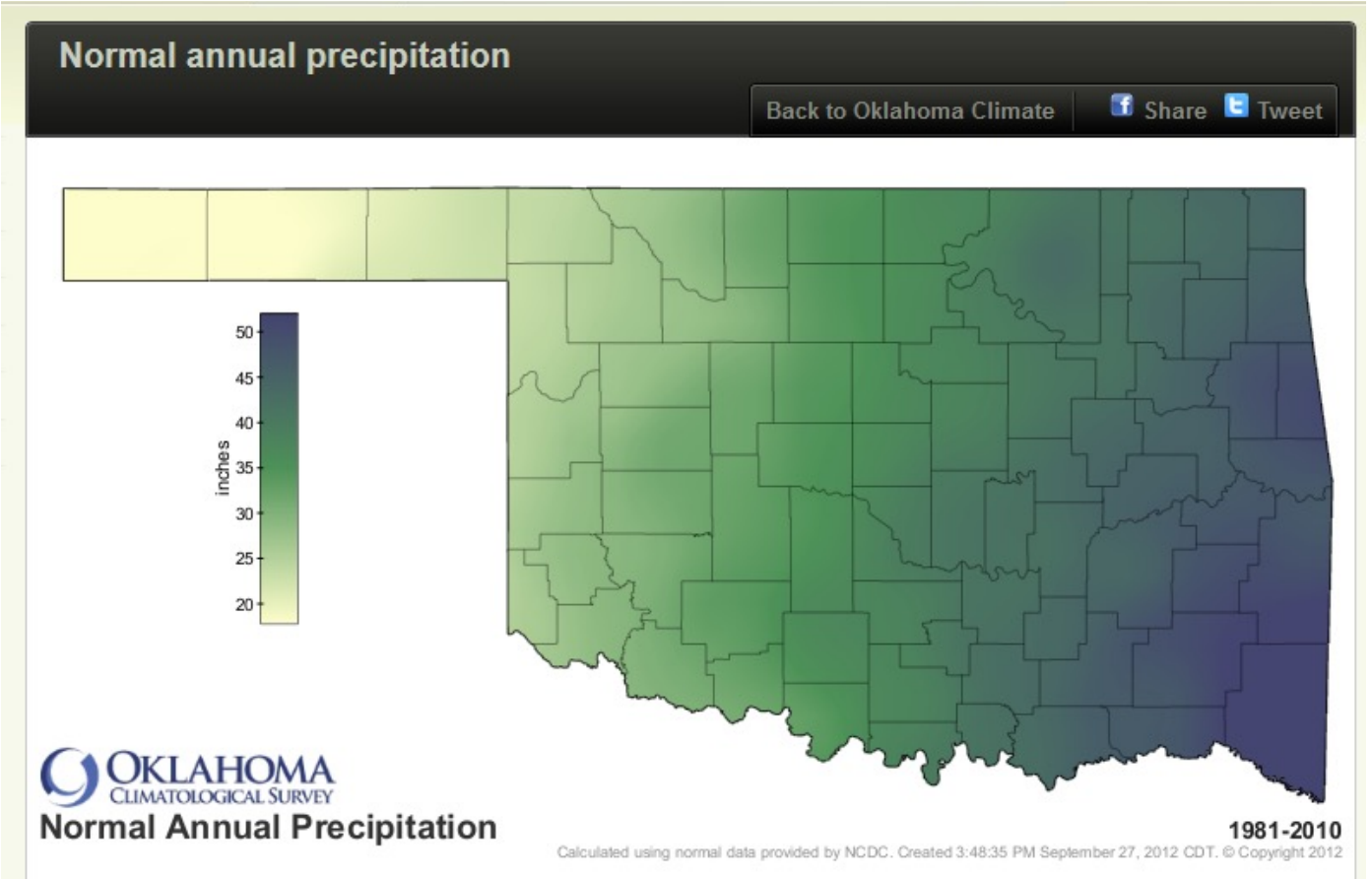
- Excess water can be more detrimental than shortage
- Avoid areas with a high-water table
  - At least 6 feet deep
  - A live or running water table
- Install drainage ditches where needed

Soil Drainage

Drainage standards for pecan trees Test hole depth: 32 inches	
Category	Observed drainage in a 48 hr period
Well drained	32 inches
Moderately drained (compromised yield)	12-32 inches
Poorly drained (stunted growth/death)	Less than 12 inches

Water Requirement

- Pecans require about 54” of water per year (ET).
- Ability to supplement rainfall
- When is irrigation important?
  - Growth stages?
    - Nut sizing
    - Nut filling
    - Shuck opening
- How to determine irrigation needs?



Water (Irrigation)

- Quality
- Volume
- Irrigation Type
- Labor Requirements
- Cost

Quantity Required-Pecans

Height	Age (years)	Volume (gallons/day)
Less than 5’	1 - 3	1 – 4
5’	3 – 5	2 – 5
10’	4 – 7	3 – 7
15’	6 – 8	7 – 10
20’	8 – 10	13 – 17
25’	10 – 12	21 – 27
30’	12 – 13	31 – 39
35’	15	42 – 53
40’	25	55 – 70
50’	40	86 – 108
60’	50 +	125 - 155

Water Quality

- Irrigation water test
  - Ideal: 0-100 ppm total salt
  - Avoid: > 300 ppm total salts
  - Other measurements: Na, Cl, SAR
- Filters for drip & sprinkler systems

Variety Selection

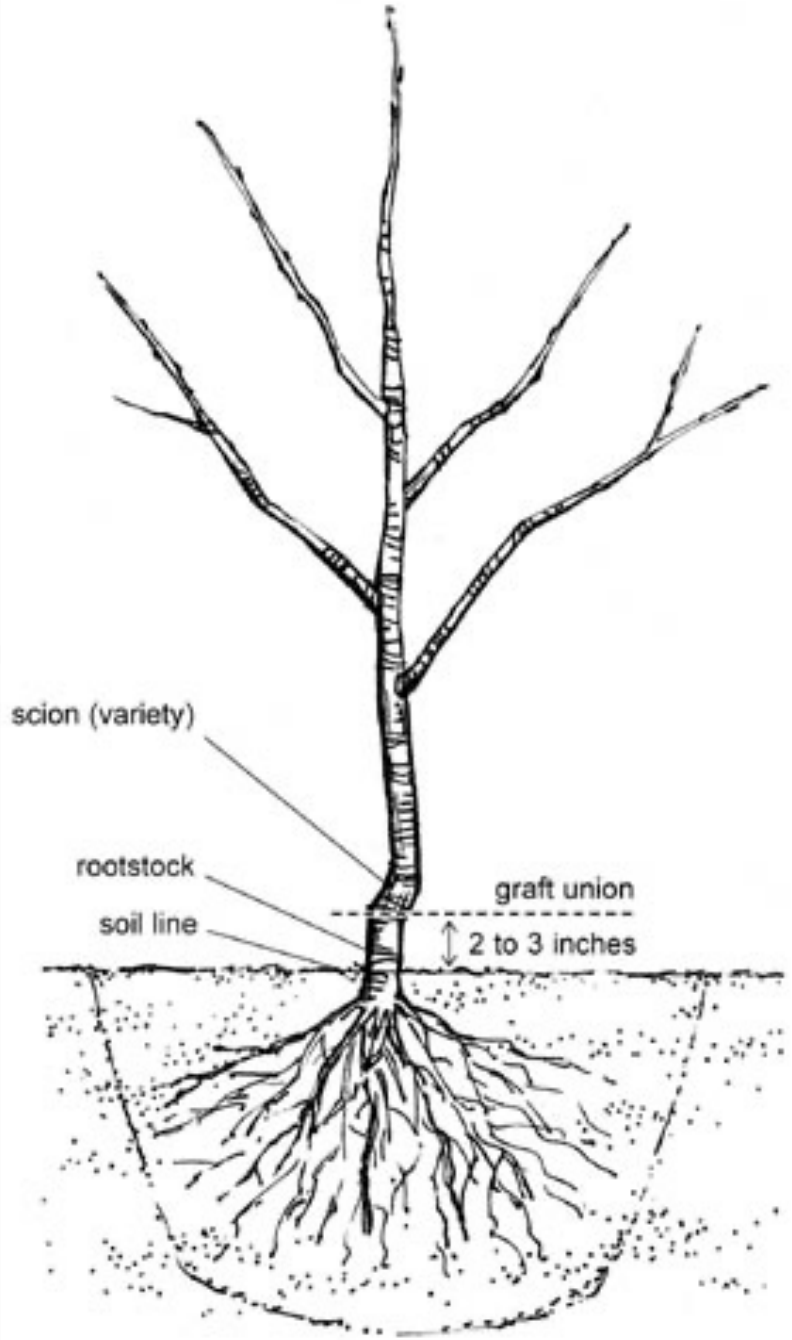
- Location (Rootstock)
- Market (Nut Size and Quality)
- Site (Nut Size)
- Management (Scab/Irrigation)
- Harvest (Maturity)
- Pollinators

Pecan Cultivars

- There is NO perfect cultivar
- All have strengths and weaknesses.
- The type of market (premium vs. shelling),
- the site,
- and the level of management planned for the orchard will influence cultivar selection.

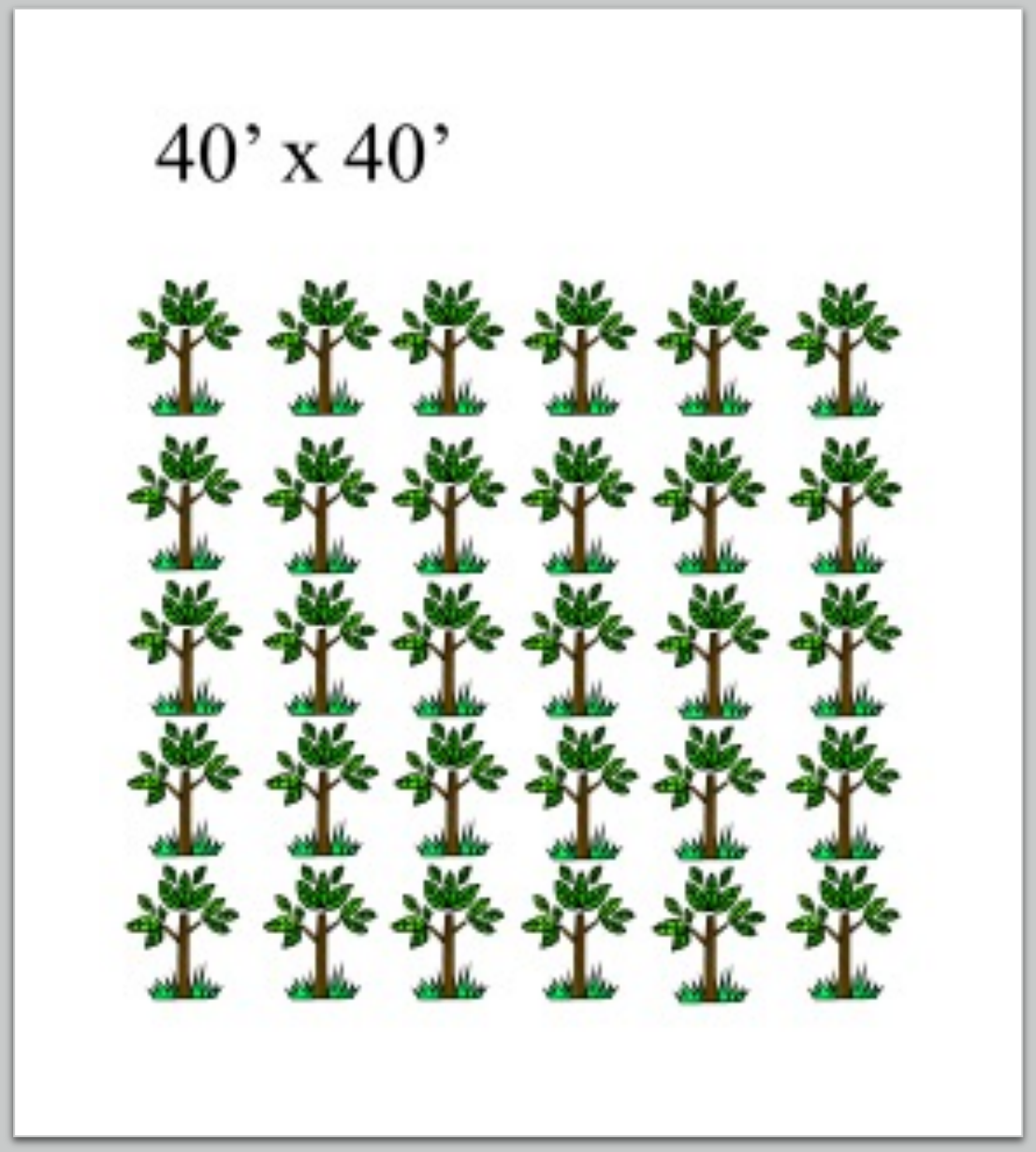
Rootstocks

- Northern growers
  - Seedlings of Giles, Peruque, Kanza?
- Southern growers
  - Seedlings of Apache, Elliott, Riverside
- Natives from area or more northerly area

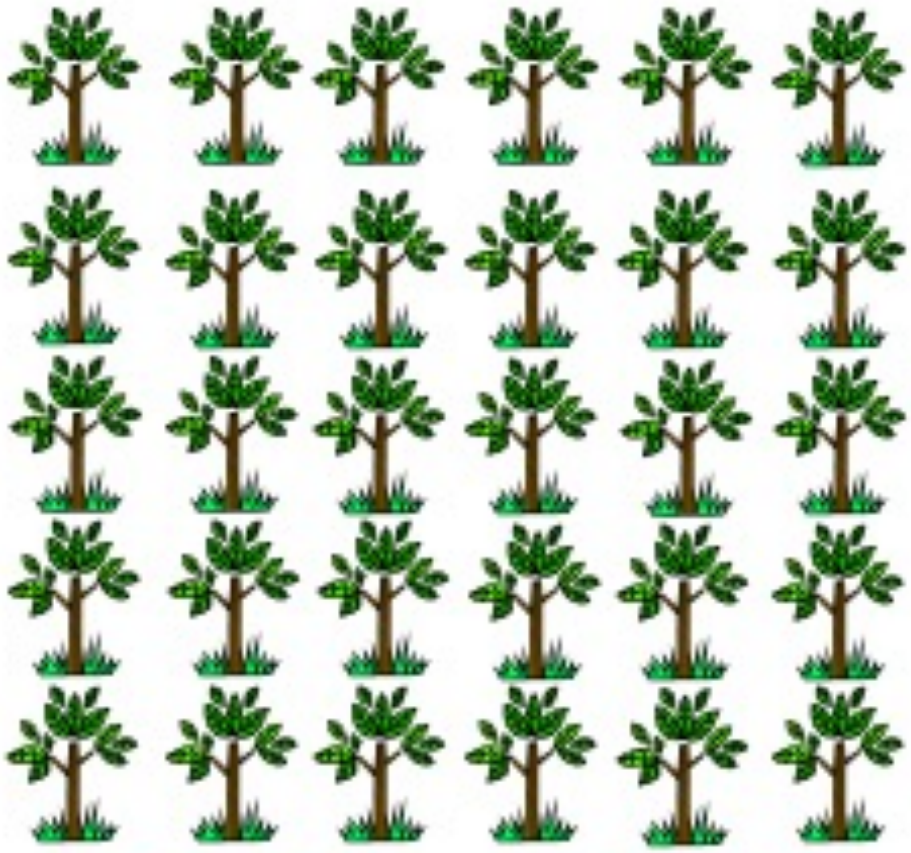


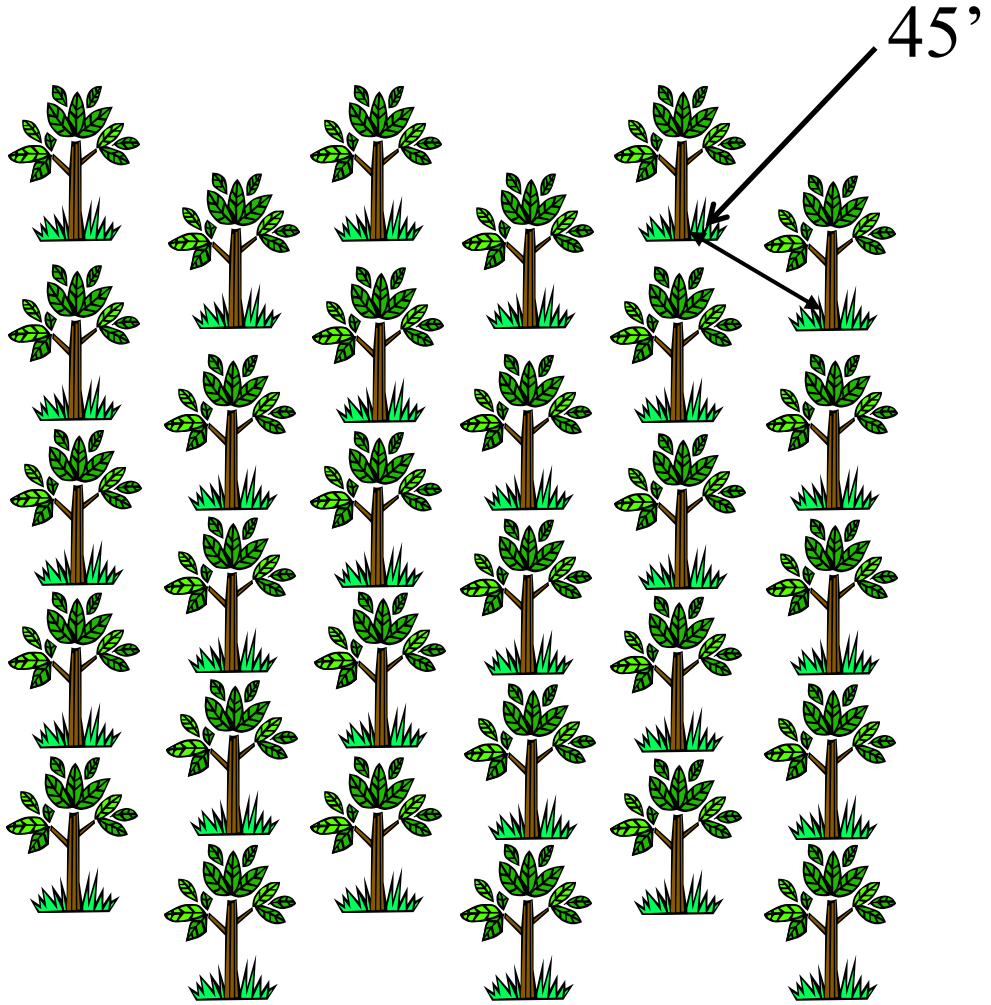
Orchard Design

- Ease in operations
  - Mowing/Spraying/Harvesting
  - Stay at least 35 foot from fence
- Proper Pollination
  - 320 feet or no further than 8 rows
- Future tree thinning
  - Pollinator rows remain after thinning
  - Beginning about year 20

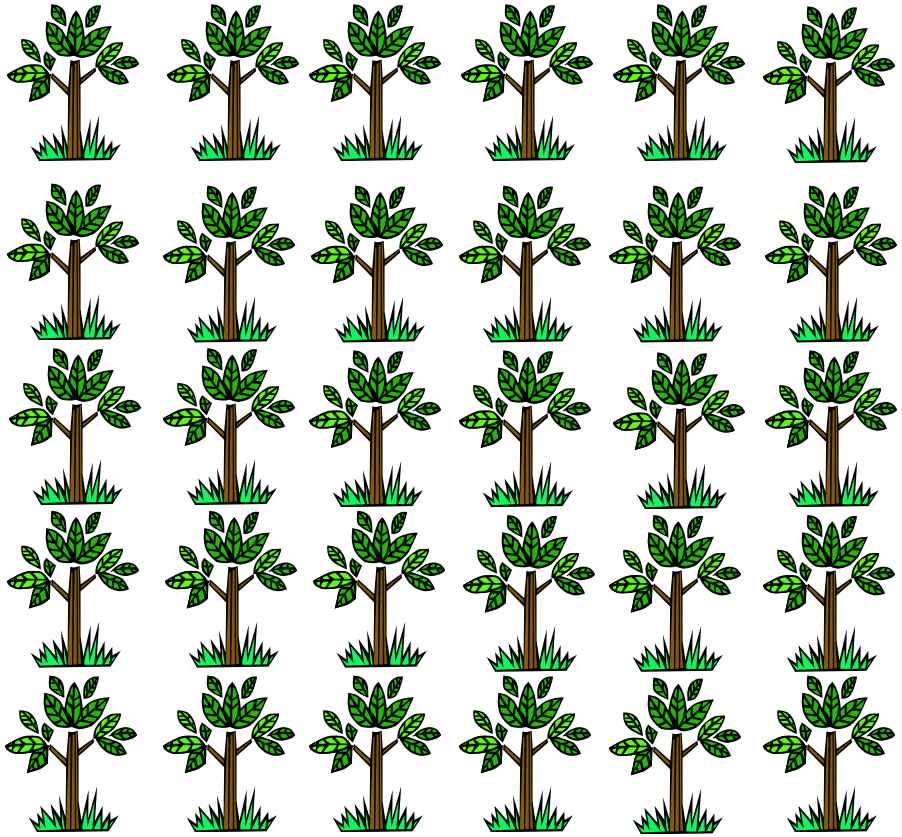


40’ x 40’ Spacing Options





Thinning



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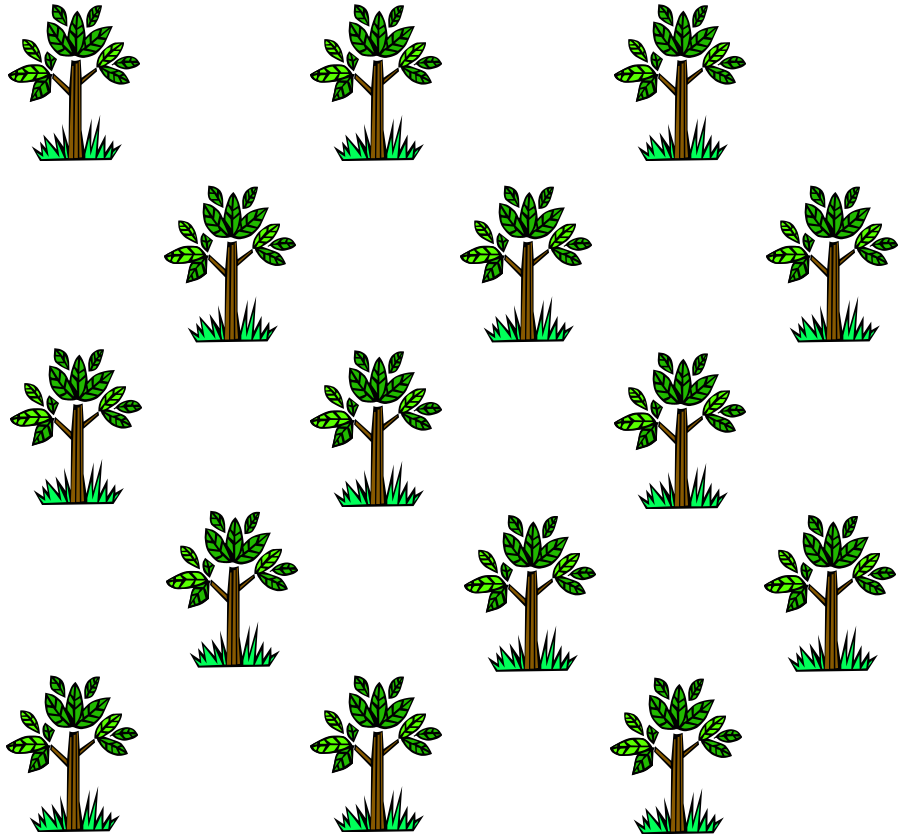


Digging planting holes

Bare Root Tree Planting

- Plant in Spring
- Cut tap root to 18”
- Dig a hole large enough to accommodate roots
- Make fresh cuts to roots

Bare Root Tree Planting

- Plant at same depth as nursery or higher
- Pack soil around the tree.
- Water in to settle soil
- Cut the top back about half

Container Tree Planting

- Plant in Fall or early spring
- Dig hole just deep enough for root system
- Remove potting mix
- Check for curled roots & remove
- Plant at same depth or more shallow



Container Tree Planting

Planting depth

Tips For Best Survival

1. Set out trees as quickly as possible.
2. Keep roots moist until planting.
3. Soak roots in water for 1 hour before planting.
4. Plant at or slightly higher than in the nursery to allow for soil settling.
5. Water tree to settle soil and to remove air pockets.
6. Prune off 1/3 to ½ of the top, cut laterals to 6-inch.
7. Do not fertilize with Nitrogen until tree has 8-10 inches of growth.
9. Water periodically-maintain good soil moisture around tree *(do not over water).*
10. Keep weeds from around tree-at least 6’.
11. Since growth in first year may be limited, protection from sunscald can help to protect the tree (whitewash, aluminum foil, tree guards, etc.).

Development of the Tree

- Maintain moisture level
  - Weed Control
  - Irrigation
- Fertilization
  - Zinc nutrition
- Training

Why is weed control important?

- Weeds include fescue, Bermuda, other grasses & broadleaf plants
- Weeds compete for moisture & nutrients
- Chemical inhibition of growth of other plants
- Greater weed free area=greater tree growth
- Weed control more important than water or nutrients

Weed Control

Weed Species	Cumulative shoot growth over 3 years (ft)
None	54
Cutleaf evening primrose	41
Pigweed	28
Primrose & pigweed	11

79% reduction in shoot growth

Best weed control practices

- Calibrate sprayer
- Identify weed problem
- Treat at proper growth stage
- Rotate herbicides to avoid resistance
- Multiple approaches – pre & post emergence; contact, systemic

- *Follow the label – It's the LAW.*

Resources for Weed Management

- Current Report 6242 Weed Control in Pecans, Apples & Peaches
- Weed Management in Pecans – James Locke w/Noble Research Institute
- Kellysolutions.com

Weed Control Options

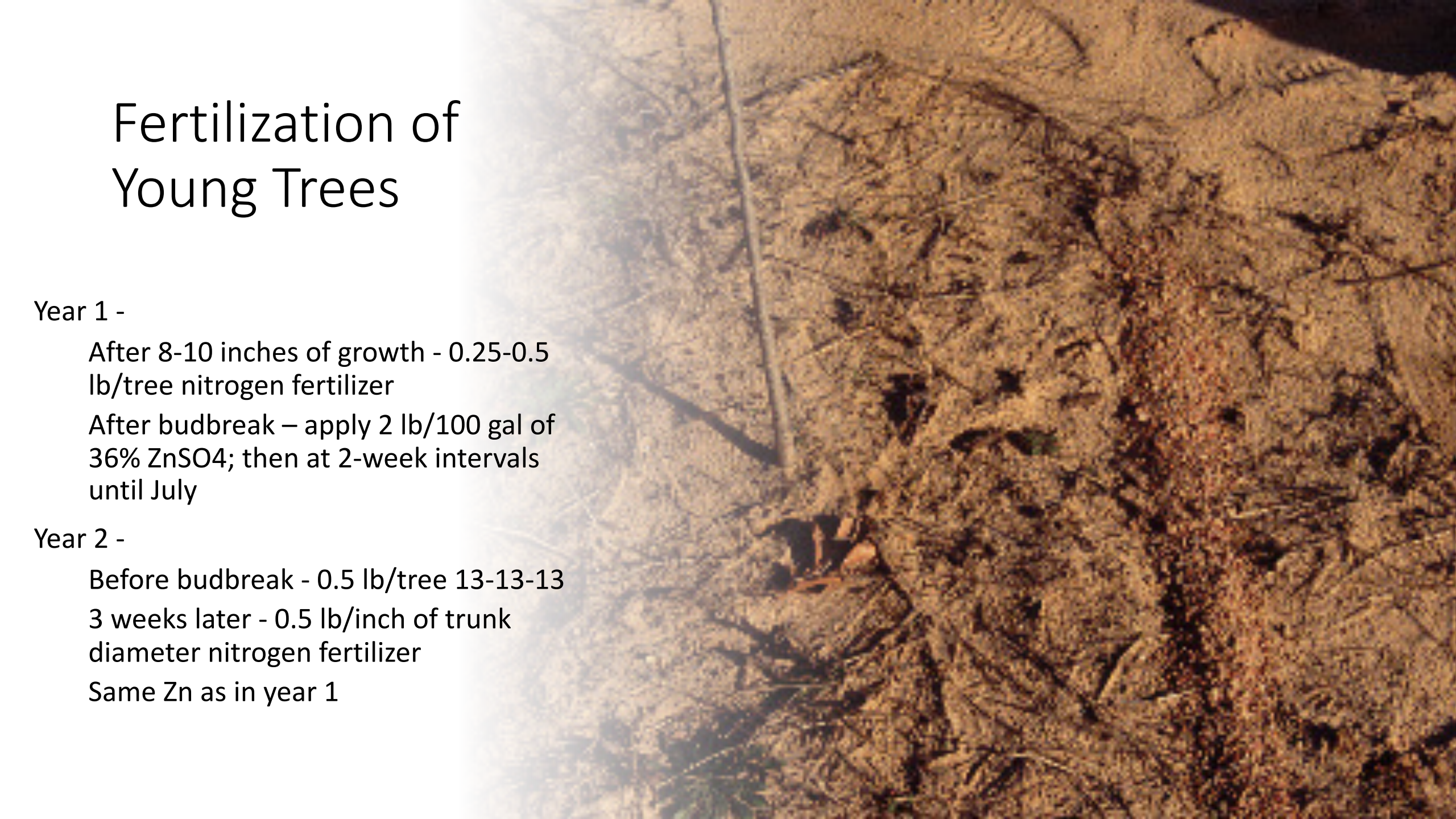
Fertilization of Young Trees

Year 1 -

- After 8-10 inches of growth - 0.25-0.5 lb/tree nitrogen fertilizer
- After budbreak – apply 2 lb/100 gal of 36% $ZnSO_4$; then at 2-week intervals until July

Year 2 -

- Before budbreak - 0.5 lb/tree 13-13-13
- 3 weeks later - 0.5 lb/inch of trunk diameter nitrogen fertilizer
- Same Zn as in year 1



Fertilization of Young Trees

Year 3 -

- Before budbreak - 1 lb/tree 13-13-13
- 3 weeks later - 0.5-1 lb/inch of trunk diameter nitrogen fertilizer
- Same Zn as in year 1
- Collect leaf samples in July

Year 4 -

- Follow leaf sample recommendations

When and what to sample?

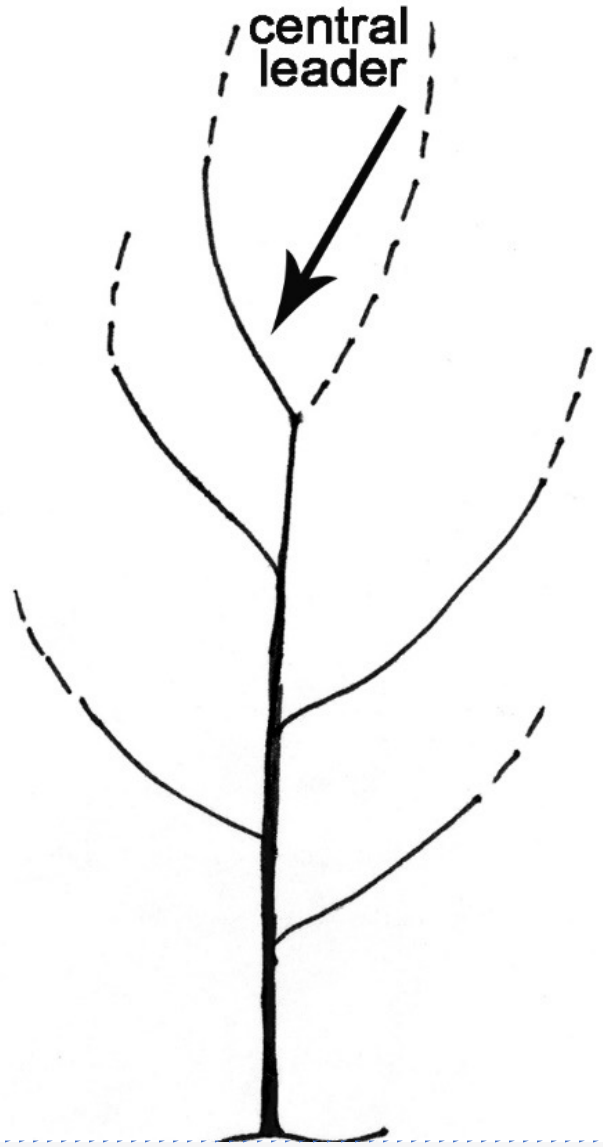
- Begin leaf sampling during third season
- Sample in July
- Collect middle pair of leaflets from the middle leaf on sun-exposed shoots
- Sample ≈50 pair of leaflets representative of the orchard.
- Rinse & dry. Store in paper bag
- Submit to county extension office
- Designate native vs. improved cultivars
- Cost of analysis - $20

HLA-6232 Fertilizing Pecan and Fruit Trees

Middle pair of leaflets

Training

- Central leader
  - Single trunk
  - Laterals with 45-to-90-degree angles
  - 10-12 inches apart
- Strong structure to withstand:
  - Weather
  - Crop load
  - Harvest operations
  - Cultural practices
  - Pest control operations



HLA-6245 Training pecan trees

Pecan Tree Pruning

Training


N


N


N


N


Q1
03/16/2011


Q1
03/16/


Q1
08/06/2011


N


N

Why manage crop load?

- Alternate bearing
- 8-10 leaves required to fill 1 nut
- Increased nut quality
  - % kernel
  - Kernel grade
  - Nut weight
- Return bloom
- Reduced cold injury
- Reduced limb breakage

Crop Load Management

- Water stage
- Nuts at 50% kernel expansion
- About Aug 3 - 10 in Central OK
- Remove by knocking them out or trunk shaker with donut pads
- % Fruiting shoots
  - large nuts – 45-50%
  - small nuts – 60-70%

HLA- 6251 Pecan Crop Load Management

Ripening

- Green shuck
  - Not ready for harvest
  - Susceptible to freeze
  - High moisture
  - Nut development still affected by stress, e.g., moisture
- Shuck split
  - Nut is mature and ready for harvest
  - Nut is released from shuck
  - No longer susceptible to freeze
  - Nut begins to dry
  - Time varies with variety

- Use early maturing varieties

Harvesting

- Long harvest period increases loss
- Homeowners - Cane pole, tarp
- Commercial growers – trunk shaker, harvester, pre-cleaner
- Harvest early for reduced losses to wildlife, may require drying

Recordkeeping & Licensing

- Pesticide Applicators License
- Safety Training Employees
- Workers Protection Standards

- Recordkeeping
- If you don't write it down, did it happen?

Restricted Use Pesticide (RUP) Recordkeeping Form for Oklahoma Private Applicators

Form Number — Keep for 2 years

Required Information	
Start & Stop Time of Application	
Total Amount of Pesticide Used	
Name of Private Applicator	
Private Applicator address	
Legal Description where applied	
Date of Application	
Application Rate	
Dilution Rate for mixing	
Total quantity of pesticide tank mix used	
Complete Trade/Brand Name	
EPA Registration Number	
Adjuvants used if required by label	
Drift Reduction Agents used if required by label	
Target Pest	
Site where pesticide applied	
Restricted Entry Interval (REI)	
Copy of pesticide label	Attach to sheet
Optional Information	
Private Applicator Number	
Wind Speed	
Wind Direction	
Temperature	
Acres treated	
Application Volume GPA	
Application Rate ounces, pints, quarts, per acre	
Tank Size	

LIVE WEBINAR

OKLAHOMA PECAN UPDATE

Monthly zooms scheduled for:

- July 9
- August 6
- September 10

Need to register each month

OSU | EXTENSION

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