Pecan Nursery Production

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Seed Stock Selection

- Requirements for seed stock
  - High quality nut (good kernel).
  - Readily available.
  - Vigorous seedlings.
  - Healthy seedlings.

- Observations from breeding program
  - Thin shell nuts are prone to rot.
  - Thick shells do not hamper germination.
  - Small nuts do as well or better than large nuts.

Seed Stock Varieties

Good

Elliot – Medium vigor, good quality nuts, healthy seedlings, easy to stratify

Curtis – Good seedling health, medium vigor, hard to find.

Caddo – Good quality nuts, very vigorous, seedlings often scab.

Desirable – Medium vigor, seedlings often scab.

Poor

Schley – Thin shell, kernel often rots, poor vigor, seedlings often scab.

Sumner – Poor vigor.

Pawnee – Seedlings often scab, slow to emerge.

Seed Stratification

- Simulates winter conditions so seed is prepared for germination.

- Requires

  Cool conditions 34-40 °F
  (not freezing).
  Moist environment
  (not wet).

Planting Experiment

- Three Treatments
  - Dry Seed: Seed kept dry in cooler until planting.
  - Soaked Seed: Seed kept dry in cooler and then soaked in running water for 3 days before planting.
  - Stratified Seed: Seed soaked in running water for 3 days then damp stratified prior to planting.
- Treatments started Nov. 1 and seed was planted Dec.1, Jan. 2, Feb. 1, Mar. 1, and Apr. 1

Results

- The dry seed and soaked seed were not different from each other.
- Stratified seed had better and earlier germination, and produced taller seedlings.

Seed Trt.	% Live	Emergence	Height (cm)
Dry Seed	81 B	May 8 B	36 B
Soaked Seed	85 AB	May 6 B	35 B
Stratified Seed	90 A	April 18 A	41 A

Stratified Seed

Planting Date	% Live	Emergence	Height (cm)
Dec. 1	86	Apr. 10 B	46 A
Jan. 2	98	Apr. 10 B	42 AB
Feb. 1	88	Apr. 12 B	38 B
Mar. 1	94	Apr. 17 B	39 B
Apri. 1	82	May 10 A	41 AB

Dry Seed

Planting Date	% Live	Emergence	Height (cm)
Dec. 1	78	Apr. 12 A	41 A
Jan. 2	80	Apr. 28 B	38 AB
Feb. 1	74	May 5 C	37 AB
Mar. 1	86	May 23 D	34 BC
Apri. 1	86	June 2 E	31 C

Planting Seed

- Generally want a close spacing
  - 1 foot within rows. 5-6 feet between rows.

- Nut much fertilizer needed the first year.
  - 50 lbs / acre N as 10-10-10 seems adequate.

Benefits of Plastic Mulch

	Caliper	Height	Shoot Wt.	Root Wt.	Total Wt.
Bare Ground	8.4	28.5	7.1	56.4	63.5
White Mulch	11.1	28.6	16.0	137.9	153.9

Black mulch kills seedlings!

It doesn't rain under the mulch!

First Year Seedling Growth

- Most energy directed towards root growth.
- Caliper increases throughout the growing season. Can get large enough to graft 1st year.
- Height is slow to develop after initial growth.
- Root length is often 2-3× height.

Second year growth.

- Final tree size strongly determined by water and fertilization.
- Seedlings grow as long as conditions are favorable.
- Can get seedlings too big to graft.

Weed Control

- Plastic mulch helps greatly except for nutsedge.
- Glyphosate (Roundup) is NOT safe around seedlings as a spray. Damage will be apparent later as strap-like leaves.
- Poast will control most grasses, need several applications.
- MSMA will control nutsedge, need several applications.
- Glufosinate (Rely) is safer than glyphosate (Roundup).

- <u>Begin control the year before planting!</u>

Weed wipers are a safe way to apply Roundup.

Insect Control

- Pecan Bud Moth – Likes juvenile growth. Will kill main growth and cause branching.
- Leaf Phyloxera – Can be severe, slows growth.
- Good control early, beginning right at budbreak, usually keeps them down all season.

Phylloxera Damage

Bud Moth Damage

Disease Control

- Scab is the only real problem in seedling stocks.
  - Plant resistant seedstock (Elliot or Curtis).
  - Water with drip tubes, not overhead.

- Grafted trees should have a regular scab control program to prevent stem lesions.

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