

A photograph of several pecan nuts scattered on a wooden surface with green pecan leaves. The nuts are light brown with dark, wavy stripes. The leaves are large and green with prominent veins. The wood is weathered and greyish-brown.

Cost of Pecan Production

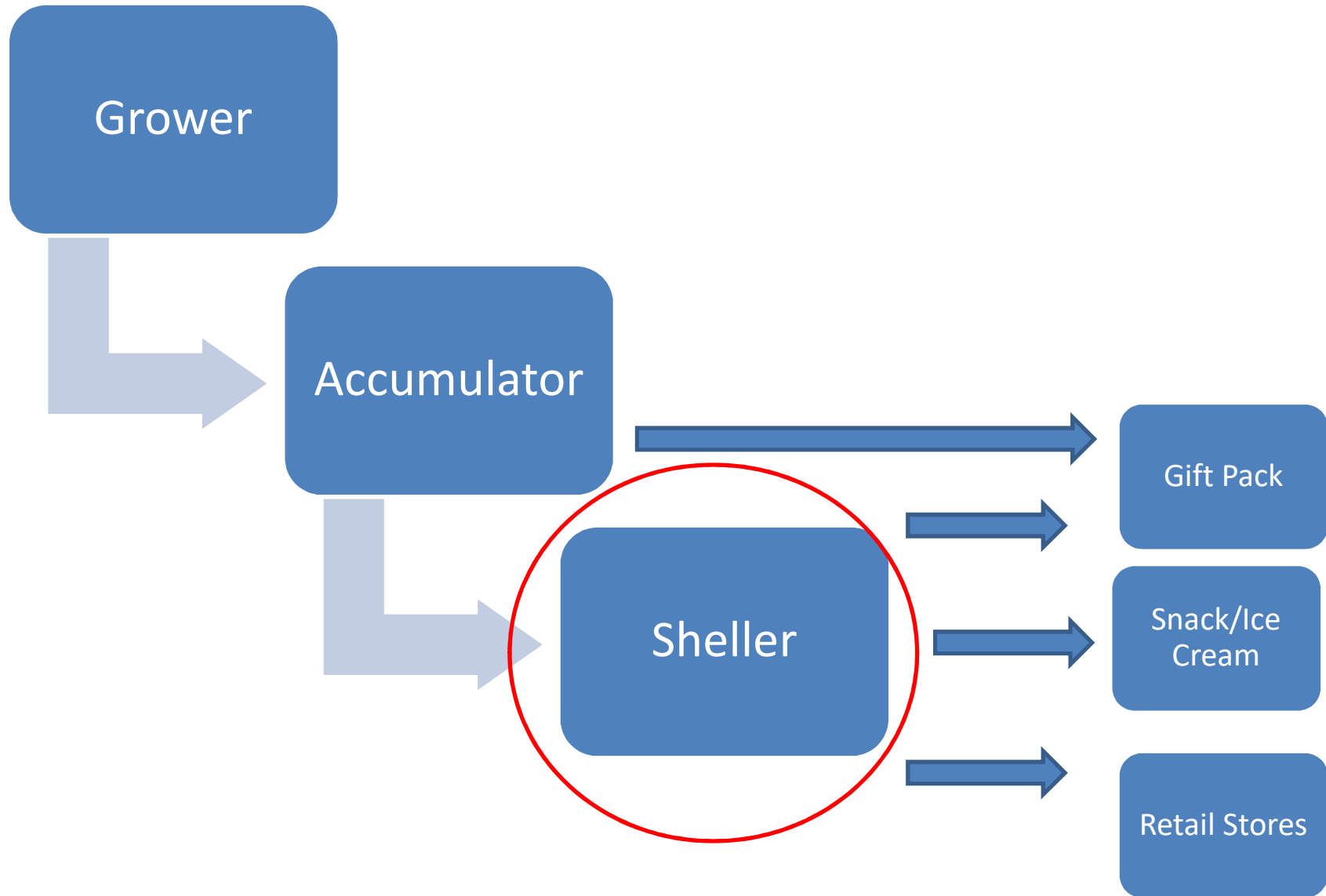
Lenny Wells

UGA Horticulture

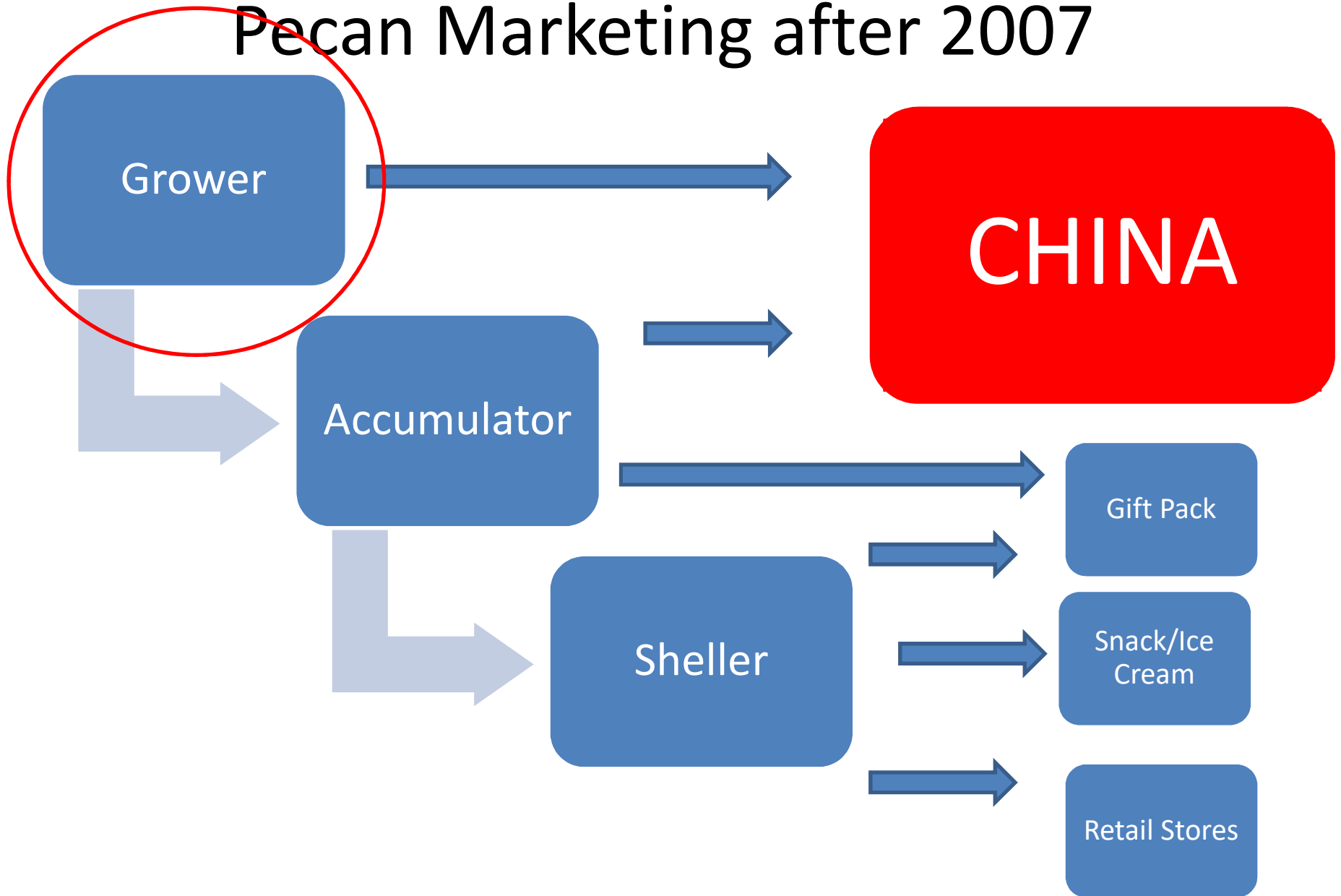
The Farmer's Dilemma

- Relatively little control over cost of production and NO control over price
- In order to change either or both of these, we have to change the way in which our industry within operates

Traditional Pecan Marketing



Pecan Marketing after 2007



How Did China Affect the Market?

- **2002**

the cost of production was \$850/acre

- **2008**

cost of production was \$1500/acre



During this period the price of pecans rose by only 27 cents/lb

- **2004**

2 million lbs exported to China

- **2007**

Price of pecans fell below that of walnuts

China bought 47 million lbs of US pecans (3X 2006 export volume)

- **2009**

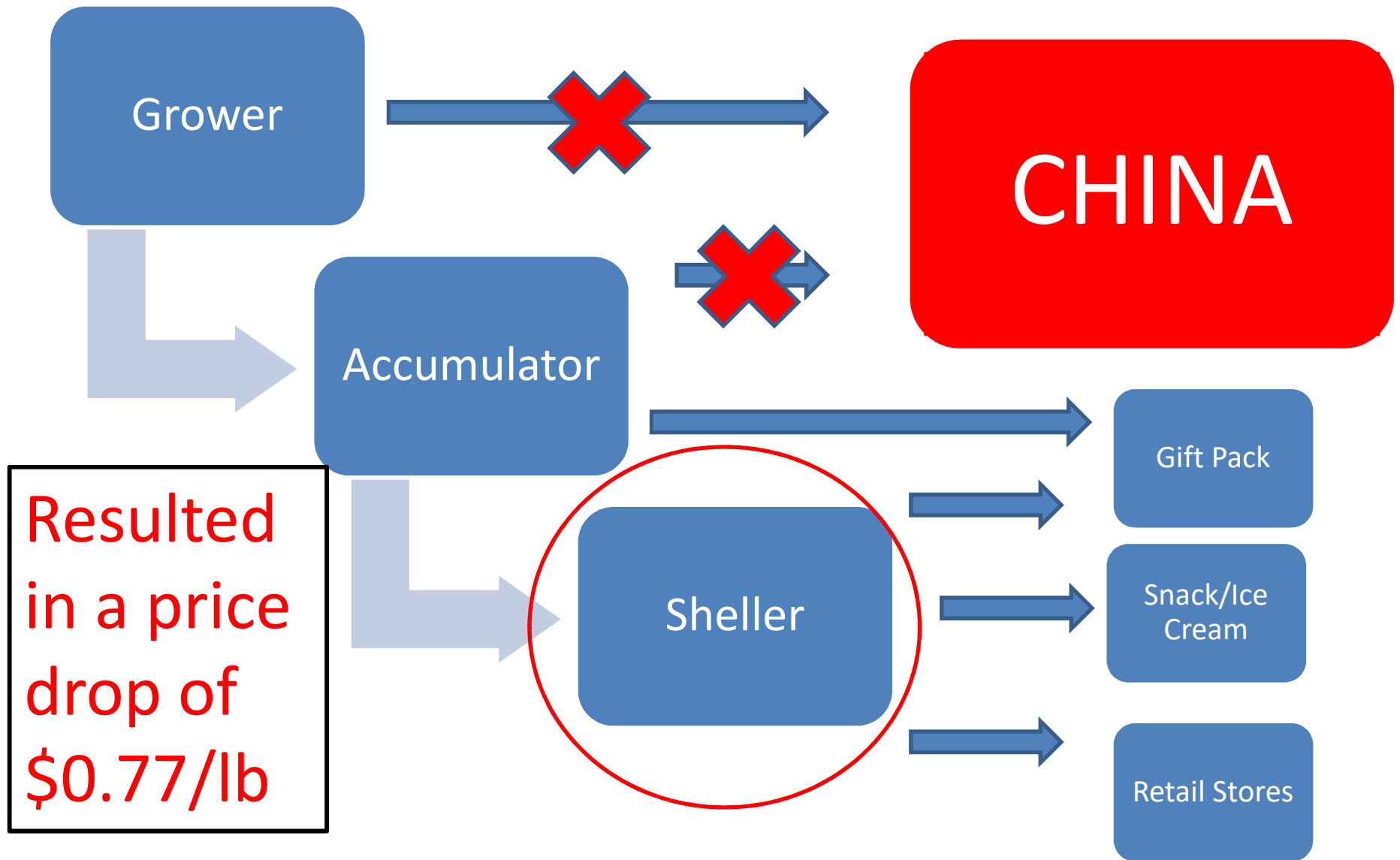
China bought over 80 million lbs (1/4 of US crop)

- **2011**

Average price was \$2.43/lb---a record for 3 years in a row

An increase of \$1/lb paid to the grower compared to pre-China market

Pecan Marketing after April 2018



The Mexico Problem

- **Mexico**
 - 278,176 acres of pecans (2015)
 - Adding 10,000 new acres/year
 - 270.5 million lbs production (2015)
 - Now likely closer to 300 million
 - Capable of supplying nearly half world supply of pecans
- **When U.S. shellers bring in pecans from Mexico:**
 - We cannot grow the pecans we have been growing and compete economically with Mexico

The Pecan Industry at a Crossroads

Tariffs

Storm Recovery

Low Domestic Demand

Stored Supply



Mexico Crop

Cost of Production

South Africa Crop

Pecan Market Issues

- Without the in-shell China market, SE growers have lost leverage in the market
- The World is moving to a shelled market
- Western growers are less affected by the influx of Mexican crop into the U.S. because of the cultivars they grow
- Domestic shellers appear to be moving away from the old Georgia Stuart blends
- We have to grow better quality nuts with more uniformity and a lower cost of production to compete on the domestic market and we have to develop new markets
- Going forward, everyone needs some level of direct marketing
- Can't move pieces
 - Why?
 - When pieces price drops, shellers panic and bottom falls out

How Do We Keep Pecans Profitable?

| | 2018 | 2019 | 2020 |
|------------|--------------|-------------|---------------|
| Stuart | \$1.44 | \$1.55 | \$1.05-\$1.30 |
| Moneymaker | \$0.8-\$1.10 | \$1.00-1.10 | \$0.40-\$0.70 |

- Manage Cost
- Become More Efficient---Cut Costs Not Corners
 - More/Same volume for less money
- Varieties---Fungicides account for 12% of variable production cost



Disease Management

- Pecan Scab is the most important pest to consider in SE
- Scab thrives in warm, moist conditions
- Most commercial varieties must be sprayed preventatively with fungicides
- Fungicides must be rotated and/or tank-mixed to prevent development of resistance
- Failure to control scab leads to loss of supply and quality



Insect Management

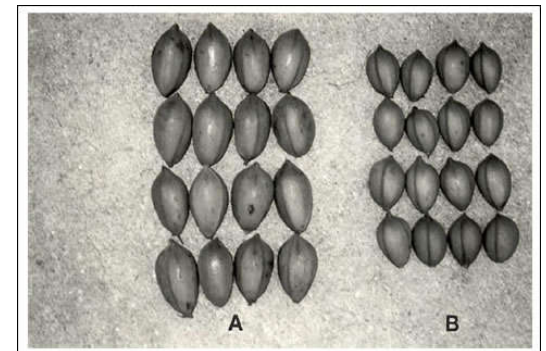
- Phylloxera, Pecan Nut Casebearer, Black Aphids, Yellow Aphids, Nut curculio, Hickory Shuckworm, Scorch Mites, and Pecan Weevil
 - Heaviest pressure occurs late season from July-September
 - Number of applications varies by year
 - Cost of insecticides rising
 - Insects can affect quality and supply of nuts



Value of Irrigation

| Water Application (Gal/Day/Acre) | Yield/Acre (lbs) | % Increase | Value of Increase (\$) (@ \$2.00/lb) |
|-------------------------------------|---------------------|------------|--|
| 0 | 1034* | 0 | 0 |
| 1200 | 1374 | 32 | 680 |
| 3600 | 1761 | 70 | 1454 |

*Non-Irrigated pecan orchards rarely produce >1000 lbs/acre

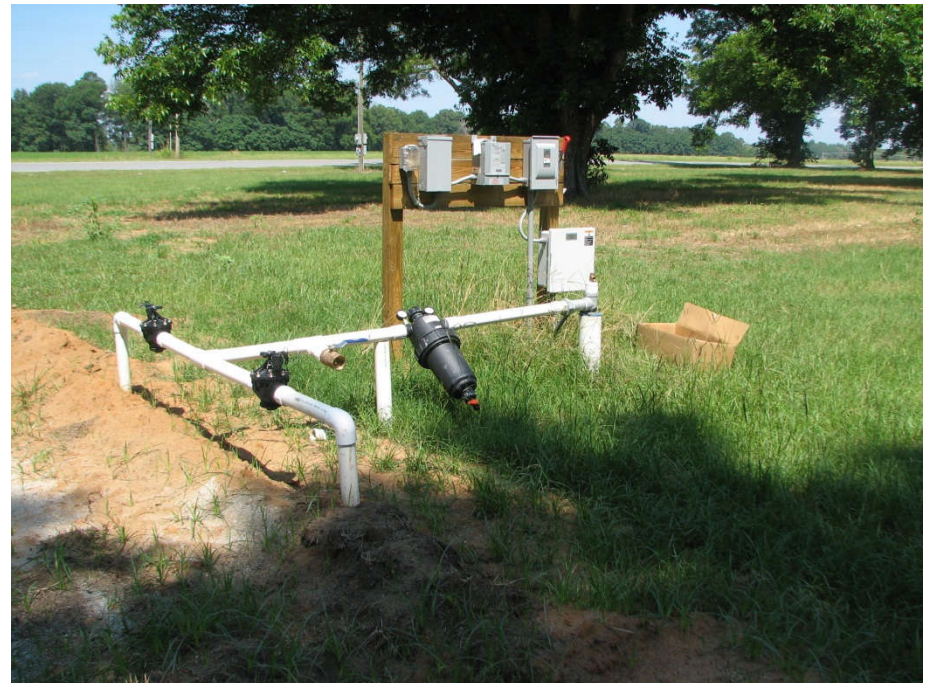


'Stuart'

Daniel, J.W. 1982

Costs of Drip Irrigation

- Most irrigation in the SE uses well water
 - No water quality issues
- System Parts and Installation:
 - \$800 per acre
 - Subject to depreciation only after trees begin to bear crop
- Well & Pump: 4" + 5 hp = \$7800
 - 6"+30 hp = \$34,000
 - Large acreage = >\$100,000
- Operation Cost: \$35-\$60 per acre



Equipment Costs

| Item | Cost | Interest (3.5%) | Insurance | TOTAL |
|-----------------------|---------|-----------------|-----------|------------|
| Herb. Sprayer | 7500 | 262.50 | 4 | |
| Air-blast Sprayer | 150,000 | 5250 | 546 | |
| Rotary Mower | 20,000 | 700 | 47 | |
| Dump Wagon | 30,000 | 1050 | 84 | |
| Harvest Wagon | 8000 | 280 | 14 | |
| Tractor (100 hp) | 100,000 | 3500 | 340 | |
| Light Tractor (50 hp) | 40,000 | 1400 | 239 | |
| Truck | 30,000 | 1050 | 50 | |
| Blower | 7500 | 262.50 | 31 | |
| Sweeper | 19,500 | 682.50 | 84 | |
| Harvester | 60,000* | 2100 | 269 | |
| Shaker | 160,000 | 5600 | 798 | |
| TOTAL | 632,500 | 22,137.50 | 2507 | 657,144.50 |

Small Savage Harvester:
est. \$30,000

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est. \$30,000

Orchard Establishment

| Items | Units | Quantity | Price | Amount |
|----------------------|---------|----------|-------|----------------|
| Lime | Ton | 1 | 30 | 30 |
| Fertilizer | Lbs | 29 | .35 | 10.15 |
| Zinc Sulfate | Lbs | 29 | .68 | 19.72 |
| Foliar Zn | Acre | 3 | .5 | 1.50 |
| Herbicide | Acre | 4 | 29.25 | 117 |
| Trees | Trees | 29 | 20 | 580 |
| Labor | Hrs | 20 | 8 | 160 |
| Fuel | Gallons | 10 | 3.14 | 31.40 |
| Repair/Maintenance | Acre | 1 | 40.08 | 40.08 |
| Irrigation System* | Acre | 1 | 1140 | 1140 |
| Irrigation Operation | Acre | 1 | 39 | 39.00 |
| Interest | --- | 2168.85 | .05 | 2277.29 |

*Includes 6"well+pump, materials, installation

Variable Cost of SE Pecan Production

| Items | Units | Quantity | Price | Amount |
|-----------------------|-------|----------|--------|---------|
| Lime | Ton | 1 | 30 | 30 |
| Nitrogen | Lbs | 125 | .49 | 61.25 |
| Phosphorous | Lbs | 40 | .51 | 20.4 |
| Potassium | Acre | 60 | .39 | 23.4 |
| Zinc Sulfate | Acre | 25 | .5 | 12.5 |
| Foliar Zn | Trees | 3 | 2 | 6 |
| Foliar Boron | Hrs | 3 | 1.30 | 3.9 |
| Fungicides | Acre | 10* | 16 | 160 |
| Herbicides | Acre | 4 | 29.25 | 117 |
| Insecticides | Acre | 8 | 14.97 | 119.76 |
| Labor | Hours | 25 | 8 | 200 |
| Fuel | Gal | 33 | 3.14 | 103.62 |
| Repairs & Maint. | Acre | 1 | 55 | 55 |
| Irrigation Op & Maint | Acre | 1 | 70 | 70 |
| Interest | | 982.83 | 0.05 | 1031.97 |
| Harvest Variable Cost | Acre | 1 | 453.91 | 453.91 |
| Total | | | | 1485.88 |

Variable Cost of SE Pecan Production

| Items | Units | Quantity | Price | Amount |
|-----------------------|-------|-----------|--------|-----------------|
| Lime | Ton | 1 | 30 | 30 |
| Nitrogen | Lbs | 125 | .49 | 61.25 |
| Phosphorous | Lbs | 40 | .51 | 20.4 |
| Potassium | Acre | 60 | .39 | 23.4 |
| Zinc Sulfate | Acre | 25 | .5 | 12.5 |
| Foliar Zn | Trees | 3 | 2 | 6 |
| Foliar Boron | Hrs | 3 | 1.30 | 3.9 |
| Fungicides | Acre | 16 (+60%) | 16 | 256 (+60%) |
| Herbicides | Acre | 4 | 29.25 | 117 |
| Insecticides | Acre | 8 | 14.97 | 119.76 |
| Labor | Hours | 25 | 8 | 200 |
| Fuel | Gal | 33 | 3.14 | 103.62 |
| Repairs & Maint. | Acre | 1 | 55 | 55 |
| Irrigation | Acre | 1 | 70 | 70 |
| Interest | | 1118.32 | 0.05 | 1174.24 |
| Harvest Variable Cost | Acre | 1 | 453.91 | 453.91 |
| Total | | | | 1628.15 (+9.5%) |

Net Returns/acre

Assumes \$1485.88/acre cost

Yield (lbs/acre)

| | 500 | 800 | 1000 | 1200 | 1500 | 2000 |
|-----|---------|---------|---------|---------|---------|---------|
| 1 | -985.88 | -685.88 | -485.88 | -285.88 | 14.12 | 514.12 |
| 1.1 | -935.88 | -605.88 | -385.88 | -165.88 | 164.12 | 714.12 |
| 1.2 | -885.88 | -525.88 | -285.88 | -45.88 | 314.12 | 914.12 |
| 1.3 | -835.88 | -445.88 | -185.88 | 74.12 | 464.12 | 1114.12 |
| 1.4 | -785.88 | -365.88 | -85.88 | 194.12 | 614.12 | 1314.12 |
| 1.5 | -735.88 | -285.88 | 14.12 | 314.12 | 764.12 | 1514.12 |
| 1.6 | -685.88 | -205.88 | 114.12 | 434.12 | 914.12 | 1714.12 |
| 1.7 | -635.88 | -125.88 | 214.12 | 554.12 | 1064.12 | 1914.12 |
| 1.8 | -585.88 | -45.88 | 314.12 | 674.12 | 1214.12 | 2114.12 |
| 1.9 | -535.88 | 34.12 | 414.12 | 794.12 | 1364.12 | 2314.12 |
| 2 | -485.88 | 114.12 | 514.12 | 914.12 | 1514.12 | 2514.12 |
| 2.1 | -435.88 | 194.12 | 614.12 | 1034.12 | 1664.12 | 2714.12 |
| 2.2 | -385.88 | 274.12 | 714.12 | 1154.12 | 1814.12 | 2914.12 |
| 2.3 | -335.88 | 354.12 | 814.12 | 1274.12 | 1964.12 | 3114.12 |
| 2.4 | -285.88 | 434.12 | 914.12 | 1394.12 | 2114.12 | 3314.12 |
| 2.5 | -235.88 | 514.12 | 1014.12 | 1514.12 | 2264.12 | 3514.12 |

In-shell
price per
Pound (\$)

Average price for GA pecans in 2020 = \$1.19/lb

Net Returns/acre

Assumes \$1628.15/acre cost

Yield (lbs/acre)

| | 500 | 800 | 1000 | 1200 | 1500 | 2000 |
|-----|----------|---------|---------|---------|---------|---------|
| | -1128.15 | -828.15 | -628.15 | -428.15 | -128.15 | 371.85 |
| 1 | -1128.15 | -828.15 | -628.15 | -428.15 | -128.15 | 371.85 |
| 1.1 | -1078.15 | -748.15 | -528.15 | -308.15 | 21.85 | 571.85 |
| 1.2 | -1028.15 | -668.15 | -428.15 | -188.15 | 171.85 | 771.85 |
| 1.3 | -978.15 | -588.15 | -328.15 | -68.15 | 321.85 | 971.85 |
| 1.4 | -928.15 | -508.15 | -228.15 | 51.85 | 471.85 | 1171.85 |
| 1.5 | -878.15 | -428.15 | -128.15 | 171.85 | 621.85 | 1371.85 |
| 1.6 | -828.15 | -348.15 | -28.15 | 291.85 | 771.85 | 1571.85 |
| 1.7 | -778.15 | -268.15 | 71.85 | 411.85 | 921.85 | 1771.85 |
| 1.8 | -728.15 | -188.15 | 171.85 | 531.85 | 1071.85 | 1971.85 |
| 1.9 | -678.15 | -108.15 | 271.85 | 651.85 | 1221.85 | 2171.85 |
| 2 | -628.15 | -28.15 | 371.85 | 771.85 | 1371.85 | 2371.85 |
| 2.1 | -578.15 | 51.85 | 471.85 | 891.85 | 1521.85 | 2571.85 |
| 2.2 | -528.15 | 131.85 | 571.85 | 1011.85 | 1671.85 | 2771.85 |
| 2.3 | -478.15 | 211.85 | 671.85 | 1131.85 | 1821.85 | 2971.85 |
| 2.4 | -428.15 | 291.85 | 771.85 | 1251.85 | 1971.85 | 3171.85 |
| 2.5 | -378.15 | 371.85 | 871.85 | 1371.85 | 2121.85 | 3371.85 |

In-shell
price per
Pound (\$)

Replace the Old Stuart Blend Orchard

- Replace old cultivars with cultivars that have a decent level of scab resistance and/or better quality nuts than Stuart.

- | | | |
|----------|------------|------------|
| – Avalon | --Creek* | ---Eclipse |
| – Zinner | --Lakota | |
| – Ellis | --McMillan | |
| – Sumner | --Excel | |
| – Oconee | --Caddo* | |

- Can't sacrifice quality for quantity
 - Percent kernel should be in mid 50's or better



Reducing Cost: Things to Keep in Mind for New Plantings

- *STOP PLANTING DESIRABLE*
- Plant cultivars that produce quality with good scab resistance
 - Goal: 6-8 fungicide sprays max
- If you plant a scab susceptible cultivar, make sure it has an early harvest date/short season
 - Pawnee, Caddo



We Can Grow Pecans for Less

| | Yield | Count | % kernel | Cost/A | Price (\$) | Gross (\$) | Net (\$) |
|-----------|-------|-------|----------|---------|------------|------------|----------|
| Desirable | 1431 | 42 | 53 | 1487.06 | 2.10 | 3005.10 | 1518.04 |
| Pawnee | 1134 | 45 | 56 | 1455.06 | 2.65 | 3005.10 | 1550.04 |
| Lakota | 2058 | 48 | 60 | 1184.30 | 1.95 | 4013.10 | 2828.80 |
| Excel | 1927 | 42 | 52 | 1184.30 | 1.85 | 3564.95 | 2380.65 |
| McMillan* | 1060 | 51 | 54 | 1184.30 | 1.85 | 1961 | 776.70 |

- Assumes **12 fungicide sprays** & 6 insecticide sprays for **Desirable**
- **10 fungicide sprays/6** insecticide sprays for **Pawnee**
 - 1 casebearer, 2 aphid, 2 shuckworm, 1 mite
- **Cost reductions (from Desirable) for low input:**
 - Fungicide = 0 sprays = **-\$192**
 - Insecticide = 4 sprays (2 aphid, 1 mite, 2 shuckworm) = **-\$29.94**
 - Fuel = Reduced trips over orchard by 78% = **-\$80.82**
 - Total Cost Reduction = **\$302.76/acre**



Hedging



Average Cost=\$200/acre

Most hedging in SE on 4-5 yr cycle, so:

$\$200 \times .25 = \$40-50/\text{acre}/\text{year}$

Management Practices for Reduced Cost

- Water
- Sunlight
- Air Flow
- Requires Adequate Tree Spacings
 - Plant at 30 X 50, 40 X 40, 25 X 50, 30 X 60, 46 X46
- Tighter spacings have potential to increase early yield but require more input
 - Hedging, transplanting, irrigation cost and repair
 - More trees per acre = increased disease and insect pressure



Questions?

