

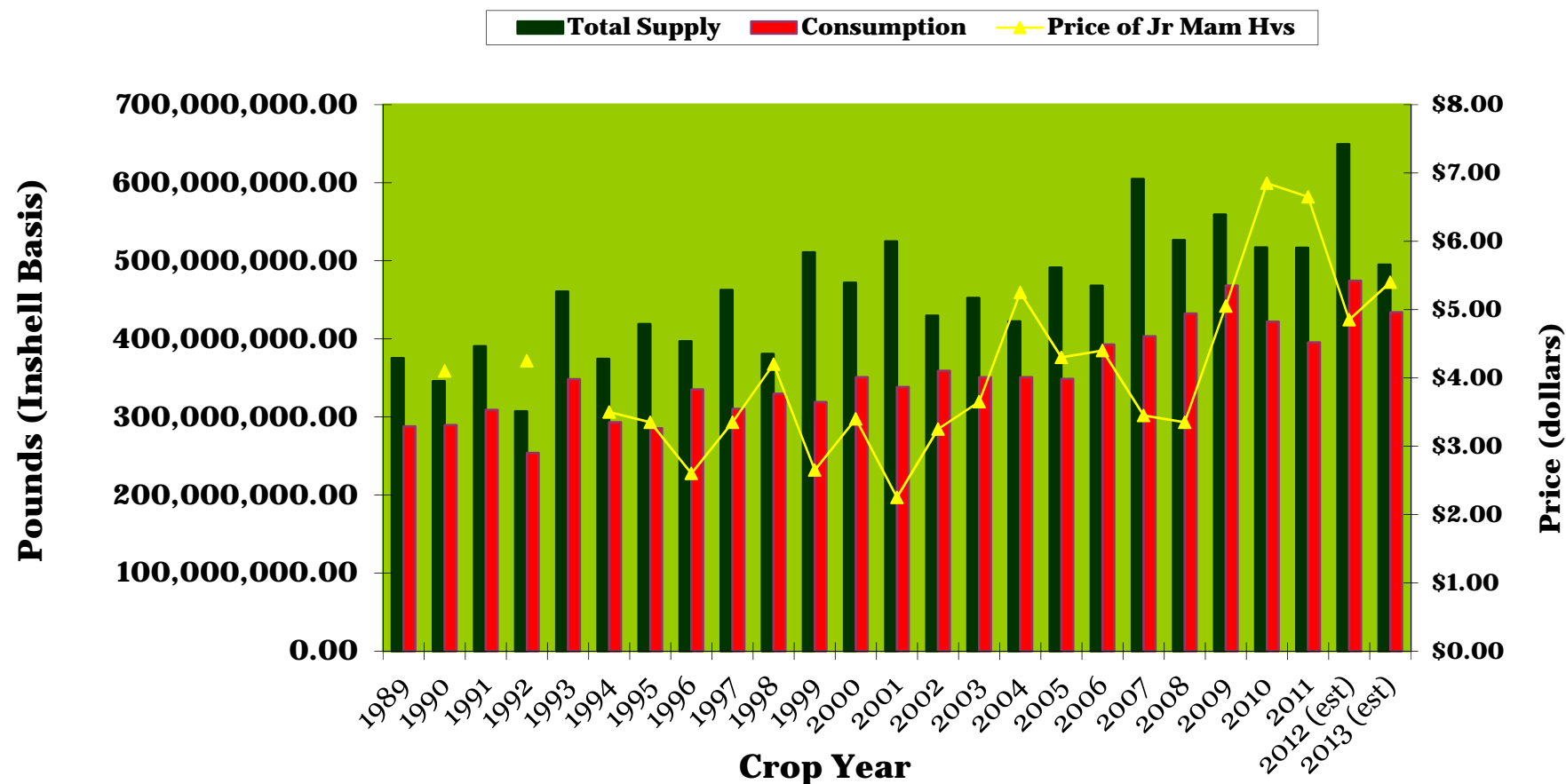
A photograph of several pecan nuts and green leaves scattered on a weathered wooden plank surface. The nuts are light brown with dark, wavy stripes. The leaves are large, green, and have serrated edges. The text is overlaid on the center of the image.

Cost of Pecan Production

Lenny Wells
UGA Horticulture



Consistent Supply

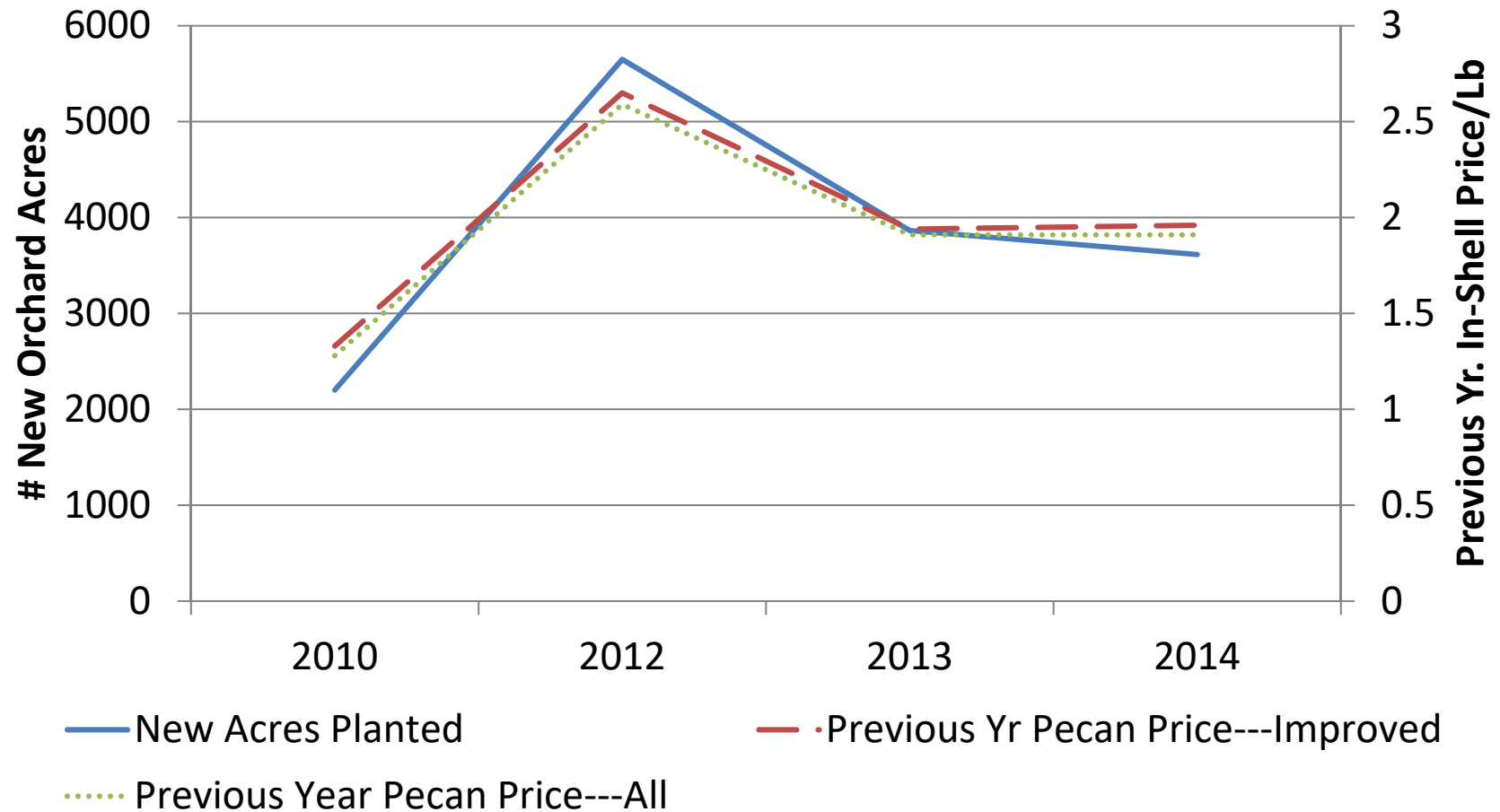


February 17, 2014

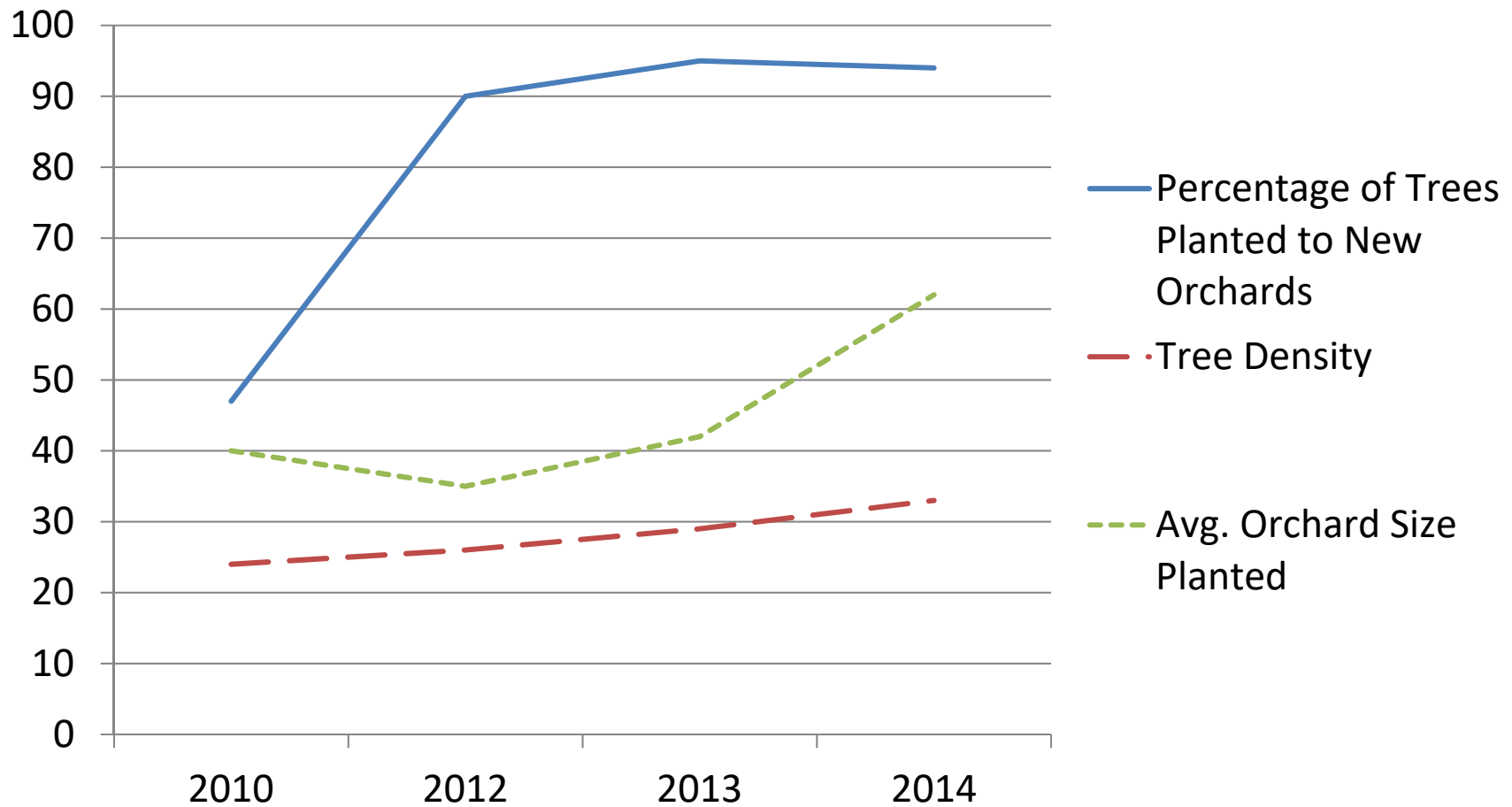
*Note: Prices are approx. January contract prices

Source: National Ag Statistics Service , Foreign Ag Statistics and Nature's Finest Foods

Trends in the Georgia Pecan Industry



Trends in the Georgia Pecan Industry



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

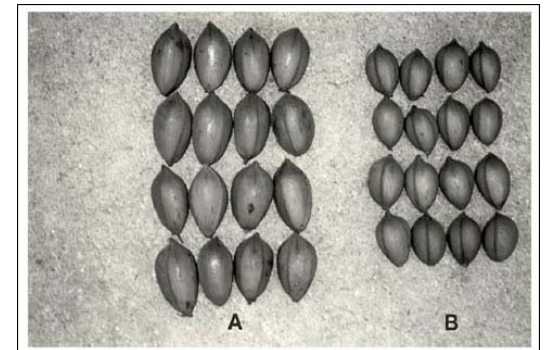
- Phylloxera, Pecan Nut Casebearer, Black Aphids, Yellow Aphids, Nut curculio, Hickory Shuckworm, Scorch Mites, and Pecan Weevil
 - Heaviest pressure occurs late season from July-September
 - Number of applications varies by year
 - Cost of insecticides rising
 - Insects can affect quality and supply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

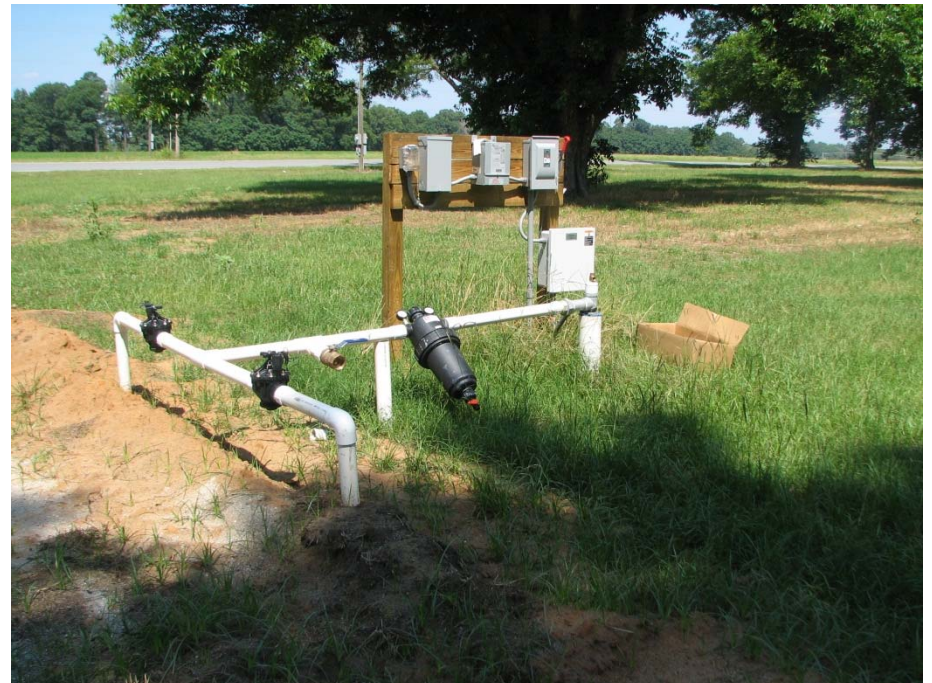


‘Stuart’

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	6000	210	4	
Air-blast Sprayer	101,000	3535	546	
Rotary Mower	16,000	560	47	
Dump Wagon	24,000	840	84	
Harvest Wagon	4000	140	14	
Tractor (100 hp)	95,000	3325	340	
Light Tractor (50 hp)	25,000	875	239	
Truck	30,000	1050	50	
Blower	7000	245	31	
Sweeper	15,000	525	84	
Harvester	60,000	2100	269	
Shaker	130,000	4550	798	
TOTAL	513,000	17,955	2507	533,462

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Small Savage Harvester:
est. \$25,000

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

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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)

In-shell price per Pound (\$)		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	

Net Returns/acre

Assumes \$1628.15/acre cost

Yield (lbs/acre)

		Yield (lbs/acre)					
		500	800	1000	1200	1500	2000
In-shell price per Pound (\$)	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

Hedging



Average Cost=\$200/acre

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

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

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



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?

