

Economic Analysis of Pecan Production in Georgia

Collins*, D.¹, Fonsah, G.², Wells, L.³

¹Lee County Extension Coordinator, University of Georgia, Leesburg, GA 31763 collinsd@uga.edu

²Department of Agricultural and Applied Economics, University of Georgia, Tifton, GA 31793 gfonsah@uga.edu

³Department of Horticulture, University of Georgia, Tifton, GA 31793 lwells@uga.edu



UNIVERSITY OF
GEORGIA
EXTENSION

INTRODUCTION

In 2021, \$383,798,591 worth of pecans were produced on 209,129 acres of pecan trees in Georgia. Over the past several years, pecan profitability has been at high levels due to a surge in prices, brought about largely by demand from Asia. There has, as a result, been a very large increase in acreage planted to pecans. Only in the last year have prices dropped substantially. Despite the fall in prices, and a devastating hurricane in 2018, planting has continued.

MATERIALS AND METHODS

Data for the economic analysis were obtained from County Extension Agents, pecan farmers in south Georgia, and fertilizer and chemical vendors and equipment suppliers. Information was also obtained from recommendations provided by the University of Georgia Research and Extension Specialists. Additional data on current prices was obtained from the USDA.

RESULTS

A tool is now available for estimating profitability in different yield and price scenarios. Using this tool, growers can project both expenses and revenues. This is useful in making both short- and long-term production decisions. It is also useful to growers in making production loan applications.

| 1st Year Estimated Establishment And Maintenance | | | | |
|---|-------|---------|--------|---------|
| Cost Per Acre For Georgia Pecans | | | | |
| | UNIT | QUANT. | PRICE | AMOUNT |
| 15 OPERATING COSTS | | | | |
| Land prep 1 ¹ | Acres | 1.00 | 0 | 0.00 |
| Lime (0-0-1) | Ton | 1.00 | 60.00 | 60.00 |
| Fertilizer (10-10-10) | Lbs | 29.00 | 0.84 | 24.36 |
| Zinc Sulfate | Lbs | 29.00 | 2.40 | 69.60 |
| Foliar Zn | Acres | 3.00 | 0.50 | 1.50 |
| Herbicides | Gal | 4.00 | 39.01 | 156.12 |
| Trees (40 x 40) 2 ² | Tree | 29.00 | 20.00 | 580.00 |
| Labor | Hrs | 20.00 | 13.67 | 273.40 |
| Fuel | Acres | 10.00 | 4.80 | 48.00 |
| Repair & Maintenance | Acres | 1.00 | 40.00 | 40.00 |
| Irrigation | Acres | 1.00 | 100.00 | 100.00 |
| Land Lease 3 ³ | | 1 | 0 | 0.00 |
| Interest on operation | | | 0.075 | 37.68 |
| 29 Total Operating Costs | | | | 1442.74 |
| 30 | | | | |
| 31 FIXED COSTS | | | | |
| Tractor & Equipment | Acres | 1.00 | 158.50 | 158.50 |
| General Overhead & Management | Acres | 1442.74 | 0.10 | 144.27 |
| Irrigation | Acres | 1.00 | 22.55 | 22.55 |
| 36 Total Fixed Costs | | | | 325.33 |
| 37 | | | | |
| 38 Total Establishment Costs | | | | 1768.07 |
| 39 | | | | |
| 40 | | | | |
| 41 | | | | |
| 42 1 ¹ Land prep vary significantly to \$0 - \$1,000 per acre. | | | | |
| 43 2 ² No. of trees depend on planting distances, i.e. 40 x 40 ft = 27 trees; 50 x 25 = 35 trees; 40 x 20 = 55 trees; 60 x 30 = 24 trees | | | | |
| 44 3 ³ Land lease vary from \$100 - \$300 depending on many factors such as irrigated or not. | | | | |
| 45 | | | | |
| 46 | | | | |
| 47 | | | | |
| 48 | | | | |
| 49 | | | | |

| Estimated Annual Maintenance Cost for Pecans | | | | |
|--|-------|---------|--------|---------|
| 2nd Through 4th Years, Georgia Pecans | | | | |
| | UNIT | QUANT. | PRICE | AMOUNT |
| OPERATING COSTS | | | | |
| Lime (Dolomite) | Ton | 0.50 | 60.00 | 30.00 |
| Fertilizer (10-10-10) | Lbs | 2.00 | 0.84 | 1.68 |
| Zinc Sulfate | Lbs | 35.00 | 2.40 | 84.00 |
| Foliar Zn | Acres | 2.00 | 0.50 | 1.00 |
| Herbicides | Gal | 2.01 | 39.01 | 78.06 |
| Trees | Acres | 2.00 | 20.00 | 40.00 |
| Fungicides | Appl | 3.00 | 18.00 | 54.00 |
| Insecticide | Appl | 3.00 | 14.97 | 44.91 |
| Labor | Hrs | 23.00 | 13.67 | 314.41 |
| Fuel | Acres | 37.00 | 4.80 | 177.60 |
| Repair & Maintenance | Acres | 1.00 | 55.00 | 55.00 |
| Irrigation | Acres | 1.00 | 100.00 | 100.00 |
| Land Lease | Acres | 1.00 | 0 | 0.00 |
| Interest on operation | | 837.65 | 0.08 | 62.82 |
| Total Operating Costs | | | | 1000.47 |
| FIXED COSTS | | | | |
| Tractor & Equipment | Acres | 1 | 158.50 | 158.50 |
| General Overhead & Management | Acres | 1000.47 | 0.10 | 100.05 |
| Irrigation | Acres | 1 | 22.55 | 22.55 |
| TOTAL FIXED COSTS (FFC) | | | | 281.11 |
| TOTAL COSTS (TC) | | | | 1281.58 |

| ESTIMATED TOTAL ANNUAL FIXED MACHINERY COSTS FOR PECANS | | | | | | | | | | |
|---|----------|---------|----------|----------------|---------------|-----------|---------|--------|-----------|--------|
| Item | 40% Used | Percent | For Crop | Purchase Price | Salvage Value | Yrs. Life | Deprec. | Int | Tax/Ins | FC/Ac. |
| Sprayer herbicide ⁴ | 100% | | | 800 | 150 | 15 | 363 | 306 | 163 | 2.00 |
| Sprayer weedcut | 100% | | | 1500 | 300 | 15 | 800 | 675 | 360 | 4.50 |
| Rotary Mower(15) | 100% | | | 2250 | 450 | 15 | 1200 | 1013 | 540 | 6.80 |
| Dump carts | 100% | | | 2400 | 480 | 15 | 1280 | 1080 | 576 | 7.34 |
| Tractor (hp 55) | 100% | | | 5500 | 500 | 15 | 333 | 225 | 120 | 1.70 |
| Tractor (hp 50) | 100% | | | 5000 | 1500 | 20 | 3800 | 4275 | 2080 | 26.60 |
| Tractor (hp 50) | 100% | | | 3000 | 600 | 20 | 1200 | 1350 | 720 | 8.18 |
| Truck | 100% | | | 5000 | 1000 | 15 | 2667 | 2250 | 1200 | 15.25 |
| Blower | 100% | | | 750 | 150 | 15 | 360 | 320 | 175 | 2.23 |
| Sweeper | 100% | | | 17,000 | 3400 | 15 | 907 | 761 | 408 | 5.20 |
| Harvester | 100% | | | 68,000 | 13600 | 15 | 3627 | 3060 | 1632 | 20.80 |
| Shaker | 100% | | | 17500 | 3500 | 15 | 9333 | 7875 | 4200 | 53.52 |
| Limb chisel | 100% | | | 15150 | 3150 | 15 | 940 | 788.75 | 370 | 4.80 |
| Total Investment | | | | \$ 531,850 | 102,770 | | 267,39 | 23911 | 12752 | 158 |
| | | | | | | | | 26739 | | |
| | | | | | | | | 23911 | | |
| | | | | | | | | 12752 | | |
| TOTAL FIXED COSTS (\$) | | | | | | | | | 63402 | |
| Fixed Cost Per Acre (\$) | | | | | | | | | \$ 158.50 | |

| Estimated Annual Maintenance Cost For Pecans | | | | |
|--|-------|---------|--------|---------|
| 5th Through 7th Years, Georgia Pecans | | | | |
| ITEM | UNIT | QUANT. | PRICE | AMOUNT |
| OPERATING COSTS | | | | |
| Lime (Dolomite) | Ton | 0.50 | 60.00 | 30.00 |
| Ammonium nitrate | Lbs | 100.00 | 1.11 | 110.80 |
| Phosphorus (0) | Acres | 40.00 | 0.80 | 32.00 |
| Potassium (0) | Acres | 40.00 | 0.80 | 32.00 |
| Zinc Sulfate | Lbs | 50.00 | 2.40 | 120.00 |
| Foliar Zn | Appl | 3.00 | 2.00 | 6.00 |
| Fungicides | Appl | 4.00 | 18.00 | 72.00 |
| Herbicides | Appl | 3.00 | 38.03 | 114.09 |
| Insecticides | Appl | 5.00 | 14.97 | 74.85 |
| Trees | Acres | 2.00 | 20.00 | 40.00 |
| Labor | Hrs | 23.00 | 13.67 | 314.41 |
| Fuel | Acres | 37.00 | 4.80 | 177.60 |
| Repairs & Maintenance | Acres | 1.00 | 55.00 | 55.00 |
| Irrigation | Acres | 1.00 | 100.00 | 100.00 |
| Land Lease | Acres | 1.00 | 0.00 | 0.00 |
| Interest on operation | Acres | 1176.75 | 0.08 | 88.41 |
| TOTAL OPERATING COSTS | | | | 1367.16 |
| FIXED COSTS | | | | |
| Tractors & Equipment | Acres | 1.00 | 158.50 | 158.50 |
| General Overhead & Management | Acres | 1367.16 | 0.10 | 136.72 |
| Irrigation | Acres | 1.00 | 22.55 | 22.55 |
| TOTAL FIXED COSTS (FFC) | | | | 317.77 |
| TOTAL COSTS (TC) | | | | 1684.93 |

| PECANS RETURNS | | | | | | |
|--|-------|---------|-----------|-----------------------|------------|------------------------|
| This example assumes very good management practices. | | | | | | |
| Year | Yield | Price | Var. Cost | Return over Var. Cost | Total Cost | Return over Total Cost |
| 1 | 0 | \$ 0.00 | 1768.07 | -1768.07 | 1768.07 | -1768.07 |
| 2 | 0 | \$ 0.00 | 1281.58 | -1281.58 | 1281.58 | -1281.58 |
| 3 | 0 | \$ 0.00 | 1281.58 | -1281.58 | 1281.58 | -1281.58 |
| 4 | 0 | \$ 0.00 | 1281.58 | -1281.58 | 1281.58 | -1281.58 |
| 5 | 0 | \$ 0.00 | 1684.93 | -1684.93 | 1684.93 | -1684.93 |
| 6 | 0 | \$ 0.00 | 1684.93 | -1684.93 | 1684.93 | -1684.93 |
| 7 | 0 | \$ 0.00 | 1684.93 | -1684.93 | 1684.93 | -1684.93 |
| 8 | 1400 | \$ 1.55 | 1876.31 | 293.69 | 1866.93 | 303.07 |
| 9 | 1400 | \$ 1.65 | 1876.31 | 433.69 | 1866.93 | 443.07 |
| 10 | 1400 | \$ 1.75 | 1876.31 | 573.69 | 1915.56 | 534.44 |
| 11 | 1400 | \$ 2.50 | 1876.31 | 1623.69 | 1915.56 | 1584.44 |
| 12 | 1400 | \$ 2.85 | 1876.31 | 2113.69 | 1915.56 | 2074.44 |
| 13 | 1500 | \$ 2.75 | 1876.31 | 2248.69 | 1928.56 | 2196.44 |
| 14 | 1500 | \$ 2.65 | 1876.31 | 2098.69 | 1928.56 | 2046.44 |
| 15 | 1600 | \$ 2.55 | 1876.31 | 2203.69 | 1941.56 | 2138.44 |
| **** | | | | | | |

In reality, the higher fixed costs may begin earlier or later.

CONCLUSIONS AND REMARKS

Pecans have been a viable and important crop in Georgia for over one hundred years, and will remain so in the future. Growers have much experience in pecan production and understand that maximum production and profitability are achieved through high-input production practices