



College of Agricultural &  
Environmental Sciences  
UNIVERSITY OF GEORGIA

# 2024 Pecan Management Update

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UGA Horticulture



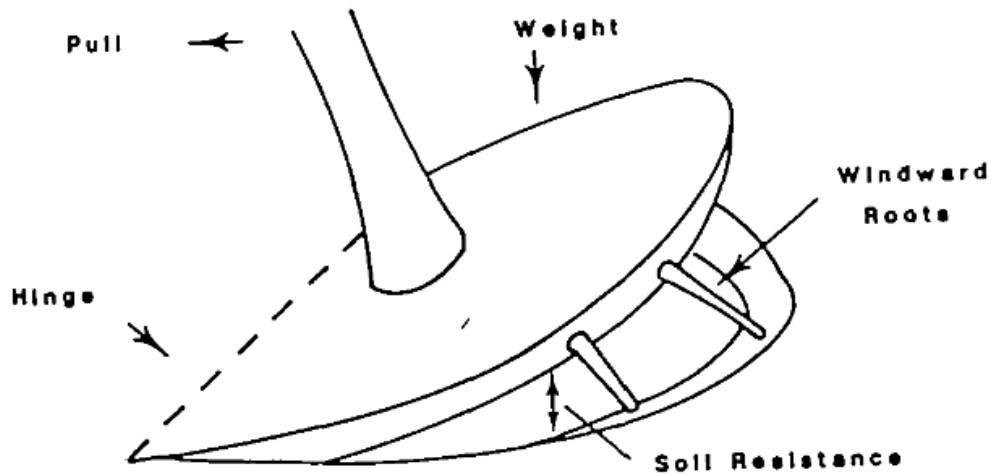


Jeffrey Cannon



## Major factors driving tree stability

- Wind load (wind intensity, crown size, tree spacing)
- **Weight of associated root plate (“counterweight”)**
- Strength of windward roots
- Tree mass
- Tree weight distribution (center of gravity)



Coutts 1986, *Forestry*



**Root plate mass can be up to 20,000 lbs ,(3X the wt of the tree) especially in large trees with deep and broad root development**

Jeffrey Cannon





**Preliminary observations after Hurricane Idalia suggest that root plate development in irrigated pecan may be minimal and contribute to compromising stability**



**Canopies getting too big too fast**



**Jeffrey Cannon**



# Reducing Irrigation on Young Trees (<4 yrs) (14.7 gph emitter)

- April---3 hrs once per week ---44 gal/week
- May---3 hrs twice per week (M & F) ---88 gal/week
- June-Sept--3 hrs watering time---one day on, two days off



# Fertilization Recommendations for Young Trees

- Focus on P,K, Zn---not N!

Rate of 10-10-10/per tree

| Year | April                     | June                      |
|------|---------------------------|---------------------------|
| 1    | 0                         | <del>0.5-1 lb</del> 0 lbs |
| 2    | <del>1-2 lbs</del> 0.5 lb | <del>1-2 lbs</del> 0.5 lb |
| 3    | <del>2-3 lbs</del> 1 lb   | <del>2-3 lbs</del> 1 lb   |
| 4    | <del>3-4 lbs</del> 2 lb   | <del>3-4 lbs</del> 1 lb   |

- Apply Zinc Sulfate at 1-3lb per tree for the 1<sup>st</sup> 3-4 yrs
- 2-3 sprays foliar Zn if deficiency symptoms show
- Mouse Ear Trees:
  - Apply Ni at rate of 1.5 qts/100 gallons



# Fertigation (New Rate)

## Amount of N/acre

| Year | April   | May     | June    |
|------|---------|---------|---------|
| 1    | 0       | 0       | 0       |
| 2    | 2.5 lbs | 0       | 2.5 lbs |
| 3    | 2.5 lbs | 0       | 2.5 lbs |
| 4    | 5 lbs   | 2.5 lbs | 2.5 lbs |

- Apply granular P,K, Zn over the tree row in March or April of years 1 and 2
  - 40 lbs P
  - 40 lbs K
  - 25 lbs Zn Sulfate

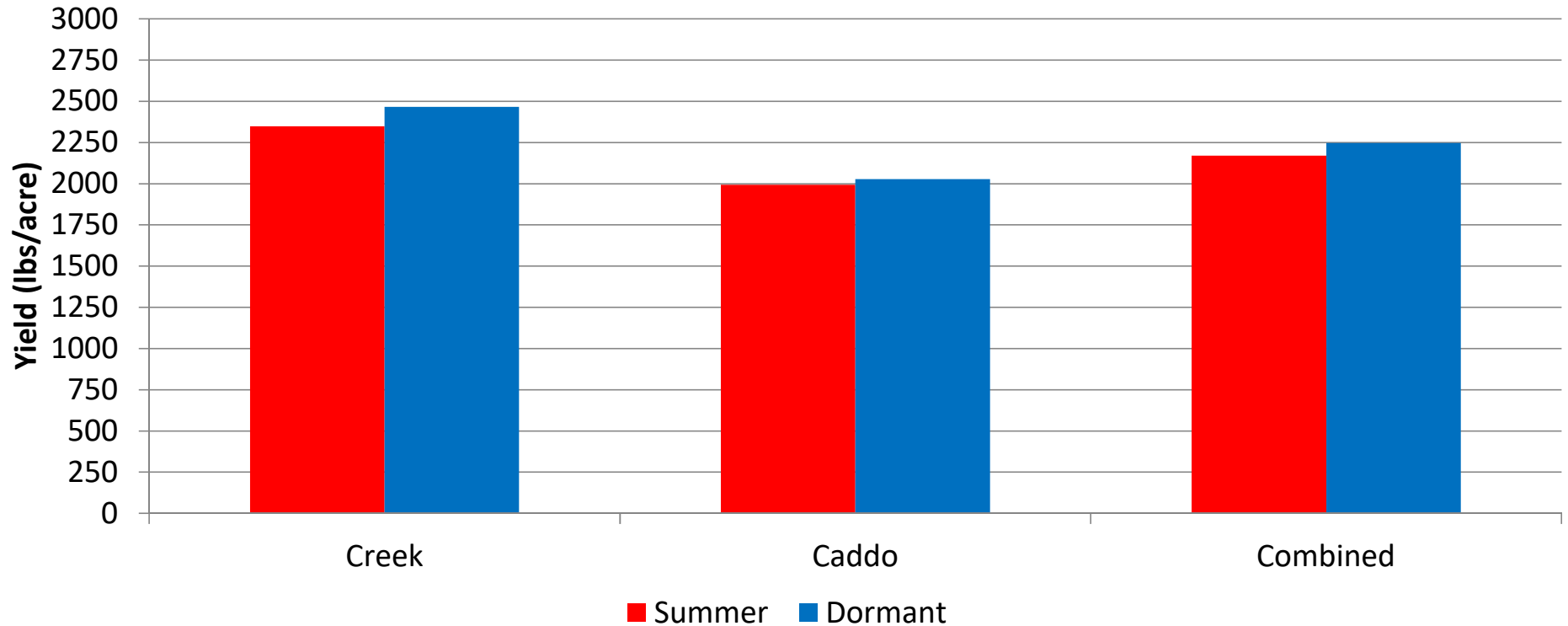


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# Summer Vs Dormant Hedging Yield 4-Year Avg

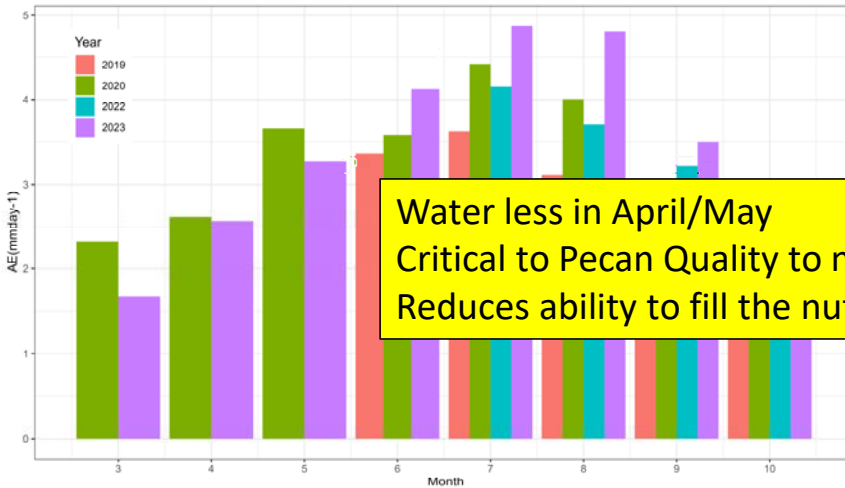




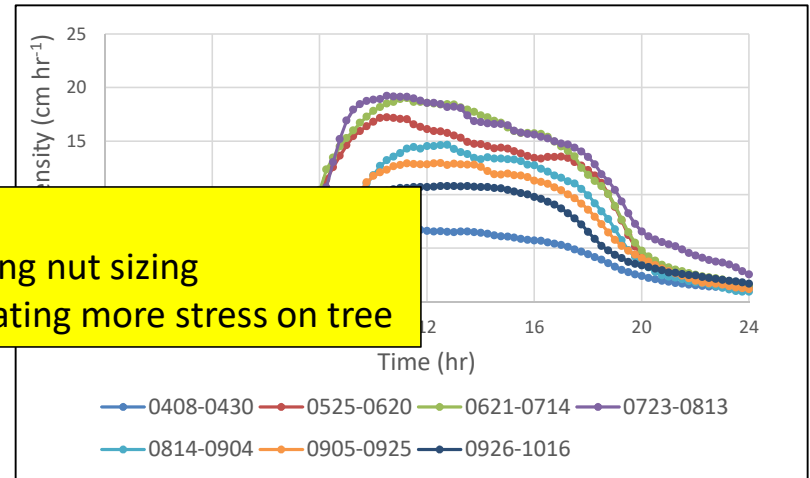
# Pecan Water Use in Georgia

LeClerc, Zhang, Wells

Actual ET during the growing season



Water less in April/May  
 Critical to Pecan Quality to not over-water during nut sizing  
 Reduces ability to fill the nuts in Aug/Sept, creating more stress on tree



- Water use/Sap Flow is somewhat minimal from April-mid May
  - Highest June-mid August---driven by need and optimal conditions (tree is more efficient at this time)
  - Medium mid August-Sept---(tree is less efficient at this time)
- reduction may be result of higher VPD (hot, dry air)/less sap flow in afternoon (tree has less time to meet needs)

# WE HAVE NO CHOICE BUT TO LOWER OUR COST OF PRODUCTION

Overall Average In-Shell Pecan Price, USDA

| 2018   | 2019   | 2020   | 2021   | 2022   | 2023    |
|--------|--------|--------|--------|--------|---------|
| \$1.62 | \$1.90 | \$1.27 | \$2.06 | \$1.64 | \$1.75? |

Overall Average Georgia Yield, USDA

| 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|------|------|------|------|------|------|
| 583  | 535  | 1100 | 642  | 870  | ?    |

6 year average price = \$1.76      5 year average yield = 746 lbs/acre

- 2021 saw increased consumption of nuts in storage prior to US pecan harvest along with a shorter than expected Mexican and South African Crop
- 2023 saw shorter than expected Mexican and South African crop + CHINA WAS IN THE MARKET
- Estimated Georgia crop in 2023 (based on sales) is 80-100 million lbs (the new off year)
- China reported to be capable of producing enough pecans to fill their own needs by 2026
- INSURANCE GUARANTEES ARE GOING DOWN
- INDIA MARKET DEVELOPMENT



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# Net Returns for Pecan Production

|     | 500   | 800  | 1000 | 1200 | 1500 | 2000 | 2200 | 2500 |
|-----|-------|------|------|------|------|------|------|------|
| 1   | -1100 | -800 | -600 | -400 | -100 | 400  | 600  | 900  |
| 1.1 | -1050 | -720 | -500 | -280 | 50   | 600  | 820  | 1150 |
| 1.2 | -1000 | -640 | -400 | -160 | 200  | 800  | 1040 | 1400 |
| 1.3 | -950  | -560 | -300 | -40  | 350  | 1000 | 1260 | 1650 |
| 1.4 | -900  | -480 | -200 | 80   | 500  | 1200 | 1480 | 1900 |
| 1.5 | -850  | -400 | -100 | 200  | 650  | 1400 | 1700 | 2150 |
| 1.6 | -800  | -320 | 0    | 320  | 800  | 1600 | 1920 | 2400 |
| 1.7 | -750  | -240 | 100  | 440  | 950  | 1800 | 2140 | 2650 |
| 1.8 | -700  | -160 | 200  | 560  | 1100 | 2000 | 2360 | 2900 |
| 1.9 | -650  | -80  | 300  | 680  | 1250 | 2200 | 2580 | 3150 |
| 2   | -600  | 0    | 400  | 800  | 1400 | 2400 | 2800 | 3400 |
| 2.1 | -550  | 80   | 500  | 920  | 1550 | 2600 | 3020 | 3650 |
| 2.2 | -500  | 160  | 600  | 1040 | 1700 | 2800 | 3240 | 3900 |
| 2.3 | -450  | 240  | 700  | 1160 | 1850 | 3000 | 3460 | 4150 |
| 2.4 | -400  | 320  | 800  | 1280 | 2000 | 3200 | 3680 | 4400 |
| 2.5 | -350  | 400  | 900  | 1400 | 2150 | 3400 | 3900 | 4650 |

At \$1600/Acre Variable Cost

# Net Returns for Pecan Production

|     | 500  | 800  | 1000 | 1200 | 1500 | 2000 | 2200 | 2500 |
|-----|------|------|------|------|------|------|------|------|
| 1   | -700 | -400 | -200 | 0    | 300  | 800  | 1000 | 1300 |
| 1.1 | -650 | -320 | -100 | 120  | 450  | 1000 | 1220 | 1550 |
| 1.2 | -600 | -240 | 0    | 240  | 600  | 1200 | 1440 | 1800 |
| 1.3 | -550 | -160 | 100  | 360  | 750  | 1400 | 1660 | 2050 |
| 1.4 | -500 | -80  | 200  | 480  | 900  | 1600 | 1880 | 2300 |
| 1.5 | -450 | 0    | 300  | 600  | 1050 | 1800 | 2100 | 2550 |
| 1.6 | -400 | 80   | 400  | 720  | 1200 | 2000 | 2320 | 2800 |
| 1.7 | -350 | 160  | 500  | 840  | 1350 | 2200 | 2540 | 3050 |
| 1.8 | -300 | 240  | 600  | 960  | 1500 | 2400 | 2760 | 3300 |
| 1.9 | -250 | 320  | 700  | 1080 | 1650 | 2600 | 2980 | 3550 |
| 2   | -200 | 400  | 800  | 1200 | 1800 | 2800 | 3200 | 3800 |
| 2.1 | -150 | 480  | 900  | 1320 | 1950 | 3000 | 3420 | 4050 |
| 2.2 | -100 | 560  | 1000 | 1440 | 2100 | 3200 | 3640 | 4300 |
| 2.3 | -50  | 640  | 1100 | 1560 | 2250 | 3400 | 3860 | 4550 |
| 2.4 | 0    | 720  | 1200 | 1680 | 2400 | 3600 | 4080 | 4800 |
| 2.5 | 50   | 800  | 1300 | 1800 | 2550 | 3800 | 4300 | 5050 |

At \$1200/Acre Variable Cost



# You Can Still Make Money Growing Pecans in Current Market

- Moderately Scab Resistant to Resistant PROLIFIC Varieties
- 10-40 year old trees
- Hedge prune



# Where Can You Cut Costs?

## Where to look:

- Lime
  - Soil sample to determine need
- Fertilizer
  - Leaf and soil samples
  - N,P,K,Zn
- FOLIAR NUTRIENT, ETC. SPRAYS!!!!!!!!!!!!
  - Zn, (Ni, B, S)
  - What return are humic acids/microbials providing you?
  - Do you need Surfactants with every spray?
- Don't spray every variety like a Desirable
- Smart-Spray System?
- Mowing/Clover
- Irrigation Schedule
- Scouting?





# Questions?



# Simplifying Soil Fertilizer Decisions

|                | Soil                    | Leaf              | Decision            |
|----------------|-------------------------|-------------------|---------------------|
| P              | <40 lbs/acre            | ----              | Broadcast           |
| P              | >40 lbs/acre            | <0.12             | Narrow Band         |
| <b>P</b>       | <b>&gt;40 lbs/acre</b>  | <b>&gt;0.12</b>   | <b>Do Not Apply</b> |
| K              | <125 lbs/acre           | ----              | Broadcast           |
| K              | >125 lbs/acre           | <1.1 %            | Narrow Band         |
| <b>K</b>       | <b>&gt;125 lbs/acre</b> | <b>&gt;1.1%</b>   | <b>Do Not Apply</b> |
| Zn             | <15 lbs/acre            | ----              | Broadcast           |
| Zn             | >15 lbs/acre            | <50 ppm           | Inject Zn EDTA      |
| <b>Zn</b>      | <b>&gt;15 lbs/acre</b>  | <b>&gt;50 ppm</b> | <b>Do Not Apply</b> |
| <b>Soil pH</b> | <b>&gt;6.0</b>          | <b>----</b>       | <b>Do Not Apply</b> |



POTENTIAL SAVINGS OF \$101.80 at 2022 fert. prices

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