



# Cost Effective Weed Control in Pecan

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# Reducing Costs for Pecan Growers in Alabama

Alabama Dept. of  
Ag. and Industries  
- USDA Specialty  
Crop Block Grant

- Goal: lower costs and improve profit potential
- Herbicide costs – continue to rise
  - \$150/A in some cases
- Fertilizer costs - \$200/A
- 3 On-farm locations and 1 at GCREC





# Cost-Effective Weed Control Programs in Pecan Orchards

- Weed-Free Benefits:
  - Increased yields
  - Harvest Efficiency
  - Less competition for water and nutrients
- Question:
  - Need 7+ months of weed control
  - We know: 90% control can be achieved
  - How can we lower costs????
  - Determine: long-term herbicide plan (succession plan)

# Cost- Effective Weed Control Programs in Pecan Orchards

- Studies:
  - Baldwin and Mobile counties:  
Mixed-Aged Trees Orchards
  - Covington County: young orchard



# Cost-Effective Weed Control Programs in Pecan Orchards

- Treatments:
  - 1) Alion (5 oz./A) + Glyphosate (32 Oz/A)
  - 2) Diuron (3 qts/A) + Glyphosate (32 oz/A)
  - 3) Prowl (4 qts/A) + Simazine (4 qts/A) + Glyphosate (32 oz/A)
  - 4) Chateau (12 oz/A) + Glyphosate (32 Oz/A)
  - 5) Nontreated
- Treatments applied in early June with a CO<sub>2</sub> 4-wheeler sprayer set at 16.22 GPA
- Weed Control Ratings at 4, 8, 12, 16, 20, etc. weeks after treatment (WAT).
- Preliminary Data (1 year).



# Control Ratings

- Ratings were based on percentage of ground covered by weeds.
- 100% coverage = 0% control; 0% coverage = 100% control.
- Goal is 90% weed control



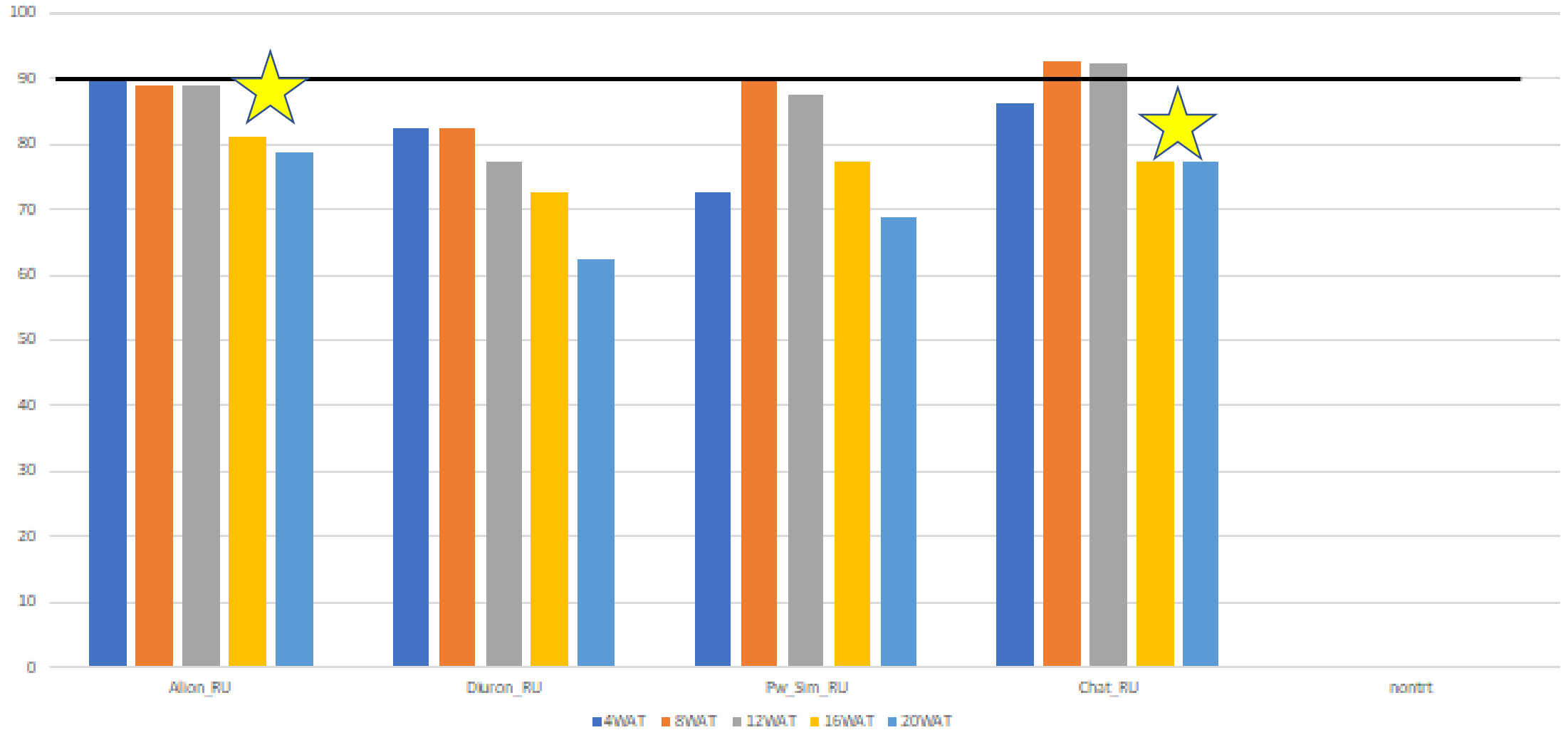
0% Control



90% Control

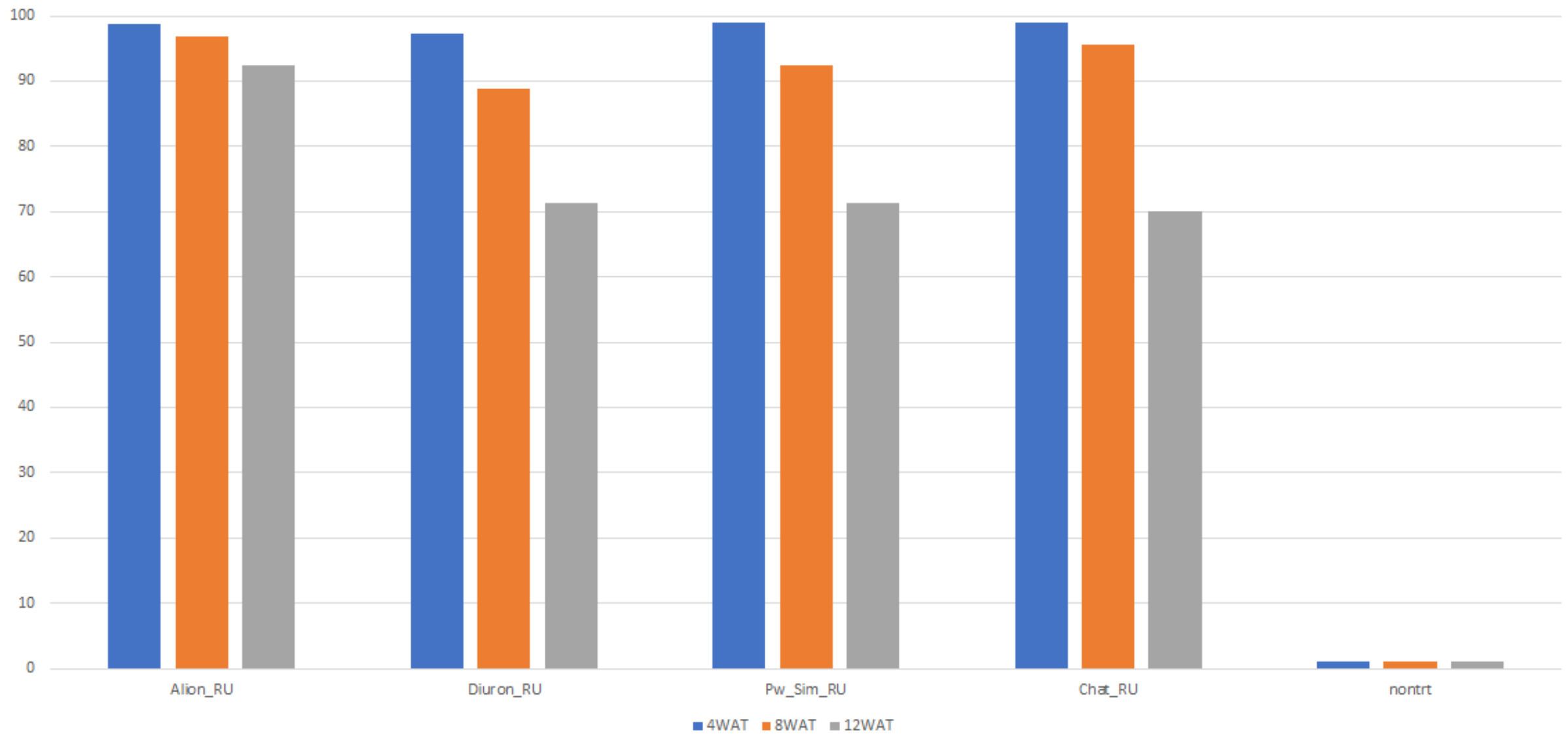


2022 Mobile Co., Mature Orchard 1, Percent Weed Control

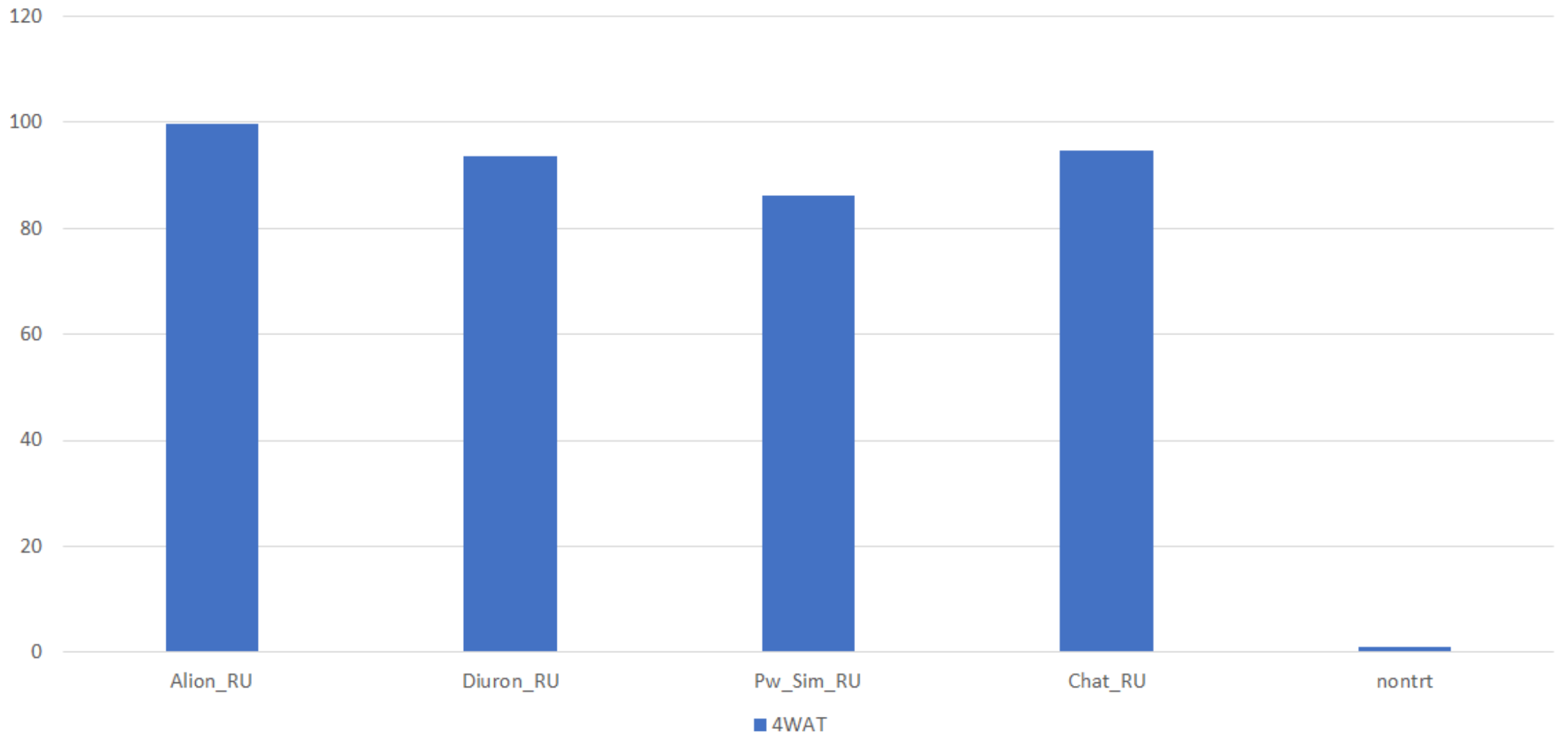




GCREC, 2022 Data

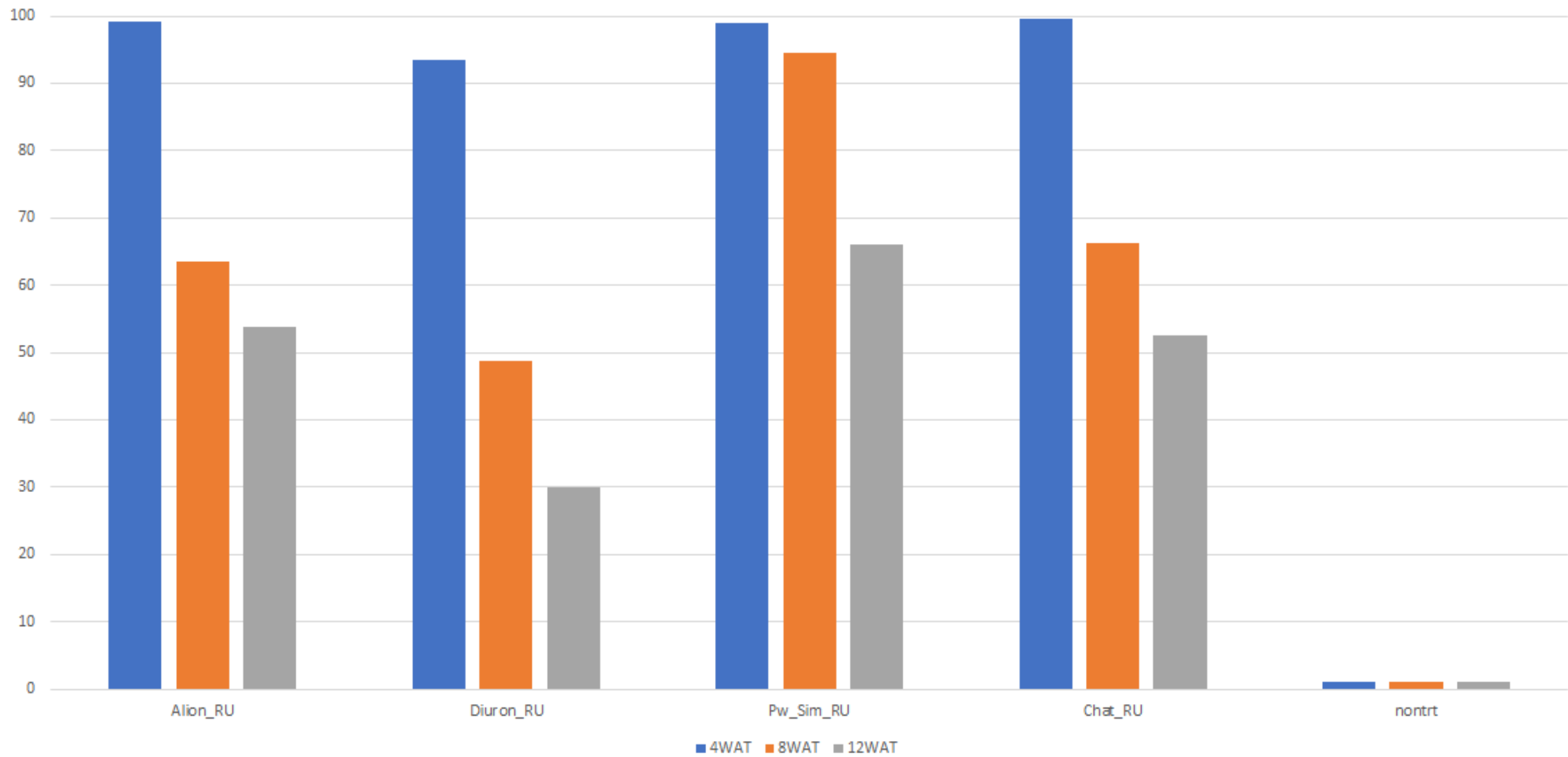


# GCREC, Retreatment on 11 Aug 22

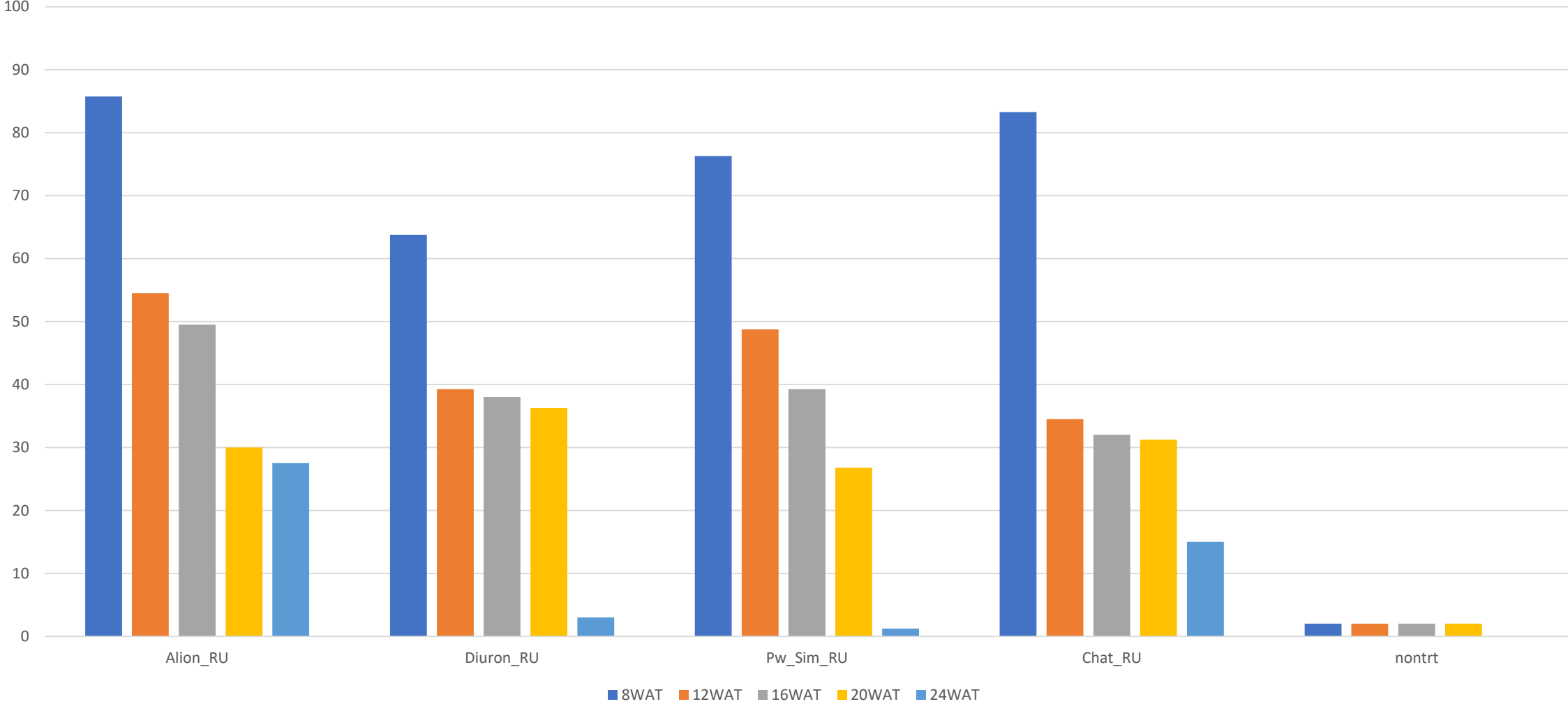




Mobile Co., Orchard 2, Mixed-Aged, 2022 Data



Covington County, 2022 Data  
Young Orchard





# Retreatments

- Escapes Occurred
  - Retreated using same treatments on Aug, 11 2022.
  - Locations: GCREC and Mobile Co. Orchard 2, Mixed Stand
- Mature, Mobile Co. Orchard 1
  - 1 treatment only





Nontreated – 12 WAT (GCREC)





Alion + RU - 12 WAT (GCREC)





Chateau + RU – 12 WAT (Mobile) – Mature Tree





Chateau + RU – 12 WAT (Mobile) – Young Tree



# Observations – Year 1

- Mature Orchards:

- **Shading: improves efficacy dramatically**
- Retreatment was necessary and completed on Aug. 11, 2022.

- Young Orchard Challenges:

Sunlight - - will require retreatments during the season (1 or 2), until the weed seed-bank is reduced.  
However, **you are treating a smaller area to the drip-line**

Rainfall – impacts both



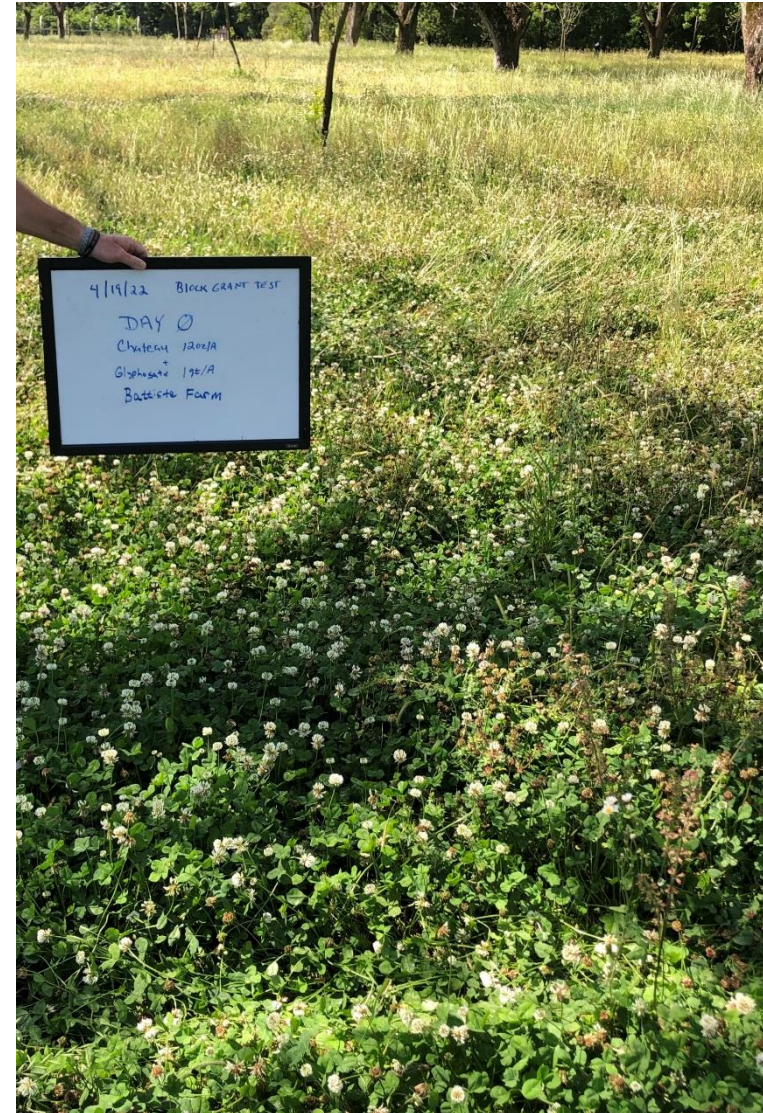
# Cost-Effective Weed Control Programs in Pecan Orchards

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- Gulfcoast: normally receives over 65 inches of rainfall yearly.
  - From May 1<sup>st</sup> – Aug 31<sup>st</sup>: **38.36 inches** (GCREC)  
**48.70 inches** (Mobile County)  
**30 inches** (Covington County)







Before



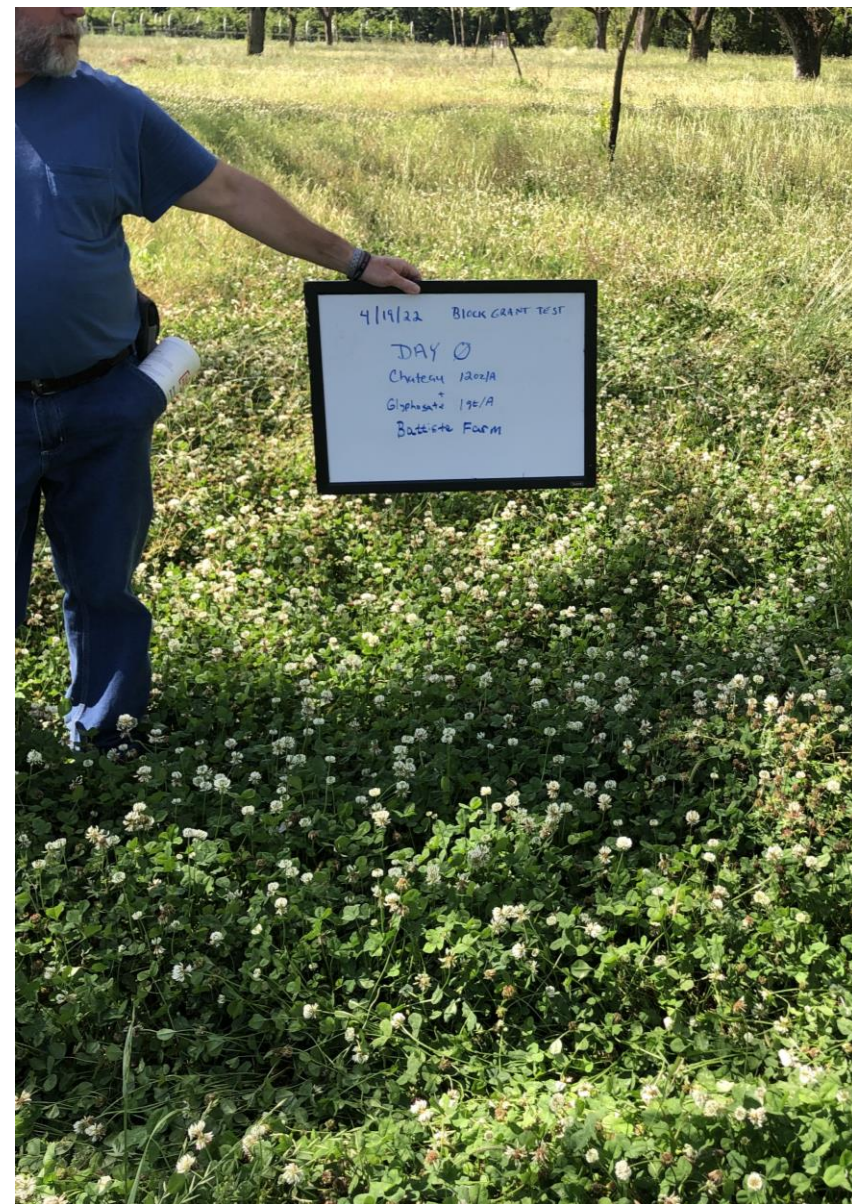
Alion +  
Roundup  
8 WAT



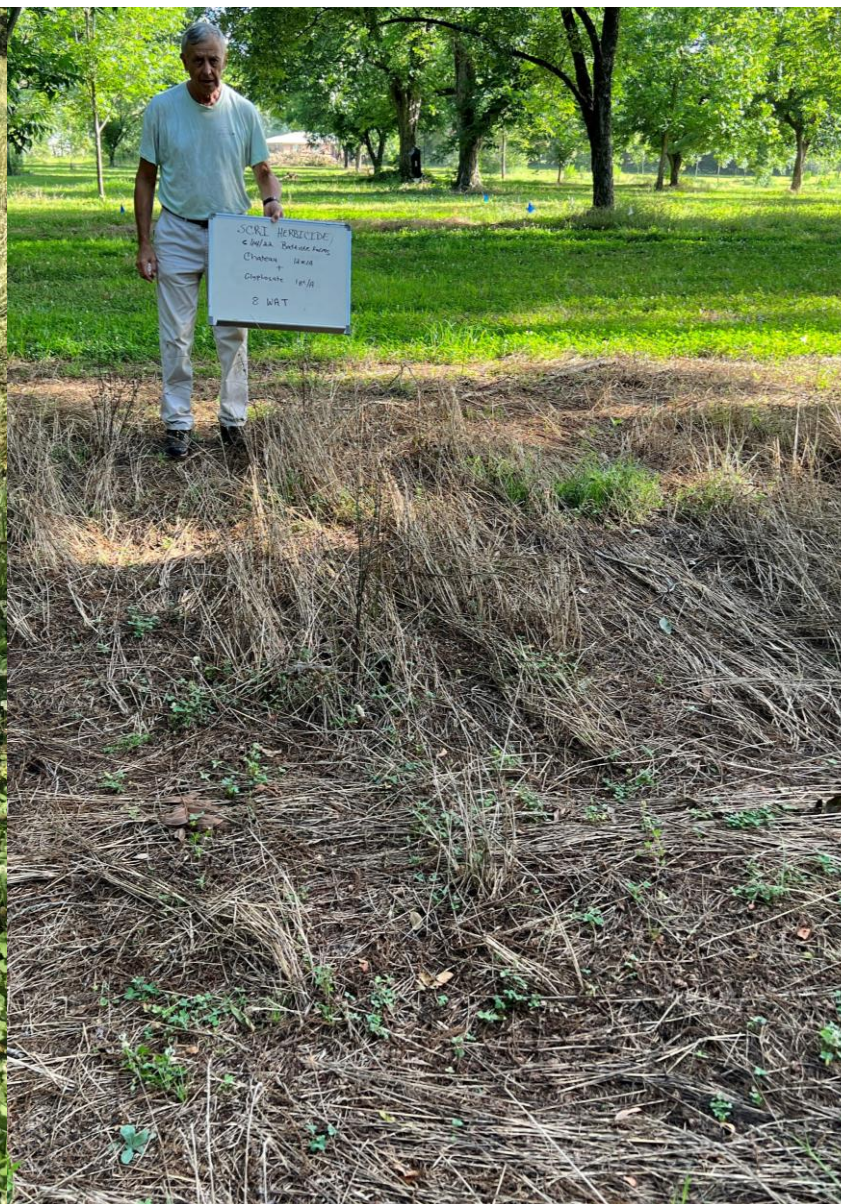
Alion +  
Roundup  
20 WAT

Mobile County – Mature Trees (Orchard 1)





Before



Chateau + Roundup 8 WAT



Chateau + Roundup 20 WAT

Mobile County – Mature Trees (Orchard 1)





Control  
0 Day



Control  
20 WAT

Mobile County – Mature Trees (Orchard 1)





# Banded Application

- Mobile Orchard 1: sprayed 20' x 20', orchard is 60' x 60' (10 trees/A)
  - So - - treating 1/3 or orchard (1/3 or a real estate A)
- Mobile Orchard 2: sprayed 20'x20' – orchard is 50' x 50' (17 trees/A)
- GCREC: sprayed 35' x 18' – orchard is 35' x 35' – so 50% of real estate acre.

# Herbicide Cost Estimates – Broadcast

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1. Alion 5 oz/A (\$85.95/A) + 32 oz/A Roundup (\$13/A) = **\$99.25**
2. Diuron 3 qts/A (\$29/A) + 32 oz/A Roundup (\$13/A) = **\$43/A**
3. Prowl 8 pts/A (\$60/A) + simazine 4 qts/A (\$24/A) + 32 oz/A Roundup (\$13/A) = **\$97/A**
4. Chateau 12 oz/A (\$51/A) + 32 oz/A Roundup (\$13/A) = **\$64/A**



# Costs for Year 1 Example

- Mobile Orchard 1 (**1/3 A treated**; mature orchard)
  - Alion + RU: **\$32.75/A** (real estate acre)
  - Diuron + RU: **\$13.86/A**
  - Prowl + Simazine + RU: **\$32.01/A**
  - Chateau + RU: **\$21.12/A**



# Costs for Year 1 Example

- GCREC (1/2 A treated; **retreated**; mature orchard)
  - Alion + RU:  $\$49.63/A (2x) = \mathbf{\$99.25}$
  - Diuron + RU:  $\$21.50/A (2x) = \mathbf{\$43}$
  - Prowl + Simazine + RU:  $\$48.50/A (2x) = \mathbf{\$97}$
  - Chateau + RU:  $\$32 (2x) = \mathbf{\$64}$



# Take Home Message

- **Young Orchard floors – higher pressure (sunlight)**
  - Alion (3 to 5 oz/A) residual control builds after each application
    - So, you might start with 5 oz/A and then reduce that amount to 3 in second year (we will study this)
  - Diuron is cheap
  - Simazine is cheap
  - Adding Roundup to early spring tank mixture is recommended (32 oz./A)
  - Chateau: we started with 12 oz/A and plan to reduce it if we can to 8 oz/A, and then to 4 oz/A.
  - Roundup Alone (2 to 4 applications/year) will be cheaper initially, but in the long-run cheaper with longer soil-residual herbicides (goal 1 spray per season or every other season – AT THE LOWEST COST).



# Summary

- Reducing seed bank with use of PREs
- Less sprays on annual basis – less trips through the orchard
- Goal:
  - Year 1: 2 sprays
  - Year 2: 1 spray (high to mid-rates)
  - Year 3: 1 spray at reduced rates
  - Years 4 >: 1 spray or maybe none (seen at E.V. Smith)



- Special thanks Farmers: Dr. David Batistte, Mr. Taylor Harper, and Mr. Bryan Whitehurst.

# QUESTIONS?

