

Managing Pecan Orchards in The New Pecan Economy

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Biggest Problem Facing SE Pecan Industry

Shellers Don't Want Old SE orchard varieties/blend

- Western and Mexican crop consistently Wichita and Western Schley
- Need varieties with % kernel in mid 50's for consistent profitable prices
- You need
 - Export: size and quality
 - Domestic: Good quality, not necessarily size

Pecan Prices 2018 /2019

	2018	2019
Stuart	\$1.44	\$1.55
Moneymaker	\$0.8-\$1.10	\$1.00-1.10



Two Different Routes for Growing Pecans

High Volume, High Input

- Hedge/Tight Spacing
 - 35 X 35
- Varieties
 - Pawnee
 - Creek
 - Caddo

High Scab Resistance, Low Cost

- Conventional Spacings
 - 25-35X50, 30 X 60, 40 X 40
- Varieties
 - Excel
 - Lakota
 - McMillan
 - Elliot



In-Between

- Good scab resistance, med. cost
- *Watch inputs*
- Be conservative on spacing

- Varieties:
 - Creek, Caddo, Oconee, Zinner
 - Ellis, Sumner, Kiowa, Whiddon,
 - Cape Fear



Mechanical Pruning: Direction

Table 3. Influence of row orientation on yield and nut quality characteristics of continuous canopy pruned ‘Wichita’ and ‘Western Schley’ pecan trees (CCHP/1 + T/1) on a 1-year pruning cycle.^z

Cultivar	Row ^y orientation	In-shell ^x yield (lb/acre)	Shellout ^w (%)	Premium ^v kernel (%)	Choice ^v kernel (%)	Nuts ^u /lb (no.)
Wichita	N-S	3121 b	61.7	78.7	17.0	51
Wichita	E-W	1973 a	61.2	85.4	12.5	49
Western Schley	N-S	2536 b	55.9	55.9	40.5	65
Western Schley	E-W	1459 a	57.9	55.4	39.5	64

^zCanopies hedge pruned to about 3.5 ft (1.07 m) from row center and pruned at 4 ft (1.2 m) in subsequent years. 1 lb/acre = 1.12 kg·ha⁻¹.

^yRows running either north–south (N–S) or east–west (E–W).

^xMeans followed by different letters are statistically different at $P = 0.05$ with main effects and interactions tested using resampling techniques using bootstrapping with hypothesis testing at 10,000 iterations for determining confidence limits of $P = 0.05$ for main effects and $P = 0.10$ for interactions.

^wPercentage kernel.

^vPercentage of kernels rating a premium or choice grade.

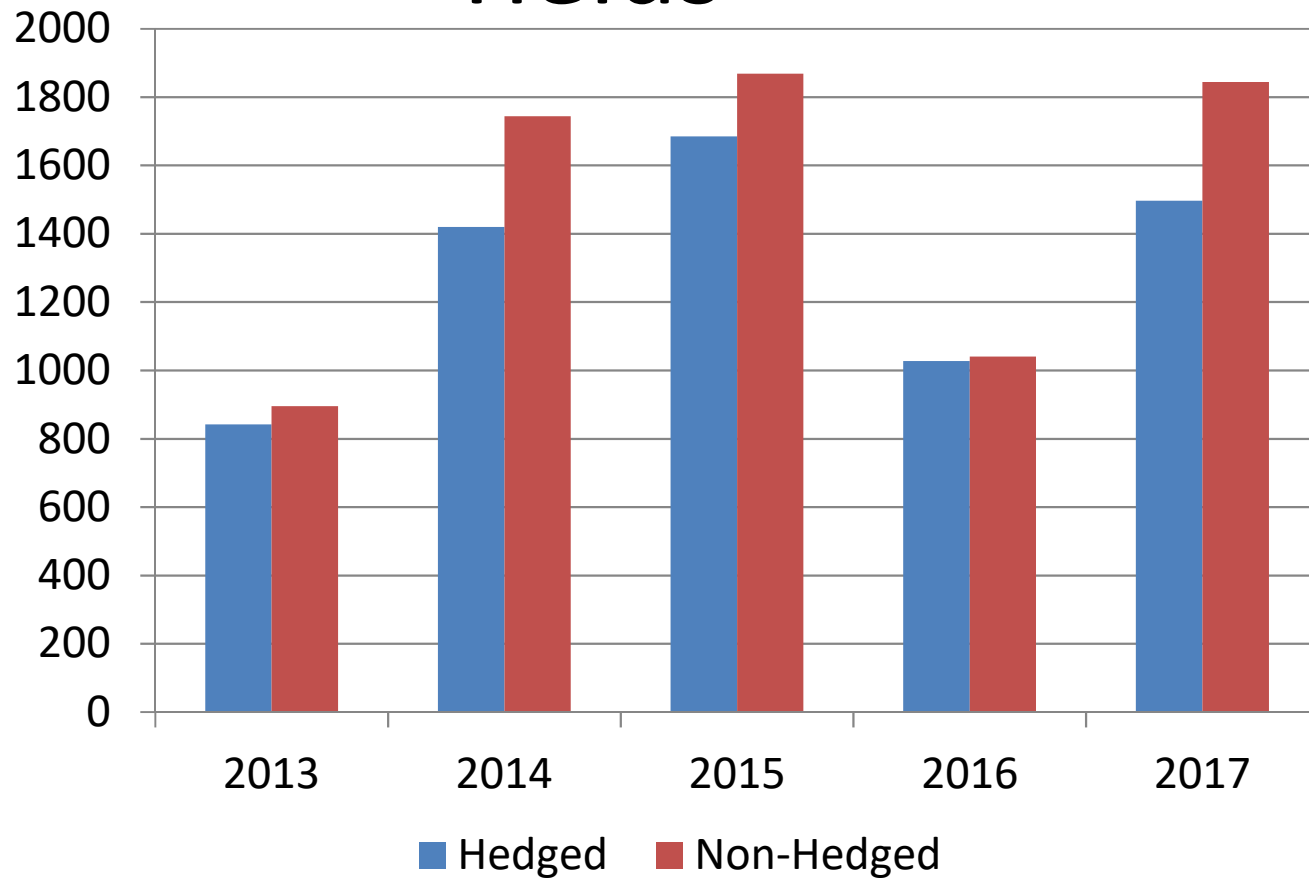
^u1 nut/lb = 2.2 nuts/kg.



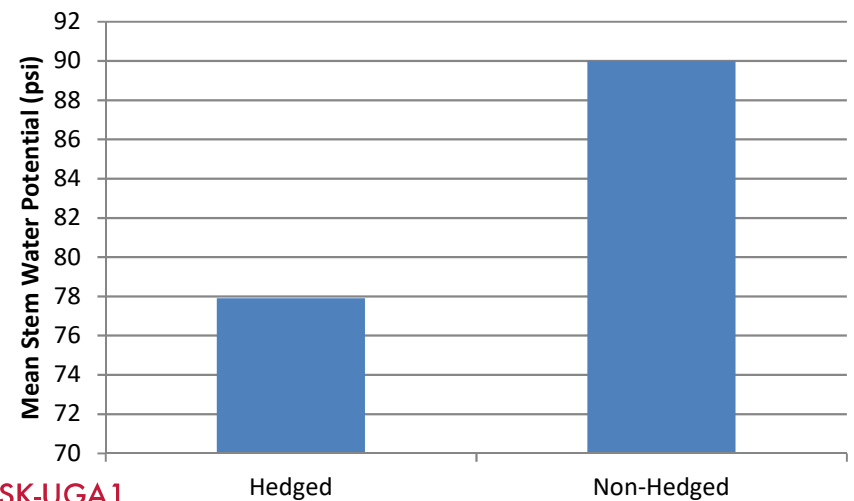
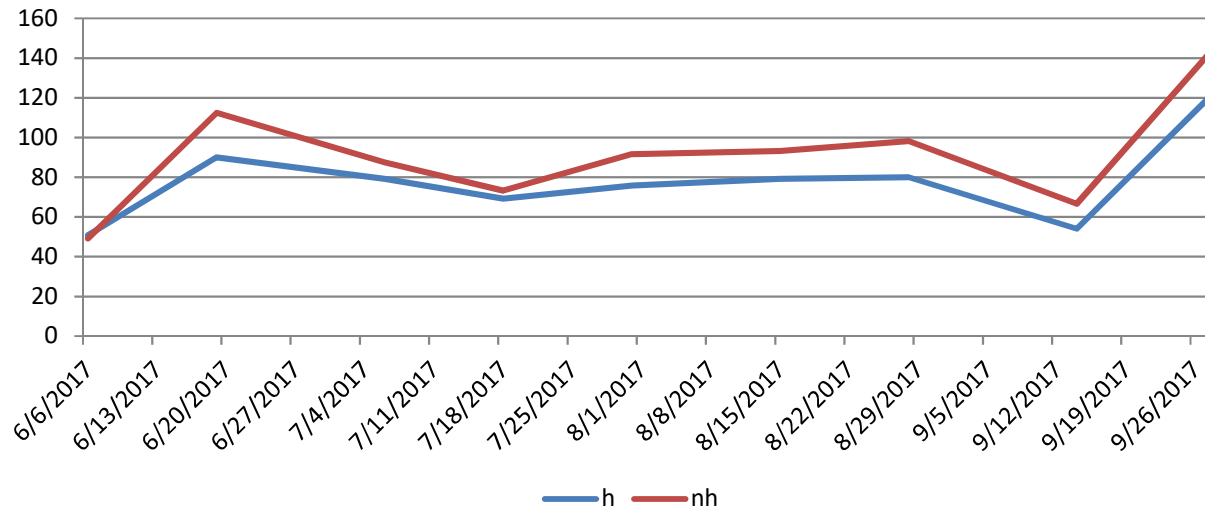
Dormant Hedging Trial

Yields

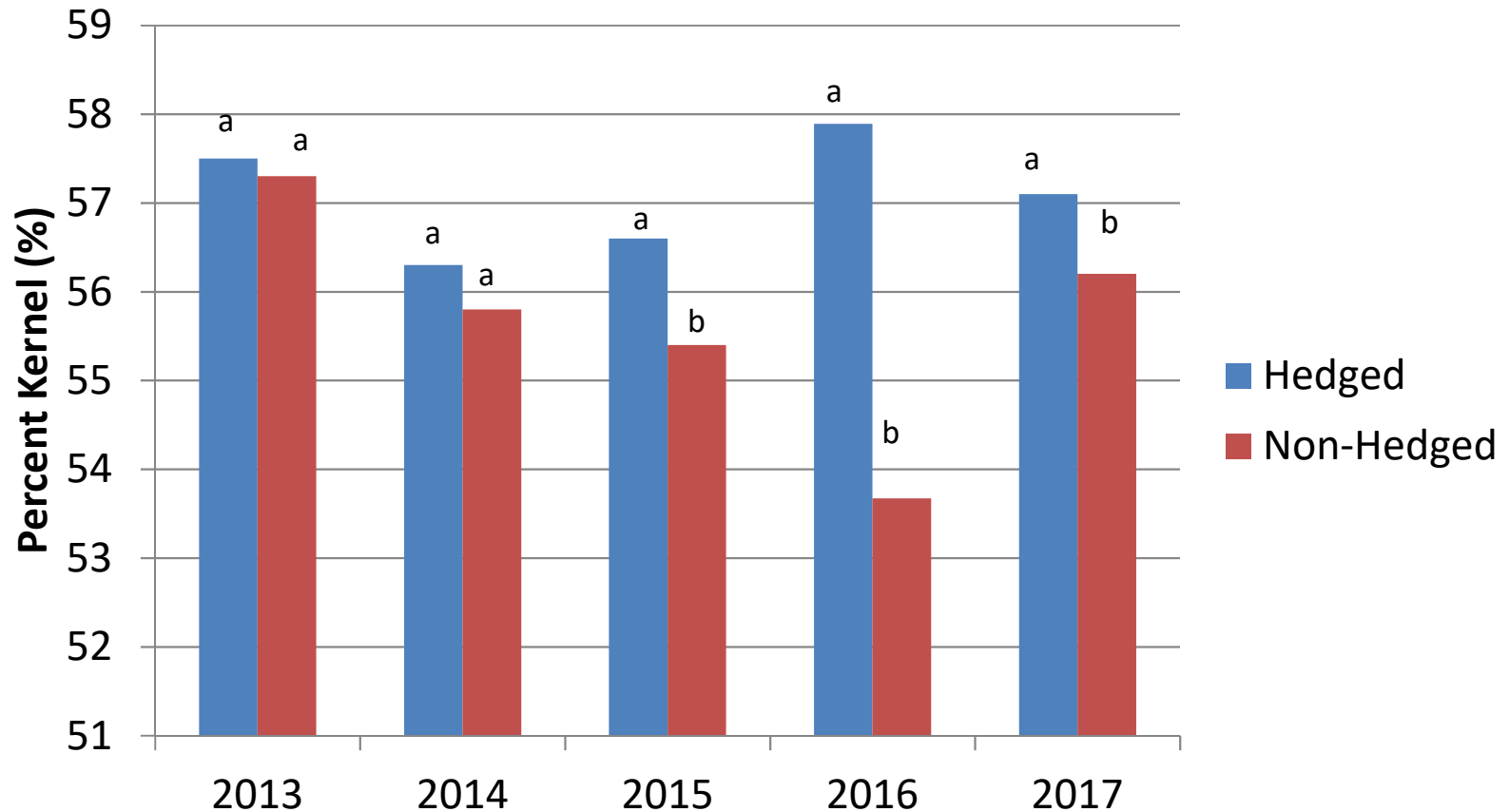
Desirable
Planted 1996



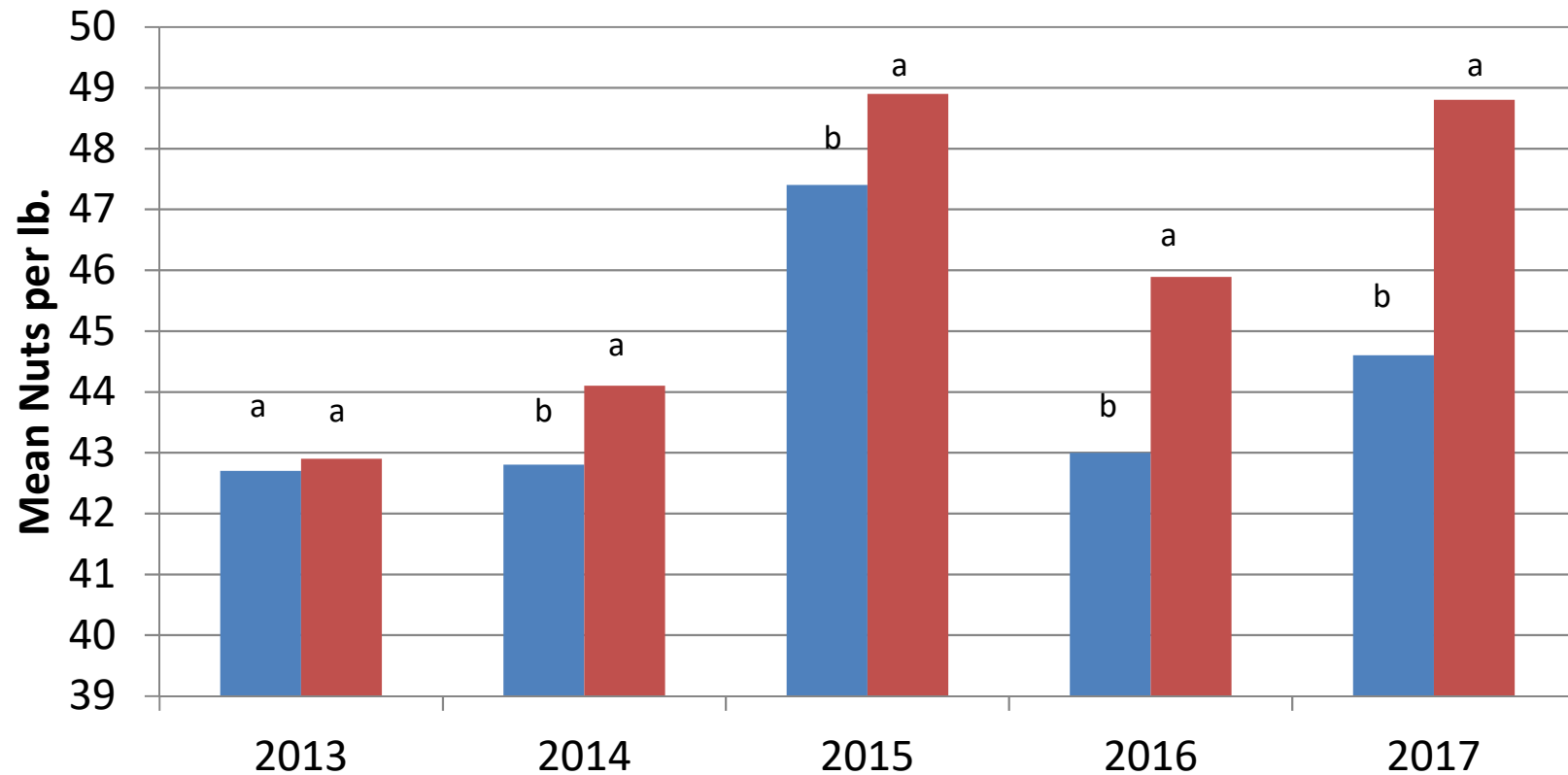
Water Stress in Hedged vs. Non Hedged Trees 2017



Dormant Hedging Quality—Desirable Percent Kernel

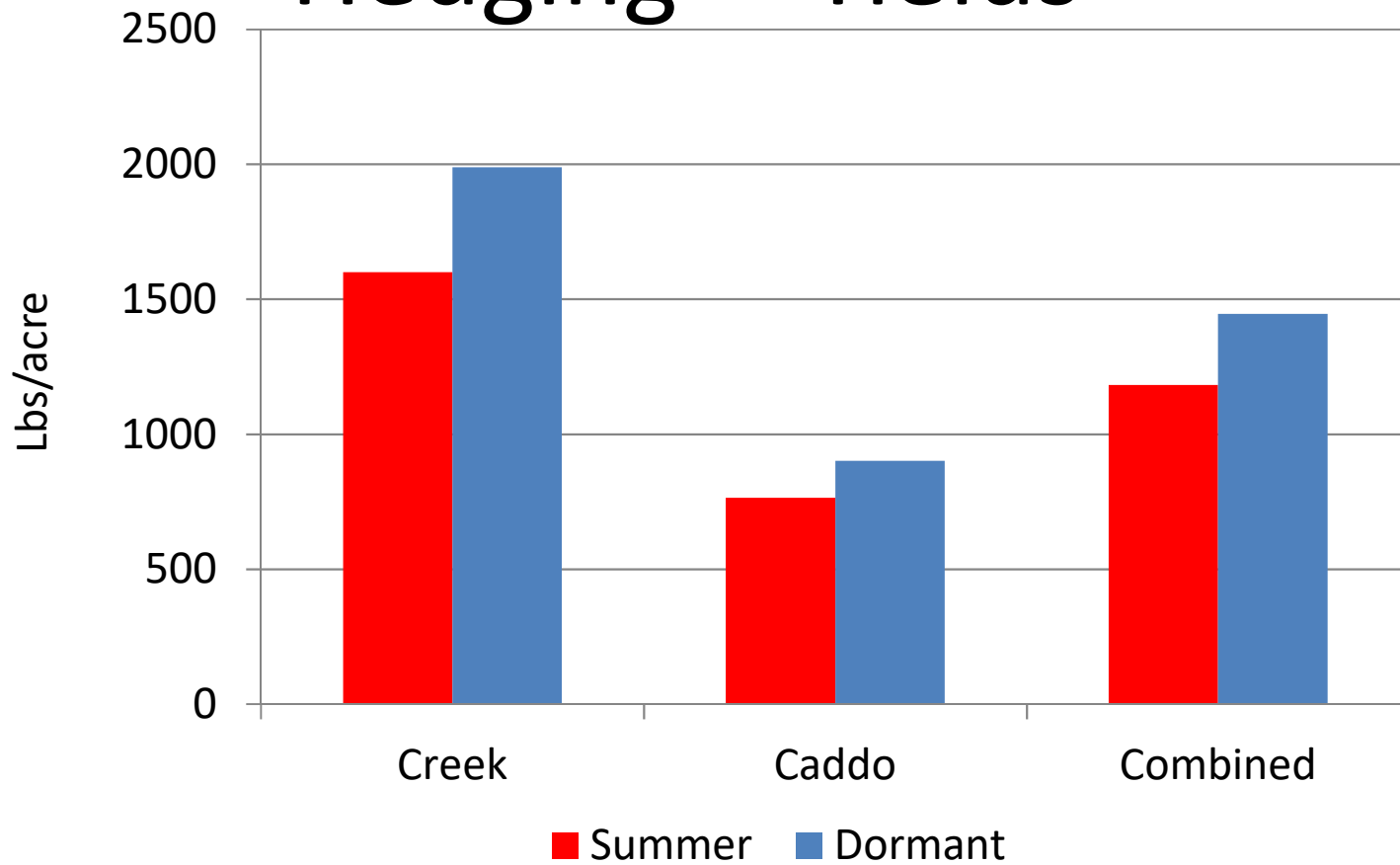


Dormant Hedging Quality—Desirable Nut Size



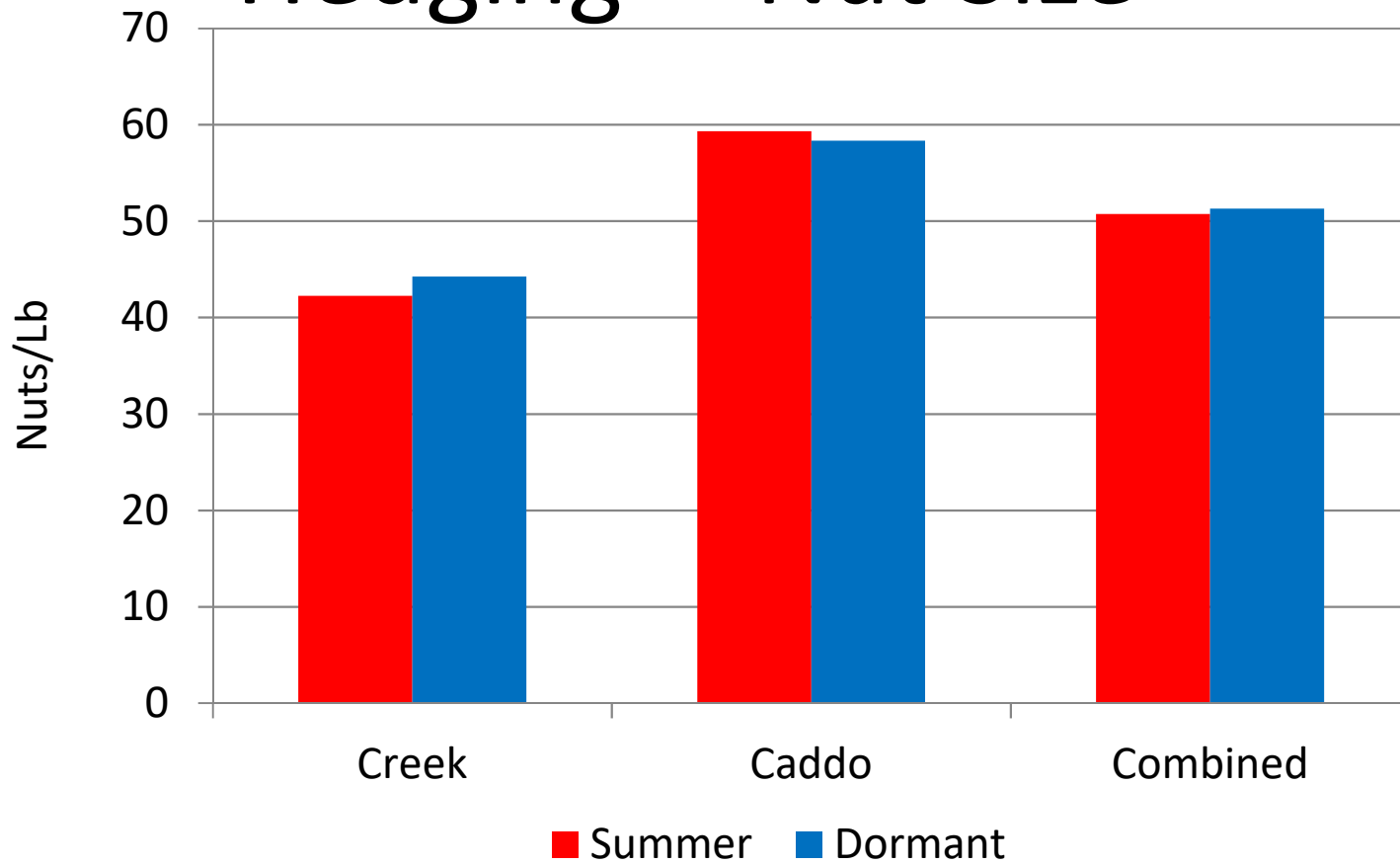
Summer Vs Dormant Hedging ---Yields

Planted 2006



Summer Vs Dormant Hedging ---Nut Size

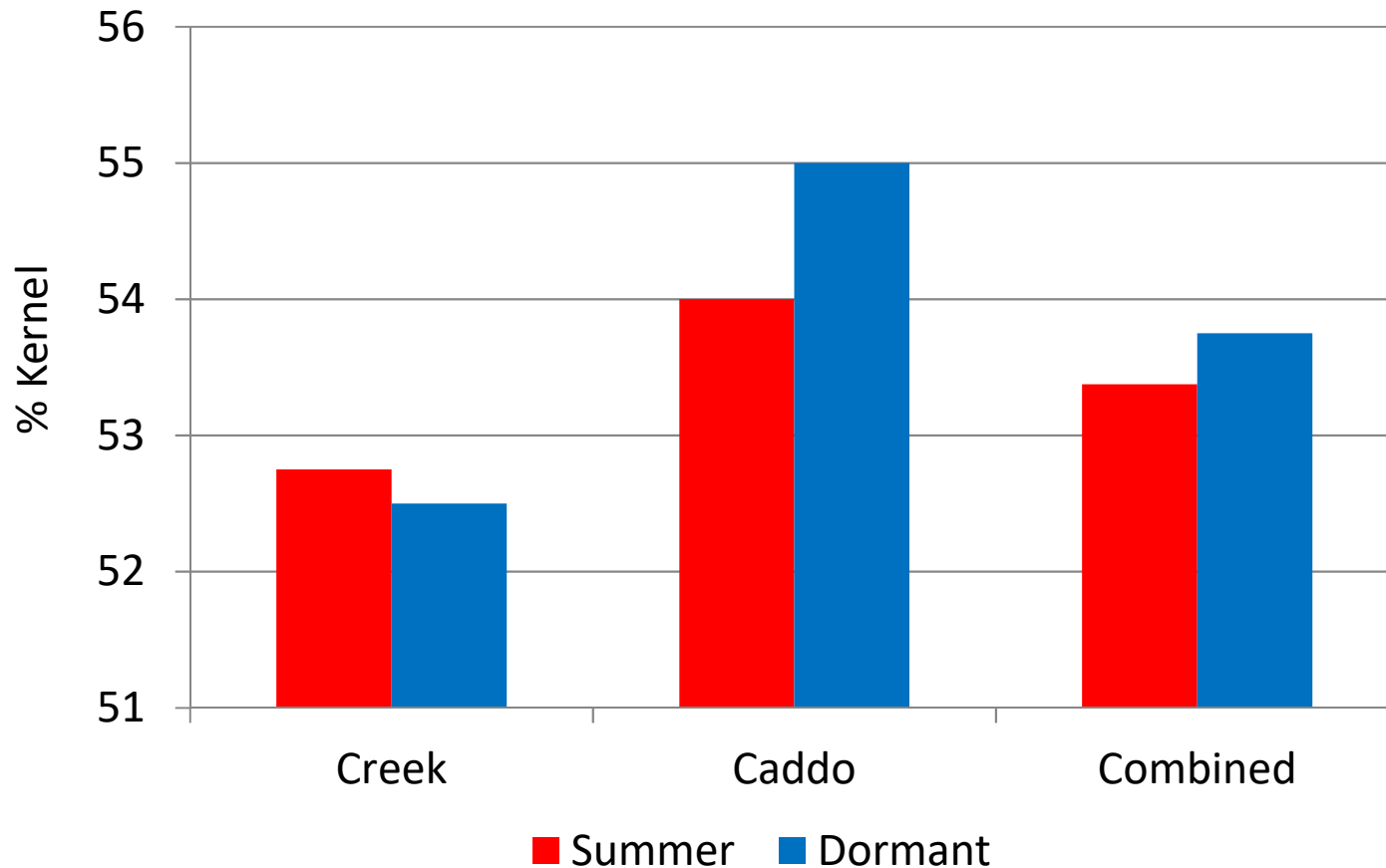
Planted



Summer Vs Dormant

Planted

Hedging ---Percent Kernel



Considerations Regarding Summer Hedging

- Re-growth is about $\frac{1}{2}$ that of dormant pruning
- Can it be used to manage crop load?



2018 Low-Input Test Yields

40' X 40'

	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**



2019 Low-Input Test Yields

	Yield	Count	% kernel	Cost/A	Price (\$)	Gross (\$)	Net (\$)
Desirable	1549	42	52	1448.90	2.30	3562.70	2113.80
Pawnee*	1172	46	58	1424.90	2.65	3105.80	1680.90
Lakota	394	48	57	1124.08	2.30	906.20	-217.88*
Excel	1862	41	50	1124.08	2.30	4282.60	3158.52
McMillan*	903	53	52	1124.08	2.10	1896.30	772.22



Low Input Test 2-Year Average

	Yield	Count	% kernel	Cost/A	Price (\$)	Gross (\$)	Net (\$)
Desirable	1490	42	53	1467.98	2.20	3278	1810.02
Pawnee*	1153	46	57	1439.98	2.65	3055.45	1615.47
Lakota	1226	48	58	1154.19	2.13	2611.38	1457.19
Excel	1895	42	51	1154.19	2.08	3941.60	2787.41
McMillan*	982	52	53	1154.19	1.98	1944.36	790.17

---Lakota has to be fruit thinned for consistent yields

*Pawnee numbers from commercial orchard

*McMillan trees approx. 1-2 yrs younger than Excel & Lakota



Problems & Solutions*

With Old South GA Trees

Problems

- Inconsistent Production
- Low Quality
- The first to show any sign of stress

Solutions

- Sunlight, Water, Pruning
- Hedging, Wisp-Pruning
- Inter-plant and change varieties over time



Hedging Old Trees

Improves Water Efficiency

- Increases Size
- Increases Quality

Other Advantages

- Allows for planting new varieties between rows

Disadvantages

- Expensive
- Hard on Equipment





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Wisp, Remove, Replace

How

- Remove 1-4 large limbs per year for several years
- Interplant better varieties in-between large trees
- Remove large trees in stages as young trees come into production



Disadvantages

- Expensive
- Time Consuming



Inter-Planting in old Stuart blend Orchards

- Avalon
- Zinner
- Ellis
- Sumner
- Creek
- Oconee
- Lakota
- McMillan
- Excel



Manage For Your Situation

- Think seriously about your inputs
- Consider elevation, surrounding woodlines, sunlight
- Don't spray medium input cultivars the same as Desirable
 - Can save on sprays **early** by watching weather
- Manage your fungicides to their best use
- If you are making more than 3 fungicide sprays on highly resistant cultivars (Elliot, Excel, Lakota, McMillan) you are spraying too much

