



Modifying Tree Canopies: Olives

- Two reasons to prune a tree:
 - annual crops; alternate bearing
 - harvestability



Traditional Table Olives

- 50-60% of gross return





Paul Vossen



15% Gross Return



Paul Vossen

March 9th, 2013; Terra Bella CA

- 1% of California's Manzanillo





Available?

Affordable?

Ability?

Three Types of Orchards

Existing traditional orchards

- size must be reduced

Young orchards

- size can be maintained

New orchards

- size can be dictated

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Traditional Table Olives



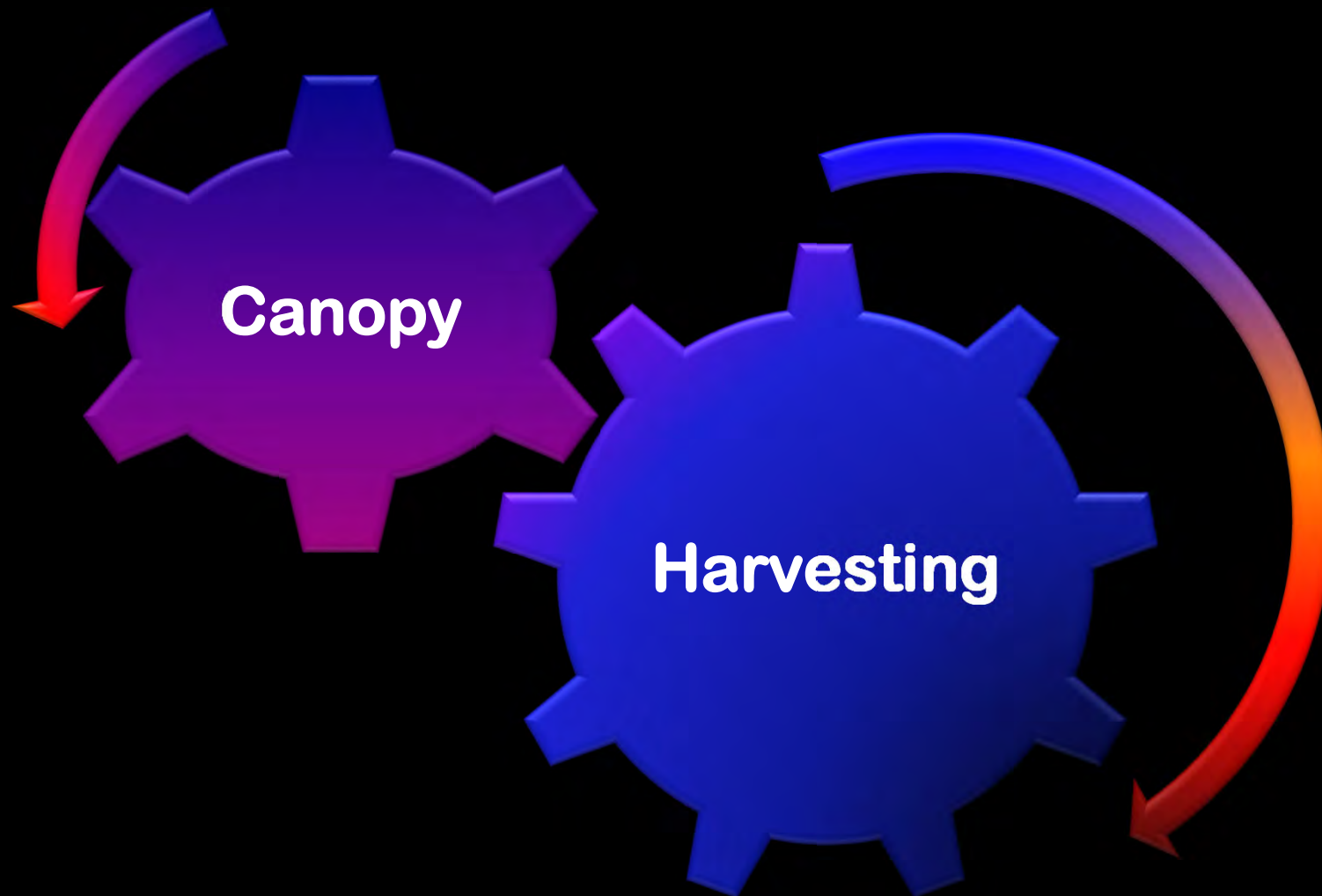
Size,
shape





1/29/2022



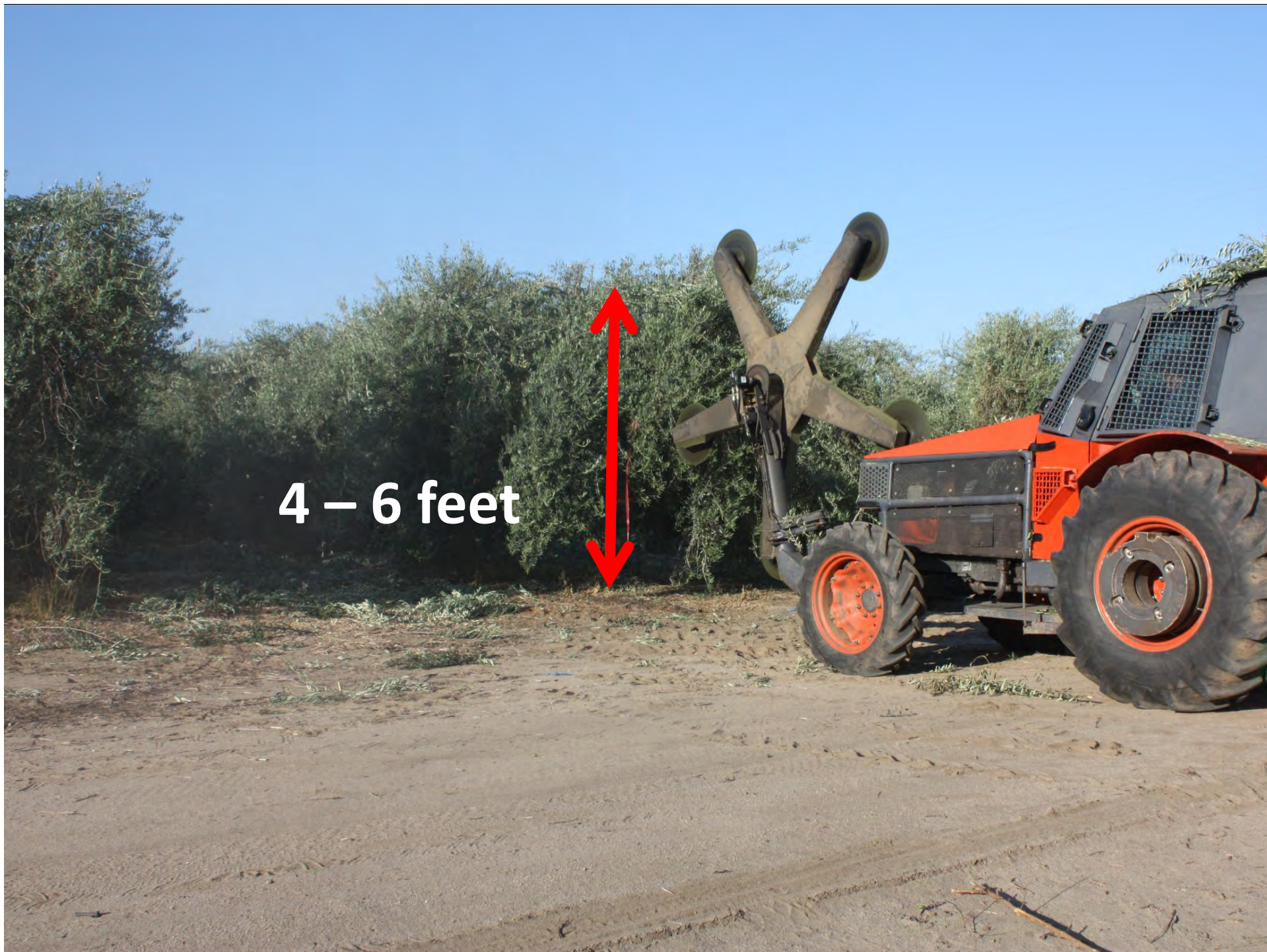
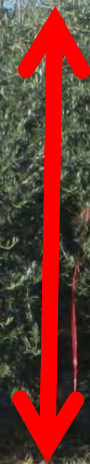


Lowered in 2 steps: step 2



11 - 12 Feet

4 – 6 feet



Hedging and Topping Trial 2008 - 2013



13 x 26 feet = 139 trees/acre

Effect of Hedging and Topping on Yield

Average Annual: 2008 - 2013

5.3 tons/acre

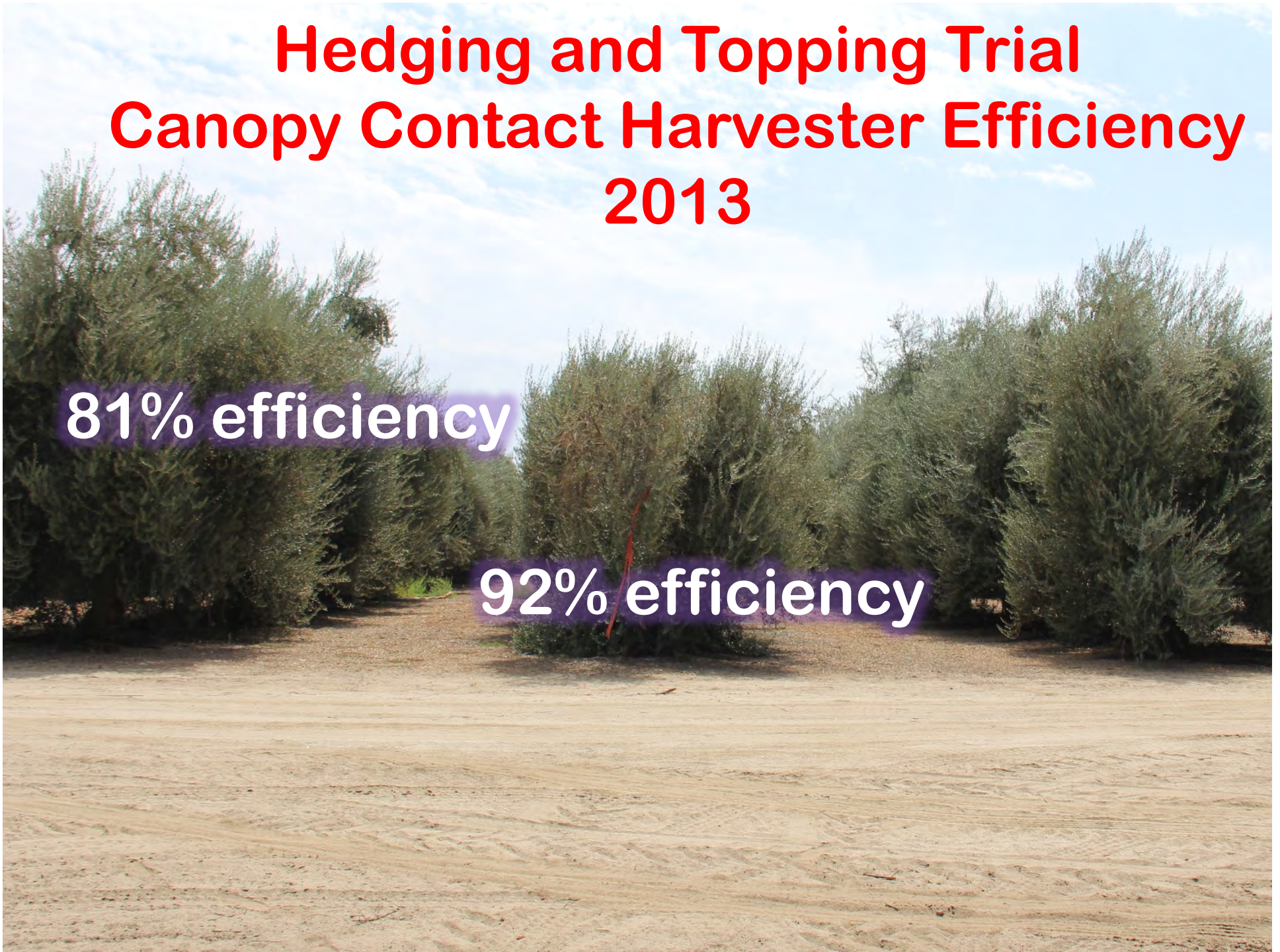
4.2 tons/acre



Hedging and Topping Trial Canopy Contact Harvester Efficiency 2013

81% efficiency

92% efficiency



Size Damage









Three Types of Orchards

Existing traditional orchards

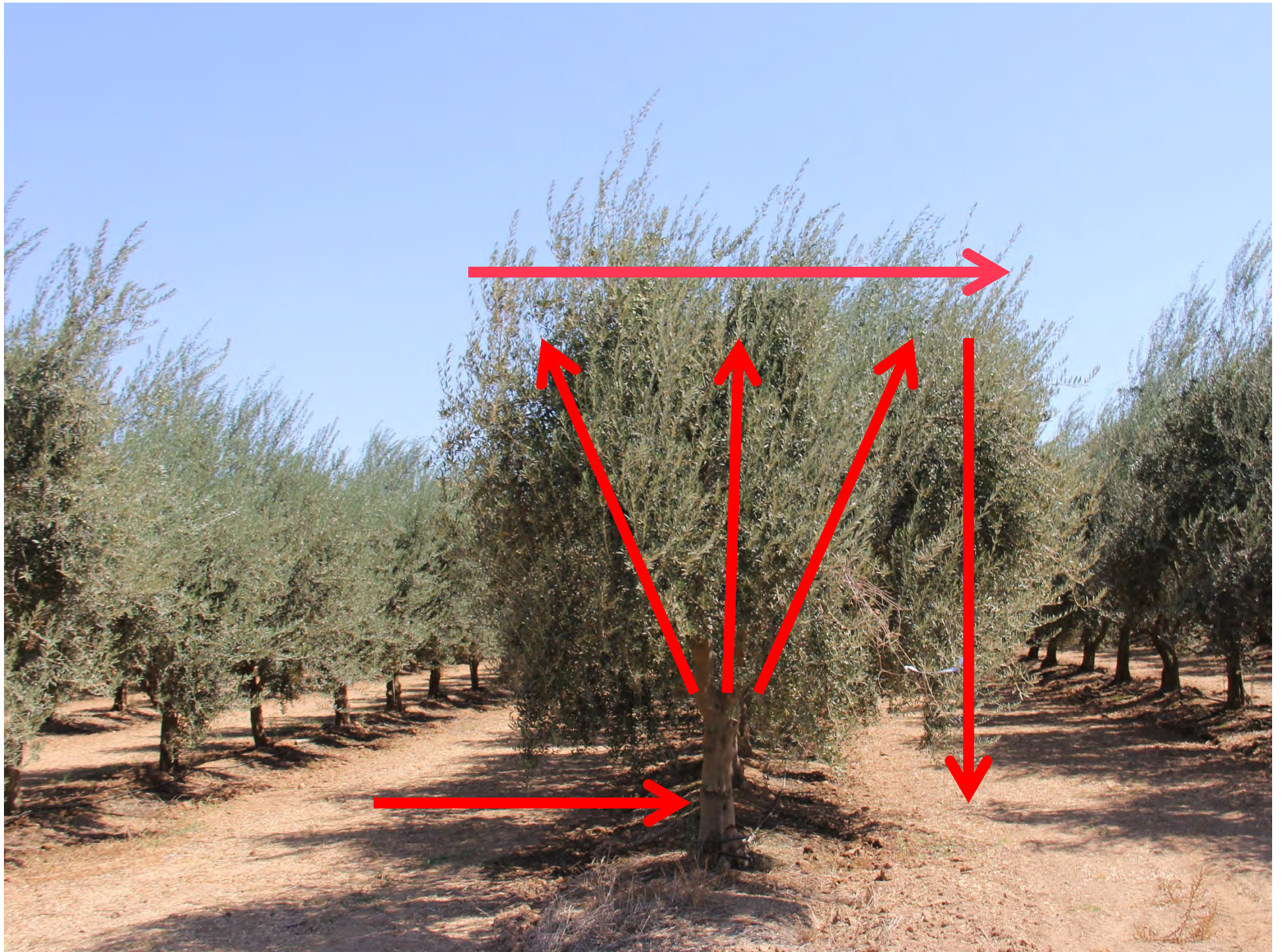
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- size can be maintained

New orchards

- size can be dictated





Pruned trees:

180 trees/acre

\$1,000.00/acre

30 - 40"/tree = 90 – 129 trees/hour

2 tons/hour





22/09/2012: > 95% acceptable

Hand harvested
control

Three Types of Orchards

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Young orchards

- size can be maintained

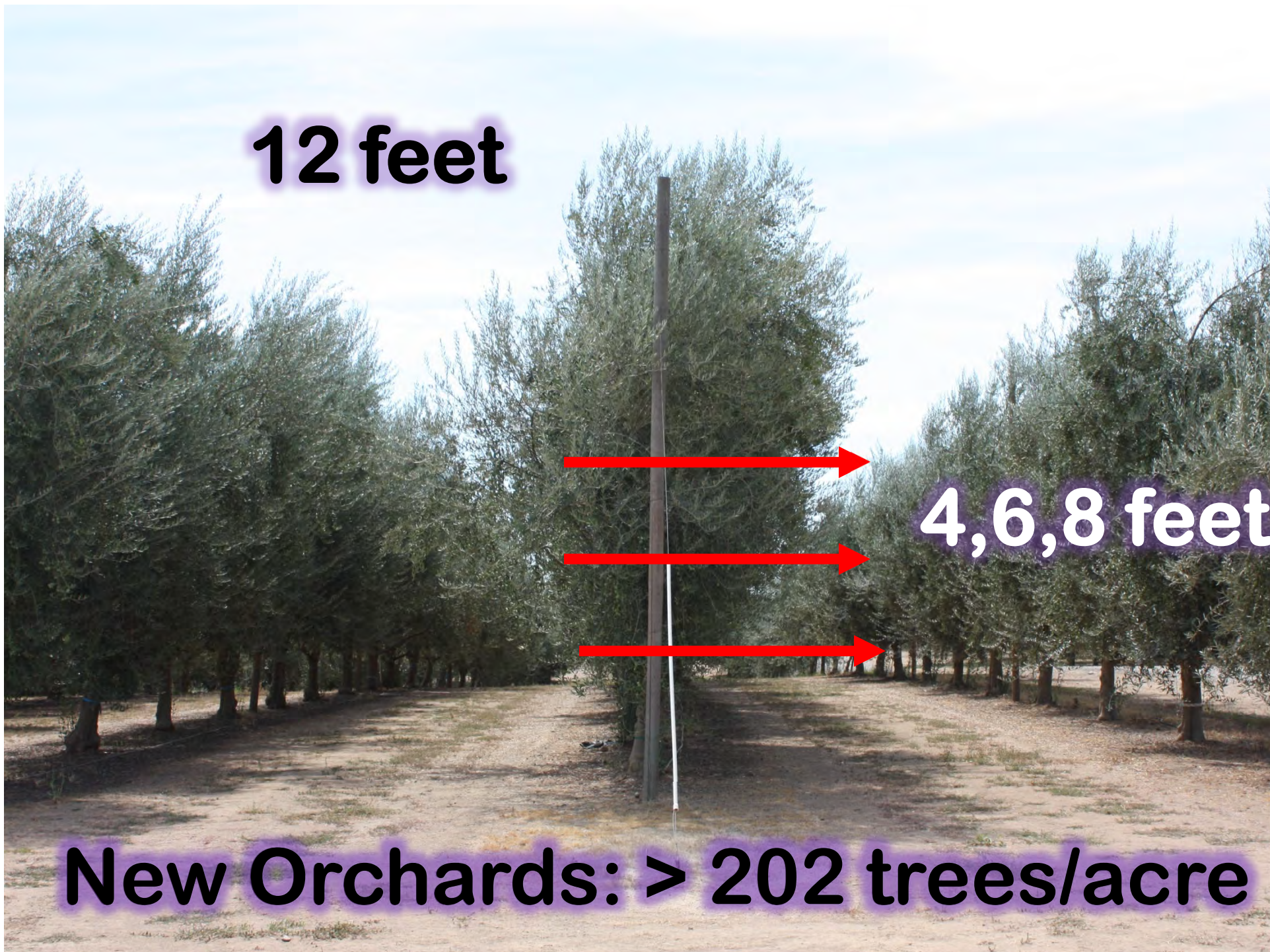
New orchards

- size can be dictated

12 feet

4,6,8 feet

New Orchards: > 202 trees/acre

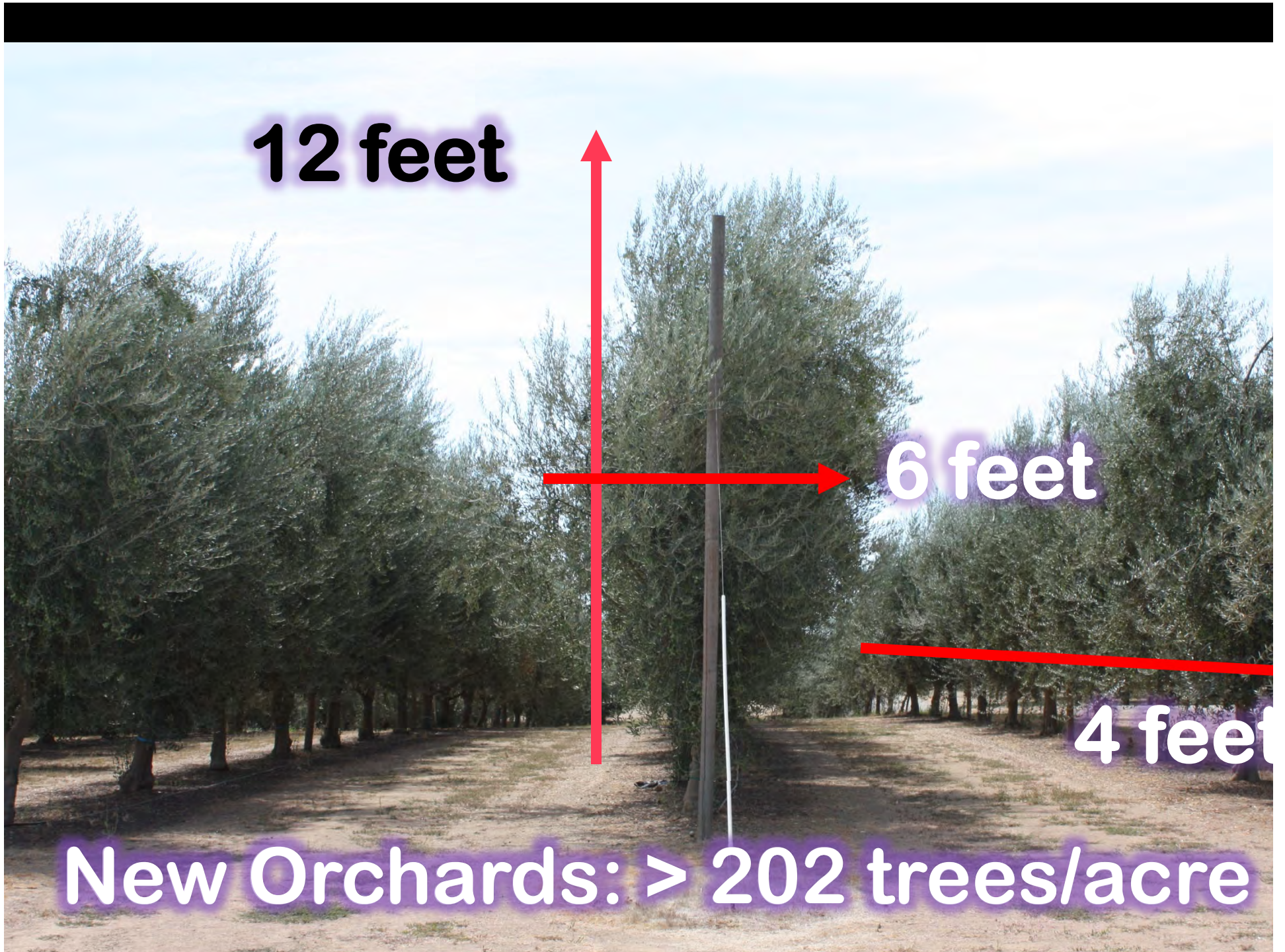


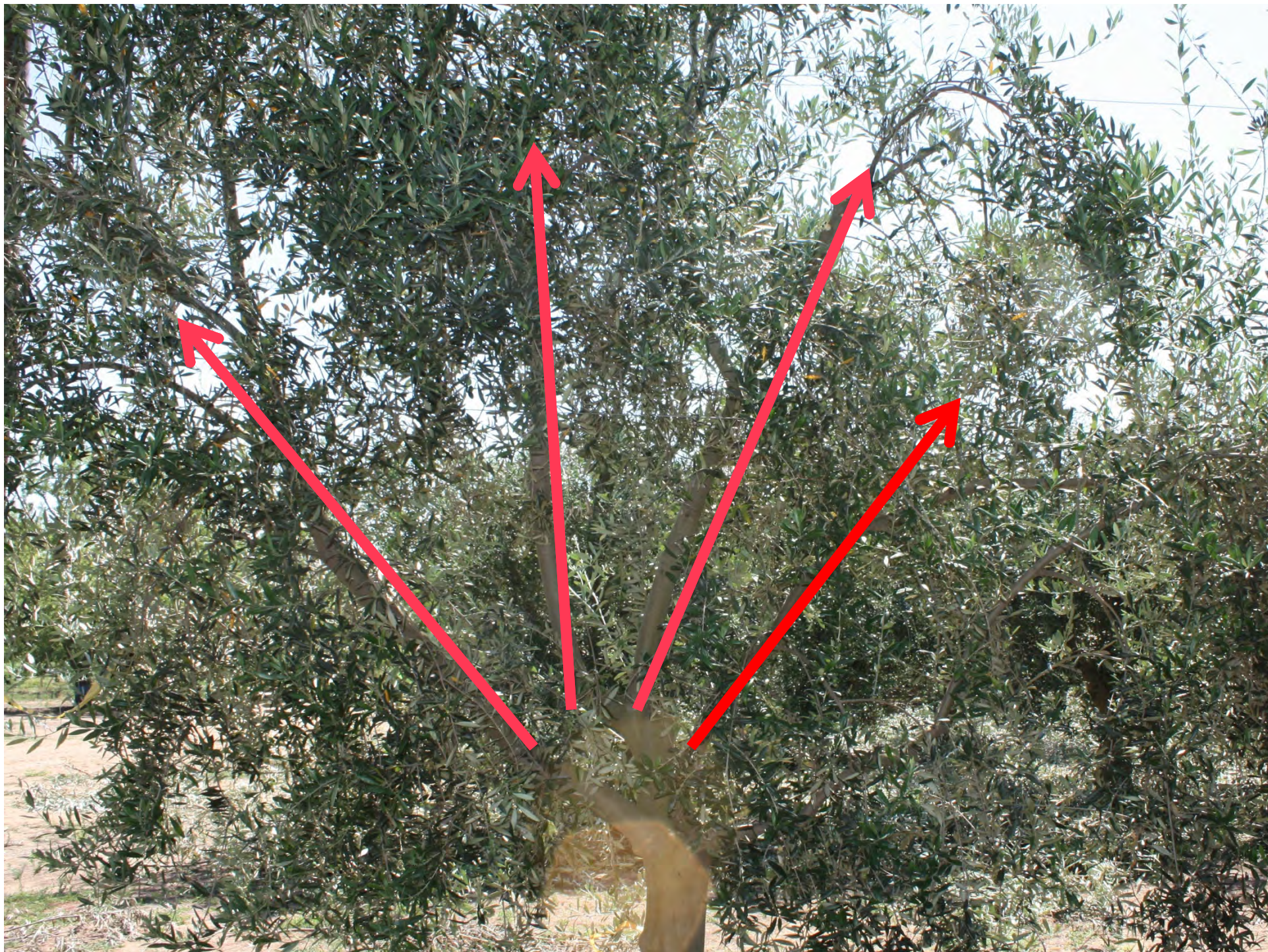
12 feet

6 feet

4 feet

New Orchards: > 202 trees/acre







2011: 10 feet

2 feet

A photograph of an olive tree in a grove. The tree is covered in green olives. A red horizontal line is drawn across the upper part of the tree. Text labels indicate the height and harvest years. The background shows other olive trees and a clear blue sky.

2012: 11 feet

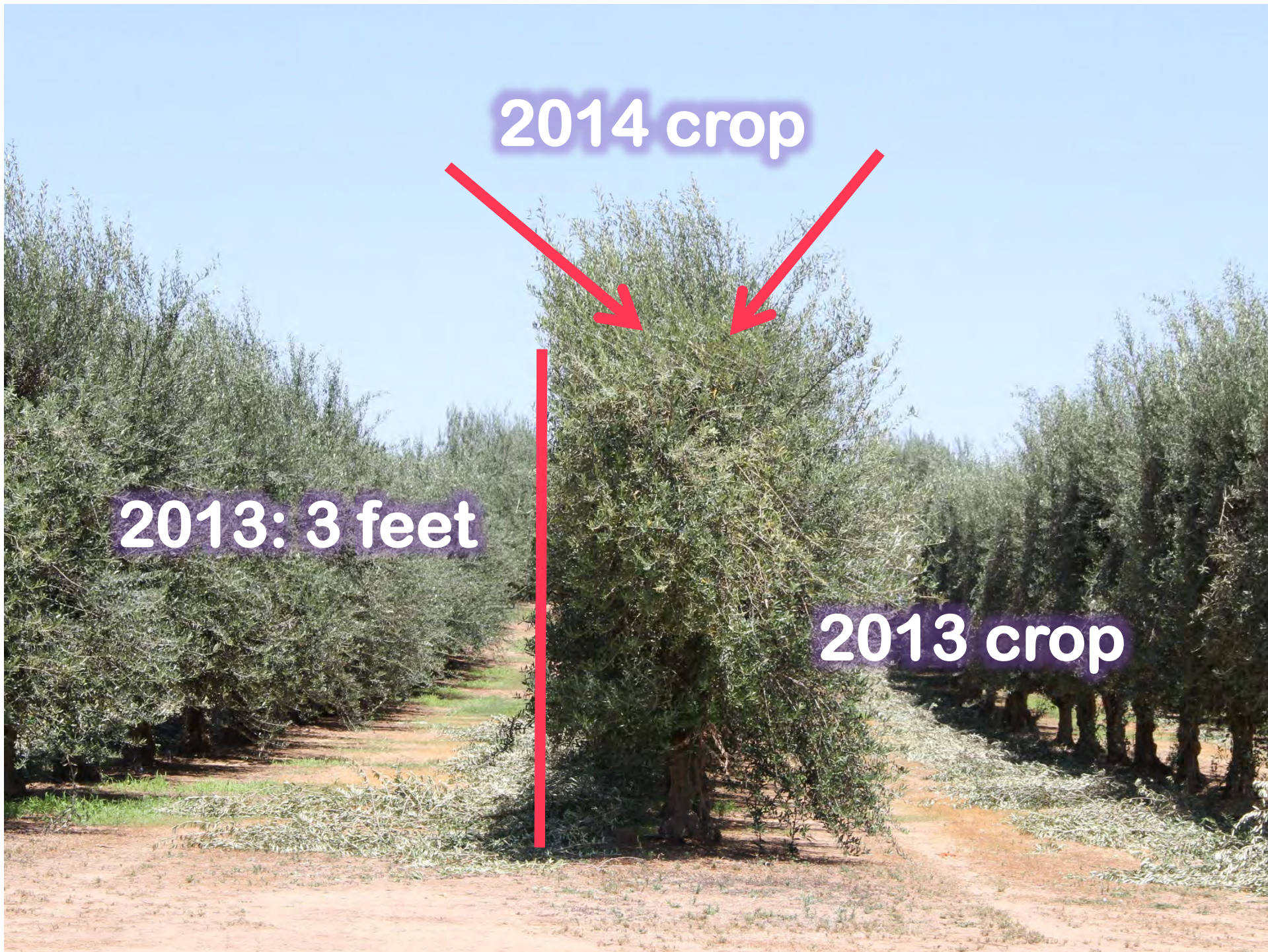
2013 crop

2012 crop

2014 crop

2013: 3 feet

2013 crop







Mechanically vs. Hand Pruned Hedgerow

- **Hand:**

- 3.7 tons/acre
- 80 % harvest efficiency

Mechanical:

- 4.3 tons/acre
- 81% harvest efficiency

Mechanical Harvesting Progress Summary

– Trunk shaker

- 77% efficiency
- Marketable olives
- Commercially available

– Canopy Contact Harvester

- 80 - 92% efficiency
- Marketable fruit
- Prototype with no catch frame



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15% Gross Return



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Conclusion: Three Solutions

Why are you changing: goal?

Existing traditional orchards

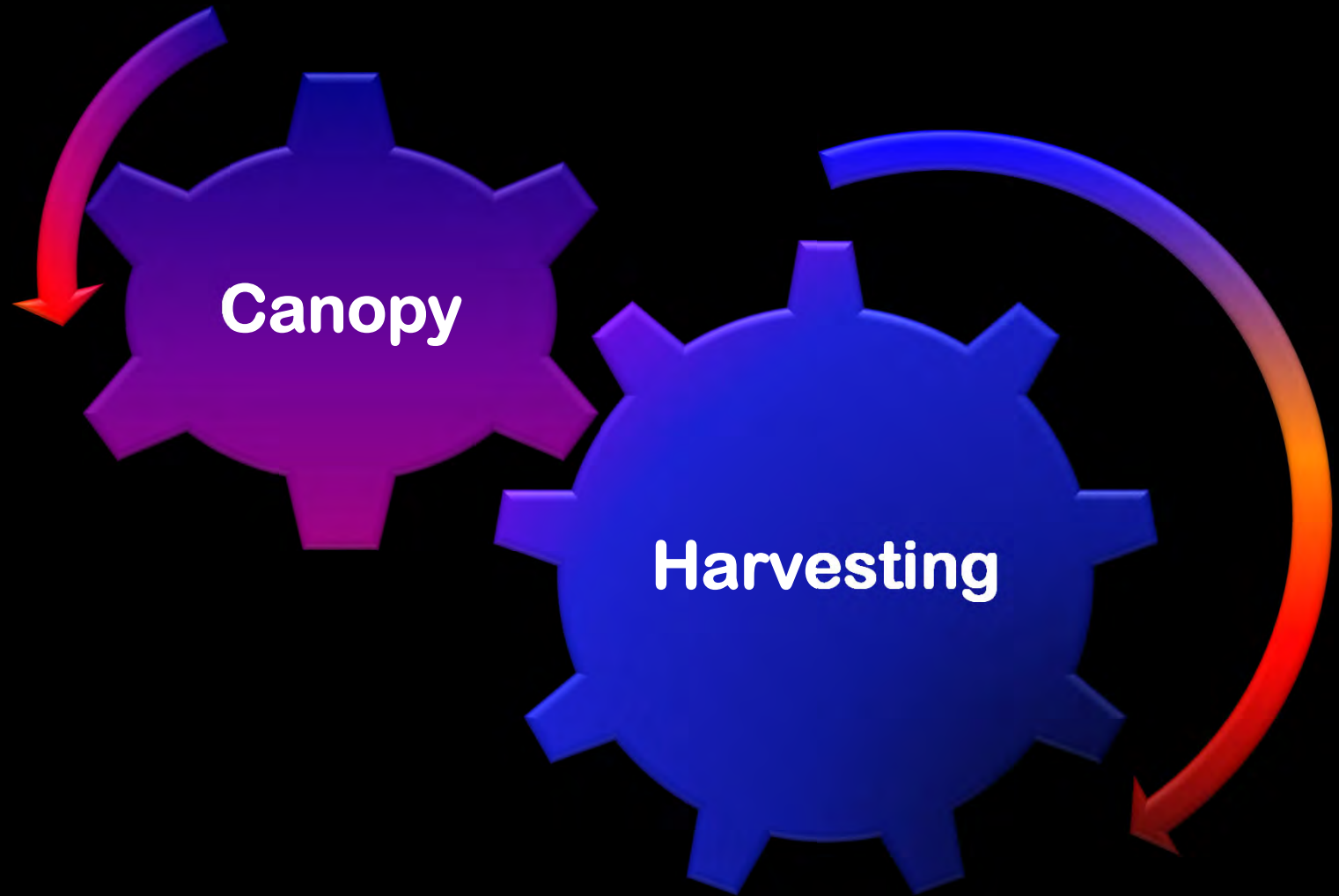
- size reduced: short-mid term solution**

Young orchards

- size maintained: mid-term solution**

New orchards

- size dictated: long term solution**
- genetics**



Mechanical (Size)+ Hand (light) Pruning



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