

# Mechanical Pruning and Harvesting 2008 - 2013

Louise Ferguson

John Miles and Sergio Castro-Garcia

Bill Krueger and Elizabeth Fichtner

Rocky Hill Ranch

Burreson Ranch

ENE Inc. and Gold Country Hydraulics

Belle Carter Olives

Musco Family Olives



# Mechanical + Hand Pruning

**Traditional : 139 trees/Ac**

**Hedgerow: 202 trees/acre**

**2008 - 2013**

**2011 - 2013**





# Canopy Contact Prototype





# Effect of Hedging and Topping on Yield

## Average Annual: 2008 - 2013

5.3 tons/acre  
(2912 ft<sup>3</sup>)

4.2 tons/acre  
(1248 ft<sup>3</sup>)



# Hedging and Topping Trial Canopy Contact Harvester Efficiency 2013

81% efficiency

92% efficiency





**2014 crop**

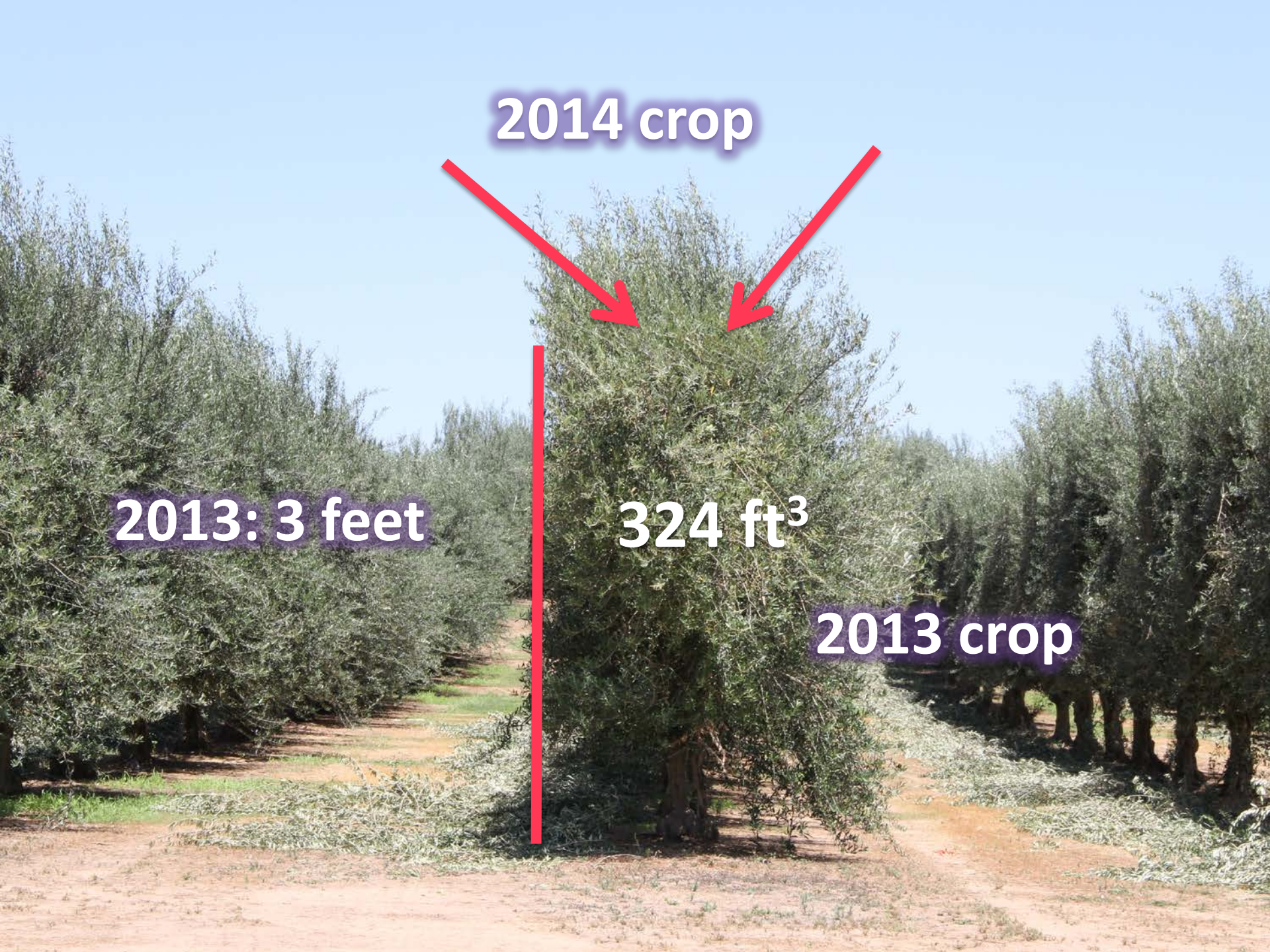


**2013: 3 feet**



**324 ft<sup>3</sup>**

**2013 crop**



# Mechanically vs. Hand Pruned Hedgerow

- **Hand:**

- **3.7 tons/acre**
- **80 % harvest efficiency**

## **Mechanically:**

- **4.3 tons/acre**
- **81% harvest efficiency**



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**



# Trained Sensory Panels







# **Taste Test for Black Olives**

**1 ~ 3 pm**

**RMI Sensory Rm.1000**

**Consumer Preference Panels**

**10 ~ 3 pm**

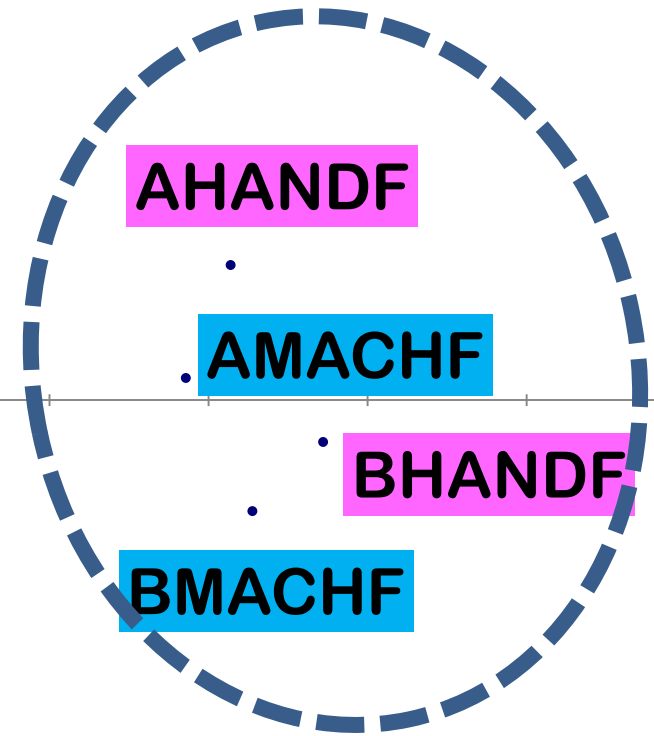
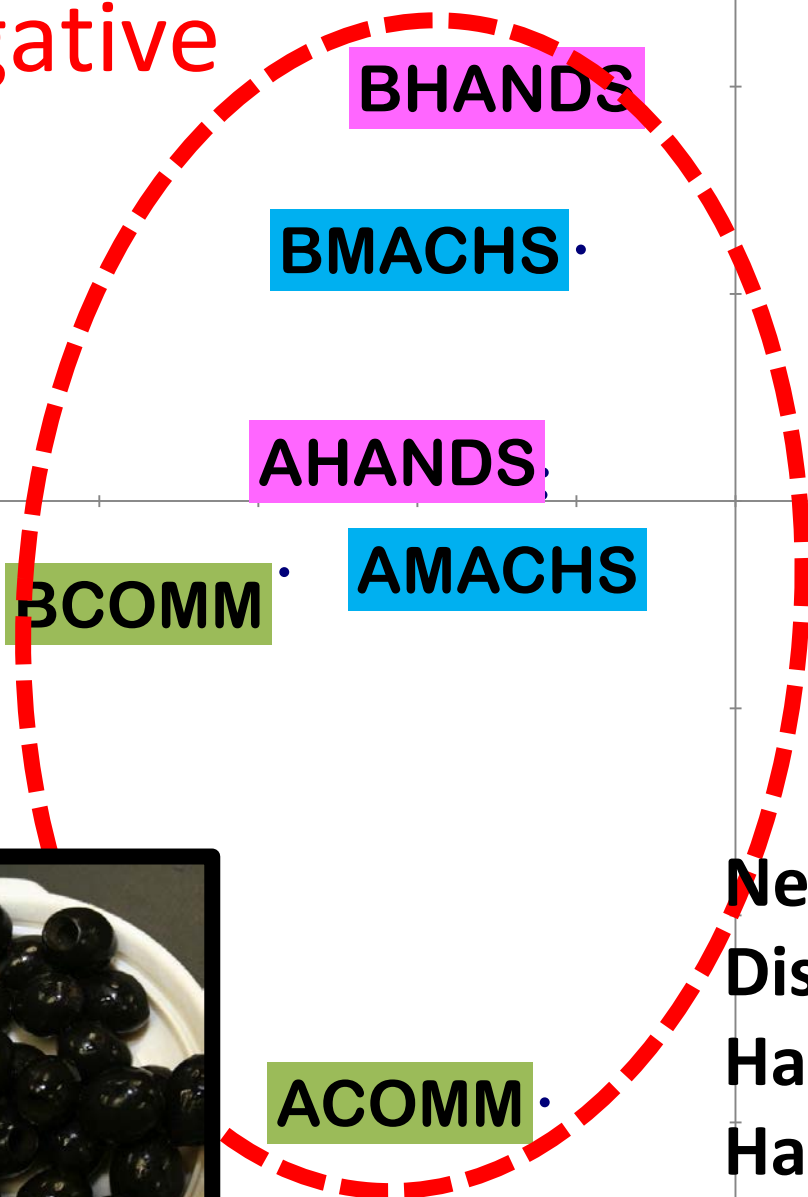
**RMI Sensory**





Negative

Positive



Neither panel could  
Distinguish  
Hand vs. Mechanically  
Harvested Olives



# **Mechanical Harvesting**

## **Progress Summary: 2008 -2013**

### **– Trunk shaker**

- 77% efficiency**
- Grades = hand harvest**
- Commercially available**

### **– Canopy Contact Harvester**

- 80 - 92% efficiency**
- Grades = hand harvest**
- Prototype with no catch frame**



# **Mechanical Pruning + Harvesting 2014 Progress and Plans**

- Rocky Hill Ranch: 139 trees/ace**
  - Interior hand cuts: 3/25/2014**
  - Mechanically hedged: 4/21/2013**
  - crop failure**
  
- Nickels Estate: 202 trees acre**
  - Mechanically and hand pruned 5/16 + 28/2014**
  - University of Cordoba Mechanical Harvesting Group**
  - Testing two canopy contact harvesters**
    - Prototype (EVA funding)**
    - Double sided Coe (Argentinian purchaser)**

