Mechanical Harvesting of California Black Ripe Table Olives

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Bell Carter Olives and Musco Family Olive Company
Finca La Bella and MaqTec
Erick Nielsen, Matt Coe, Don Mayo


47% of Gross Return

Objectives: 1996 - 2009

- **Economically feasible mechanical harvesting:**
  - **for existing orchards**
  - **future orchards**

Major Factors: 1996 - 2009

- **Final goal:**
  - commercially competitive product
- **Develop picking method:**
  - harvester second
- **How must orchards change?**

Evaluated Existing Mechanical Harvesters 2006, 2007, 2008

- Canopy Contact
- DSE Harvester
  - 2006,7,8

Commercially Marketable Processed Olives

DSE 006, 007 and 008


DSE 007


DMF


DMF


Kool Auto Air
Bakersfield, CA.

DSE 008 Results: 2006, 2007, 2008

- Final Efficiency: 57.8% (44.1 – 77.6%)
- % Cannable: 88*** vs 96
- Adj. value/Ton ($): 1,013*** vs. 1137

DSE 008 Research Conclusions: 2006, 2007, 2008

- Canopy contact head is viable
  - marketable processed olives
- The harvester is marginal
  - slow and inefficient

Evaluated Existing Mechanical Harvesters 2006, 2007, 2008

- MaqTec Colossus
  - Argentina
  - Portugal
  - 2008

Commercially Marketable Processed Olives


MaqTec
Colossus

Rabodoa, Portugal: September 2008


Colossus
5715


Hand Harvest
24 hours
Machine Har

MacTeq Research Conclusions: Argentina and Portugal, 2008

- **Colossus is very efficient:**
  - **> 90% efficiency**
- **Fruit damage is unacceptable**
  - **but it could be improved**

Evaluated Existing Mechanical Harvesters 2007, 2008

- Trunk Shakers
  - ENE
  - COE
  - OMC
  - Spanish Wraparound
    - 2007, 2008

Commercially Marketable Processed Olives


EUE
Rep I

Training	Harvest Eff. %	% Can.	Adj/ton	Hand
Conventional	100%	97.1	1,035	Hand
Free Esp.	100%	96.3	1,042	Hand
Woven Esp.	100%	94.4	1,031	Hand
Tied Esp.	100%	92.8	1,101	Hand

Training	Harvest Eff. %*	% Can. NSD	Adj/ton NSD	Shaker Hand
Conventional	67.4 100	95.0 97.1	974 1,035	Shaker Hand
Free Esp.	63. 100	96.4 96.3	872 1,042	Shaker Hand
Woven Esp.	65.3 100	95.3 94.4	963 1,031	Shaker Hand
Tied Esp.	69.4 100	96.1 92.8	1,131 1,101	Shaker Hand

Trunk Shaker Research Conclusions: 2008

- Trunk damage is unacceptable
- Harvest efficiency is marginal
- Fruit quality is excellent

Summarized Harvester Research Conclusions: 2006 - 2008

- **Canopy and Trunk Harvesters**
  - **fruit damage is not limiting factor**
  - **harvest efficiency remains low**

Major Factors: 1996 - 2009

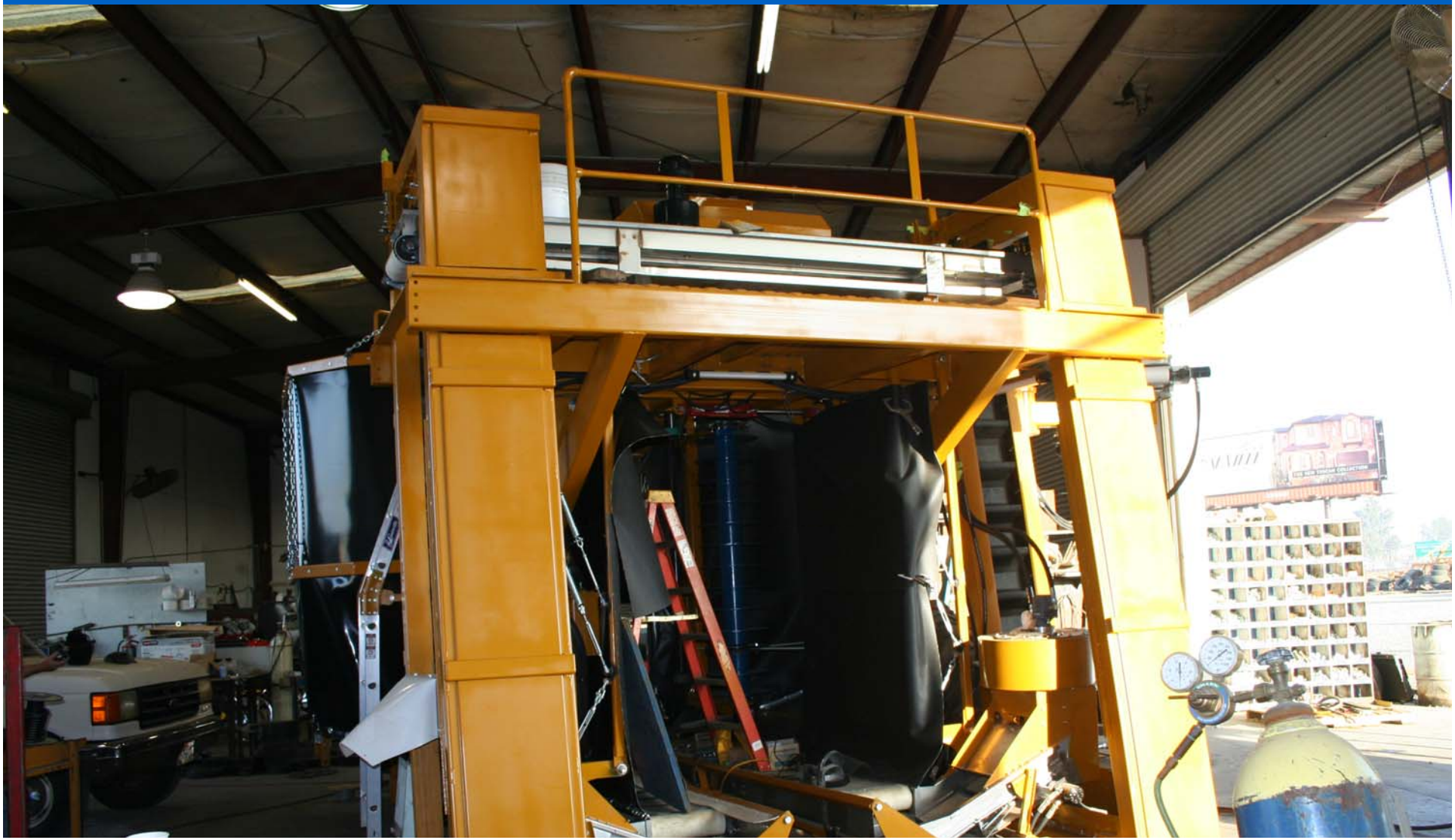
- **Final goal:**
  - **commercially competitive product**
- **Develop picking method first:**
  - **harvester second**
- **How must orchards change?**

Harvester Evaluations: 2009

- Canopy Contact
  - Coe
  - Agright
- Trunk Shakers
  - ENE
- Small Orchard Prototypes
  - AH Rake
  - WHK Wheel Rake
  - CSU Chico Air Pulse Harvester

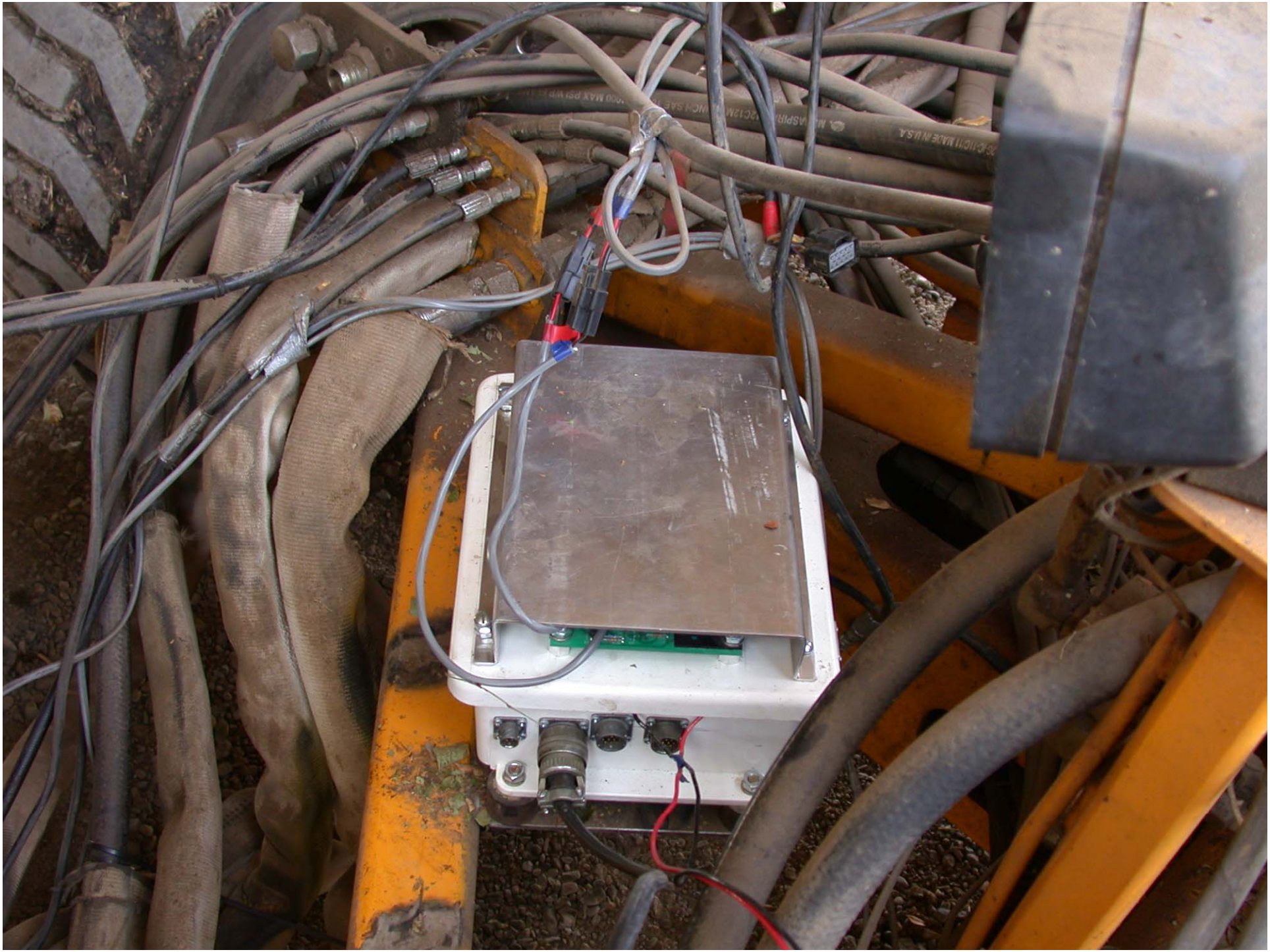
COE Harvester

AgRight Olivia




MAC TOOLS

ENE Trunk Shaker



AH Rake

WH Krueger Wheelrake

OXBO


OVERSIZE
Vinestar
Vinestar

Questions?

Groups.ucanr.edu/olive_harvest

University of California

Mechanical Harvesting of Table Olives

University of California Cooperative Extension

Mission

To develop mechanical harvesting for the California table olive industry.

This site presents the following: current research; project proposals and reports; project investigators; industry cooperators, and field days and meetings.

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What's New 2007

Wednesday, Dec. 5, 2007
Louise Ferguson will speak on "Developing Mechanical Harvesting for California Table Olives."
Plant Sciences Department Seminar
PES 3001 at noon
UC Davis

Nov 8: 2007 Photo Gallery posted