Mechanical Harvesting
Of
California Black Ripe Table Olives

Jacqueline Burns, Uriel Rosa, Dave Smith, William Krueger, Rich Rosecrance, Kitren Glozer, Carlos Crisostoto, Dave Smith Louise Ferguson
Olive Prices: California Average ($/ton)

$400/ton = 65%
Objective: Develop Mechanical Harvesting for California Black Ripe Table Olives
Picking Head:
- AgRight
- Korvan
- DSE
Mechanical Olive Harvesting Team

- Jackie Burns
- Urile Rosa
- Dave Smith
- Carlos Crisosto
- Kitren Glozer
- William Krueger
- Richard Rosecrance
- Louise Ferguson

- Abscission agents
- Harvester improvement
- Processed Quality
- Preharvest Treatments
- Tree Training
- Abscission Physiology
- Harvester Efficiency
- Picking Head
- 0.25 MPH
  - continuous
- Passive rotation
- 220 – 180 CPM
- Catch frame
- Bin collection
- Excellent removal with canopy contact:
  - row middle
- Poor removal between tree canopies
- Catch frame losses
  - ground

88 – 98%
48-54%
10 - 19%
Conclusions:

Investigate:
- Harvester amplitude < 220 CPM
- Harvester speed < 0.25 mph
- Tree canopy management > hedging =/- topping
Our Industry Cooperators

- Bell Carter
- Judd Carter
- Cody McCoy
- Gene Welch
- Phil Quigley
- Jane Yegge

- Musco Olives
  - Nick Musco
  - Felix Musco
  - Dennis Burreson
  - Ed Melanesio
  - Ben Hall
  - Abdul Sigal

- Olives:
  - Mechanically
  - Ground
  - Hand

- % acceptable
  - Hand
    - 66.4%
  - Mechanically
    - 64.5%
  - Ground
    - 61.6%
Abscission Compound Screening and Efficacy: 2006

14 compounds and effectors screened alone or in combination

1. VBC 30050
2. VBC 30069
3. Methyl jasmonate
4. Coronatine
5. MAXCEL
6. VBC 30030
7. Traumatic acid
8. CMNP
9. Ethrel
10. Dikegulac
11. MPK
12. Guanfacine
13. Clonidine
14. 1-MCP

Screening performed at 3 locations

Kearney  Lincove  Tehama

ERCs remain the most promising for fruit loosening, but leaf loss still an issue
Proposed direction 2007

- Continue screening ERCs, including Harvant, to establish baseline, optimal efficacy
  - temperature effects, combination treatments
- Screen second-tier candidates
- Define the value of abscission agent application on mechanical harvesting efficiency (the ‘system’)
  - frequency, ground speed + abscission agent
Conclusions:

Harvester:
- Can be 98% efficient
  - If canopy is accessible
- Produces black ripe processed fruit
  - quality = hand harvested
Projected Work: 2007:

Evaluate machine:
- Removal
- Efficiency
- Processed fruit quality
  - @ 120 and 220 CPM
  - > .25 mph
  - +/- abscission agents
Projected Work: 2007:

Evaluate canopy training:

- Hand
- Mechanical
- Hedgerows
  - new orchards
Investigate other machines

Evaluate machine:
- OxBow
- Colossus
- Shakers
  - small trees
Mission

To develop mechanical harvesting for the California table olive industry.

This site includes current research; project proposals; annual research reports; project investigator's (PIs) background and progress reports; industry cooperators, and field days and meetings.

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