California Olive Committee 2007 Annual Report

Redesign & Retrofit- Korvan Olive Harvester

Project leaders:
Dave Smith, Dave Smith Engineering
Uriel Rosa, UC Davis Ag Engineering
Cooperators:
Louise Ferguson, UC Davis
Don Forester, Labco
Steven Splawn, Splawn Belting
Jeff Morrow, VIP Rubber
Robert Gonzales, Hydraulic Controls
Alfred, C.I.R.
Ron Sandusky, Morgan & Slates

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OBJECTIVES

To address the mechanical olive harvester's deficient areas: 1) Harvesting efficiency, 2) Fruit catching system, and 3) Fruit bruise

PROCEDURES

- Reconstruction commenced after removing all components down to the bare chassis and drive.
- Remount three picking heads to achieve downward tilt to drive harvested fruit to catcher frame.
- Install concave 160 degree padded covers on middle and bottom heads. This confines fruit and prevents it from being damaged by slamming into the harvester's superstructure.
- Modification of control arms and related hydraulics to allow two feet of additional penetration into the trees.
- Install new catching conveyor directly under picking heads and reverse direction of existing padded collector belt resulting in limited fruit handling.
- Fabricate and install new design padded catching paddles extending collector length to twenty feet.
- After extensive research into rod extrusion materials, the final decision material was installed with heat shrink tips. Thus reducing the amount of energy force transmitted into the trees and help eliminate olive bruising.
- Redesign and implementation of front and rear wheel skirts with padded open style frame to reduce fruit bounce and subsequent fruit bruise.
- Installation of new RPM meters and transducers for more accurate speed control of picking heads.
- All exposed steel surfaces were fitted with cushioned padding to guard against fruit bruise.
- Redesign of horizontal slider catch frame from deficient, poorly designed mechanical operation to more reliable hydraulic control.

RESULTS

The harvester performed well in our field trials, although to optimize the mechanical harvester an orchard should be pruned with that concept in mind.

CONCLUSIONS

As far as the mechanical aspect is concerned we are definitely on the right track. The 2008 season brings with it the opportunity to implement additional improvements and perfect the operation of the mechanical olive harvester.

Funding Sources

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