

Pesticide Application Technology Project



Mark Robertson

Multi-fan Test & Demonstration Sprayer for Orchards and Vineyards

- Project Participants:
 - ◆ Mike Costello, Cal Poly SLO
 - ◆ Ken Giles, UC Davis
 - ◆ Mark Zohns, Cal Poly SLO
 - ◆ John Philips, Cal Poly SLO
 - ◆ Dave Lawson & Associates
 - ◆ Western Plant Health Assoc.
 - ◆ Western Farm Services



Project Goals

- Reduce pesticide use
 - ◆ Improve on-target coverage
 - ◆ Variable rate application
 - ◆ Reduce non-target application
 - ◆ Reduce drift



Project Components

- Spray rig engineering and construction (Cal Poly SLO)
- Fluid handling system (UCD)
- Variable rate technology (UCD)
- Field Testing (Cal Poly SLO)



Spray Rig Engineering and construction

Mark Zohns (Ag Engineering Dept.,
Cal Poly SLO).

- Articulating arms
- Flexible carriage
- Adjustable fan positions
- Rugged construction



Variable Rate Technology

- Ken Giles (Ag Engineering Dept., UC Davis)
 - ◆ Pump-nozzle-pressure regulator-spray controller combinations for
 - ★ Application rates
 - ★ Ground speeds
 - ★ Orchard/vineyard sizes



Variable Rate Sprayer Components

- ◆ Quantum-Mist Fans
- ◆ Smart Spray
 - ★ Ultrasonic sensor-spray controller
- ◆ Raven Calibration System
- ◆ GPS—Vehicle guidance system
- ◆ Weather station alert
- ◆ Geographic Information System (GIS) field mapping software



Quantum Mist fans

- ◆ Variable rate application
- ◆ Even coverage
- ◆ Reduced drift
- ◆ Reduced non-target deposition











Smart Sprayer Technology

- ◆ Ultrasonic identification of targets
- ◆ Targeted application
- ◆ Record of pesticide applied







REDLINE

John
BEAN SPRAYERS[®]
SMART  SPRAY

STAINLESS STEEL

CAUTION



Field testing in Vineyard and Orchard

- Mike Costello, (Cal Poly SLO)
 - ◆ Test Multi-fan Sprayer against Airblast sprayer
 - ★ Adjuvants
 - ★ Pesticide use rates
 - ★ Pesticide deposition
 - ★ Coverage
 - ★ Off target deposition



Project Time Frame

- ◆ Spray-rig engineering—end of 2007
- ◆ Variable rate technology—Spg 2008
- ◆ Field testing—2008 & 2009
- ◆ Final report—Spg. 2010

