



RAYNOX FOR SUPPRESSION OF PESTS IN APPLE AND PEAR

Larry Schrader, Horticulture; Jay Brunner, Elizabeth B. Peryea and John Dunley, Entomology
Washington State University
Tree Fruit Research and Extension Center
Wenatchee, WA

Acknowledgement

We would like to thank the apple growers of Washington State, the Washington Tree Fruit Research Commission and the Washington State Commission on Pesticide Registration for funding this work.

Introduction

- ◆ Raynox is a novel formulation of particle film technology
- ◆ We investigated the efficacy of Raynox in suppressing damage from various orchard pests

–Arthropods studied included codling moth, leafroller, lacanobia fruitworm, white apple leafhopper, mites and pear psylla

–Research focus to optimize rates and timing

–Determine effects on beneficial insects

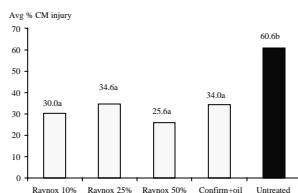
–Investigate mechanism(s) by which Raynox deters certain pests

- ◆ Procedures included both field trials and laboratory bioassays

–Rates for field trials presented as percentage of Raynox to water (i.e. 25% rate equivalent to 25 gal Raynox:75 gal water)

–Raynox compared to industry standards for suppression of key orchard pests

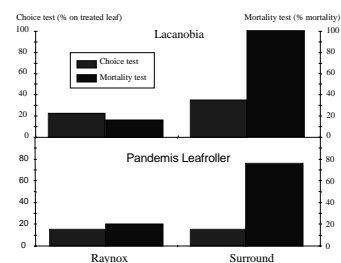
Codling Moth



Lab Evaluation	Raynox	Untreated
Choice Test		
% CM on Raynox	10.6	
Controls		
# of entries	2.0a	5.3b

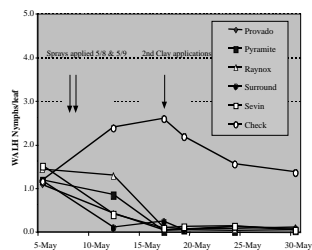
- ◆ Raynox applied three times/generation reduced CM injury approximately 50%
- ◆ No rate effect was noted with Raynox
- ◆ In a choice test, the majority of CM "chose" the untreated portion of the apple (10.6% on Raynox-half of apple)
- ◆ Raynox treatments resulted in a 60% reduction in entries in a laboratory bioassay

Leafroller/Lacanobia



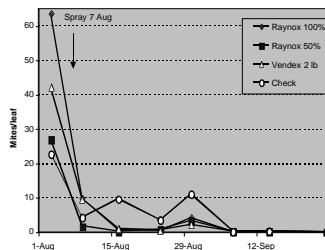
- ◆ In a laboratory bioassay Raynox deterred lacanobia fruitworm and pandemis leafroller colonization
- ◆ Only 20% of lacanobia and 15% of PLR "chose" to colonize the Raynox treated leaves
- ◆ Deterrence levels were similar to Surround treated leaves
- ◆ In non-choice environments Raynox caused very little mortality.
- ◆ Surround treated leaves caused 100% and 75% mortality in lacanobia and PLR respectively

White Apple Leafhopper



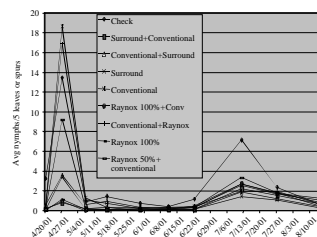
- ◆ Treatments applied by handgun to the point of drip
- ◆ Test run during the first generation
- ◆ All treatments caused significant mortality relative to the untreated control
- ◆ Activity of Raynox was similar to Sevin, Provado and Pyramite

Mites



- ◆ Raynox compared with commercial miticide alternatives
- ◆ Populations were declining prior to insecticide treatments so spray timing was not ideal
- ◆ Raynox provided effective knock-down of mites and was as effective of Vendex

Pear Psylla



- ◆ Particle film technologies were successful in controlling pear psylla nymphs (the damaging stage)
- ◆ Prebloom applications of Surround or Raynox followed by a conventional spray program appear to be adequate
- ◆ Post-bloom applications of Raynox caused surface marking of D'Anjou
- ◆ The 50% rate of Raynox provided as much suppression of psylla as the 100% rate