

Transition of apple insect pest management to new pest control technology

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Codling moth adult



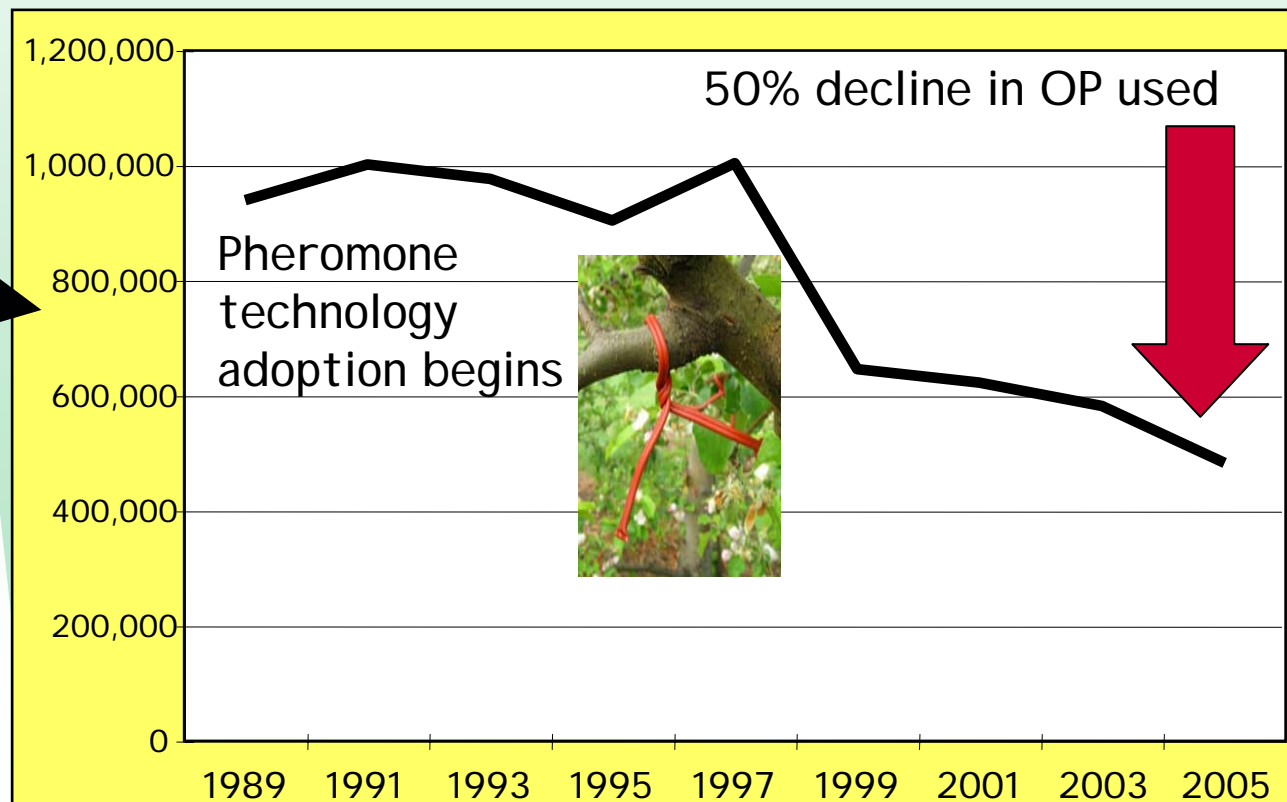
Leafroller larva

Organophosphate Insecticide use in Apple

2005 National Agriculture Statistics Service survey

Chemical	% area	No. appl.	Total pounds AI	Pounds AI /A
Guthion	72	1.8	196,400	1.7
Lorsban	58	1.1	186,700	2.1
Imidan	15	1.4	87,100	3.6
Diazinon	5	1.0	13,300	1.7

Total pounds of OP insecticides used



EPA Decision on Guthion Phase Out in Apples

- Worker exposure, ecological concerns
- Guthion to be phased out over time (2008-2012)
 - 2007 limit to 4 lb ai/A
 - 2008 - 2009 limit to 3 lb ai/A
 - 2010 limit to 2 lb ai/A
 - 2011 - 2012 limit to 1.5 lb ai/A
- 60 ft buffer from permanent water and occupied dwellings
- Transition Work Group will evaluate effectiveness of alternatives and availability of international MRLs

Alternatives to Azinphosmethyl (AZM)

Name	Pests	Alternative products
Guthion	Codling moth	Assail, Calypso, Intrepid, Esteem, Rimon, Oil, Virus, pheromones, <i>Delegate</i> , <i>Altacor</i> , pyrethroids (Danitol, Warrior, etc.)

Alternatives to Organophosphate Insecticides

Newly registered or to be registered products

Altacor™ (rynaxypyr) product is produced by DuPont Crop Protection

- It is a new class of insecticide that acts on muscle function.
- It is expected that Altacor is a reduced risk pesticide.
- A non-crop destruct Experimental Use Permit was provided in 2007 for limited in-field testing with growers.
- Full registration is expected to occur early in 2008.

Delegate™ (spinetoram) product is produced by Dow AgroScience

- This product is in the same class as Success (spinosad).
- EPA is considering spinetoram for registration as a reduced risk pesticide.
- Full registration of Delegate was announced October of 2007 to be available in 2008.

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Known issues with alternatives:

Assail and Calypso - have been implicated in disruption of spider mite biological control and negative effects on other natural enemies.

Rimon - concern is increasing regarding its negative effects on biological control agents.

Pyrethroids - are broad-spectrum insecticides and disrupt biological control for most pests.

Intrepid - resistance is present in some populations reducing the efficacy of this product.

Oil and CM virus - short residual products, not stand alone products.



Pest Management Transition Plan

The Washington tree fruit industry is taking a pro-active position on transitioning to new pest control technologies.

The Washington State Horticulture Association, Washington Tree Fruit Research Commission, Washington Apple Commission and other industry groups support the concept of the "transition plan".

Funding has been obtained from the state (\$550,000) and through a grant from the Ag Pilots Program (~\$150,000) to initiate the transition plan (funding for 2007-2009).

Elements of a Pest Management Transition Plan

Administration - provide a structure for project management and supervision.

Education/Communication - transmission of knowledge about new chemical tools, their use and risk.

Implementation - define strategies to be used the apple cropping system, including alternatives for target pests.

Assessment/Documentation - identify successes and failures of alternative programs, document social and economic benefits of programs.

Pest Management Transition Plan Objectives

1. To enhance understanding of new IPM technologies through educational programs and communication of research-based knowledge.
2. To increase adoption of new IPM technologies through sharing information on successes and failures and communicating with all stakeholders on project progress.
3. To document changes in practices, attitudes, and perceptions of growers, farm workers, and stakeholders (*Ag Pilots Project funding requested*).

A broad based Advisory Committee is in the process of being formed to provide input into the Transition Project. This committee will meet two times per year to review plan, progress and provide input to the Project staff and leadership.

Category	Name	Organization
Grower/Owner Operator	Tom Kunkel	Stemilt Management
Grower/Owner Operator	Jered Carlson	Yakima Pomological Club
Grower/Owner Operator	Steve Zediker	Wash. State Horticultural Assoc.
Grower/Owner Operator	Orlin Knutson	OK Organics
Packer/Shipper	Kevin Knight	Wash. Growers Clearinghouse
Packer/Shipper	Charlie Pomianek	Wenatchee Valley Traffic Assoc.
Packer/Shipper	Miles Kohl	Yakima Valley Growers Shippers
Research Extension	Rich Fenske	Univ. Washington Occupational Health
Research Extension	Leo Garcia	WVC Hispanic Worker Program
Research Extension	Doug Walsh	WSU IPM Coordinator
Research Extension	Gwen-Alyn Hoheisel	WSU Extension
Research Extension	Marcy Ostrom	WSU Extension-Director Small Farms Progra
Technical/Advisory	Lee Gale	North Central Washington Fieldmen
Technical/Advisory	Dave Gleason	Yakima Pomological Club
Technical/Advisory	Nick Stephens	Columbia IPM
Technical/Advisory	Travis Schoenwald	Gebbers Farms
Latino Community	Jose Ramirez	Stein Manzana Orchard
Latino Community	Alberto Roman	Larsen Fruit Company
Latino Community	Frank Alvarez	Dovex Fruit Company
Latino Community	Edilberto Garcia	Sagemoor Farms
Environmental/BIOAg	Marilynn Lynn	Washington Tilth
Environmental/BIOAg	Ellen Gray	Wash. Sustainable Food and Farming Networ
Environmental/BIOAg	Lisa Pelly	Wash. Rivers Conservancy
Government	Cynthia Lopez	Wash. Dept. of Health
Government	Ofelio Borges	WSDA
Government	Sandy Halstead	EPA Region 10
Government	To be named	Fish and Wildlife/biologist "Entiat"
Industry	Mike Willett	Northwest Horticultural Council
Government	To be named	NRCS/EQIP

Time Line for Pest Management Transition Plan

Activity Milestones	Time-line
Form Executive Committee:	Summer 2007
Form Advisory Committee:	Fall 2007
Establish baseline: Conduct surveys of IPM practices and perceptions of farm labor and environmental communities about IPM technologies.	Winter of 2007 and spring of 2008.
IPM Adoption working group: Establish a working group of successful early adopters of IPM.	Winter of 2007-08 and adding new participants as adoption increases.
Education efforts: Conduct intensive, focused workshops on new IPM tools and methods.	Winters of 2007-08 and 2008-09.
Education products: Produce educational materials (manuals, web-based products, etc.) that support the transition to new IPM programs.	Initial efforts in winter of 2007-08 with revisions updated as new information becomes available.
Implementation: Carry out an action plan for the IPM transition program by establishing IUs.	2008 growing season. Expand IUs in 2009.
Assessment: Document change in practices using TEAM assessment, environmental indices, and surveys.	2008 and 2009 growing seasons.
Reporting: Annual report at the end of each production season. Final report at project end.	Winter of 2008 and 2009 and/or end of project period.

Apple Export Markets and MRLs for Selected Azinphos-methyl Alternatives by Country

Country	Phosmet (ppm)	Acetamiprid (ppm)	Novaluron (ppm)	Thiacloprid (ppm)	AZM (ppm)
Mexico	10	1	2	0.3	1.5
Canada	10	1	2	0.3	2
Taiwan	2	1	none	none	2
Indonesia	10	none	none	none	1
Hong Kong (Codex)	10	none	3	0.7*	2
United Kingdom	none	none	2 ^{temporary}	0.5	0.5
United Arab Emirates (Codex)	10	none	3	0.7*	2
Saudi Arabia	none	none	none	none	none
India (Codex)	10	none	3	0.7*	2
China	none	none	none	none	none
USA	10	1	2	0.3	1.5