

WSDA Specialty Crop Block Grant Program APPLE IPM TRANSITION PROJECT

March 2010 Progress Report

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Executive and Advisory Committees

An Executive Committee has been formed comprising key people from a previous project. Most of those asked to serve on an advisory committee have answered in the affirmative. A tentative date for the Advisory Committee meeting in the first quarter was deemed not possible and is now scheduled for April.

Implementation Unit Evaluations

Implementation Units have been the primary outreach vehicle for educating the industry on successfully adopting new insecticide technologies and other IPM tactics. This spring we analyzed the evaluations of the project's 2009 Implementation Units to assess learning and knowledge of alternative insecticides and IPM practices, and to gather feedback to improve Implementation Units for 2010.

Evaluation results showed that most participants in Implementation Units were grower/managers (62%) or warehouse fieldmen (23%), 85% of whom made or contributed to apple pest management decisions. In 2009, 52% used or recommended AZM (Guthion), a lower percentage than the industry-wide 93% of consultants and 80% of growers who used or recommended AZM in 2007 and 2008, respectively. Among Implementation Unit members, 81% used or recommended alternatives to AZM, especially Delegate (81%), Assail (71%), Altacor (67%), and Intrepid (65%), and 85% used or recommended codling moth mating disruption, again both values higher than industry-wide percentages. These results indicate that Implementation Unit members are adopting alternative insecticides and IPM tactics at higher levels than the general population of apple growers and consultants.

Most Implementation Unit members (79%) reported that codling moth did not cause unacceptable damage in their apple orchards in 2009. Some expressed concern about leafroller (37%) and woolly apple aphid (27%). Most (65%) had used the WSU Decision Aid System (DAS) in 2009 to help time IPM activities, and 89% indicated an interest in learning more about DAS. Of those interested in learning, 48% preferred instruction in small group hands-on workshops, 21% preferred using video tutorials and the DAS manual online, and 17% preferred individual lessons with WSU Extension educators. These results provide us both a sense that Implementation Unit members are experiencing some degree of success in their pest management transitions, and also guidance in targeting Implementation Unit meetings and especially DAS education appropriately in 2010.

Implementation Unit Meetings

Meetings with Implementation Units began at the end of March 2010. PMTP will continue to meet with groups through the months of April and May so that each of the groups will have one pre-season planning meeting. Updates on Implementation Units for 2010 will be available in the next report. A few new Implementation Units are being formed to help additional growers take steps to adopt new IPM technologies that replace use of OP insecticides.

Transition Handbook

The handbook developed during the previous project has been updated and reprinted for use in 2010 educational activities. References to the old codling moth degree-day model have been updated to reflect the model used in the WSU Decision Aid System (DAS). In addition, a thorough explanation of

degree-day models and how they are used in orchard IPM and how they are used in conjunction with DAS was added. Other changes to the handbook include an expanded pest monitoring section, an expanded secondary pest discussion, an updated web references section, and the addition of a natural enemies pictorial guide to the appendices. Dissemination of new handbooks and updated pages is in progress. The updated handbook is also available as a pdf download from the website (<http://pmt.psu.edu/handbook.html>).

Translation of the IPM Transition Handbook from English to Spanish is complete and has been submitted for printing. This tool will serve as a great aid to the Spanish-speaking growers in Washington who are very interested in transitioning their IPM programs to those that rely on new and safer technologies.

Educational Newsletters

Two issues of the project newsletter were produced and disseminated to nearly 400 recipients either electronically or by post. The first issue covered early season management practices. The second focused on new features and the use of the newly updated WSU Decision Aid System (DAS). The next issue is scheduled to be released April 5th and will discuss AZM alternatives and their use. The goal is to release 1-2 issues of the newsletter each month throughout the growing season covering timely management topics and announcements related to improving orchard IPM practices. All newsletters can be viewed online on the project website, where they can also be downloaded for printing (<http://pmt.psu.edu/newsletters.html>). Back issues of the newsletter are available to view or download from an archive index page. A subscription link was added to the website allowing visitors to be automatically added to the electronic mailing list.

Apple Pest Management Consultant Survey

A survey of pest management consultants was mailed to a sample of about 240 consultants in January 2010. The response rate for this survey was 64%, and data is being prepared for analysis by the WSU Survey Center. These data will be analyzed by summer 2010, in order to compare results to a 2007 season survey of pest management consultants. Results of the 2007 survey are available on our web site (http://pmt.psu.edu/survey_Cres1.html). The goal is to track changes in insecticide use recommendations, knowledge of IPM tactics, and thoughts about the AZM (Guthion) phase-out among apple pest management consultants.

Apple Grower Survey

Results of the apple grower survey for 2008 season, with a response rate of 27%, have been compiled and analyzed and are available on our web site (http://pmt.psu.edu/survey_GroS.html). These data will be the focus of an article in progress for the *Good Fruit Grower* magazine and another (also in progress) for the journal *Agriculture, Ecosystems, and Environment*. In addition, we are continuing to work on comparing our survey data with those from previous National Agriculture Statistics Service (NASS) surveys. This effort, along with planned follow-up survey data collection for the 2010 growing season, will be used to trace the trajectory of the AZM phase-out and transition to more sustainable apple pest management.

Case Studies

We have begun conducting a series of case study histories of the AZM phase-out. While survey data, as described above, provides a broad picture of orchard owner, manager, and consultant decisions and trends for apple IPM, case histories provide depth to the story of the industry response to the AZM phase-out. Qualitative interviews for nine case study orchards have been conducted with pest management decision-makers on their approaches to the AZM phase-out, the costs and benefits of those decisions, and the ways that changes in pesticide use have affected costs and orchard operations.

Quantitative data on production costs, labor costs, yields, and apple pack outs has been gathered from four of these nine cases so far, and is being used to design a database to organize and analyze all case study data yet to be collected. When data collection and analysis is complete, these case histories will provide a deeper understanding of the AZM phase-out and will also feed into an economic model of the cost structure of the phase-out.

Specialized Farm Worker Trainings

IPM presentations were made at two WSU-sponsored pesticide recertification classes (Pasco and Wenatchee) as well as at the Washington Tilth Organic Producers Association conference, the Washington State Horticultural Association conference, and the GS Long annual meetings to a total of 788 Spanish-speaking pesticide applicators and supervisors (with some growers, managers, and consultants in the mix). During these sessions, questions were asked using the Turning Point audience response system to survey participants on their knowledge of the pesticide transition and pesticide health and safety. Results from these surveys are being compiled, analyzed, and compared to similar data from winter 2008-09 in order to track changes in pesticide knowledge and use among pesticide applicators and supervisors over time.

Preliminary results indicate that most respondents (71%) have worked with AZM and know that it was being phased out (82%). Most have worked with pheromones (77%), know well or somewhat well how to manage crop production without AZM (Guthion) (69%), and know well or somewhat well what IPM is (68%). These results are similar to data gathered in 2008-09. In 2009-10, however, knowledge of the timing of the AZM phase-out was 33% higher than it had been in 2008-09, and the number of respondents who had worked with the alternative insecticides Altacor, Calypso, and Delegate increased by 68%, 38%, and 23%, respectively. Pesticide safety data were fairly consistent between 2008-09 and 2009-10, and indicated that most respondents were aware of important safety measures for working with pesticides, such as personal protective equipment, re-entry intervals, and pesticide label information.

In general, results showed that the pest management transition is underway in apple orchards, as IPM tactics and alternative insecticides are becoming more widely available, understood, and used. There is, as always, room for participants to learn more about how to use IPM strategies to manage crops without AZM, and an ever-present need for reinforcement of safety knowledge and standards as the kinds of insecticides used change over time. Results of the 2008-09 survey are posted on our website (http://pmtip.wsu.edu/TPsurvey_res1.html), as will be the final 2009-10 survey results once data analysis has been completed.

Decision Aid System

The online video tutorials have been finished and implemented in the WSU-DAS Help Center. Together with the online DAS Manual, the narrated video tutorials help old and new users access and get the most out of using the system. Our monitoring system shows that users have been visiting the help center and watching the tutorials after they were implemented in February 2010.

The re-designed front page of DAS now highlights seasonal-specific issues growers need to be concerned with. These stories are regularly updated and cover a wide range of information from insect control tactics to spray drift to bee pollination. Many of these posts are based on work done in the AIPMTP and include links to the AIPMTP homepage and newsletters, as well as other IPM related websites of WSU.

Translation of WSU-DAS into Spanish is nearly completed. Implementation is planned to begin in April/May. A beta-testing group is being formed to evaluate the Spanish Language part of the system.

An online survey of registered users in 2010 is under development. The results of this survey will be compared to those from a survey conducted in 2008. The number of active DAS users is being monitored. We will have data that show if and by how much the use of DAS has increased later in the season.

MLR Database Development

An initial meeting between Northwest Horticulture Council (NHC) staff and the AIPMTP team and WSU Decision Aid System (WSU-DAS) Manager and programmer established the criteria for the database. The database will be dynamic in that it will allow users to query the MRL information maintained by the NHC by country of interest, chemical of interest and crop of interest, or combinations of these. The database will also be constructed to allow WSU-DAS access to the information and incorporate it into the on-line system used by all crop consultants and many growers and managers in the state. The MRL database will be maintained by NHC and housed at the WSU-Tree Fruit Research and Extension Center in Wenatchee. We are in the process of planning format and access of the database.

Outreach

Presentations made this winter included updates on managing codling moth and secondary pests during the transition process at 10 industry sponsored grower meetings (Wilbur Ellis, Chelan (2); Chelan Fruit, Okanogan; Bluebird, Wenatchee; Northwest Wholesale, Royal City; WSU Extension Apple Day, Wenatchee; G.S. Long, Yakima; Okanogan County Horticulture Society Meeting, Okanogan; Northwest Wholesale, Wenatchee; Wilbur Ellis, Wenatchee). In addition, updates on the pest management transition process and the Decision Aid System were presented at three Spanish language pesticide recertification classes (Wilbur Ellis, GS Long, and WSU Chelan County Extension, as well as through a poster presentation at the Western Stream Migrant Forum (focused on farm worker health) in Seattle. Also, a pesticide safety poster designed to help farm workers better understand the differences in human toxicity between organophosphate insecticides and newer alternative insecticides has been created. This poster will be printed and distributed this spring (starting with a pilot run of 100 copies) to farm worker service providers, such as those providing health education to farm workers, and will also be available to orchard workplaces. In addition, the distribution of these posters will tie into upcoming collaborations with the Washington Association of Community and Migrant Health Centers and Columbia Valley Community Health, specifically as part of their spring outreach worker training in April 2010 and at two farm worker health fairs that AIPMTP will help co-sponsor along with them in June 2010.

Talks on the WSU-Decision Aid System were presented at the Washington State Horticultural Association conference and at the GRAS2P orchard sustainability workshop in December 2009, as well as nine additional grower meetings in January-March of 2010.

We launched a first mailing campaign (emails as well as postcards) to AIPMTP IU members to advertise DAS training workshops this season. These workshops are held on request in small groups or individually and walk the participants step-by-step through all features available on DAS. All participants can experience DAS hands-on for themselves at their own laptops or with notebooks provided from the DAS-AIPMTP mobile computer lab. Three workshops (18 participants) have been conducted in February and March 2010, three more are already scheduled for March/April 2010, and we expect more training requests in the future. The Hispanic grower community indicated large interest in DAS training. The training workshops are also advertised on the DAS homepage. Further mailing campaigns are planned. Participants are asked to fill out an evaluation questionnaire at the end of each workshop to assess if the participants increased their knowledge on how to use DAS and where the training sessions can be improved. The workshops also give valuable insight in how people use DAS, what features they use and

do not use. For example, the filter options in the WSU spray guide and the historic weather data center have not been widely used. Such observations allow us to tailor our educational efforts more effectively and to improve the DAS interface to be more intuitive and self-explaining.