Safer Alternatives for Pest Control in Agriculture:
Making the Public Health Case for Change
University of California, Davis, May 28, 2009
Conference Summary

On May 28, 2009, the California Department of Public Health (CDPH), Center for Occupational and Environmental Health, Western Center for Agricultural Health and Safety, and the University of California (UC) Integrated Pest Management Program (IPM) jointly sponsored a conference titled "Safer Alternatives for Pest Control in Agriculture: Making the Public Health Case for Change". The conference brought together attendees and speakers from academia, the agricultural and insurance industries, non-governmental organizations, and state and local government.

- Worker exposures to pesticides should be reduced through the application of the industrial hygiene hierarchy to agriculture and through improved enforcement.
- Improved regulations and enforcement can reduce children's' exposure to the presence of pesticides in house dust.
- IPM expertise is needed in more crops, including newly popular crops (e.g. pomegranates).
- Solutions are best developed by growers or in collaboration with growers. For example, growers wrote and implemented a self-assessment workbook as part of the Lodi Winegrape Commission's Sustainable Certification Program.
- Recordkeeping is crucial so pest control advisors and growers can keep track of the effects of different treatments, base decisions on data, and develop economic thresholds for treatment.
- Demonstration plots can help pest control advisors overcome resistance to the use of safer alternatives such as biopesticides or cultural and biological controls and assist those less willing to take risks to move away from the use of conventional pesticides.
- Increased funding for the United States Department of Agriculture's Interregional Research Project 4 (IR-4), is needed to register more reduced risk pesticides in minor crops. IR-4 supports the registration of crop protection products and biological pest control agents for minor crops, which are a low priority for agricultural chemical producers.

Marc Schenker, MD, MPH, Director of the Western Center for Agricultural Health and Safety opened the conference with remarks about the importance of creating a dialogue among diverse stakeholders. The three major objectives of this conference were then addressed by several speakers:

Objective 1: Explore the public health impacts of pesticide use in agriculture, assess the options for safer alternatives, and worker hazards associated with alternative practices

- Rupali Das, MD, MPH, Occupational Health Branch, CDPH
- Kim Harley PhD, UC Berkeley, Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS)
- Martha Harnly, MPH, Environmental Health Investigations Branch, CDPH
- Peter Goodell, PhD, UC IPM
- Margaret Reeves, PhD, Pesticide Action Network of North America

Objective 2: Explore potential barriers to growers in choosing to use reduced risk pesticides

- David Slaughter, PhD, UC Davis Department of Biological and Agricultural Engineering
- Elizabeth Grafton-Cardwell, PhD, IPM Specialist and Research Entomologist, UC Riverside
- Robert Krieger, PhD, Cooperative Extension Toxicologist, UC Riverside
- Clifford Ohmart, PhD, from the Lodi Winegrape Commission

Objective 3: Explore safer technologies and develop strategies to promote the use of safer pest management alternatives in agriculture

- Henry Buckwalter, MSc, from Compliance Services International
- Pamela Marrone, PhD, from Marrone Organic Innovations, Inc.
- Manuel Lagunas-Solar, PhD, UC Davis Crocker Nuclear Laboratory (unable to attend)

Brief descriptions of the presentations are provided below.

Dr. Das outlined the impact of pesticide use on workers and presented current data from the Occupational Pesticide Illness Prevention Program (OPIPP), information about pesticide exposure incident investigations, and OPIPP's work to promote safer alternatives. OPIPP data shows that occupational pesticide illness remains a concern.

To outline impacts of pesticide use on communities, Dr. Harley presented her recent findings that prenatal organophosphate exposures are associated with abnormal neurodevelopmental effects.

Ms. Harnly presented her work, conducted with CHAMACOS researchers, demonstrating that agricultural uses of pesticides are significantly associated with house dust concentrations.

Dr. Goodell presented an overview of the IPM continuum, a key guiding framework for reducing the reliance on chemical pest control and moving towards the ideal of safer, biologically-reliant pest control. Dr. Goodell also spoke about the complexities and difficulties that growers face in trying to find and implement safer alternatives.

Dr. Reeves spoke about sustainable agriculture and how this provides impetus and opportunities to reduce the use of pesticides. This includes fostering connections between consumers and local growers through direct marketing and the potential to influence consumers toward accepting cosmetically less-than-perfect but sustainably grown produce.

Dr. Slaughter presented his work on alternative weeding strategies, since weed control is important for maintaining farm yields but hand weeding poses health risks to workers. Robotic weed control systems can help to decrease or eliminate the use of herbicides.

Dr. Grafton-Cardwell spoke about the complex decisions California citrus growers face in controlling pests. Issues that can affect growers' options for pest control include the presence of several pests at the same time and the arrival of new exotic pests that do not have natural enemies. Growers may overcome some of these barriers by using newer less toxic and/or biologically-based pest controls, which have both advantages and disadvantages.

Dr. Krieger spoke about no-observed-adverse-effect-levels of pesticides and other issues related to pesticide exposures.

Dr. Ohmart discussed barriers to IPM and the efforts of the Lodi Winegrape Commission to promote sustainability, IPM, and marketability of their product. The Commission has developed a Sustainable Certification Program that helps growers assess their practices and helps them to make data-driven decisions and use sustainable growing methods, including using safer alternatives for pest control.

Mr. Buckwalter presented activities of the pesticide industry (including registrants, manufacturers, formulators, distributors, dealers, applicators, and pest control advisors) to decrease environmental impacts of pesticides. These include label improvements, formulation changes that improve targeting, and voluntary notification of neighboring properties.

Dr. Marrone spoke about the advantages and relative safety of biopesticides, natural products used to control pests and plant diseases. Among the barriers to the use of biopesticides is lack of knowledge about their availability and the misconception that they are not effective.

Dr. Lagunas-Solar could not attend the conference, but a link to his presentation about his research on two different pest control technologies: 1) radiofrequency and 2) metabolic stress is included here.

Acknowledgments:

Linda Ellwood, MBA, of the Center for Occupational and Environmental Health Sandra Freeland, Manager, the Western Center for Agricultural Health and Safety, and Justine Weinberg, MSEHS, CIH, of CDPH/Public Health Institute were instrumental in the organizing of this conference.

For more information about our conference partners:

Center for Occupational and Environmental Health: http://coeh.berkeley.edu/

Western Center for Agricultural Health and Safety: http://agcenter.ucdavis.edu/

University of California Statewide Integrated Pest Management Program: http://www.ipm.ucdavis.edu/

*** *** ***

Safer Alternatives for Pest Control conference web page: http://www.cdph.ca.gov/programs/ohsep/Pages/PestConference.aspx

For more information on OHB work in this area, see **Tracking Pesticide-related Illness**: http://www.cdph.ca.gov/programs/ohsep/Pages/Pesticide.aspx