

FEQL Analytical Laboratory Emphasis (April 2008-2009)

Current area of extension-based research focuses on evaluating off-target volatilization and efficacy of fumigants important to PNW potato production and administration over a regional ambient air monitoring program for understanding implications of off-target pesticide movement on public health. Other areas of active research include: 1) chemically assessing concentrations of pesticide combinations in aquatic toxicity assessments, 2) the development of field air -sampling methods and volatilization chamber system design for assessing semiochemicals useful in codling moth mating disruption, and 3) characterizing/isolating bioactive plant volatile emissions from insect herbivory that may prove useful in enhancing conservation biological control in cropping systems. A principle responsibility of my appointment is to administer over a state-mandated food and environmental regulatory science facility that conducts studies under federal 40CFR Part 160 Good Laboratory Practices (GLP) with Elizabeth Culbert who serves as the IR-4 Laboratory Research Director.

2008-2009 Analytical Lab Regulatory Science Report Outcomes

- Littke M., LePage J., Hebert V (2009). Estimating Methyl Isothiocyanate emission rates following soil incorporated shank and modified center pivot chemigation metam Sodium applications. *Analytical Summary Report*, pp 69. (Technical report FEQL-0808).
- LePage, J., Gross, A, Hebert, V. (2009). MITC Residential Community Air Assessment; Franklin County, Washington. *Analytical Summary Report*, pp 98. (Technical report FEQL-1008).
- Culbert, E., Hebert, V., & Stark, J.D. (2008). Quantitation of Imidacloprid in Water. *WSU ARC Analytical Summary Report* , pp 28. (Technical report 0308).
- LePage, J., & Hebert, V. (2008). 2007 Evaluation of Release Rates from Field-Aged Pheromone Dispensers by Volatile Collection. *Analytical Summary Report* , pp 27. (Technical report FEQL-0608).
- Merriman, J., & Hebert, V. (2008). 2007 MITC Residential Community Air Assessment; Franklin County, Washington. *Analytical Summary Report*, pp 96. (Technical report FEQL-1207A).
- LePage, J., & Hebert, V. (2008). Near Field Emissions of MITC Following Shank Injection and Chemigation Metam Applications. *Analytical Summary Report* , pp 42. (Technical report FEQL-1207B).
- Culbert, E., & Hebert, V. (2008). Quantitation of malathion and diazinon in water. *Analytical Summary Report* , pp 35. (Technical report FEQL-0508).
- LePage, J., & Hebert, V. (2008). Quantification of MITC in Activated Charcoal Air Cartridges from Two Chemigated Circles in Eastern Washington State. *Analytical Summary Report* , pp 27. (Technical report FEQL-0708).
- LePage, J., & Hebert, V. (2008). Methyl Isothiocyanate Air Sampling Breakthrough Evaluation. *Analytical Summary Report* , pp 13. (Technical report FEQL-0208).

2008-2009 Magnitude of the Residue Food Safety Reports (At IR-4 HQ)

- Culbert, E., & Hebert, V. (2008). Pendimethalin: Magnitude of the Residue on Lettuce. *Analytical Summary Report, IR-4 Project*, pp 110. (Technical report 0607).
- Culbert, E., & Hebert, V. (2009). Kasugamycin: Magnitude of the Residue on Apple. *Analytical Summary Report, IR-4 Project*, pp 137. (Technical report 0407)
- Culbert, E., & Hebert, V. (2009). Pendimethalin: Magnitude of the Residue on Mustard Greens. *Analytical Summary Report IR-4 Project* , pp 120. (Technical report 0108).

Ongoing IR-4 Crop Residue Programs

IR Project Number	Substance/System	Status
09938	Imidacloprid: in/on Oysters	????
09783	Flonicamid: in/on Canola	In progress
09809	Oxamyl: in/on Blueberry	In progress
08137	Hexythiazox: in/on Tomato	Storage stability

Upcoming 2009-2010 Crop Residue Programs

IR Project Number	Substance/System
10230	Kasugamycin: Magnitude of the Residue on Cherry
09943	Flonicamid/Alfalfa, Clover
0109	Hexythiazox: Magnitude of the residue on Pepper
0209	Pendimethalin: Magnitude of Residue on Kiwi

2008-2009 Pesticide Related Outreach Clinics and Workshops

- Washington State Pesticide Incident Recording Tracking (PIRT) Panel and Pesticide Advisory Board (PAB) Sessions: Presented implications of recent fumigant emission data on fumigant movement at various meeting times throughout 2008
- W-1045 Agrochemical Impacts on Human and Environmental Health: Mechanisms and Mitigation, Hawaii June 2008
- International Crop Exposition (North Dakota). Discussed implications of recent fumigant air monitoring research in WA as it relates to northwest fumigant practices
- 9th Annual Pesticide Stewardship Conference (Albuquerque, NM): Moderated and presented off-target information for fumigants in WA
- Pesticide safety presentations given at eight pesticide applicator training sessions ran by WSU and WSDA
- FEQL's 2007 Residential and Near-field Fumigant Air Monitoring Project ; WSCPR Crop Tour July 2008
- Provided talks on near-field and residential fumigant emissions to commodity groups and county extension town hall meetings though out eastern Washington State

On-going collaborative program involvement:

IR-4, DOH, NOAA, WSPC, WSCPR, EPA Region 10, WSU-ARC, WSU-TFREC, WSU-Prosser, WSU-Puyallup, OSU-Hermiston

2008-2009 funds received

- CSREES IR-4 Magnitude of the Residue Crop Evaluations
- WA DOH Biennium; Monitoring and Mitigating Fumigant Air Emissions at the Ag/Urban Interface;
- EPA R10; Farm Land Trust: Reducing Fumigant Air Emissions at the Ag/Urban Interface;
- WSPC: Fumigant Application Efficacy Trials in Light of Potential EPA Change;
- WSCPR: Application-based Fumigant Flux Evaluation in Light of Potential EPA Changes;

Total: ca. \$ 400K

2008-2009 funds received from outside grants/contracts

- WSU-TFREC IRI: Pheromone Mating Disruption: Investigations of flake emissions;
- NOAA: Pesticide Residue Analysis in Surface Waters;
- JSTARK PI, WSU ARC Internal Grant: Modeling the Impact of New Generation Insecticides used in Apple Production on Water Quality; \$ 20K (to FEQL)

Total: ca. \$ 50K

Published/completed journal articles in 2008-2009

- Laetz, C.A., Baldwin, D.H., Collier, T.K., Hebert, V., Stark, J.D., & Scholz, N.L. (2009). The Synergistic Toxicity of Pesticide Mixtures: Implications for Risk Assessment and the Conservation of Endangered Pacific Salmon. *Environmental Health Perspectives*. 117 (3) 348-353.