Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

The Pest Management Newsletter

News from the Agriculture and Agri-Food Canada Pest Management Centre Vol 3 No 2 Winter 2013

New National Group to Help Growers in Battle Against Invasive Pests

A newly created national group is bringing experts together to support finding solutions to the two latest invasive pests to threaten growers: the spotted-wing drosophila (SWD) and the brown marmorated stink bug (BMSB), both natives of Asia. This group will complement the excellent work already being led by Ontario provincial specialists Hannah Fraser and Pam Fisher who have been organizing teleconferences amongst their counterparts to discuss pest population surveys, trapping methods and treatment recommendations regarding BMSB and SWD, respectively.

Known as the Invasive Alien Species Coordination Group, the new group aims to facilitate research, and outreach efforts, to combat the threat of these two alien bugs. The group, coordinated by the Pest Management Centre (PMC) and the Canadian Horticultural Council (CHC), will include provincial specialists and entomologists, the Pest Management Regulatory Agency, university and federal researchers, American scientists, growers, and CropLife Canada.

An important consideration is that the group represents a breadth of experience and understanding of pest management and stakeholder needs, in order to enable development of the best measures to deal with these pests. “Sustainable solutions will necessarily be multi-faceted,” explained PMC entomologist Brian Ure.

“The group is structured to include two technical working groups (TWG), one for each pest. Each will be comprised of field specialists actively engaged in surveillance and research”, said Leslie Cass, the PMC’s Pesticide Risk Reduction Program (PRRP) manager who along with Brian Ure, has worked with the CHC to set up the national coordination group.

The idea for the group grew out of concerns expressed by cherry growers in British Columbia (BC) who were the first growers in Canada to be hit by SWD. Greg Norton, the former chair of the Okanagan Kootenay Cherry Growers Association, described SWD in an association newsletter as “possibly the biggest challenge ever” to face BC cherry growers.

And when the Canadian Food Inspection Agency (CFIA) indicated it was too late to try to eradicate the pests from the country or regulate their entry into it, the focus became one of finding management tactics that work.

Ms. Cass explained: “While provincial specialists have been proactive in advising their growers of infestation threats and mitigation methods, they agree that there

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remains a need for more pest management tools and sustainable strategies to deal with these pests on a long term basis. The whole idea is to be strategic about finding solutions. So we're starting by pooling knowledge and figuring out what capacity we have, what we know, and what we don't know. In this context, we are very pleased that Tracy Hueppelsheuser, provincial entomologist for British Columbia, and Hannah Fraser, of the Ontario Ministry of Agricultue,Food and Rural Affairs are willing to take on leadership roles in the SWD and BMSB TWGs, respectively".

This also means keeping a close eye on the research being carried out in the United States (US), where both pests made their first incursions into North America. "The US is ahead of us in having had the problem first and in putting teams together to find solutions. We will make sure we're linked up with what's going on there," Ms. Cass confirmed. She also said that the group will call on the AAFC's strong connections with scientists in Europe to learn what is being done there for SWD to develop sustainable solutions.

The Attack of the Aliens

This isn't the first time Canadian growers and research scientists have had to contend with pests from abroad. The Emerald ash borer, Japanese beetle, Asian lady beetle and Apple clearwing moth, to name just a few, have all made their way from foreign locations into Canada, where they have thrived in the absence of natural predators or pathogens.

"It's the new reality," explained Dr. Ure "In a global economy and with increased trade with countries in Asia and Europe, as well as increased transport between the US and Canada, it is more likely that alien species will make their way into Canada."

SWD was first found in North America (California) in 2008 and was quickly detected in BC in 2009. The BMSB entered the US in the 1990's, is now widely distributed there, and has recently been found to be established in Ontario and Quebec.

Together, these two invasive alien species have the potential to threaten a large and diverse range of host crops, including specialty fruit and vegetable crops, field crops as well as ornamental/horticultural crops.

Extraordinary Measures

It's no wonder that growers identified the pests as a problem at the PMC's 10th annual priority-setting workshop in March 2012. They knew about the damage the two pests had unleashed on American crops and, in the case of SWD, had experienced it themselves.

In 2009, for example, spotted-wing destroyed about 25 percent of California's cherry crop, up to 80 percent of the peaches in Oregon's Willamette Valley, and almost 20 percent of Oregon's raspberries. In 2010, the US Apple Association reported an 18 percent loss of the apple crop to BMSB in Pennsylvania, Maryland, Virginia, and West Virginia, costing growers $37 million. That same year the marmorated stink bug destroyed over half of Pennsylvania's peach crop.

This is why Agriculture and Agri-Food Canada (AAFC) and the CHC are working together to facilitate a strategic approach nationally in dealing with these pests. The PMC is already working on screening trials toward specific minor use registrations which will address the SWD, as well as a project to support use of dinotefuran (Scorpion) on plum for BMSB control. The PMC will also "provide our time, our expertise, and our infrastructure because we're well-positioned to contribute to this process," said Ms. Cass. "We can do this because industry is taking on a leadership role along with us."

"Our role is to help these stakeholders come up with a plan and figure out how best to implement it to manage these pests."

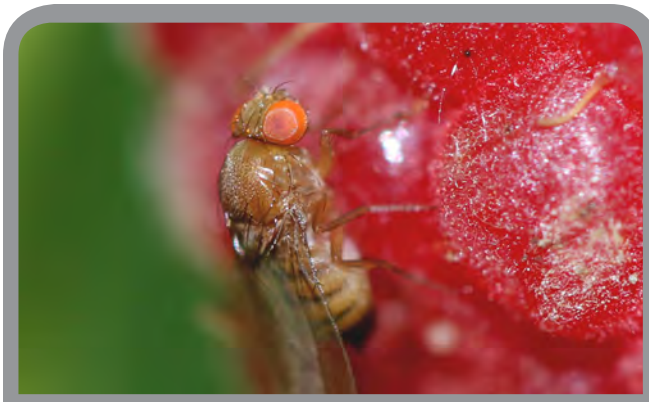
While it's too early to know the exact nature of that plan, both Ms. Cass and Dr. Ure are sure of one thing: insecticides are only one part of the long-term solutions they are looking for.

"A part of the solution will be working toward establishing a balance in agro-environmental ecosystems that will allow a move away from continued intensive chemical intervention," explained Ms. Cass. Such an approach will include multiple tactics, but, she cautioned, they will take time to develop.

Key Facts about Spotted-wing Drosophila

Origin of the Spotted-wing Drosophila

Spotted-wing drosophila (*Drosophila suzukii*, SWD) is an invasive alien vinegar fly, native to Southeast Asia and closely related to *D. melanogaster*, the common vinegar or fruit fly that appears in our kitchens every summer. It was found in Hawaii in the 1980's and first appeared in North America in central California in 2008.



Spotted-wing Drosophila
Credit: Miranda Elsby

Spotted-wing Drosophila
Credit: Kaitlyn Schurmann

Subsequently, it spread quickly, likely on fruit shipments out of California, and surveys in 2009 indicated finds on the west coast (Oregon, Washington, British Columbia) and in 2010 in eastern North America (North and South Carolina, Louisiana, Florida, Michigan and Wisconsin). As well in 2010, CFIA surveys indicated detections of SWD in Ontario, Quebec, Manitoba and Alberta. In 2011 and 2012, findings were also reported in Nova Scotia and New Brunswick, respectively.

Why is SWD a concern to growers?

The critical difference between SWD and the common vinegar fly is that SWD females possess a long, sharp serrated ovipositor. Thus, unlike other vinegar flies which are mainly found on damaged, rotting or fermented fruit, SWD has the ability to attack marketable, ripe fruit in the field, laying eggs under the skin. The larvae hatch and grow in the fruit, destroying its commercial value.

SWD therefore has the potential to cause extensive damage to many thin skinned fruit crops, such as caneberry, blueberry, strawberry, stone fruit (such as cherry, plum, peach), elderberry, Saskatoon berry, currant, and at times grape.

SWD either has, or is spreading to most fruit production areas in Canada.

This pest has a temperature dependent, but very short life cycle. Under ideal conditions, one generation takes approximately 8 - 9 days at 25ºC. In parts of BC, up to five generations may be expected, resulting in dramatic population increases.

Most importantly, egg hatch at typical summer temperatures is also rapid and can occur in 2 - 3 days. This means that in order to ensure marketable fruit, free of larvae, an early detection and rapid response management plan are necessary.

For the 2012 crop season, five Emergency Registration products were available for SWD control in fruit crops. These included Delegate (spinetoram), Entrust (spinosad), Malathion, Pyganic (pyrethrins) and Ripcord (cypermethrin). However, more management options, with short pre-harvest intervals and established Maximum Residue Levels (MRLs) that support export are required.

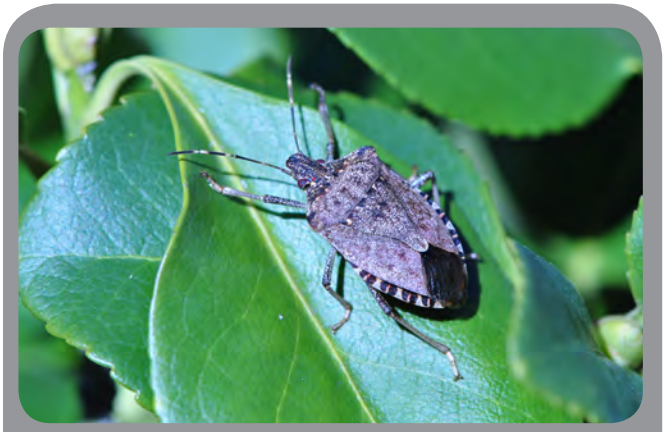
For detailed information on SWD, see online resources available at the Ministry of Agriculture for British Columbia and the Ontario Ministry of Agriculture, Food and Rural Affairs.

Key Facts about the Brown Marmorated Stink Bug

Origin of the Brown Marmorated Stink Bug

The brown marmorated stink bug (*Halyomorpha halys*, BMSB), is an invasive species native to Japan, Korea and China. It was accidently imported from Asia to North America, likely in shipping containers, in the late 1990's. It was first discovered in Pennsylvania in 1998, and quickly became a nuisance pest, overwintering in homes, office buildings and warehouses. With few natural predators, populations have been spreading and building, such that the BMSB has now been detected in 38 states, in all four US IR-4 geographic regions. With the exception of the mid-western states (i.e. Montana, North Dakota), this pest has been found in all states bordering Canada. In 2010, the population was especially abundant and wreaked havoc on fruit, vegetable and ornamental crops in the mid-Atlantic states, with some growers of apples, peaches, sweet

corn, peppers and tomatoes reporting total losses that year. In 2011 and 2012, the BMSB continued to present season-long and significant problems to growers in the US. Also since 2010, OMAFRA has reported multiple homeowner findings in Hamilton, but surveys have not yet found BMSB in any crop situation in Canada. Most recently, in August Hannah Fraser, Entomology Program Lead (Horticulture) at OMAFRA, announced the finding of conclusive evidence that this alien pest has established itself in Ontario. Several life stages of BMSB, including eggs, nymphs and adults were collected in a homeowner garden and a wildlife sanctuary in Hamilton.



Brown Marmorated Stink Bug
Credit: Wendy McFadden-Smith

Why is the brown marmorated stink bug such a concern to growers?

There are several reasons:

BMSB has a very wide host range. It is a polyphagous pest and may feed on many species, across at least seven crop groups: tree fruit (especially apples and peaches), grapes, berry crops, legumes (especially soybean), corn, fruiting vegetables (tomatoes, peppers) and several ornamental trees and shrubs.

The ability to fly and thus be highly mobile, combined with a wide host range, allows the BMSB to readily move from crop to crop, making it very difficult to manage.

The BMSB also has unusual movement and dispersal patterns, and may “flock” en masse. It is difficult to predict where it might appear next, since detection and monitoring methods are yet to be refined.

The feeding mechanism of the BMSB is a proboscis, piercing-sucking mouthparts somewhat akin to mosquitoes. All nymphal instar stages as well as adults may puncture fruit, leaf surfaces or even bark. Digestive enzymes are injected into the host to liquefy plant tissues to enable sucking out of the nutrients. The initial injury on fruit is therefore somewhat inconspicuous but leads to scarred fruit and secondary infections often leading to brown corky damage underneath.

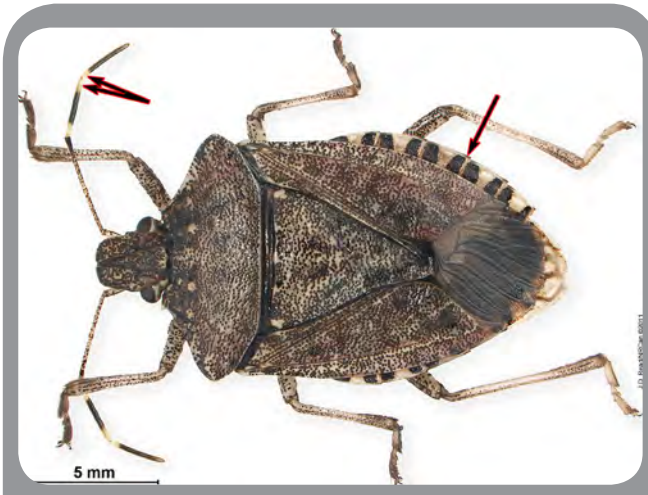
The BMSB is an excellent hitchhiker, which aids its movement and dispersal.

As an invasive alien species, the BMSB has no known natural predators in North America.

In past years, native stink bugs were primarily controlled with broad spectrum organophosphate (OP) insecticides. The newer reduced risk and OP replacement products do not appear to be as effective for control of the BMSB. In fact, a knockdown/recovery response to pyrethroids has been noted. Thus, spray programs specifically targeting BMSB with older chemistries may significantly disrupt IPM programs.

The BMSB is also a structural pest. Beginning in the fall, adults begin looking for barns, sheds and ways into your home, where they can hibernate overwinter. They also overwinter under rough bark of dead wood in forests and woodlots. Emergence in the spring takes place over an extended period of time, usually March through June depending on location. Following mating, egg clusters are laid on the underside of leaves of host trees and shrubs, and egg to instars to adult development requires about 540 degree days. In New Jersey and Maryland, one and two generations per year are occurring respectively, but 4 to 5 generations are possible in warmer climates.

For detailed information on BMSB see the Ontario Ministry of Agriculture, Food and Rural Affairs and the Northeastern IPM Center and the University of Maryland Entomology Bulletin, 2010.



Brown Marmorated Stink Bug
Credit: Jennifer Read

The Hunt for a Control Solution to Spotted-wing Drosophila

At the annual Minor Use Pesticide Priority-Setting Workshop in March 2010, concerned growers identified the arrival and spread of SWD, an invasive fruit fly new to Canada, as a national problem and requested the PMC to take on projects to address the pest.

A native of Southeast Asia, the pest has no known biological or newer, less harmful chemical control solutions to manage its infestation in North America. PMC researchers therefore started out by conducting screening trials of eight insecticides to determine which are best suited for further exploration and eventual registration.

A Victim of Weather

The screening trials were to be held on cherries in the field at the AAFC research station in Summerland, BC, in 2011, but cool, wet weather in late spring and early summer delayed development of the spotted-wing, and the pest did not emerge in significant numbers until mid September. As a result, PMC researchers were forced to relocate the trials to three different Summerland sites throughout the season. The sites included a Bing orchard with a mid-July harvest and a Staccato orchard that fruits in early to mid-August. In spite of their efforts, researchers did not detect a SWD presence at any of the sites and so were unable to generate any efficacy data during 2011.

Insecticide Research in the Lab

With a colony of SWD established at Summerland as a source of inoculum for bioassays, AAFC research scientist Michael Smirle led a team that carried out bioassays to test 10 insecticide products in the winter of 2011 and spring of 2012. The bioassays compared direct insecticide spray on adult pests at various doses to measure toxicity at contact. Separate data was generated for the males and females to determine whether there are differences in the dose response between the two sexes.

Another Season, Another Set of Trials

For the 2012 growing season, PMC researchers, hoping for enough pest pressure to generate efficacy data on five insecticides, repeated the screening trials on cherries in a very late blooming cherry orchard at Summerland. As a precaution, they also conducted fruit bioassays, exposing a pre-established number of adult male and female pests to field-treated fruit and foliage and recording their death rate after 24 hours.

The AAFC research station in Kentville, Nova Scotia, was also the site of a screening trial. Although identical to the cherry trials in BC, this one was carried out on high-bush blueberries, which, like fall-bearing raspberries, tend to be a crop at high risk of SWD attack because of their late harvest time. Application of the insecticides began in early September, when SWD populations are known to peak. Like at Summerland, a colony of SWD was established at Kentville so that researchers there could conduct their own fruit bioassays.

Spotted-wing Drosophila
Credit: Kaitlyn Schurmann

Program Update: Minor Use Pesticides

The Minor Use Pesticides Program (MUPP) has been very busy and productive over these past few months. Even with the new fiscal realities, MUPP was able to contribute a total of 62 new label expansion packages for registration consideration, and with the help of our stakeholders (Growers, Provincial Minor Use Coordinators, Pest Management Regulatory Agency (PMRA), Crop Life, and the US-IR-4) another 64 new uses were added by label expansion to the crop production tool kit for use in Canada for last fiscal year, ending March 31, 2012. Between April 1st and December 12, 2012, MUPP has contributed to an additional 38 label expansion packages. For a complete list of submissions and registrations by year, please visit our Submissions and Registrations webpage. The MUPP reports are updated approximately every two months and more recent versions are available by contacting pmc.cla.info@agr.gc.ca.

In addition to all the hard work MUPP staff put towards finding new solutions for grower's pest problems, they also work very closely with our stakeholders on different internal and external committees and projects to improve the program. As you will read throughout this newsletter, we are working with our Minor Use Technical Working Group (MUTWG), the Regulatory Cooperation Council, and national and international working groups on SWD and BMSB.

March 2012 Priority Setting Meeting

With over 200 participants representing growers, manufacturers, provincial and federal government departments and the US-IR-4 program attending the 2012 Canadian Minor Use Pesticide Priority Setting Workshop, grower representatives selected 44 new research priorities for MUPP. Six of these newly identified requests for label expansion address SWD and an additional priority addresses BMSB.

Minor Use Technical Working Group (MUTWG)

Since January 2012, the MUTWG has met four times (February, March, June and September).

- The MUTWG has been developing a 3-month projection of project completions. This plan was implemented in an attempt for the PMC and the Provincial Minor Use Coordinators to synchronize submissions into PMRA.
- The MUTWG is active in working with MUPP on policy / guideline development (e.g.,``A`` Priorities Without Solution).
- The group is currently updating the Terms of Reference of the MUTWG.

Regulatory Cooperation Council

Prime Minister Stephen Harper and President Barack Obama created the US-Canada Regulatory Cooperation Council (RCC) on February 4, 2011. The RCC released the Joint Action Plan on Regulatory Cooperation on December 7, 2011 and hosted an outreach event in Washington DC on January 30-31, 2012. Twenty-nine initiatives are underway one of which relates to crop protection products.

This initiative will provide an opportunity to facilitate equal access to crop protection products and uses in Canada and the US, and align MRLs/tolerances wherever possible by (1) identifying mechanisms to encourage applications for joint reviews that include an increased number of minor uses and (2) increasing the potential for more Canada/US cooperation on joint work to generate data packages and evaluate regulatory submissions. As a result, four action items have been developed.

1. Encourage joint submissions of use expansions and fully aligned labels with the goal to address the technology gap and trade irritants.
2. Develop joint guidelines for residue trials with the goal to move towards each country/agency accepting other's review resulting in concurrent, aligned decision.
3. Address obstacles to joint registration with the goal to eliminate regulatory obstacles preventing the joint submissions and registrations.
4. Align data collection processes/procedures for residue trials with the goal of data generated by either the PMC or US-IR-4 being accepted by both PMRA and the US-EPA (Environmental Protection Agency).

The PMC, US-IR-4, PMRA, and EPA are involved at various levels in these action items which are to be completed within 18 months. An outreach event was held in Ottawa on October 24, 2012.

Program Update: Pesticide Risk Reduction

The Pesticide Risk Reduction Program continues to work hard to deliver on its commitments to stakeholders, even as the government's fiscal reality has changed. Led by PMC strategy coordinators, working groups responsible for developing strategies for reducing pesticide risk are articulating, and implementing, targeted action plans for tackling the sector's highest priority pest management issues. For the 2012–2013 fiscal year, the program has begun work on developing strategies for new priorities identified through a joint PMC–PMRA project designed to select priorities and establish performance-related metrics. Strategic action plans, project outputs, and information for growers will be posted on the AAFC website as they become available.

Tools and Information

Recent accomplishments include a number of new tools and information for growers:

- New warning system and Scouting and Management of Ascochyta Blight in Chickpea Booklet;
- Improved forecasting system for onion leaf blight;

- New decision support tools for reduced risk management of soybean aphids;
- 35 new registered uses of biopesticides, including BlossomProtect, Grotek Vapourized Sulphur, and Agriphage;
- FruitTracker software customized for use by Canadian grape growers; and
- Four technical fact sheets on onion thrips management, weed control in carrot production, disease management in stored potatoes, and onion leaf blight in onion production.

Projects Underway

The program has its hands full with the 24 pesticide risk reduction and biopesticide-related projects it is currently funding and overseeing. At the same time, our goal to update 21 horticultural crop profiles over three years is well underway thanks to our partnership with CHC. Profiles for potatoes and greenhouse vegetables are being updated with data collected during 2011, and new profiles for rutabaga, winter wheat, spring wheat, low-bush and high-bush blueberry have already been published. We are currently working with the Canadian Canola Council to collect information to update the national canola profile.

At the 3rd Annual Biopesticides Priority Setting Workshop held in March 2012, growers selected another eight priority crop-, pest-, biopesticide-product combinations for action by the PMC. Of the priorities chosen, four selection solution products that will be new, first-time registrations in Canada. The focus of the 2012 growing season included field trials stemming from the priorities selected in March 2011, and data is being evaluated and compiled for regulatory submissions. Since January 2012, the Program has submitted regulatory dossiers for 10 new uses of biopesticides to the PMRA.

Last year, the PRR Program team represented AAFC at an Organization for Economic Co-operation and Development (OECD) workshop on IPM. The workshop was part of an ongoing international forum at which practices to reduce risks associated with pesticide use are discussed (see article below). Following the workshop, the Program led a mini-symposium on the next steps in applying the OECD workshop findings at the 7th International IPM Symposium in Tennessee in March 2012.

Delegation Brings Canadian Experience in Integrated Pest Management to the International Stage

A delegation of six Canadian members played an active role in helping reduce the risks associated with pesticide use in agriculture through their contributions at an international workshop on IPM, an environmentally sensitive approach to pest control. Held in Berlin, Germany, the workshop was convened in October 2011 by the OECD, an intergovernmental body of 30 member countries that work together to harmonize government policies on issues of mutual concern.

The Canadian delegation (from left to right): Pierre-Antoine Thériault, Ministère de l'Agriculture, Pêcherie et Agroalimentaire du Québec; Pat Curry, PMRA; Cezarina Kora, PMC; Peter Isaacson, Canadian Nursery Landscape Association; Murray Porteous, Canadian Horticultural Council (grower and President); and Cara McCurrach, Sterile Insect Release (SIR) Program in British Columbia

Over the span of the three-day workshop, the Canadian group of provincial and federal government and industry representatives, one of them a fruit and vegetable farmer in Ontario, joined nearly 100 invitation-only participants in identifying actions that governments, farmers, and retailers can take to further facilitate the adoption of IPM in OECD countries and beyond.

"Such a strong Canadian turnout demonstrated just how important IPM is to Canadian governments and stakeholders" explained delegate member Cezarina Kora of PMC, who attended the workshop on behalf of AAFC. "It also demonstrated the capacity of Canada in providing international leadership in developing and implementing innovative, sustainable agricultural practices."

A Strong Showing by AAFC

As representatives of one of the 20 countries in attendance at the workshop, the six-member contingent from Canada opened a window on the Canadian experience with IPM, sharing successes and challenges through two plenary and eight poster presentations and by providing input into the numerous workshop break-out discussions.

Cezarina Kora presenting her poster on AAFC programs in support of sustainable pest management

Dr. Kora together with Pat Curry, Director of Minor Use and Risk-Reduction Strategies Division at Health Canada's PMRA gave a presentation on the Pesticide Risk Reduction Program, a joint AAFC–PMRA initiative that helps Canadian farmers reduce the risks to the environment and to human health associated with pesticide use in agriculture. She also presented a poster on AAFC programs that support sustainable pest management based on input obtained from colleagues across the department prior to the workshop.

But AAFC's contribution didn't end there. Three posters submitted by Research Branch scientists Owen Olfert and Charles Vincent also highlighted important AAFC studies on reduced-risk pest management approaches and provided valuable technical information that helped inform group discussions. "It was a great opportunity to present these posters on behalf of my AAFC colleagues," said Dr. Kora. "Their inclusion at the workshop ensured we had a more complete representation of Canadian efforts in IPM-related research and activities at the meeting and showcased AAFC's concerted efforts to provide innovative and sustainable pest management approaches for Canadian growers."

A Year in the Making

Both Dr. Kora and Ms. Curry also had a hand in planning the workshop's agenda. As the Canadian members of the Workshop Planning Committee, they worked alongside colleagues and counterparts from other OECD member countries for over a year to design and organize the workshop. Prior to the workshop, the OECD and the workshop Planning Committee opted to survey member countries on the progress made on IPM adoption and pesticide risk reduction since 1998 when the OECD held its first workshop on IPM. Besides progress made to date, results from this survey identified current gaps and barriers to using IPM strategies and tools, and helped to outline the key issues to be addressed by the workshop.

The objective of the workshop was to draw conclusions and recommendations for the OECD, the governments of its member countries, and stakeholders on strategies to further promote grower adoption of IPM as a key means to reducing the use and risk from pesticides. The workshop recommendations have been presented to the Risk Reduction Steering Group of the OECD Working Group on Pesticides, of which the PMRA is a member. "The opportunity presented by the workshop for the future of IPM is an important milestone for Canada and the rest of the world," Ms. Curry said. "Meetings such as these demonstrate commitment and provide international credibility to pesticide risk reduction tools and measures and promote communication among key stakeholders on risk reduction."

Spreading the IPM Message

The PMC is committed to continuing to examine the recommendations coming out of the workshop for possible implementation, both in Canada and internationally. Dr. Kora has already shared the workshop's findings with AAFC researchers and environmental programming staff, as well as the Federal, Provincial, Territorial Committee on Pest Management and Pesticides. The 7th International IPM Symposium in Memphis, Tennessee, in March 2012 also provided AAFC the chance to further the discussion through a session on implementing the OECD recommendations at the national level. Currently, Dr. Kora is involved in planning a follow-up seminar to be hosted by the OECD in conjunction with the next meeting of its Risk Reduction Steering Group. The one-day seminar, to be held in November 2012, will address indicators for IPM adoption and its impact on pesticide risk reduction, a critical challenge identified at the IPM workshop in October. By continuing to seek out opportunities to

exchange information with the provinces and other countries, AAFC will ensure that Canada remains a leader in the field of IPM and pesticide risk reduction.

New Lab Increases PMC's Ability to Help Minor Crop Growers

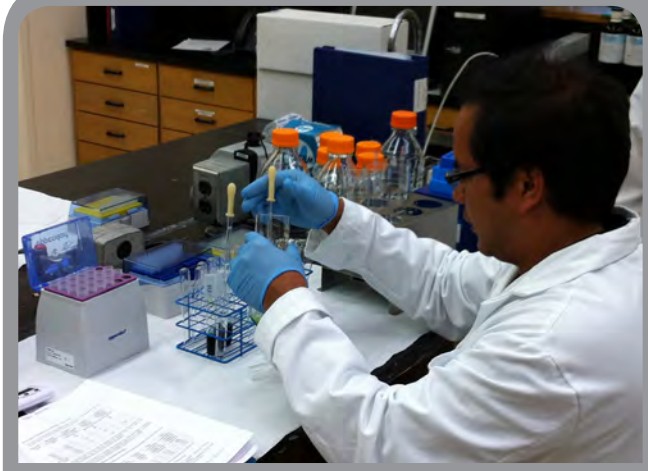
The PMC boosted its ability to support minor-crop growers when it opened a new analytical chemistry laboratory at the Vineland Research and Innovation Station in the Niagara Peninsula. Opened in early 2012, the new lab will reduce the time it currently takes to analyze pesticide residues in crop samples collected from field research.

PMC's Residue Chemistry Lab Services (from left to right): Heather Black, Chemist; Yan Xia, Chemist; and Steve Cagampan, Lab Section Head

That's good news for Canadian horticultural growers, explains Helen Penny, the PMC's Laboratory Services Manager who is serving as the lead on the service improvement project. "By generating lab data faster, the new lab should improve regulatory submission timelines and help growers remain competitive by putting new minor uses of pesticides on the market sooner."

A Good Thing Made Better

Since it was launched in 2003, the PMC had been relying on commercial labs across the US (US) and Canada to provide analytical chemistry services. While the labs are all Good Laboratory Practice (GLP)-compliant and have extensive experience with pesticides, the practice of using outside experts added time to the lab analysis phase of the regulatory submission process.



Steve Cagampan, PMC's Lab Section Head

Compared to IR-4, the PMC's US counterpart in providing pest management solutions to minor-crop growers, the existing lab process took twice as long, on average 30 months, to complete the lab analysis. Given that the time it takes to complete the other phases of the submission process—from preparation to field trials and report generation—is on par with those of the IR-4, the PMC knew it had an opportunity to improve.

"By operating our own analytical lab, we will have better control over the data and be able to keep knowledge in-house from year to year," explains Ms. Penny. "We'll also do better at meeting the expectations of growers for pest control tools when they're needed."

Existing Space Gets a Facelift

Located in Vineland's North Building, the new lab was built by renovating and remodelling old chemistry lab space belonging to AAFC's Science and Technology Branch. Planning for the new lab focused on creating a space that would facilitate lab work, attract qualified scientists, and pass a GLP-accreditation inspection.

"We're really excited about setting up and running our own lab," says Ms. Penny. "By leveraging existing space and equipment, we now have a state of-the-art analytical chemistry lab staffed by specialized professional staff that meets our present needs and is capable of accommodating future demands."

The new lab features an office, maceration room for grinding crops, walk-in freezer, and a 100-square-metre wet chemistry instrument room with sinks, fume hoods, and direct ventilation. New instruments include two liquid and one gas chromatography mass spectrometers with detection capabilities at parts-per-billion levels.

"The instruments are critical," Ms. Penny notes. "To ensure they perform properly, the instrument room is kept at constant temperature and humidity levels. And because we're dealing with such small amounts—parts per billion—we're also keeping the room locked to avoid contamination."

Outside the building, the PMC also converted a garage into two temperature-controlled, walk-in freezers for storing treated and untreated control crops in accordance with GLP guidelines.

From Decision to Design

The benefits of operating its own analytical chemistry lab—from retention of knowledge to better support for study directors to faster turnaround times—were obvious. But the decision was made easier when a feasibility study conducted in fall 2009 showed that the overall annual costs of hiring commercial labs were higher compared to managing its own lab. The option of keeping costs down by renovating existing space rather than building a new lab from scratch convinced senior management to give the project the green light.

By March 2010, the PMC had decided on the 218-acre Vineland campus as the best location for the lab. Situated in what is known as the Golden Horseshoe, the Greater Toronto Area from the western end of Lake Ontario, south to Lake Erie and north to Georgian Bay, the Vineland campus was chosen because of its horticulture research infrastructure and its proximity to industry, academia, airports, and the AAFC field sites in southern Ontario.

With help from a fellow chemist at US-IR-4, Ms. Penny then began the most challenging and, for her, rewarding part of the process—planning and designing the new lab.

"This was my first time ever pulling together a lab," she pointed out. "It's been a really interesting experience and a lot of fun. I loved it."

Following the renovations that brought her blueprints to life, Ms. Penny's final task was hiring the three scientists now staffing the new lab.

"We are pleased to announce that we have hired three new chemists, Heather Black, Yan Xia, and Steve Cagampan, the head of the Lab Section," reports Ms. Penny. "After reviewing the applications of numerous candidates, these three were the top choice of the hiring committee. They will be responsible for getting the lab up and running."

Looking Ahead

With the lab finally open for business, the PMC is hoping for big things from it and its staff: ten to twenty studies per year over the first two years of operation. Any remaining analytical studies will continue to be contracted out to commercial labs. But after those first two years, the PMC is planning to evaluate the possibility of conducting all residue analysis in-house.

"We're always looking for ways to better meet our mandate to help maintain a competitive agricultural industry and improve food safety for Canadians. Opening the lab is an important step toward that goal, but we're not done yet," explains Ms. Penny. "Let's see where we're at in two years."

What's New on the PMC Website

Take a look at what's been happening lately at the PMC:

Priorities

The National Priority Lists and Selected National Priorities established at the 2012 Minor Use Pesticide Priority Setting Workshop are available on the Minor Use Crop/Pest Problems page. Similarly, the list of 2012 National Biopesticide Priorities are now posted on-line. All of these priorities will become MUPP or PRRP projects for the 2013 growing season.

PRRP Projects

The list of pesticide risk reduction projects to be implemented in 2012 has been published and includes brief descriptions of each of the projects. You can also find a list of all the projects funded through the PRRP since 2003.

Pesticide Risk Reduction Strategies

Pesticide Risk Reduction Strategies at the Pest Management Centre, a document explaining the purpose and process of strategies, has been added to the Pesticide Risk Reduction Strategies section of the website. This section has been updated to reflect the new strategies initiated in 2012. Strategy documents for Apple Scab and Cabbage Maggot in Brassica Crops have also been updated.

Crop Profiles

National Crop Profiles by the PRRP are available free to download from the Government of Canada Publications website or by request from the Canadian Agriculture Library.

To keep abreast of updates on our website, be sure to subscribe to our email notification service. These notifications will provide you with links to our new web material.

Calendar of Events

Canadian Horticultural Council Annual General Meeting
March 12-15, 2013
Ottawa, Ontario

Canadian Biopesticides & Minor Use Pesticides Priority Setting Meeting
March 18-22, 2013
Gatineau, Quebec

2012 Regulatory Submissions and Registrations

The PMC's MUPP prepares an information package for a new minor-use of a pesticide based on data collected from field and/or greenhouse trials and laboratory analyses. The package is then submitted to either Health Canada's PMRA or given to the registrants to be incorporated into their submissions. These submissions are then used to support the registration of new minor-uses of the pesticide for a particular crop(s). The PMRA reviews the package and decides whether the new minor-use should be registered for this use in Canada. If registered, the new use can then be used by growers as specified on the product label.

The PMC's PRRP also assists companies in submitting packages for the registration of biopesticides that can help address the pesticide risk-reduction priorities identified through consultations with growers.

Submissions August 1 to November 30, 2012

Crop	Pest(s)	Product(s)	Active Ingredient	Project Number
Asparagus	Broadleaf Weeds (BLW)	Authority 480	sulfentrazone	AAFC07-011
Bean, snap	Blight (*Phytophthora capsici*)	Revus	mandipropamid	AAFC12-085
Cabbage, seedling transplants	Cabbage Maggot	Capture 2EC	bifenthrin	AAFC08-036
Caneberry	Obliquebanded leafroller	Intrepid 240F Insecticide	methoxyfenozide	AAFC12-088
Carrot	Mold, White (*Sclerotinia sclerotiorum*)	Scholar 230SC	fludioxonil	AAFC08-013
Ginseng	Root rot (Phytophthora sp.) Blight, Foliar (*P. bn cactorum*)	Revus	mandipropamid	AAFC08-059
Herb (basil)	Downy mildew (Peronospora spp.)	Revus	mandipropamid	AAFC09-041
Herb (basil)	Cabbage looper Lepidoptera	Intrepid 240F Insecticide	methoxyfenozide	AAFC09-052
Ornamental (Christmas tree)	Balsam root aphid	Admire 240 Flowable	imidacloprid	AAFC11-024
Squash	Cucumber beetles	Gaucho 480 FL	imidacloprid	AAFC06-027

Registrations August 1 to November 30, 2012

Crop	Pest(s)	Product(s)	Active Ingredient	Project Number
Apple	Apple clearwing moth, Dogwood borer	Rimon 10 EC	novaluron	AAFC11-033
Bean, lima	Blight (*Phytophthora capsici*)	Ranman 400SC	cyazofamid	AAFC11-088
Bean, snap	Blight (*Phytophthora capsici*)	Ranman 400SC	cyazofamid	AAFC11-087
Cabbage, chinese	Onion Thrips	Warrior	lambda-cyhalothrin	AAFC10-078
Cabbage, chinese	Onion Thrips	Matador 120 EC Insecticide	lambda-cyhalothrin	AAFC10-079
Camelina (false flax)	Dessication Labelled Weeds	Roundup Weather Max with Transorb 2 T	glyphosate	AAFC11-044
Celeriac	Broadleaf Weeds (BLW)	Gesagard 480	prometryn	AAFC11-037
Celery	Pea Leafminer	Rimon 10 EC	novaluron	AAFC04-010
Celery	Tarnished Plant Bug (TPB)	Matador 120 EC Insecticide	lambda-cyhalothrin	AAFC06-026
Celery	Tarnished Plant Bug (TPB)	Warrior	lambda-cyhalothrin	AAFC10-071
Clover (seed)	Grassy Weeds	Assure II	quizalofop-p-ethyl	AAFC11-042
Cucumber	Labelled Weeds	Assure II	quizalofop-p-ethyl	AAFC03-027
Cucumber, greenhouse	Aphids Thrips	Beleaf 50 SG	flonicamid	AAFC08-057
Cucumber, greenhouse	Mold, Grey (*Botrytis cinerea*)	Decree	fenhexamid	AAFC10-022
Ginseng	Leaf blight (*Alternaria panax*), Root rot (*Rhizoctonia solani*), Mold, Grey (*Botrytis cinerea*), Damping off (*Rhizoctonia solani*), Root rot (*Cylindrocarpon destructans*)	Scholar 50WP	fludioxonil	AAFC05-056
Ginseng	Leaf blight (*Alternaria panax*), Mold, Grey (*Botrytis cinerea*), Root rot (*Rhizoctonia solani*), Damping off (*Rhizoctonia solani*), Root rot (*Cylindrocarpon destructans*)	Scholar 230SC	fludioxonil	AAFC11-076
Herb (basil)	Downy mildew (Peronospora spp.)	Ranman 400SC	cyazofamid	AAFC11-086
Lettuce, head and leaf	Damping off (*Pythium aphanidermatum*), Root rot (Pythium spp), Damping off (Pythium sp.), Downy mildew (Bremia lactucae), Root rot (*Pythium aphanidermatum*)	Ranman 400SC	cyazofamid	AAFC08-053
Millet, Pearl (feed and fodder)	Barnyard Grass (BYG) Redroot pigweed Labelled Weeds Grass weeds (annual) Green Foxtail Grassy Weeds	Dual Magnum	S-metolachlor	AAFC08-070

Registrations August 1 to November 30, 2012 (continued)

Crop	Pest(s)	Product(s)	Active Ingredient	Project Number
Onion, dry bulb	Leek moth Thrips	Success 480 SC	spinosad	AAFC03-008
Onion, dry bulb	Leek moth Thrips	Entrust 80W	spinosad	AAFC10-069
Ornamental (Christmas tree)	Needle cast (*Stigmina lautii*) Needle cast (Rhizosphaera kalkhoffii) Needle cast (*Lirula nervata*)	Banner Maxx	propiconazole	AAFC11-082
Ornamental (Christmas tree)	Needle cast (*Stigmina lautii*), Needle cast (*Rhizosphaera kalkhoffii*)	Compass 50WG	trifloxystrobin	AAFC11-083
Ornamental (Maple)	Tar spot (*Rhytisma acerinum*)	Banner Maxx	propiconazole	AAFC09-037
Ornamental (Outdoor)	Labelled Weeds	Frontier Max Herbicide	Dimethenamid-P	AAFC11-045
Pepper	Blight (*Phytophthora capsici*)	Acrobat 50 WP Fungicide	dimethomorph	AAFC05-021
Pepper, field	Anthracnose (*C. gloesporioides*), Anthracnose (*Colletotrichum acutatum*), Anthracnose (Colletotrichum sp.), Anthracnose (*Colletotrichum coccodes*)	Switch 62.5 WG Fungicide	cyprodinil fludioxonil	AAFC06-045
Pepper, greenhouse	Powdery mildew (*Leveillula taurica*)	Switch 62.5 WG Fungicide	cyprodinil fludioxonil	AAFC05-023
Potato, sweet	Rhizopus soft rot	BioSave 10LP	*Pseudomonas syringae* ESC10	BPI-042
Safflower	Labelled Weeds	Select 240 EC	clethodim	AAFC03-097
Safflower	Labelled Weeds	Centurion	clethodim	AAFC11-085
Saskatoon	Saskatoon Budmoth	Matador 120 EC Insecticide	lambda-cyhalothrin	AAFC05-034
Saskatoon	Saskatoon Budmoth	Warrior	lambda-cyhalothrin	AAFC10-072
Spinach	Mold, Grey (*Botrytis cinerea*), Anthracnose (*Colletothrichum spinaciae*)	Switch 62.5 WG Fungicide	cyprodinil fludioxonil	AAFC08-052
Squash (Zucchini)	Labelled Weeds	Assure II	quizalofop-p-ethyl	AAFC03-026
Tomato, field	Mold, Grey (*Botrytis cinerea*)	Switch 62.5 WG Fungicide	cyprodinil fludioxonil	AAFC11-002
Vegetables, greenhouse	Aphids	Botanigard 22WP	*Beauveria bassiana* GHA	BPI-091
Vegetables, greenhouse	Thrips	Botanigard 22WP	*Beauveria bassiana* GHA	BPI-091
Vegetables, greenhouse	Whiteflies	Botanigard 22WP	*Beauveria bassiana* GHA	BPI-091

Message from Executive Director of the Pest Management Centre

One of the key components for success in an organization is the ability to adapt to current client needs coupled with the ability to foresee problems and opportunities which may arise in the future. It is not good enough to simply wait until pests are established before taking remedial measures. AAFC's PMC tries to adhere to this tenet by challenging new pest management issues which either currently exist in Canada or which will likely occur in the years ahead. In this issue you read how PMC is addressing two relatively new challenges which have potentially devastating capability, the Brown marmorated stinkbug and the spotted wing drosophila.

Another area in which PMC plays a role is within the Canada/U.S. Regulatory Cooperation Council. Harmonization of regulatory standards speeds up the process to have new compounds registered. Through project sharing with our international partners, we can eliminate unnecessary duplication in areas where data is collected and evaluated. This reduces costs, saves time and results in even greater accountability because of increased jurisdictional examination.

In the period since the publication of our last Newsletter, a departmental realignment has occurred which has resulted in PMC now being part of AAFC's new Science and Technology Branch. This will allow the PMC to work closer with scientists and researchers within the department in meeting our goals to increase grower access to new and effective pest management tools while maintaining Canada's high health and environmental standards.

The 2011-2012 year saw many positive changes to PMC's internal structure, designed to eliminate a backlog of minor use projects, and enhance our scientific team to meet the increased needs of growers. By doing so, we also took steps to gain additional scientific expertise. A major development for the PMC was to establish its own pesticide residue analytical laboratory, which will result in considerable time and cost savings when fully operational in 2012-2013.

Dr. Manjeet Sethi

None of our achievements could be accomplished without our cooperative partnerships with AAFC Science and Technology Branch scientists, growers, registrants, the PMRA, the Provinces and our counterpart in the United States, the United States Department of Agriculture's IR-4 Project. Partnerships bring people and organizations together to create opportunities and solve problems. The PMC is an excellent example of inter-departmental, national and international collaborations.

As we move forward, we intend to play a more active role in international harmonization efforts to seize regulatory opportunities to gain efficiencies, while fully respecting Canada's standards for safe use of pesticide products.

Until next time….Manjeet Sethi

About the Pest Management Centre

Agriculture and Agri-Food Canada (AAFC) established the Pest Management Centre (PMC) in 2003 to implement the Pesticide Risk Reduction Program (PRRP) and Minor Use Pesticides Program (MUPP). The PRRP, a joint initiative of AAFC and Health Canada's Pest Management Regulatory Agency, focuses on the development of risk reduction strategies for the Canadian agriculture and agri-food sector, while the MUPP responds to the needs of Canadian growers for increased access to new minor uses of pesticides. The PMC operates from its headquarters in Ottawa and at nine research centres (Kentville, Nova Scotia; Bouctouche, New Brunswick; Saint-Jean-sur-Richelieu, Quebec; Vineland, Ontario; Delhi, Ontario; Harrow, Ontario; Scott, Saskatchewan; Summerland, British Columbia; and Agassiz, British Columbia) where field, greenhouse and growth chamber trials are conducted.

For more information about the PMC, please visit our website at www.agr.gc.ca/prrmup

Contact Information

For more information about any of the items in this issue of the newsletter, please contact the PMC via email at pmc.cla.info@agr.gc.ca or call 613-694-2457.

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