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The Pest Management Newsletter:

News from the Agriculture and Agri-Food Canada Pest Management Centre

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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 Pesticide Program (MUPP). The PRRP 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 minor crop 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.

Passing the Test

The PMC's Quality Assurance Program

It's a windless early morning on a farm near Scott, Saskatchewan, and it's already clear that the day will be a warm one. In a hemp field, a sprayer is trundling through the crop, taking advantage of the calm conditions that keep the spray from drifting. It's a quiet scene, an ordinary start to another summer's day on the Prairies.

Except that it isn't *quite* ordinary. This is actually a scientific experiment, a field trial run by the PMC to investigate the level of pesticide residues in hempseed, and there's more to it than meets the eye. Long before the sprayer ever entered the field, PMC personnel were establishing the study plan, the trial design, the equipment specifications, the site location, the sampling procedures and the documentation requirements. Together, these will add up to a successful trial that meets not only the regulatory requirements of Health Canada's Pest Management Regulatory Agency (PMRA), but also the international standards laid down by the Organisation for Economic Co-operation and Development (OECD) in its Good Laboratory Practice (GLP) guidelines.

Quality tools

The PMC's Quality Assurance (QA) unit is responsible for monitoring field and laboratory trials to ensure that they meet GLP standards. For its part, the PMRA requires that all scientific data used to support pesticide registration, if it involves pesticide properties that may affect human health and/or the environment, must be conducted under GLP. The PMRA uses the data from these tests to decide whether a pesticide can be registered for use on a particular crop, so the integrity of the tests and the quality of the data are of the utmost importance.

The QA unit uses several tools to determine if the standards are being met. The first is GLP, which governs the organizational process and the conditions under which studies are conducted and reported

Lettuce Residue Trial Application by Martin Trudeau.

GLP in itself is not intended to ensure quality, but rather provides a uniform framework within which the PMC's studies on pesticide residues can be planned, performed and reported, and repeated if necessary.

The QA unit's second tool, and an essential component of GLP, covers Standard Operating Procedures (SOPs). Based on the requirements outlined in the OECD's GLP guidelines, SOPs cover all aspects of the way studies are conducted. They are crucial to ensuring the quality of pesticide trials because they establish the methods and instructions for determining the procedures to be carried out, and because they specify how the PMC interprets and applies the GLP guideline requirements. There are several categories of SOPs that cover not only the QA unit itself, but also a large spectrum of procedures, such as program management, study setup, pesticide storage and sampling methods.

The third essential QA tool is the study plan. Study Directors prepare these plans to outline how they want the trials to be conducted, including all pertinent information about the type of crop and pesticide to use, as well as the timing of the pesticide application and the harvest.

Last but far from least are QA Audits, which allow QA auditors to determine whether trials are being conducted in the correct manner and are thus GLP-compliant. During these quality checks, the auditors examine SOPs, study plans, reports and other elements of the program to make sure the proper procedures have been followed. They also visit test sites to observe how the research is being conducted,

whether the sites have appropriate facilities and whether the study plans and SOPs are being followed.

The view from the ground

That's the general picture, but how does it work on the (literal) ground? Daniel Ulrich, a biologist with the PMC's Minor Use Pesticide Program (MUPP) and the principal investigator on the hemp residue trials mentioned above, goes into more detail.

"We did a total of three field trials for that study," says Ulrich, "with QA audits on two of them. One audit was for the way we prepared and applied the pesticide, and the second looked at how we collected samples of the harvested seed. For the application, we needed to follow both the study plan and SOPs to ensure proper pesticide storage, measuring, mixing and transportation, and of course for the spraying itself. Consequently we spent far longer getting ready to apply the pesticide than we actually took to apply it. In the second trial, we had to use a combine to harvest the samples because hemp seed is so small, but then we ran into trouble with our SOP. To avoid contamination of the harvested samples, we have to ensure that the harvesting equipment is clean before we us it. The SOP specifies that a cleaning agent such as soap or ammonia must be used, and that the equipment must then be rinsed to remove any traces of the cleanser. Obviously, though, it's difficult to clean a combine with a few buckets of soapsuds and a few more of water. Eventually it was decided that we could use compressed air instead, while still meeting all the SOP specifications."

Considerably farther east, Martin Trudeau is also a biologist with the MUPP and works as a principal investigator at the research station in St-Jean-sur-Richelieu, Quebec. "The teams at St-Jean have carried out approximately 200 trials on almost 50 different crops since 2003," Trudeau says. "Last year, for example, we produced pesticide residue data from our Ste-Clothilde farm for the registration of a new insecticide against thrips in dry bulb onions. Another project was at our Acadie farm, for the registration of a new fungicide for strawberries. As in similar trials, we used study plans and SOPs to calibrate our sprayer, while all our data was recorded under GLP and audited through the QA unit. This standard approach helps us detect and correct mistakes or avoid them altogether, so we can routinely provide data of very high quality."

Scrupulous studies

Back at PMC headquarters in Ottawa, Study Director Jennifer Ballantine emphasizes that the QA unit is woven inextricably into all work involving GLP. "We meet our GLP requirements largely by following established SOPs," says Ballantine. "Those requirements are mostly related to documentation, so we use specific SOPs when setting up a study, preparing a study plan, conducting audits and writing our final reports. Whenever something occurs that doesn't follow the study plan or the SOPs, we have to indicate what happened and assess its potential impact on the outcome of the study."

Study directors follow a standard form when setting up a study plan, which ensures consistency among the study directors. It also makes it easier for the research teams to do their job because this uniform method of approaching a study helps keep everybody on the same track.

Measuring wind speed L'Acadie Farm, QC.

When carried out at the test sites, QA audits such as the one conducted on Daniel Ulrich's trials are called in-phase inspections. These are determined in advance and are coordinated with the field investigators. The PMC's QA auditors conduct the majority of these inspections, but contract auditors are also used because of the large number of

inspections required and occasional conflicts in the timing of the audits. Auditors typically observe how the spraying or harvesting of the crop is being done, and pay very close attention to the Raw Data Field Notebooks (RDFNs) in which the site staff record every detail of the trial. When time permits, auditors also review other items such as facility records, pesticide records and equipment logs to ensure that overall procedures are being followed. Since the essence of GLP is good documentation and good document management, the auditors carefully check the RDFNs to see if they are up-to-date and properly maintained.

Later, when the RDFNs come in from the field, they're audited again to find out whether the data that was requested in the study plan was actually recorded. Any gaps or discrepancies are noted. The principal investigator then responds to all the issues raised in the QA audit and the study director assesses their impact on the trial. Following this, the study director compiles the raw data from each field trial and laboratory analysis into a final report for the project, which is also subject to a QA audit.

Why it all matters

The sight of a researcher standing in a field, writing something in a notebook, doesn't make the QA unit's value immediately obvious. But its benefits are real and indispensable. It helps investigators generate high-quality data that regulatory agencies can use confidently when reviewing data for the registration of new pesticide uses. It ensures that errors are caught early in the trial process and that they're quickly corrected. It provides lessons that PMC staff can share with each other and with other organizations, and its existence means that the PMC's studies were conducted precisely as designed.

Joining Forces: Biopesticides in Canada and the U.S.

Canada and the United States are joining forces to make biopesticides more readily accessible to growers. This new partnership was developed in the context of the NAFTA Technical Working Group on Pesticides, and includes the PMC's Pesticide Risk Reduction Program (PRRP), Health Canada's PMRA, the U.S. Environmental Protection Agency (EPA) and the U.S. IR-4 Program. Under the partnership, the two countries will use the 2009 growing season to conduct coordinated biopesticide trials and demonstrations for pests that damage crops on both sides of the border.

Pest issues of particular importance to Canada were selected using strategies developed by the PRRP. One such strategy is aimed at using alternative controls to reduce reliance on organophosphates, while another aims to reduce the pesticide risks associated with the control of white mold.

Four specific pest issues have been identified by the partnership as priorities for both countries; these are the control of onion thrips in onions, blueberry maggot in wild blueberries, white mold in dry beans and downy mildew in field cucumbers. Based on their potential or demonstrated effectiveness, a number of biopesticides have been chosen to be showcased as alternatives to conventional products for controlling these pests.

AAFC-PMC will provide funding for the Canadian trials, while the EPA and IR-4 will support the American ones. Data generated through these parallel field trials in Canada and the U.S. will support requirements for registration in Canada and will simultaneously encourage biopesticide adoption by growers in both countries. It is hoped that this pilot project will enjoy the same success as the existing collaboration between the PMC's Minor Use Pesticide Program and the U.S. IR-4 Program.

St. Jean-sur-Richelieu Horticultural Research Centre.

Nestled in Quebec's Garden

Ever since 1724, when European settlers first planted wheat in the fertile lands along the Richelieu River, Quebec's Montérégie region has been known for its excellent growing conditions and the variety of its crops. Located southeast of Montréal, it's long been called the garden of Quebec, and in 1912 the federal government chose it as the location for the Dominion Entomological Laboratory. The small research station was set up in the town of Hemmingford and its staff promptly got to work. At least some of what they did would be familiar to today's PMC investigators — in 1916, for example, an entomologist named Charles E. Petch was looking for ways to control apple and plum curculio, a pest that is still causing problems nearly a century later.[1]

In 1940, the station moved to St-Jean-sur-Richelieu, about 40 km southeast of Montréal. It's still there today, but it's much bigger now and since 1985 has gone by the name of the Horticultural Research and Development Centre (HRDC) of Agriculture and Agri-Food Canada. It has 19 scientists and a total staff of 147, who conduct research into sustainable production, pest management and the preservation of crop and horticulture quality after harvesting.

Standing, from the left: Test site manager, Noubar Bostanian; Principal investigators, Martin Trudeau and Tristan Jobin along with other members of the team.

A valuable variety

The Centre specializes in tree fruits, small fruits, ornamental shrubs and market garden produce. It has three research substations, comprising 246 hectares of land of various types, which allows investigators to carry out trials on a wide range of crops. At the L'Acadie Farm, heavy soils such as clay loam are well suited to research on crucifers, strawberries, fruiting vegetables and cereals. About 50 km west of St-Jean, the Sainte-Clotilde Farm is located in a muck soil region, and is used to grow high-value root, bulb and leaf crops. In the rolling southern district of the region, Frelighsburg Farm has a light sandy loam that's good for fruit production, and research there focuses on apples and berries.

The Centre is also one of nine research sites that contribute to the PMC's Minor Use Pesticide Program (MUPP). The site has two MUPP teams whose projects generate data required by the PMRA to support the registration of new pesticide uses; each project consists of one or more field trials, which can be designed to assess a pesticide's efficacy against a target pest, examine crop tolerance for a product, or determine pesticide residues on a harvested crop so that the PMRA can make regulatory decisions about the product.

Each team is headed by a principal investigator, with Martin Trudeau in charge of one team and Tristan Jobin leading the other. Supporting them are technicians Maxime Gauthier and Caroline Lafond, while Hélène Durand serves as the site archivist and Noubar J. Bostanian as the site manager. During the summer, the teams also mentor university students who help with the heavy workload during the growing season.

Most trials are carried out on one of the Centre's farms, but if a crop is not grown on one of them, or if a particular pest can't be found there, a team will collaborate with a local grower willing to contribute

[1] C. Gordon Hewitt, A Review of Applied Entomology in the British Empire. Annals of the Entomological Society of America, Vol. 9, No. 1 (March, 1916), p. 20.

to the project. The Centre also has some greenhouse space and a set of controlled-environment growth cabinets. A number of trials are conducted in these facilities, which are also used to rear pests for field inoculation.

So when spring arrives each year, the St-Jean-sur-Richelieu MUPP teams return to the field, carrying on their war against weeds, bugs, and blights. Since 2003, they have conducted more than 200 trials on almost 50 different crops; on the list for 2009 are artichoke, basil, high-bush blueberry, broccoli, cantaloupe, celeriac, sweet corn, cucumber, grape, lettuce, onion, green onion, pearl millet, pepper, raspberry, rhubarb, spinach, strawberry and summer squash. Just a glance at this variety tells the story: together with its eight sister centres, St-Jean-sur-Richelieu's MUPP site plays a vital role in establishing new pesticide uses for growers, and in helping them keep their competitive edge in both local and foreign markets.

Wireworm Wars

Even if you've never seen a wireworm, the name alone may be enough to make you grimace — it suggests something thin and hungry, with lots of teeth. That's actually a pretty accurate impression of the aptly named *Ctenicera destructor*, since the creatures have a hearty appetite for the roots and tubers of potatoes, beans, carrots, cole crops, corn, wheat, barley, onions and strawberries. Potatoes are their special favourite, and they like to chew shallow holes in tubers and seed pieces, opening the way for secondary diseases like *Rhizoctonia* and blackleg. And when they tunnel into potatoes destined for consumers or the processing industry, they can do so much damage that a whole crop becomes unmarketable.

Wireworms are the soil-dwelling, larval stage of the click beetle. Although there are more than 800 species of wireworm, only a few are considered to be serious agricultural pests. But the populations of the destructive species seem to be increasing, and controlling the threat requires a multi-dimensional attack that includes reduced-risk insecticide registrations, better information about wireworm numbers and more research into crop rotation.

Reducing risks

Growers have traditionally used organophosphate insecticides to control wireworms. These products, however, come with significant environmental risks and are being withdrawn from the marketplace. Without replacements, growers would be left with a limited number of anti-wireworm insecticides, most of which are not particularly effective.

Wireworm killed by biopesticide fungal agent. © R. Vernon, AAFC.

With this unpleasant prospect in view, the PMC began looking for reduced-risk products that could replace the older organophosphates in the growers' armoury. It supported a study to develop a fungal biocontrol for wireworm, and another to screen different insecticides and combinations of insecticides for controlling wireworm pest species. In the course of the study, PMC investigators conducted field trials at AAFC stations in Agassiz, British Columbia; London, Ontario; Kentville, Nova Scotia; and Charlottetown, Prince Edward Island.

While the biocontrol work has not yet yielded a commercial product, in 2006 the insecticide screening trials led to new wireworm-management registrations for chlorpyrifos (Pyrifos 15G and Pyrinex 480EC). Two years later, clothianidin (Poncho 600F) was also registered for use with potato crops. These products are not the only ones under consideration, since the

PMC has submitted a number of other reduced-risk pesticides for registration as wireworm controls.

Surveying species

New insecticides are often much more species-specific than older ones, and some products may work well on certain kinds of wireworm but poorly on others. Growers accordingly need a clear picture of how wireworm species are distributed throughout Canada, so they can use controls that are tailored to the species inhabiting their fields.

To collect this information, a network of scientists and field personnel has been monitoring wireworm populations in agricultural areas across the country. This information will be incorporated into a Canada-wide species distribution map, which will help investigators develop integrated pest management strategies for specific, local wireworm populations. The distribution data is being shared with the extension and scientific communities so they can recommend the most effective control strategies to growers in their regions.

Rotation requirements

Where wireworm numbers are high, long-term rotation away from susceptible crops can help control the pest. However, the crops used in the rotation have to be carefully selected. Otherwise, crop damage can continue for several years because of the wireworm's long life cycles, which range from two to six years depending on the species.

Although wireworms feed on several different crops, they like some less than others. This has led to a study that will determine whether unappetizing crops, planted in a three-year rotation with potatoes, will reduce both larval populations and the level of re-infestation by egg-laying females. The study is assessing brown mustard, buckwheat, alfalfa and barley (underseeded to clover) as potential rotation crops. In 2010, when the study is complete, the investigators hope the data will point to a specific rotation sequence that will reduce wireworm populations.

The work on these alternative controls is already producing valuable results. As new registrations, population data and crop rotation techniques become available, the PMC and its partners will promote them to growers, who can use these tools to make life increasingly miserable for wireworms across the country.

© T. Kabaluk, AAFC

The PMC's Pesticide Risk Reduction Strategies: An Update

Ongoing work at the Pesticide Risk Reduction Program is helping growers gain access to better and safer pest management tools and approaches. Stakeholder consultations to identify and prioritize growers' pest management needs have led to the development of strategies that address reduced-risk control options for a range of pests, and support is now being provided so that these options will become fully accessible to growers.

Strategy reports that summarize and update the results of the Program's work and funded projects are regularly compiled and made available on the PMC's website. These reports are intended to inform industry stakeholders, the agricultural community and the general public about the Program's activities and the new, reduced-risk pest management tools and practices that it has helped make available to growers.

Several recently released reports are now available on the Strategies section of the website. These include reduced-risk strategies for the management of apple scab, grasshoppers, and ascochyta blight in chickpea.

Day by Day at the PMC…

With a Minor Use Project Coordinator

Mohammed Akalach is one of five Minor Use Project Coordinators for the PMC's Minor Use Pesticide Program. We could describe to you what he does, but it wouldn't begin to do him justice — much better to have Mohammed tell you about it himself!

Minor Use Project Coordinator Mohammed Akalach. © Stefan Bussmann, AAFC.

Like people in offices everywhere, the first thing I do after reaching my desk at 8 a.m. is check my messages and voice mail. What I read or hear tells me a lot about how my morning is going to shape up — I might need to contact the PMRA to respond to clarifications about submissions and pre-submission consultation requests (PSCRs), or answer questions from principal investigators and private contractors about setting up and conducting efficacy trials. Or I might be asked to send information about the status of a fungicide project to a stakeholder.

These and similar things tend to be at the top of my to-do list, and I often spend all morning working my way through them. This involves mining data for pertinent information, phoning or emailing crop experts, and talking to provincial coordinators and various pathologists who can help me respond to the concerns of stakeholders and the PMRA.

By the time I've done all that, it's usually noon. It's pretty normal for me to overlook coffee breaks and eat lunch in front of my computer, but I always try to get to the gym for about 45 minutes during the lunch hour. It reinvigorates me, while helping me reduce stress and avoid burnout.

The rest of the day I spend on my other responsibilities as a project coordinator. This varies by season; in March, for example, I participate in the PMC's priority setting meeting, providing information that will help growers select new priorities for our work on fungicides. From March to July, I'm busy with developing new PSCRs, digging up information about existing efficacy and residue data, and writing rationales to support new pesticide uses. Then there's the paperwork — I liaise with registrants to make sure the PMC receives and archives all required documents such as draft supplemental labels, registrant letters of support, supporting data and test items, and I also make sure the MU Database is updated accordingly.

In between these tasks, I'm writing efficacy study plans for the all-sites meeting that will take place in January. These plans will help AAFC principal investigators select the trials that fit their environments and will have good chance of success, and will also allow them to be posted on MERX (the government's online tendering service) so that private contractors can bid on the work.

Managing more than 100 efficacy trials accounts for a lot of my time during each year's growing season, from April to September. I provide advice on fungicide performance testing, trial allocation, cultivar choices, finding and securing pathogen inoculum sources, visiting selected trial sites and carrying out other routine work. From September to March, I'm busy reviewing efficacy reports, writing value reports and summary efficacy tables, and putting together submissions to be sent to the PMRA. Along with that, I review contractor bids, attend meetings, check and approve payment invoices, and prepare updates for management and presentations for various kinds of audiences

And before I know it, winter has ended, March has arrived again, and I can look back at the year's work with a feeling of pride and accomplishment!

Getting Together Again

The PMC All Sites Meeting, January 2009

The annual All Sites Meeting of the Minor Use Pesticides Program (MUPP) is an important part of the PMC business cycle. It takes place every January, and in 2009 it was held on January 6–8 at AAFC's Neatby Building at the Eastern Cereals and Oilseeds Research Centre in Ottawa.

It's the MUPP's only face-to-face meeting of the year and is also a major research planning event, because it brings together program team members from PMC headquarters and from the nine AAFC research centres involved in the program across the country. During the meeting, the trials required for the upcoming growing season — for pesticide efficacy, crop tolerance to pesticides, and pesticide residues — are assigned to the principal investigators, who will conduct the research at their experimental fields or at collaborators' fields.

Sharing knowledge

The meeting gives principal investigators an opportunity to discuss trial particulars with project coordinators and study directors, which helps facilitate trial assignments. The discussions also enrich the knowledge of all participants and help provide a profile of our research sites and their team members' vocations, skills and expertise.

Besides research planning and trial assignment, the All Sites Meeting includes an important "lessons learned" component. There's a year-in-review session where principal investigators share their successes and challenges, discuss solutions and exchange knowledge, and their presentations offer a glimpse of the unique arrangements they have created to set up and conduct their trials. These activities generate much discussion and allow team members to examine new ideas, discuss their research approaches and describe their best practices.

Presentations by study directors and project coordinators link the trial data generated by the research sites to specific projects, which contributes to an overall picture of project status. It's an opportunity for principal investigators to see how their trial results have been used and for study directors and project coordinators to communicate what works well and what can be improved.

Holding course

To confirm that the Program's direction continues to match that of the department, the meeting begins with an overview of the current status of departmental programming and policies, and how the PMC and the MUPP are helping achieve the department's objectives. The PMC's overall progress to date and feedback received from stakeholders are integral to this session.

The participation of the PMRA in the meeting also strengthens the PMC's working relationship with PMRA Minor Use Program officials, and encourages open dialogue between our organizations. This year we were fortunate in having PMRA staff attend the sessions on herbicides, pathology and entomology, where they made presentations on data requirements, preparation of rationales, data bridging and extrapolation. The presentations were followed by lively discussions.

Technician Rick Pineo from Kentville, Nova Scotia. © AAFC.

Training and traditions

The All Sites Meeting offers a perfect opportunity for group training. Training not only helps us continually improve our technical knowledge and skills, but also fulfills our obligation to provide GLP information to our staff. The group training also ensures that we are giving a consistent message to all our teams and allows people to hear questions and points of view from other sites.

Since we tailor our training to the needs of the group, we first canvass the teams and then compile and discuss the results to decide what training will be most valuable to everyone. This year, we focused on "Trials: From planning to execution," and used a role-playing approach in which participants put themselves in each others' shoes. This generated a great deal of discussion and the feedback from the session was very positive.

As the three days of the meeting drew to an end, an evening social occasion highlighted regional foods such as fruits, vegetables, juices, wines and cheeses. This "Regional Feast," as it's called, has become a tradition of the All Sites Meeting; the staff of each research centre provides delicacies local to its region and tells everyone where the food comes from, how it's produced and how it's prepared. We all look forward to this event, since it infuses regional traditions with our love of food and agriculture.

By the time we say goodbye at the end of the meeting, we've accomplished much, shared many ideas and experiences, and tasted excellent Canadian foods. The meeting has inspired us to continue building on our successes and to tackle this year's trial assignments with our customary vigour and inventiveness. And last but far from least, we've laid strong foundations for the next All Sites meeting in January 2010.

What's New on the PMC Website?

Several new items have been added to our website since our last newsletter appeared. Here's a look at what's been happening:

- A number of new Risk Reduction Strategies for the management of apple scab, white mold, grasshoppers, wireworm and ascochyta blight in chickpeas have been published for grower use.
- The list of titles for the 2009 Implementation Projects is now available and posting continues of the results of the PMC Implementation Projects initiated in previous years.

To stay informed 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.

2009 Regulatory Submissions and Registrations

The process of registering a new minor use pesticide begins with the PMC's Minor Use Pesticide Program, which prepares an information package based on data collected from field trials and laboratory analyses. The package is then submitted to Health Canada's PMRA to support the registration of the pesticide for a particular use. The PMRA reviews the package and decides whether the pesticide should be registered for this use in Canada. If registered, the product can then be employed by growers as specified on the 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 in grower consultations.

Submissions February 1, 2009 to May 31, 2009

Crop	Pest	Product	Active Ingredient	Project Number
Alfalfa (seed)	Tarnished plant bug Alfalfa plant bug	Assail	acetamiprid	AAFC03-094
Bean, dry edible	Labelled Weeds	Solo Basagran Forte	bentazon imazamox	AAFC06-004
Bean, snap	European Corn Borer (ECB) Fall Armyworm	Rimon 10 EC	novaluron	AAFC06-037
Blueberry, highbush	Labelled Weeds	Dual II Magnum	S-metolachlor	AAFC04-070
Blueberry, highbush	Labelled Weeds	Dual Magnum Herbicide	S-metolachlor	AAFC09-064
Broccoli	Labelled Weeds	Goal 2XL	oxyfluorfen	AAFC07-004
Cabbage	Labelled Weeds	Goal 2XL	oxyfluorfen	AAFC07-005
Carrot	Early blight (*Alternaria dauci*); Early blight (*Cercospora carotae*); Mold, White (*Sclerotinia sclerotiorum*)	Allegro	fluazinam	AAFC05-053
Cauliflower	Labelled Weeds	Goal 2XL	oxyfluorfen	AAFC07-039
Cucumber	Labelled Weeds	Command 360ME	clomazone	AAFC04-036
Cucurbit vegetables (crop group 9)	Powdery mildew	Timorex Gold	tea tree oil	PRR Program
Grape	Ladybeetles	Ripcord 400 EC Insecticide	cypermethrin	AAFC05-041
Grape	Powdery mildew, Downy mildew	Timorex Gold	tea tree oil	PRR Program
Ornamental (Rhododendron)	Root rot (*Phytophtora cinnamomi*)	Heritage	azoxystrobin	AAFC07-061
Ornamental (Viburnum)	Viburnum leaf beetle	Coragen	chlorantraniliprole	AAFC07-065
Pepper	*Pseudumonas syringae, Xanthomanas vesicatoria*	Agriphage	bacteriophage	PRR Program
Pepper, field	European Corn Borer (ECB)	Rimon 10 EC	novaluron	AAFC06-038
Pepper, field & greenhouse	Powdery mildew	Timorex Gold	tea tree oil	PRR Program
Potato	Late blight, Early blight	Timorex Gold	tea tree oil	PRR Program
Potato	*Rhizoctonia solani*	Heads Up Plant Protectant	Saponins of *Chenopodium quinoa*	PRR Program
Strawberry	Lygus Bugs	Rimon 10 EC	novaluron	AAFC07-052
Strawberry	Powdery mildew	Timorex Gold	tea tree oil	PRR Program
Tomato, greenhouse	Bacterial canker (*Clavibacter michiganensis*)	Agriphage	Bacteriophage	AAFC06-060
Tomato, field & greenhouse	Late blight, Powdery mildew	Timorex Gold	tea tree oil	PRR Program

Registrations February 1, 2009 to May 31, 2009

Crop	Pest	Product	Active Ingredient	Project Number
Apple	Labelled Weeds	Chateau	flumioxazin	AAFC07-006
Agriculutral & horticultural soils	*Sclerotinia minor, Sclerotinia sclerotiorum*	Contans WG	*Coniothyrium minitans*	PRR Program
Bean, dry	Common blight (*Xanthomanos axonopodis pv. phaseoli*) Halo blight (*Pseudomonas syringae pv. phaseolicola*) Bacterial brown spot (*Pseudomonas syringae pv. syringae*)	Kocide 2000	copper compounds	AAFC05-017
Bean, succulent	Common blight (*Xanthomanos axonopodis pv. phaseoli*) Halo blight (*Pseudomonas syringae pv. phaseolicola*) Bacterial brown spot (*Pseudomonas syringae pv. syringae*)	Kocide 2000	copper compounds	AAFC05-018
Beans, dry, snap & soy	*Sclerotinia sclerotiorum*	Contans WG	*Coniothyrium minitans*	PRR Program
Blueberry	Mummy berry disease	Serenade Max	*Bacillus subtilis*	BPI07-030
Blueberry, highbush	Labelled Weeds	Chateau	flumioxazin	AAFC08-040
Bushberry (Gooseberry)	powdery mildew (*Sphaerotheca mors-uvae*)	Pristine WG Fungicide	pyraclostrobin boscalid	AAFC06-018
Cabbage	*Sclerotinia sclerotiorum*	Contans WG	Coniothyrium minitans	PRR Program
Canola	*Sclerotinia sclerotiorum*	Contans WG	Coniothyrium minitans	PRR Program
Carrot	*Sclerotinia sclerotiorum*	Contans WG	Coniothyrium minitans	PRR Program
Celery	*Sclerotinia minor, Sclerotinia sclerotiorum*	Contans WG	Coniothyrium minitans	PRR Program
Cherry	Oriental Fruit Moth (OFM) Western Cherry Fruit Fly	Assail 70WP	acetamiprid	AAFC04-043
Chicory	Labelled Weeds	Poast Ultra	sethoxydim	AAFC03-002
Corn, seed	Labelled Weeds	Impact	topramezone	AAFC07-069
Corn, seed	Labelled Weeds	Callisto 480SC	mesotrione	AAFC08-071
Corn, sweet	Labelled Weeds	Callisto 480SC	mesotrione	AAFC08-072
Cucumber, greenhouse	Powdery mildew (*Leveillula taurica*) Blight (*Botrytis cinerea*)	Pristine WG Fungicide	pyraclostrobin boscalid	AAFC04-041
Grape	Labelled Weeds	Chateau	flumioxazin	AAFC07-008
Lettuce	*Sclerotinia minor, Sclerotinia sclerotiorum*	Contans WG	*Coniothyrium minitans*	PRR Program
Onion, dry bulb	Labelled Weeds	Chateau	flumioxazin	AAFC05-006
Ornamentals, container	Black Vine Weevil, Root Weevil	Met-52	*Metarhizium anisopliae*	PRR Program
Ornamental (Outdoor)	Labelled Weeds	SureGuard	flumioxazin	AAFC06-011
Peach	Oriental Fruit Moth (OFM) Wester Cherry Fruit Fly	Assail 70WP	acetamiprid	AAFC04-044
Plum	Oriental Fruit Moth (OFM) Western Cherry Fruit Fly Plum Curculio	Assail 70WP	acetamiprid	AAFC04-045
Potato	Wireworm	Titan ST	clothianidin	AAFC04-001
Potato	Labelled Weeds	Chateau	flumioxazin	AAFC07-002

Registrations February 1, 2009 to May 31, 2009

Crop	Pest	Product	Active Ingredient	Project Number
Saskatoon	Entomosporium Leaf spot (*Entomosporium mespili*)	Switch 62.5 WG Fungicide	cyprodinil fludioxonil	AAFC07-018
Strawberry	Labelled Weeds	Chateau	flumioxazin	AAFC07-007
Sunflower	*Sclerotinia sclerotiorum*	Contans WG	*Coniothyrium minitans*	PRR Program
Tomato	*Sclerotinia sclerotiorum*	Contans WG	*Coniothyrium minitans*	PRR Program

Calendar of Events

Western Forum on Pest Management
October 15–17, 2009
Winnipeg, Manitoba

Canadian Forum for Biological Control Symposium
October 19, 2009
Winnipeg, Manitoba

59th Entomological Society of Canada Annual Meeting
October 18–21, 2009
Winnipeg, Manitoba

Canadian Weed Science Society Meeting
November 24–26, 2009
Charlottetown, Prince Edward Island

People on the Move

Dr. Manjeet Sethi has been appointed Executive Director of the PMC, effective immediately. His science career began in India, where he took a degree in veterinary sciences and a master's in Veterinary Public Health; in Canada, he earned his doctorate in veterinary immunology. Most recently, Dr. Sethi was Director of Research and Development at the Canadian Food Inspection Agency. Manjeet brings with him a wealth of experience not only in scientific research and development but also in regulatory affairs. His appointment coincides with the launch of Agriculture and Agri-Food Canada's Regulatory Action Plan under the Growing Forward policy initiative. We look forward to giving him our full support in his new role.

In May, Ms. Leslie Cass became the new Manager of the Pesticide Risk Reduction Program. She joined the Program as Research Coordinator in 2003, after many years with AAFC's Research Branch, and has been the Program's Acting Manager since April 2008.

In March, David Courcelles was appointed as an Assistant Project Coordinator in the PMC's MUPP. David will focus on assisting Program staff with IR-4 and "A" Priorities Without Solutions (APWS) projects.