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 1 Summer 2010*

## Helping Farmers be their Best

The passion of scientists with Agriculture and Agri-Food Canada (AAFC) is fuelled by two elements: the evolving diseases and pests they encounter nearly every day and the strong desire to help farmers deliver the best crop possible to customers.

Dr. Deena Errampalli is based at the Vineland Research Farm in Ontario's Niagara region, part of the Southern Crop Protection and Food Research Centre. She's an expert in the development of effective biological and reduced-risk controls for post harvest diseases in tree fruit, and works to develop strategies for fungicide resistance management within Integrated Pest Management (IPM) programs in Canada. As well, she works identifying disease resistant genes and development of rapid and accurate molecular detection methods for fungal pathogens and fungicide resistant isolates of pathogens.

Dr. Owen Olfert of the Saskatoon Research Centre focuses on ecological crop protection through integrated pest management, insect forecasts/risk warnings, modeling of invasive insect pests and biodiversity of soil arthropods. He explains that he studies native insects specific to North America, migratory pests and invasive alien species.

Based at the Crops and Livestock Research Centre in Charlottetown, Dr. Rick Peters is a plant pathologist focused on issues like soilborne fungal diseases, pest resistance to pesticides, pathogen population biology, pathogen detection and characterization, molecular biology, host resistance to disease and integrated pest management.

Rick Peters, AAFC researcher scientist

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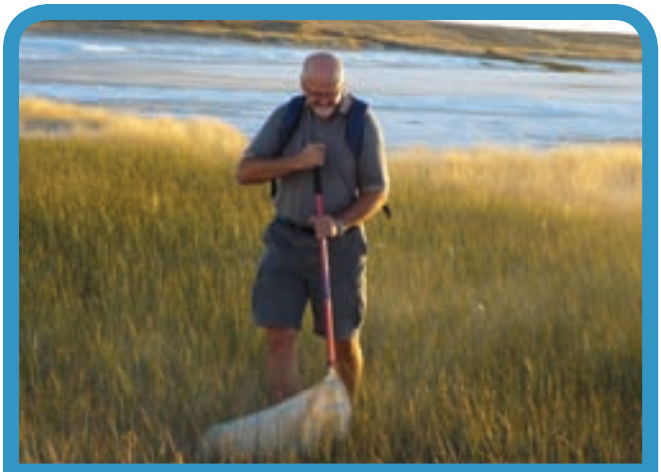

AAFC Research Scientist Owen Olfert sweeping for beneficial arthropods in field boundary habitat

Errampalli says when she considers the issue of post harvest disease management, her goal is to develop useful tools for producers.

“We develop a tool box with proper tools so it can be used as required,” she says, noting that alternating among fungicides is one of the most effective guards against post harvest disease management of tree fruit.

But that’s not all.

“It’s also exciting because the ever changing diseases are a challenge. Host pathogens try to get control, they always mutate and sometimes overproduce.

Olfert grew up on a farm and says he brings his heritage to his job everyday.

“That background has led to my approach when developing management strategies for farmers and industry, like giving the heads-up when invasive species appear,” he says. “We develop monitoring techniques and then use GIS -- Geographic Information System -- mapping to forecast risk and where risks are. We give producers a heads-up and they can perhaps adjust their crop rotation.”

It can be devastating for farmers to lose valuable crops to diseases and pests, and frustrating when there’s no known solution. But researchers like Peters take heart when they can help ease aggravations for farmers and lessen the financial blow.

“We’ve seen a direct link with how research has been taken up by the industry and seen real results -- that’s very satisfying to see that uptake that’s saving growers money,” Peters says.

And, he notes, every day brings a new challenge.

“It’s never the same -- there’s always a new problem -- there’s never a shortage of issues to track,” he says.

The researchers are among 600 scientific staff at 19 AAFC research centres producing a large number of research publications highlighting accomplishments of the science and innovation activities. The research centres work closely with the Pest Management Centre (PMC), helping PMC deliver programs that improve growers’ access to newer, safer pesticides and deliver production approaches that reduce reliance on pesticides.

For Errampalli, it’s work such as this that she tackles every day. Often working at producing data on pesticides, she investigates how products fit into integrated pest management and pest resistance strategies.

“That’s the overarching, umbrella goal,” she says.

In Atlantic Canada, Peters points to examples such as a solution that was found to combat carrot rot. “Spores can bring disease into the field and lead to rot during storage,” Peters says. Research found that with increase air circulation in the canopy, the incidents of disease were decreased.

“There was the invention and introduction of the carrot trimmer -- it trims the sides of the canopy and opens up the soil -- no pesticides are used and it reduced disease by up to 80 per cent,” he says.

Olfert also refers to the success of several PMC-funded projects. His work encompasses research into three levels of pests: native, migratory and invasive species.

Migratory species tend to be wind borne and travel into Canada from the southern United States and Mexico. “They can’t take cold winters and die every year… but if they come up early enough, they can cause problems,” Olfert says.

Invasive alien species usually arrive by accident in Canada, carried in on imported goods. It’s an increasing problem of high concern for scientists like Olfert.

“With growing world trade, these are the ones we’re most concerned about. They don’t have the genetic history of natural enemies,” he says, pointing to wheat midge as an example of an alien species now spreading through Prairie wheat crops.

He says working with PMC on studies that examined the advantages of beneficial species, such as insects that provide a natural control for invasive pests, provides critical information to farmers. By monitoring pests that provide natural control, Olfert says farmers can be informed of when they should be careful spraying for

the invasive pest, so as not to harm native pests. It's another attempt to create a perfect balance in the field.

Through his research on migratory pests, Olfert says his research centre has partnered with Environment Canada to develop wind trajectory models. Wind trajectory information from 20 sites in the United States and Mexico is used to compile notices that let farmers know which pests could be inbound from the southern portion of the continent. Another 50 wind trajectory sites are monitored within Canada, he states.

The PMC works with stakeholders to determine its research into new minor uses of pesticides and reduced risk pest management solutions for both major and minor crops. In both aspects, it's the scientists like Errampalli, Peters and Olfert who continue to work towards the common goal of helping Canadian farmers do the best work they can.

Southern Crop Protection and Food Research Centre in Vineland, Ontario

# In the Heart of Wine Country

The test site for the Minor Use Pesticides Program (MUPP) at Agriculture and Agri-Food Canada's (AAFC) Vineland Station in Ontario has a rich history in fruit production.

Located north of Lake Erie and south of Lake Ontario on the Niagara Peninsula, between the Niagara Escarpment and Lake Ontario, the area was settled primarily by United Empire Loyalists and Pennsylvania Dutch in the late eighteenth century. With considerable moderating effects on temperatures, where mid-winter temperatures rarely drop below -20 C, the area seemed ideal to the settlers.

Today, Niagara's climate and soil types make it one of Canada's most important production areas for grapes, peaches, pears, plums and cherries. The fruit-growing area extends across the Niagara Peninsula from Hamilton to the Niagara River and varies from one to 10 kilometres in width. The Vineland Station has become a facility where research work helps growers stay competitive through access to new pest control products that are safer, more selective and have less effect on the environment.

Horticulture research in Vineland started in 1906 when Moses F. Rittenhouse donated a 36 hectare arm to the Government of Ontario "for experimental work on tender fruit."

This farm eventually became the Horticulture Research Institute of Ontario (HRIO). In 1911, the Dominion Department of Entomology established the Dominion Entomological Laboratory at Vineland, where research was conducted for control of apple maggot, pear psylla and aphids. Facilities were shared with HRIO until 1925 when the Canadian Department of Agriculture built its own facility on the Vineland campus. The facilities were expanded over the years to include chemistry and greenhouse research.

In 1968, the St. Catharines Pathology Lab, St. David's Field Station and the Vineland Entomology Lab combined to form the Vineland Research Station. A 29 hectare farm on the nearby Jordan Harbour was also purchased at the time.

Most of the research focus was on crop protection -- spray timing, pesticide dosages and effects on beneficial insects. Some of the first studies of the long term effects of DDT on applicators and the environment were conducted at Vineland, as well as important research in nematology and virology.

The Vineland Research Station, along with the Delhi Research Station, was reorganized in 1995 as a subordinate research farm of the Southern Crop Protection and Food Research Centre, based in London.

In 2006, the Vineland Research and Innovation Centre was established on the Vineland campus, creating a partnership between private industry and government research to support the horticulture industry. Current areas of research focus on the Plum Pox virus, biocontrol of fire blight, post-harvest diseases and mating disruption.

From left to right: Mitchell Pogoda, Principal Investigator; Deena Errampalli, Test Site Manager; Robert Wismer, Technician

Vineland's MUPP generates data in support regulatory submissions for insecticides, herbicides and fungicides to combat priority pests in peaches, cherries, plums, grapes, apples and pears. Additional research is done on berries, vegetables, ornamentals and post-harvest storage treatments. About 30 residue and efficacy trials are conducted annually at AAFC Vineland to support MUPP submissions.

AAFC Vineland was certified in 2003 by the Standards Council of Canada to conduct GLP field research trials and was established as one of nine MUPP test sites across Canada.

Mitchell Pogoda is Vineland MUPP principal investigator. Also onsite is technician Robert Wismer, archivist Lori Bittner, who maintains the site records, and Deena Errampalli, who oversees the program operations as test site manager. In addition, students are hired each summer to help with the workload. Sara Pytka-Jones and Matthew Czerwinski provided excellent assistance in 2009.

As older pesticides are deregistered, like some in the organophosphate and organochlorine group, new products are required to control pests and diseases. MUPP research helps growers gain access to new products to fill this void.

For example, chlorpyrifos (Lorsban) will soon be unavailable for use on peaches, leaving producers very few alternatives to control Oriental fruit moth, a major pest with past resistance to several insecticides. The MUPP program at AAFC Vineland Station conducted research on peaches to support the regulatory submissions of five insecticides from four different pesticide groups. These products all have the advantages of lower toxicity to applicators and farm workers, while being more selective to the target pests (less toxic to beneficial insects), making them good candidates for inclusion in integrated pest management systems.

Many MUPP research projects are conducted in conjunction with the United States Department of Agriculture IR-4 Project, working towards greater harmonization of product registrations in Canada and the U.S.

In 2010, research will be done on: cherries, grapes, apples, pears, peaches, blueberries, raspberries, strawberries, peppers, celery and potatoes.

# Identifying and Developing New Prairie Crops

The Canadian Prairies are well known for production and export of cereal and oilseed crops like hard red spring wheat, durum wheat, barley and canola.

These crops continue to be important, however, growers now often include special crops in their cropping system. Crop diversification is critical for pest management and managing economic risk.

Special crops include anything that's not in a major grain, oilseed or horticultural group. It's a diverse group of crops like buckwheat, canaryseed, forage crops for seed production, herbs and spices, industrial hemp, condiment mustard seed, safflower, sunflower and pulse crops like dry pea, lentil, chickpea and dry beans.

At the Scott Research Farm, new crops are evaluated and production recommendations provided to growers. Some new crops being evaluated are camelina,

Principal Investigator Dan Ulrich speaking about hemp at the 2008 Weed Tour at the Scott Research Farm

cumin, *Brassica carinata* (Ethiopian mustard), hemp and Prairie carnation.

## Camelina

Camelina is an ancient Brassica oilseed, also known as false flax, linseed dodder or gold-of-pleasure. Camelina seed oil has a unique fatty acid profile with potential use in industry, cosmetics, human nutrition and biofuel. There's also growing interest in camelina-based jet fuel.

Genetic transformation could be used to produce unique industrial oils from camelina. The oilseed has several desirable agronomic traits -- like somewhat better frost, heat and drought tolerance -- than other Brassicas like canola.

Camelina grows between 48 and 90 centimetres tall on the Prairies, has small yellow flowers and produces 10 to 25 small, yellow-reddish seeds in pear-shaped pods. The seed is very small with 1,000-seed weights averaging about one gram. In comparison, the 1,000-seed weight of hybrid canola seed is approximately four to five grams.

Current agronomic research includes identifying optimum seeding rates, plant densities and nitrogen response trials. Camelina is touted as a low-input crop, however, Prairie studies indicate its response to nitrogen fertilizers is similar to canola.

Camelina has few insect or disease pests, but broadleaf weed control is challenging. Several herbicide candidates have been screened, but camelina is sensitive to most broadleaf herbicides. Work is underway through the MUPP to register quizalofop for the control of grass weeds in camelina.

## Cumin

Cumin is a short growing spice crop of the carrot family.

Cumin has been a challenge to grow. Typically grown in Mediterranean countries with high summer temperatures, there was trouble establishing the crop under the cooler temperate climate of the Prairies.

In 2009, fungicide seed treatment screening trials identified that Apron Max RTA significantly improved crop establishment. Progress has also been made in identifying weed control options.

In Saskatchewan, about 6,000 hectares of caraway and 8,000 hectares of coriander, which are two related spice crops, are produced a year. There is potential for cumin to be sold in the same export markets, particularly to the United States.

Test Site Manager Eric Johnson in a *Brassica carinata* field

## Ethiopian Mustard (*Brassica carinata*)

Breeding of early maturing Ethiopian mustard has been an ongoing activity at the Saskatoon Research Centre for approximately 10 years.

The crop originated in East Africa, including Ethiopia and the Mediterranean coast. Ethiopian mustard is heat and drought tolerant and has good resistance to blackleg disease, alternaria blackspot and aphids. It also has a relatively large seed size and is shatter resistant. The seed's high erucic acid content may have applications in bio-diesel, bio-polymers, lubricants, soaps and surfactants.

At the Scott Research Farm, agronomic studies are underway on Ethiopian mustard to determine optimum seeding rates, plant densities and fertilizer responses. Also, they're working to identify potential herbicide candidates for weed control.

Currently, there is no commercial production of Ethiopian mustard on the Prairies, however, advances in plant breeding and agronomy will improve its adaptation and potential, particularly in the non-traditional oilseed growing regions.

## Hemp

In the last 10 years, the annual area seeded to hemp in Canada averaged near 7,000 hectares.

Seeded area peaked at over 19,000 hectares in 2006. Most of the hemp production has been in Manitoba with 51.7 per cent, Saskatchewan with 28.6 per cent, Alberta with 9.9 per cent and Ontario with six per cent of total production. Most agronomic research on hemp on the

Prairies has been led by Cecil Vera, biologist at the Melfort Research Farm.

In the Prairies, short stature, early maturity cultivars have been imported or bred locally, specifically for oilseed and/or dual purpose (seed and fibre) production.

Hemp production in Canada has been driven primarily by the commercial oilseed market, as its seeds contain 25-35 per cent oil. The fatty acid composition of hemp oil is of interest to the nutraceutical and cosmetic/ body care industries because of its omega-3 fatty acid content, particularly gamma-linolenic acid, or GLA, and stearidonic acid, or SDA.

Hemp agronomic research has focussed on seeding rates, fertilizer requirements and identifying herbicide candidates for minor use. Broadleaf weed control remains a challenge since there are few options available.

## Prairie Carnation

Prairie carnation (*Saponaria vaccaria*) is a specialty crop developed from common cow cockle. Its main use will likely be as a non-food bio-product crop. The starch from the seed contains very consistent, fine granules desirable in the cosmetic industry. The seed also contains saponins, used in the pharmaceutical industry. A number of other compounds which may possess nutraceutical or pharmaceutical properties have been identified in the seed.

The research conducted on these emerging crops to identify optimal growing conditions, pest and weed management approaches will contribute to the establishment of these crops in the Prairies and to diversifying the local agriculture to profitable and exciting new frontiers.

# First Biopesticides Selection Workshop a Success

A pilot event to select biopesticides priorities was held March 22 when growers, researchers, biopesticide registrants and other pest management specialists gathered in Ottawa for the first time to select biopesticides for regulatory support by the PMC's Pesticide Risk Reduction program (PRRP), a joint initiative between AAFC and Health Canada's Pest Management Regulatory Agency (PMRA).

Since 2005, the PRRP has, in close collaboration with PMRA, provided regulatory support to improve Canadian growers' access to biopesticides. Initial work focussed on 14 priority products for first time registration or label expansions.

First Biopesticides Selection Workshop held in Ottawa, Ontario

With data packages for most of these products compiled and submitted to PMRA, it was time to develop a new process to select biopesticides for regulatory support with increased input from the grower community.

In consultation with grower organizations, the PRRP developed a list of pest management issues with pesticide risk reduction potential and then asked AAFC researchers and biopesticides companies worldwide to suggest solutions. When grower representatives and other experts met in March, the challenge was to identify top priorities from 371 issues and solutions.

Participating in the workshop in person, via videoconference or by conference call were 47 growers and provincial experts, 32 biopesticide company representatives from as far away as Austria, 27 researchers, as well as 32 regulators, PMC employees and other experts.

After lively and constructive discussions led by facilitators Lise Hebabi and Diane King, and the PRRP team, 3 products -- including 2 AAFC-developed biopesticides - were selected for first time registration in Canada, and 3 products were chosen for label expansions to new uses against priority pests (see table for details).

Over the next 24 months, the Biopesticides Team of the PRRP will work with PMRA, registrants, growers and researchers to develop the data and compile registration packages for the selected products and submit them to the PMRA.

The PMC was pleased with the outcome of the meeting, and the lessons learned from this first-of-its-kind meeting. Planning is already underway for continuation of this new approach next year.

Final Selections from the Biopesticides Selection Meeting, March 22, 2010

| Crop Group | Crop | Pest issue | Proposed product | Type of Project |
|---|---|---|---|---|
| Greenhouse food crops | Tomato (greenhouse)* | Botrytis* | ACM941/CLO1 (*Clonostachys rosea* ACM941) | New registration |
| Greenhouse food crops | Pepper (greenhouse) | Thrips | Naturalis (*Beauveria bassiana* ATCC 74040) | New registration |
| Major field crops & pulses | All crops | All weeds | Proprietary name (*Phoma macrostoma*) | New registration |
| Major field crops & pulses | Cereal Crops | Fusarium spp. (FHB) | ACM941/CLO1 (*Clonostachys rosea* ACM941) | New registration |
| Ornamentals | Ornamentals (greenhouse) | Thrips | Met52 (*Metarhizium anisopliae* F52) | Label expansion |
| Ornamentals | Ornamentals (Outdoor) | Root rots | Rhapsody (*Bacillus subitlis* QST 713) | Label expansion |
| Outdoor fruits and vegetables | Cherry | Cherry fruit fly | Naturalis (*Beauveria bassiana* ATCC 74040) | New registration |
| Outdoor fruits and vegetables | Onions (dry) | Thrips | Met52 (*Metarhizium anisopliae* F52) | Label expansion |

* changed from Powdery mildew/cucumber upon request from greenhouse industry on April 15, 2010

# Chinese Delegation visits the PMC

A delegation of government officials and scientists from China's National Agro-Tech Extension and Service Center (NATESC) visited the PMC in December.

NATESC is a non-profit institution affiliated with the Ministry of Agriculture. The visit was part of a technical visit to Canada, co-ordinated by the Sino-Canada Technology Exchange Centre. The delegation, representing most regions of China, included 14 professors, senior agronomists and managers from national and provincial Agro-Tech extension and service centers, plant protection stations, and agricultural universities.

The group was interested in pest management technologies, including AAFC's innovative initiatives and programs to improve grower access to safe and efficient pest management products. They were also interested in the department's contributions to sustainable pest management.

Prior to presentations by PMC, each member of the delegation gave a brief introduction of their affiliation and interests.

Leslie Cass, Ian Gardiner, Shuhua Liu, Jinxiu Zhang and Marcos Alvarez represented PMC. Alvarez explained the structure, governance and programming of PMC and Cass spoke about the PRRP. Dr. Jianqiang Zhou from AAFC's international scientific co-operation bureau also attended.

From left to right: Shuhua Liu, PMC; Marcos Alvarez, PMC; Zhenrun Shao, Director of NATESC

The presentations generated many questions and discussions and Liu and Zhang assisted with translation and answered many of the questions first hand.

The national mandate of the PMC and its success improving Canadian grower's access to new and effective pest management technologies, tools and practices continues to serve as a model and attracts the interest of many countries.

The Chinese delegates followed their meeting at PMC with a visit with officials from Heath Canada's PMRA to learn about pesticides legislation, compliance and enforcement in Canada.

# Day by day at the PMC… With a Quality Assurance Auditor

*Stéphane Laprise is one of three quality assurance auditors for the PMC's Minor Use Pesticides Program.*

As a quality assurance (QA) auditor at the PMC, it's my responsibility to make sure study directors and management comply with GLP regulation on all phases of a pesticide residue study. From study plan to final report, each step needs to meet the Organization for Economic Cooperation and Development Good Laboratory Practices (GLP) and all other internal requirement.

Before a residue study begins, the study director writes a plan detailing requirements. I review the plan to ensure it fulfills all GLP requirements and other specifications and sign off on it when it does. Then, management and the study director sign the document to officially initiate the study.

The study plan is distributed to the appropriate field principal investigators (PI). They do the field portion of that study and I schedule inspections with the PI.

QA Auditor Stéphane Laprise at the Atlantic Food and Horticulture Research Centre in Kentville Nova Scotia.

I might end up auditing a pesticide application, sampling or a seed treatment. Due to nature of the field work, the short growing season in Canada, the unpredictable weather, I often need to perform last minute changes to the audit schedule. The fact that we are associated with nine research centres from the Maritimes to British Columbia also adds a bit of challenge to travel plans.

At the research centre, I observe the PI and field personnel. If any activities or procedures are not compliant with the study plan requirements, the establish procedures (SOP) or with the GLP, I record this on the QA report and inform the PI, study director and management, leaving matters in their hands to resolve.

When field trials are finished, the field personnel send their raw data field notebooks (RDFN) -- all the information related to a specific field trial -- to the quality assurance team in Ottawa.

The RDFN sections are reviewed for the required information and I verify the trial was conducted as per the study plan, looking at all procedures. I also confirm all calculations for the application rates.

One of the most important aspects of GLPs is data recording and documentation. When I review RDFN, it's essential that information is complete and clear.

Once the review is complete, I write my QA report and note any issues or request with the RDFN in need of clarification. Once clarified, I sign the QA report and give the compliant RDFN to the study director. The RDFN is then used to write the final report.

At the end of the process, I receive the final report from the study director -- the same report that ends up in the hands of reviewers at PMRA.

I need to ensure the final report accurately reflects the data provided by the fields and laboratory PI. I verify the data against the raw data, but it's a challenge to find all supporting documents to confirm the information in the final report.

GLP, study plan and SOP requirements need to always be in the back of my mind while reviewing a final report.

As for the other type of inspection I perform, a QA report is written and provided to the study director and management. All study documents are returned to the study directors. Modifications can be made and all missing documents or information can be provided. Once everything is set, the final report is signed and ready to be submitted to PMRA.

This process does not always go smoothly. There are many active studies running simultaneously, all at different stage of the process. There can be conflicting priorities -- and some friendly arguments between me and the study personnel on the interpretation of the GLPs, study plan and SOP.

But at the end of the day, we all come to an agreement and move on to have our study submitted to PMRA.

From left to right: Jennifer Ballantine, PMC; Andrée Bergeron, ALB Human Outlook

# All Sites Meeting leads to Planning

The main research planning activity and training of the MUPP was held in early January in Ottawa.

## Information sharing

The meeting is the only face-to-face gathering for minor use team members -- principal investigators, technical assistants and test site managers -- from the nine research centres. It's an opportunity for interaction with PMC headquarter staff to exchange ideas and share lessons.

New staff was introduced and PMC's Executive Director Manjeet Sethi spoke on the restructuring activities taking place.

The principal investigators presented their accomplishments, observations, issues and concerns from the 2009 growing season.

Research planning

Research needs were determined when regulatory data requirements for PMC's projects -- agreed to on behalf of growers -- were issued by Health Canada's PMRA. Associated trial needs were identified and made available for pre-selection by principal investigators through PMC's database.

Trial assignment was accomplished through an open forum discussion with study leads and principal investigators. This discussion allows study leads to provide details on trials to principal investigators.

## Training

Dr. Jason Deveau from Ontario Ministry of Agriculture, Food and Rural Affairs gave a seminar on spray technology. As well, staff participated in good laboratory practices training. The last GLP training was two years ago and the arrival of new staff members makes this training critical.

Debby Garvin of the West Coast Quality Training Institute led the group through all aspects of GLP, including planning, data generation, report writing and assembling of regulatory submissions for the registration of pesticide uses.

The training session ended with a visioning workshop with all PMC staff and the Research Branch Minor Use staff. It was facilitated by Andrée Bergeron, ALB Human Outlook. The workshop provided a great opportunity for team members to come together and to develop a unified vision of the PMC -- and provide a sense of ownership in the direction the centre is going.

# 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:

The National Priority Lists and Selected National Priorities, established by the Minor Use Pesticide Priority Setting Workshop, have been published on the Minor Use Crop/Pest Problems page. These priorities will become projects within the MUPP for the 2011 growing season.

The Biopesticide main page has been updated and expanded. New pages on the Categories of Biopesticides and Related Products and Summary of Regulatory Support Work have been added. As well About Regulatory Support and Projects to facilitate the development of biopesticides have been updated.

The Sustainable Crop Protection Factsheet Series continues to have new titles added under the Publications and Document archive.

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.

# People on the Move

Tristan Jobin has accepted the position of Principal Investigator at St. Jean-sur-Richelieu Research Centre. He has a background in Animal Physiology and obtained a Master Degree in Plant Pathology from Université de Montréal. Over nine years at AAC, he has worked on fungicide resistance and host-pathogen interaction in apple scab and on epidemiology of strawberry, grape and onion diseases. He has been involved with the PMC since 2005, has participated in numerous PRRP research projects and conducted many residue and efficacy trials for the MUPP.

Markus Clodius has accepted the position of Principal Investigator at the Pacific Agri-Food Research Centre in Agassiz, British Columbia. He holds a Bachelor of Science in plant ecology from the University of Victoria and a Masters of Pest Management from Simon Fraser University. He is a member of the British Columbia Institute of Agrologists.

# Calendar of Events

Western Forum on Pest Management
October 13-15, 2010
Lethbridge, Alberta

Entomological Society of Canada Annual Meeting
October 31 – November 3rd, 2010
Vancouver, British Columbia

Canadian Weed Science Society Annual Meeting
November 16-18, 2010
Regina, Saskatchewan

# 2010 Regulatory Submissions and Registrations

The PMC's MUPP prepares an information package for a minor use pesticide based on data collected from field trials and laboratory analyses. The package is then submitted to either Health Canada's PMRA or given to the registrants to be incorporated with their submissions. Next, these submissions are used to support the registration of minor uses of the pesticide for a particular crop. 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 to May 31, 2010

| Crop | Pest(s) | Product(s) | Active Ingredient | Project Number |
|---|---|---|---|---|
| Blueberry, highbush | Aphids | Fulfill 50 WG Insecticide Formulation | pymetrozine | AAFC05-031 |
| Blueberry, lowbush | Labelled Weeds Moss | Chateau | flumioxazin | AAFC08-044 |
| Broccoli, seedling transplants | Swede Midge | Intercept 60 WP | imidacloprid | AAFC05-052 |
| Cabbage, seedling transplants | Swede Midge | Intercept 60 WP | imidacloprid | AAFC05-051 |
| Corn, sweet | Aphids | Assail 70WP | acetamiprid | AAFC06-034 |
| Corn, sweet | Corn Earworm | Rimon 10 EC | novaluron | AAFC07-051 |

## Submissions February 1 to May 31, 2010 (continued)

| Crop | Pest(s) | Product(s) | Active Ingredient | Project Number |
|---|---|---|---|---|
| Cranberry | Blackheaded fireworm, Sparganothis fruitworm, Cranberry Fruit Worm | Altacor 35 WG | chlorantraniliprole | AAFC07-050 |
| Cucumber | Blight (*Phytophthora capsici*), Downy mildew (*Pseudoperonospora cubensis*) | Acrobat 50 WP Fungicide | dimethomorph | AAFC04-039 |
| Cucumber | Labelled Weeds | Dual II Magnum | S-metolachlor | AAFC05-058 |
| Cucumber | Labelled Weeds | Dual Magnum | S-metolachlor | AAFC09-066 |
| Ginseng | Leaf blight (*Alternaria panax*), Blight (*Botrytis cinerea*), Root rot (*Rhizoctonia solani*) | Allegro 500F Agricultural Fungicide | fluazinam | AAFC07-042 |
| Grape | Anthracnose (*Elsinoe ampelina*) | Pristine WG Fungicide | pyraclostrobin boscalid | AAFC09-009 |
| Lettuce, greenhouse | Powdery mildew (*Erysiphe cichoracearum*) | Pristine WG Fungicide | pyraclostrobin boscalid | AAFC04-018 |
| Melon (Cantaloupe) | Labelled Weeds | Dual II Magnum | S-metolachlor | AAFC03-073 |
| Melon (Cantaloupe) | Blight (*Phytophthora capsici*), Downy mildew (*Pseudoperonospora cubensis*) | Acrobat 50 WP Fungicide | dimethomorph | AAFC04-038 |
| Melon (Cantaloupe) | Labelled Weeds | Dual Magnum | S-metolachlor | AAFC09-065 |
| Melon (Cantaloupe) | Labelled Weeds | Assure II | quizalofop-p-ethyl | AAFC03-028 |
| Mustard | Labelled Weeds | Roundup Weather Max with Transorb 2 T | glyphosate | AAFC05-039 |
| Onion, green | Labelled Weeds | Frontier Max Herbicide | Dimethenamid-P | AAFC09-013 |
| Ornamental (Juniper) | Root rot (Phytophthora sp.) | Heritage | azoxystrobin | AAFC07-063 |
| Ornamental (Maple) | Tar spot (*Rhytisma acerinum*) | Compass 50WG | trifloxystrobin | AAFC09-036 |
| Ornamental (Maple) | Tar spot (*Rhytisma acerinum*) | Banner Maxx | propiconazole | AAFC09-037 |
| Ornamental (Outdoor) | Powdery mildew (Oidium sp.) | Switch 62.5 WG Fungicide | cyprodinil fludioxonil | AAFC07-026 |
| Pea, dry | Downy mildew (Peronospora spp.) | Headline EC Fungicide | pyraclostrobin | AAFC09-003 |
| Potato | Ripening (Colour enhancement) | 2,4-D Ester 700 | 2,4-D | AAFC05-001 |
| Squash (Summer) | Blight (*Phytophthora capsici*), Downy mildew (*Pseudoperonospora cubensis*) | Acrobat 50 WP Fungicide | dimethomorph | AAFC04-040 |
| Sunflower | Head rot (*Sclerotinia sclerotiorum*), Leaf spot (*Alternaria helianthicola*) | Lance WDG Fungicide | boscalid | AAFC04-057 |

## Registrations February 1 to May 31, 2010

| Crop | Pest(s) | Product(s) | Active Ingredient | Project Number |
|---|---|---|---|---|
| Bean, dry edible | Labelled Weeds | Basagran Forte Solo | bentazon imazamox | AAFC06-004 |
| Bean, snap | True Armyworm, European Corn Borer (ECB), Fall Armyworm | Rimon 10 EC | novaluron | AAFC06-037 |
| Beet, garden | Broadleaf Weeds (BLW) | Upbeet | triflusulfuron-methyl | AAFC05-057 |
| Blueberry, highbush and lowbush | Aphids | Assail 70WP | acetamiprid | AAFC03-037 |
| Blueberry, highbush and lowbush | Blueberry Maggot | Assail 70WP | acetamiprid | AAFC04-046 |
| Cherry | Oriental Fruit Moth (OFM) , Peach Twig Borer, Oblique-banded leafroller | Rimon 10 EC | novaluron | AAFC08-166 |
| Cucumber | Labelled Weeds | Command 360ME | clomazone | AAFC04-036 |
| Melon (Cantaloupe) | Labelled Weeds | Command 360ME | clomazone | AAFC04-035 |
| Mustard greens | Labelled Weeds | Dual II Magnum | S-metolachlor | AAFC04-069 |
| Mustard greens | Labelled Weeds | Dual Magnum | S-metolachlor | AAFC09-063 |
| Ornamental (Viburnum) | Viburnum leaf beetle | Acelepryn | chlorantraniliprole | AAFC07-065 |
| Peach | Oriental Fruit Moth (OFM), Peach Twig Borer, Oblique-banded leafroller | Rimon 10 EC | novaluron | AAFC05-059 |
| Pepper, field | European Corn Borer (ECB) | Rimon 10 EC | novaluron | AAFC06-038 |
| Plum | Oriental Fruit Moth (OFM), Peach Twig Borer, Oblique-banded leafroller | Rimon 10 EC | novaluron | AFC06-042 |
| Prairie Carnation | Labelled Weeds | Select 240 EC | clethodim | AAFC08-074 |
| Squash (Summer) | Labelled Weeds | Command 360ME | clomazone | AAFC04-037 |

# A Message From the Executive Director of the Pest Management Centre

When I stepped into my role as Executive Director one year ago, it was a substantial change from my previous roles within the Canadian Food Inspection Agency. The learning curve was steep, but the challenges and opportunities have made the first 12 months fly past quickly.

Dr. Manjeet Sethi

Since that time, the PMC has focused on addressing the backlog of minor use projects, remodeling and realigning our organization to better fit current and future needs and revitalizing our Advisory Committee and Technical Working Groups. PMC is also in the process of establishing its own Chemistry Laboratory for residue analysis.

Also during this time, it has become clear to me that PMC's role to provide Canadian growers with new pest management tools and technologies would not be possible were it not for the our collaborative partnerships with the producers themselves, grower organizations, product manufacturers, the PMRA, the provinces, AAFC Research Branch and our counterparts in the United States, the IR-4 Project. Each of these allies has demonstrated a strong commitment to assisting our growers in increasing their competitiveness while contributing to producing safe and healthy food products and protecting the environment. I will endeavour to continue to build on these partnerships.

The importance of partnerships is evident each March, when PMC hosts the Annual Canadian Minor Use Pesticides Priority Setting Workshop. This year PMC also hosted the First Biopesticides Selection Workshop for the PRRP.

At both of these meetings, valuable input from stakeholders resulted in selecting 37 new minor use and eight biopesticides grower-selected projects. On the submission side, in 2009-10, PMC made 74 submissions to PMRA that included 28 submissions from the backlog for minor use. The average annual submission rate has been around 40. The PRRP submitted first time regulatory packages for three biopesticides to PMRA and delivered five mature risk reduction strategies to the growers addressing serious pest management issues. It is fulfilling to see a project progress from grower-selection to regulatory submission and registration, and then made available for use by growers.

Although we are making progress in closing the availability gap for new and existing technologies, improving new access continues to be our main thrust. Our focus is not what is just ahead, but how the PMC can evolve to be an even better partner in service to growers -- a goal I know is shared by both our PMC team and other participants in PMC's activities.

As I reflect over the past year, I would like to take this opportunity to thank you, the growers, the PMC team here in Ottawa and at the AAFC Test Sites across Canada, my colleagues at PMRA and IR-4 Project, the Provincial Minor Use Co-ordinators and the registrants, for the goodwill and support and for assisting me in our endeavors over the past year. I must say, wow, what a ride it has been!

Until next time…..

Early photo of an insecticide application at the Horticulture Research Institute of Ontario (Vineland)

# 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 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.


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