

**ONTARIO PEST MANAGEMENT
RESEARCH & SERVICES COMMITTEE**

2003 ANNUAL REPORT

TO

**ONTARIO AGRICULTURAL SERVICES
COORDINATING COMMITTEE**

February, 2004

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Executive Summary

The organizing committee of the Ontario Crop Protection Meeting made a strategic change in the focus of the annual meeting. As the numbers of pest management research projects funded through the Ontario Ministry of Agriculture and Food's (OMAF) Competitive Research Programs are on the decline, the organizing committee decided to change the focus of the meeting to general pest management from crop protection. This allowed the committee to open invitations to other research establishments (not involved with crop protection) and attract a broader scope of speakers as noted by the keynote speakers. As well, for the first time awards were presented to the best oral and poster presentations made by students.

The inaugural Ontario Pest Management Conference was held November 6, 2003, in conjunction with the CropLife Canada, Ontario Branch. There were 17 oral presentations, including keynote addresses by Mr. Ken Marchant, Canadian Food Inspection Agency, "The Emerald Ash Borer in Ontario", Dr. Andre Leveaque, Agriculture and Agri-Food Canada, "Bioterrorism, Homeland Security and Canadian Agriculture" and Dr. Robbin Lindsay, Health Canada, "West Nile Virus in Canada". There were two industry presentations on new pest control products, namely, CALLISTO and BOSCALID and eight poster presentations.

The Ontario Pest Management Research & Services Committee (OPMRSC) met on December 11, 2003 at the Ontario Government Building, 1 Stone Rd. W., Guelph, Ontario to consider cross commodity pest management issues. Issues identified by the technical working groups were considered along with those forwarded from the Ontario Horticultural Crops Research and Services Committee, the Ontario Field Crops Research and Services Committee and the Ontario Weed Committee.

Several issues were identified and discussed, including the increased incidence of alien species of pests and diseases and the continued use of pests and diseases as non-tariff trade barriers. The need for improved access to low risk, environmentally friendly crop protection materials, including biological and biorational materials, continue to affect the industry at all levels. Concern was expressed from the greenhouse sector regarding the potential negative impacts of registration requirements of biocontrol agents. The delivery of IPM services is still a concern, especially in areas of the province where there is no IPM consultant available. While Agriculture and Agri-Food Canada (AAFC) and the Pest Management and Regulatory Agency (PMRA) continue their activities related to the development of reduced risk strategies, these can only be achievable if there is an adequate IPM infrastructure in place. Human resource issues in the research and technology transfer communities continue to concern the committee.

Five recommendations were formulated from the reports and discussions. Lack of a strategy for development, implementation and particularly delivery of IPM programs and reduced risk strategies for Ontario are the focus of two recommendations. One recommendation addresses the need for a compensation package to offset losses due to alien species. Another focused on dissatisfaction with laboratory testing. The last focuses on the impacts of forcing registration of biocontrol agents and pheromone based monitoring devices.

Mandate

The mandate of the OPMRSC is to review and consider pest management and crop protection issues that may affect several different commodities within Ontario plant agriculture. The committee then identifies issues and formulates recommendations to address deficiencies and needs within the system. A second activity is the co-ordination of the Ontario Pest Management Conference, where industry representatives and researchers can share information on pest management issues.

The committee also accepts the reports of the Ontario Horticultural Crops Research and Services Committee, the Field Crops Research and Services Committee and the Technical Working Groups that review and update the OMAF crop production publications. These are:

- The Ontario Weed Committee
- Technical Working Groups which formerly reported to the Ontario Crop Protection Committee:
 - Field Crops
 - Fruit
 - Greenhouse Vegetables
 - Greenhouse Floriculture
 - Nursery, Ornamentals and Turf
 - Ginseng
 - Vegetables

Committee Activities

The organizing committee of the Ontario Crop Protection Meeting made a strategic change in the focus of the annual meeting. As the numbers of pest management research projects funded through the Ontario Ministry of Agriculture and Food's (OMAF) Competitive Research Programs are on the decline, the organizing committee decided to change the focus of the meeting to general pest management from crop protection. This allowed the committee to open invitations to other research establishments (not involved with crop protection) and attract a broader scope of speakers as noted by the keynote speakers. As well, for the first time awards were presented to the best oral and poster presentations made by students.

The inaugural Ontario Pest Management Conference was held on Thursday November 6, 2003, at the Victoria East Golf Club, Guelph Ont., in conjunction with the CropLife Canada, Ontario Branch. There were 17 oral presentations, including keynote addresses by Mr. Ken Marchant, Canadian Food Inspection Agency, "The Emerald Ash Borer in Ontario", Dr. Andre Leveaque, Agriculture and Agri-Food Canada, "Bioterrorism, Homeland Security and Canadian Agriculture" and Dr. Robbin Lindsay, Health Canada, "West Nile Virus in Canada". There were two industry presentations on new pest control products, namely, CALLISTO and BOSCALID and eight poster presentations.

The annual meeting of the OPMRSC was held at the Ontario Government Building, Guelph, Ontario on December 11, 2003. The committee accepted the reports of the Technical Working Groups representing Fruit, Ginseng, Nursery, Ornamentals and Turf, Greenhouse Vegetables, Greenhouse Floriculture, and Vegetables, and the Minor Use Update. The committee also reviewed the research priorities and recommendations forwarded to the OPMRSC from the Ontario Field Crops Research and Services Committee (including Tobacco) and the Ontario Horticultural Crops Research and Services Committee. The committee also reviewed the responses to last years recommendations which are highlighted in the next section. It should be noted that this year, responses were received from all recommendations.

The OPMRSC also developed 5 recommendations in response to the current issues before the committee. One specific are of concern did not result in a recommendation. It has been forwarded to Agricultural Economics and Business Research and Services Committee for their consideration. The issue is the need for economic impact studies on major pest problems such as invasive species etc. and coupled with that is the impact of not staffing specific positions that would assist in addressing these pest situations.

Finally, the committee reviewed its membership with the following additions/changes: John O'Sullivan to be added, Gary Whitfield to be the only AAFC member and due to retirements there needs to be another representative from University of Guelph,

Laboratory Services.

Responses to 2002 Recommendation

OPMRSC Recommendation #1.

Target Agencies:

Pest Management Regulatory Agency

Issue: Improved Access to Crop Protection Materials, including Low-Risk, IPM Compatible Products and Ensure New Minor Use Initiatives are Implemented Efficiently and Effectively.

Recommendation:

The committee recommends the PMRA develop a system of special exemptions for least toxic products (similar to that of the Environmental Protection Agency) which would increase the availability of IPM compatible products. Further, the committee recommends that the PMRA reconsider its movement toward registration of biocontrols.

Response: Richard Aucoin, Acting Chief Registrar, PMRA

The Pest Management Regulatory Agency (PMRA) recognized the need to encourage registration of new reduced-risk pesticides and acted upon a government commitment to pursue harmonization as one of the key means of achieving efficiencies and facilitating access to new lower risk technology. It also understood the need for Canadian growers to have access to the new technologies at the same time as their U.S. counterparts. These were the primary reasons that Canada, the U.S., and Mexico focussed first on implementing programs for reduced-risk products through the NAFTA Technical Working Group (TWG). Significant progress has been made in harmonizing the registration activities, and the following programs relevant to reduced-risk pesticides have been introduced:

- Joint Review Program for Reduced-Risk Chemicals, 1996
The benefit of having joint reviews is that the product is available to growers on both sides of the border at the same time. To encourage registrants to use this program, the PMRA reduced its review time from 18 months to 12 months for reduced-risk chemicals with one active ingredient and one or two end-use products.
- Joint Review Program for Pheromones and Microbials, 1997
To encourage registrants to use this program, the PMRA reduced its review time from 18 months to 12 months for microbials and 6 months for pheromones.
- Joint Review Program for Minor-Use (MU) Pesticides

A pilot MU joint review has recently been completed and resulted in the simultaneous registration in the U.S. and Canada of fenhexamid on crop Group 13 A (caneberries). Procedures on how to use this program are now being finalized under the auspices of the NAFTA TWG. In the meantime the U.S. EPA and the PMRA are ready to entertain requests for other pilot MU joint reviews. This program will be an important way to expedite registration of reduced-risk pesticides,

- PMRA User-Requested Minor-Use Program (URMUR), 1999
This program is for registration of new chemical and biopesticide active ingredients and products that are recently registered in another Organization for Economic Co-operation and Development (OECD), member country and that has small uses in Canada. Again, to encourage registrants to use this program, the PMRA reduced its review time from 18 months to 12 months. This program can be used for reduced risk pesticides.
- PMRA initiative for Reduced-Risk Products, May 31, 2002
Since a number of reduced-risk products were submitted to the U.S. EPA before the 1996 Joint Review Program was implemented, there are reduced-risk products available in the U.S. that the registrants have not yet submitted for registration in Canada. To encourage these registrants to submit their products in Canada, the PMRA gives priority to products that meet the reduced-risk criteria that are used by EPA in their Reduced-Risk Initiative. Both the PMRA and the U.S. EPA continue to urge applicants to use the Joint Review Programs for Reduced-Risk Pesticides since they bring products to both Canada and the U.S. at the same time.

Since these programs were introduced, more than 50 percent of new products submitted to Canada are reviewed jointly or through workshare with the U.S. Forty (40) percent are reduced-risk chemical pesticides according to the U.S. EPA criteria.

In conclusion, PMRA has developed programs to encourage registrants to submit reduced risk products for registration in Canada based on the US approach.

With regard to the recommendation related to Invertebrate Biological Control Agents, IBCA's used as pest control agents fall under the jurisdiction of the Pest Control Products Act (PCPA), however, the PMRA does not currently evaluate these organisms under the PCPA. Agriculture and Agri-food Canada (AAFC), the Canadian Food Inspection Agency (CFIA) and the PMRA are working together to review IBCAs for importation and release primarily through the Plant Protection Act (PPA). CFIA conducts a risk assessment of IBCAs. CFIA's legal authority restricts them to conducting assessments that relate to the PPA (ie: plant pests). Other pest management organisms would not properly fall under their mandate, but CFIA is currently reviewing them.

CFIA, AAFC, PMRA, Environment Canada, and Natural Resources Canada have been working together to consider appropriate next steps with regard to the regulation of IBCA's in the future. No changes to the regulation of these products have been implemented, and stakeholders will be consulted before any changes in regulatory approach are made.

With respect to registration activity, there has been a significant increase in the registrations for minor uses. In total, 743 minor uses have been registered, 320 specifically for agricultural crops, in 2002-03. The remaining minor use registrations were mainly ornamental plants.

OPMRSC Recommendation #2.

Target Agencies:

Agriculture and Agri-Food Canada
Pest Management Regulatory Agency

Issue: Timely, Efficient Implementation of the New Federal Risk Reduction Strategies.

Recommendation:

The committee recommends that both AAFC and PMRA take immediate actions to ensure efficient and effective implementation of the risk reduction strategies and further, the committee recommends increased partnerships between AAFC, PMRA, University Researchers, OMAF, growers and private consultants to provide assistance towards implementation.

Response: Mary Komarynsky, Director General, Farm Financial Program Branch, AAFC
Richard Aucoin, Acting Chief Registrar, PMRA

In response to the Government's commitment to improve access to pest control products, AAFC has established a Pest Management Centre, which will deliver two inter-related programs: the Pesticide Risk Reduction program and the Minor Use program. Both of these programs involve on the joint participation of PMRA.

Under the Pesticide Risk Reduction program, AAFC and PMRA have established a formal working group to undertake the following activities:

1. Prepare crop profiles. Using CARD funding in 2002-03, AAFC supported work by the Canadian Horticultural Council (CHC) and the Canadian Federation of Agriculture (CFA) to prepare approximately 40 draft national crop profiles. Beginning this fall (October), we expect to engage the services of consultants to finalize these profiles through further consultations and data gathering with grower

groups. CHC will contribute by coordinating consultations with its member organizations and reviewing finalized crop profiles for consistency, completeness and accuracy.

2. Identify priority crops. AAFC and PMRA are establishing a process to identify priority crops for the development of pesticide risk reduction strategies. Criteria to rank commodities include: pest complex status, pesticide risk, need for replacement products, availability of integrated pest management (IPM) tools, crop acreage and value, and grower interest.
3. Develop risk reduction strategies. Based on the identification of priority crops, AAFC and PMRA will work with grower groups to develop risk reduction strategies. Work has previously been initiated on crops including cranberries, apples, and canola, and is currently underway on potatoes and dry beans. We will begin the development of risk reduction strategies for up to six additional priority crops this fall.
4. Implement strategies through research, education, and regulation. AAFC will contribute to the implementation of crop-specific risk reduction strategies mainly through research and education. In July 2003, AAFC researchers submitted proposals for approximately 40 projects to develop alternative pest management tools and beneficial management practices, and to support the introduction of minor use pesticides that pose a reduced risk to the environment. Activities to foster adoption of these tools and practices by growers will be integrated with the delivery of federal-provincial programs under the environment chapter of the Agricultural Policy Framework.

With regard to the Minor Use program, partnerships with various stakeholders have been and will continue to be a key component of the new program. AAFC has been working closely with PMRA, U.S. IR-4 program staff, provincial minor use coordinators, pesticide registrants and grower groups. As well, private sector consultants have played an active role in undertaking contracted field trials in 2003. Together with AAFC field sites, more than 400 field trials were initiated this year across Canada. Beginning this fall, crop samples will be analyzed to determine pesticide residue levels. Following receipt of this data along with the field trial results, data will be synthesized into regulatory submissions for new minor uses and forwarded to the PMRA for registration decisions.

Planning is well underway for 2004 projects following the successful national minor use pesticide workshop hosted by AAFC in March 2003. This workshop provided a wide range of interested stakeholder groups with the opportunity to reach consensus on the key pest priorities for growers across Canada. Also, AAFC is finalizing plans for potential joint projects with the US IR-4 program. Again, the identification of these priority projects is being done in conjunction with provincial minor use coordinators and respects

the priorities from the March workshop.

For both the Risk Reduction and Minor Use programs we are still in the process of securing personnel and setting up AAFC's Pest Management Centre which will deliver these new programs.

OPMRSC Recommendation #3.

Target Agencies:

Agriculture and Agri-Food Canada

Issue: Human Resources for Pest Management Research in Ontario.

Recommendation:

The committee recommends that AAFC take a more proactive role in explaining exactly how their new team approach to pest management research will address Ontario's concerns/needs.

Response: Gary Whitfield, Science Director, Environmental Health, IPM, AAFC
Science activities in AAFC have recently been re-aligned to deliver on the elements of the Agriculture Policy Framework (APF). Theme 160-IPM has been established within the Environmental Health National Program to develop a horizontal management approach to science in the crop protection area. To date, approximately 100 scientists and over 300 staff are conducting research in the area of pest biology, forecasting and control. This critical mass of scientific expertise coupled with specialized facility support allows for a comprehensive, national approach while building synergy and reducing any redundancy in our work. Eight national studies now describe the work of the team and expected deliverables for the agricultural sector. This body of scientists together with scientists in other related Themes (crop production and bioproducts and bioprocesses) are providing the cornerstones of knowledge for the new APF program on Reduced-Risk Pesticides.

AAFC recognizes and commends the recommendation of OPMRSC. Over the next year, as the APF is finalized with the provinces and territories, and as the department completes its transformation to a more horizontal management structure, the science strategy for the department will be clearly discussed and communicated with the sector and its partners.

OPMRSC Recommendation #4.

Target Agencies:

Ontario Ministry of Agriculture and Food

Issue: Development of a New Program for Research and Development of Pest Management Programs in Ontario

Recommendation:

The OPMRSC recommends that OMAF take the required steps to build on the successes of the Food System 2002 Program by developing a new long term (10 years) pest management research and development program with adequate funding (\$1 million/yr).

Response: Maurice Bitran, Director, Innovation, Risk Management Branch, OMAF
The Ontario Ministry of Agriculture and Food (OMAF) recognizes the success that the Food Systems 2002 program has had in reducing pesticide use in Ontario. As you know, the Innovation and Risk Management Branch of the Ministry is providing funds to support a research project that will measure the level of pesticide use in 2002 and provide an evaluation of the changes in pesticide risk on agricultural crops in Ontario. This effort should provide further evidence of the success of the Food Systems program.

Even though Food Systems 2002 is now complete, the Ministry continues to provide significant funding for pest management research through the Plant Program of the OMAF - University of Guelph Agreement. 16 projects are ongoing with total annual funding of over \$2.8 million. In addition, 12 pest management projects are currently in progress under the New Directions program with annual funding of over \$200,000.

In terms of future research programs, the Ministry continues to look to the Ontario Agricultural Services Co-ordinating Committee (OASCC) and the Agricultural Research Institute of Ontario (ARIO) for advice and direction. The recommendations of OPMRSC form an important part of that advice.

For your information, ARIO and the Innovation and Risk Management Branch are working on an Ontario Agri-Food Research and Development Strategy that will provide long-term recommendations for future OMAF-funded research. At the same time, the Agriculture Division of OMAF will be leading discussions around a long term Integrated Pest Management (IPM) strategy for the province. I encourage the members of OPMRSC to play a proactive role in both of these processes over the upcoming months to ensure that your concerns are fully considered.

OPMRSC Recommendation #5

Target Agencies:

Ontario Ministry of Agriculture and Food

Issue: Development of a Co-ordinated Approach to Increasing Capacity, Expertise and Implementation of Pest Management Programs in Ontario.

Recommendation:

The committee recommends that OMAF take the lead in bringing interest groups together to develop a provincial strategy to address the need for increased capacity, expertise and implementation of IPM programs across Ontario.

Response: John Finlay, Manager Horticulture Crops, Crop Technology Branch, OMAF

During the past year, OMAF released the Food Systems 2002 report. This report indicated concerns regarding the research, development and delivery of IPM programs. Specifically around delivery of IPM services, Crop Technology called a meeting of individuals providing consulting. The 30 people attending asked for more training at a higher level and for OMAF to aggressively push the services of private consultants and stay out of the way by not providing any one on one consultation.

A program was presented on integrated pest management to 60 consultants and was favourably received. Further training is planned for the fall/winter of 2003/2004.

The number of qualified and experienced people is variable between commodities. During the 2003 season several consultants did not practice because there were not sufficient growers willing to pay for the services. In some commodities there is more expertise covering more acres than ever before. (where growers are willing to pay for the expertise) OMAF is meeting in November with stakeholders to coordinate development of a strategy to overcome the present barriers. The Food Systems 2002 report recommended a Pest Management Center of excellence for Ontario and this will be considered.

ISSUES

Numbers of alien species of insects and diseases continue to rise in Ontario. Introductions of these pests result in economic loss to growers in several ways: rarely, if ever, is there a control measure available to mitigate losses; if an emergency registration is possible, they are not usually IPM compatible, forcing the grower to change production

practices over the short term; eradication practices result in crop loss often without compensation and presence of these pests result in non-tariff trade barriers and consequently, loss of markets. Last year, the committee reported on Swede Midge, Pea Leafminer and Emerald Ash Borer. New pests include Asian Long-horned Beetle and *Ralstonia solanacearum*. OMAF specialists, researchers and the Canadian Food Inspection Agency (CFIA) staff are working closely to develop strategies to eradicate these pests and mitigate losses.

The U.S. Biosecurity Act has heightened security concerns in the U.S.A. increasing delays at border crossings and development of programs such as Partners in Protection (PIPs) and Customs-Trade Partners Against Terrorism (C-T PAT) requiring more paperwork and security measures for growers and wholesalers wishing to export product to the U.S.A. Among other commodities affected are commercially produced biocontrol agents (BCAs), which as of January 1, 2004 can only enter the US through a limited number of ports of entry, all of which are airports. Release times may add 2-3 days to the shipping time for these products, unacceptable for a perishable commodity. Currently, significant numbers of BCAs are hand carried across the border at numerous entry points by Canadian producers and by European producers who ship into Canada and repack for US customers. There is real concern in the biocontrol industry about the loss of U.S. markets and the subsequent impact on the viability of Canadian producers, and those shipping into Canada.

While domestically grown cut flowers are not a major export into the U.S.A., there is an issue with the import of cut flowers from South America into Canada and then the re-export of them as mixed flower bouquets into the U.S.A. The exporters are required to label the product with “country-of-origin” information. Many of the South American “countries-of-origin” have some serious quarantine pest problems of importance to the U.S.A., so that the detection of any pests results in unacceptable delays or rejection of the shipment. The industry is currently working on a Cutflower Export Certification Program.

The pesticide issue continues to plague the turf industry in Ontario. To date, six municipalities have pesticide bans of one form or another. They are all different, which makes it difficult for lawn care operators and golf courses to know where they stand. The Urban Pest Management Council of CropLife Canada has filed suit against the City of

Toronto regarding their pesticide ban. There was a hearing on Nov. 10, 2003 and the ruling was against CropLife Canada and in favour of the City of Toronto. This ruling will probably fuel the fire for many other municipalities that were waiting for this ruling before they forged ahead. This issue is not restricted to urban pest management. With the expansion of municipal limits, many farms are now within these limits and could be affected by these municipal bans.

There is increasing concern regarding the availability of laboratory diagnostic services. Concerns surround expertise of diagnosticians, the accuracy and timeliness of results and overall availability. This has resulted in increased use of foreign laboratories. While this may address the immediate need, there is a concern that a foreign country may become aware of issues such as quarantinable pests before Canadian officials.

The continuing evolution of field diagnostics, extension services and delivery of Integrated Pest Management (IPM) programs in Ontario continues to be an issue for growers. Many commodities do not have pest management programs and there is continued demand for training of scouts, agri-business and consultants. OMAF continues to play a pivotal role in the development of programs and training, however, increased capacity and expertise is needed, particularly now that Agricultural Integrated Management Services (AIMS) is no longer in business. It is more important now than ever to establish a co-ordinated approach throughout the agriculture practitioner continuum in Ontario.

Business activities within the crop protection industry have had a direct impact on the numbers of pest control products being marketed. As companies merge, competing products are removed from the market resulting in a smaller tool kit available to producers. Advances in biotechnology, while beneficial in reducing the needs for some pesticide sprays, has also resulted in the reduction of new product development. This is especially felt in the herbicide area. Increased use of “round-up ready” technology has virtually eliminated the need for other herbicides in a few large acreage crops thus reducing or eliminating the development of new herbicides.

Maintaining research teams and succession planning for research programs continues to be a concern of the industry. There is an important synergy that results from having a research team in a single location. As a significant proportion of the research community prepares for retirement, plans to maintain research programs and effective teams should be developed by research managers in consultation with the industry.

The need for improved accessibility of Ontario growers to crop protection materials, including IPM friendly materials and biological and biorational products, was identified

by virtually every commodity group. This includes access to products used by growers of

similar crops in the United States. The committee commends AAFC in their increased minor use development work and looks forward to benefiting from the fruits of their labour.

Potentially increased regulation of biological agents in a manner similar to chemical pesticides in Canada may impose undue financial burden on biological control companies making it prohibitive for them to develop new biocontrols, or even to continue

use of existing ones. Such a situation could render use of biocontrols very expensive and uneconomical, thereby possibly reducing or even preventing continued use of biological control by growers. The undesirable consequence of this situation is a reversal

in trends away from biocontrols towards increased reliance on pesticides.

RECOMMENDATIONS ARISING FROM GAPS/BARRIERS, 2003

OPMRSC Recommendation #1.

Target Agencies:

Ontario Ministry of Agriculture and Food, Agriculture and Rural Division

Issue: Lack of Development, Implementation and Delivery of IPM Programs in Ontario.

Recommendation:

The committee recommends that OMAF address the barriers to IPM development, implementation and delivery in Ontario. It is further recommended that OMAF implement the recommendations of the Food Systems 2002 Report as the foundation in addressing this issue.

Background:

Many of the crop protection products currently used by horticultural producers have a wide window of application, are broad spectrum, and provide nearly 100% control within hours of application.

Many new reduced risk crop protection products have one or more of the following characteristics:

- need to be applied at early growth stages of the pest
- target a narrow spectrum of pest species
- do not provide immediate kill

- do not provide close to 100% kill

In order for products with these characteristics to be used effectively, users require a higher level of knowledge of the exact pest species attacking the crop, the biology of the pest, and how the product will affect the pest (speed of control, % control). They also require intensive scouting, sufficient to detect the pest at an early growth stage, accurately identify the pest, and determine the level of infestation. For products that do not provide sufficient speed of control or levels of control of the pest, other IPM strategies must be used in combination in order to protect yield and quality (marketability).

Improper use of these crop protection products may also lead to the development of pest resistance to the product, a consequence of importance to the wider crop production industry.

Further, integrated pest management is an integral part of agricultural risk management, an essential part of a responsible agricultural industry.

Presently in Ontario, IPM consulting and scouting services are not available to growers in some areas and some commodities. Where acreage of a given commodity is scattered, rather than concentrated, travel time and expense make it uneconomical for private business to deliver service. In other cases, the time and expense required to adequately scout a commodity make the service unaffordable to the producer due to the economic realities of the commodity. In many cases, private businesses are unable to find and retain well-trained, knowledgeable scouting staff. This is due to the seasonal nature of the work and the lack of people with these skills in the labour pool. An IPM consulting service that has to spend significant resources training staff, only to retain them for one or two seasons, is unsustainable.

A further background issue is that with the loss of older crop protection products and the registration of new products with the characteristics described above; there will be a requirement for a significant research effort into enhanced IPM systems for many crop/pest complexes. This will be crucial in commodities where new crop protection products do not provide the level of control necessary to maintain the viability of the industry due to losses in crop yield and/or quality (marketability). IPM systems research will be needed to develop effective combinations of IPM strategies.

The Food Systems 2002 Final Report addresses many of these issues, and provides additional background on the challenges ahead. The Food Systems 2002 Review Committee's recommendations are as follows:

- "It is recommended that a Centre of Excellence for IPM be created to coordinate the diversity of IPM into a central focus and enhance the position of Ontario as a world leader in IPM.

- It is recommended that government funding of pest management research continue for applied, practical research based on partnerships between governments, universities, consultants and industry groups.
- It is recommended that development of IPM programs should continue as a key component of the IPM continuum:
- It is recommended that delivery of IPM programs should be available to all Ontario growers:
- It is recommended that IPM be used to promote Ontario products as having been grown based on safe and responsible choices for consumer, grower and the environment.”

OPMRSC Recommendation # 2.

Target Agencies:

Canadian Food Inspection Agency, Vice President, Programs

Issue: Lack of a Compensation Program to Address Direct and Indirect Losses Due to Quarantine issues/actions.

Recommendation:

The Committee recommends that the Canadian Food Inspection Agency develop a financial compensation program, which is triggered upon the discovery of a quarantine pest which requires control action on the part of the producer.

Background:

Over the past few years there has been a significant increase in the numbers of economically significant quarantine pests found in Ontario e.g. Swede Midge, *Ralstonia solanacearum* Race 3 (Biovar 2). Each case has resulted in some level of economic hardship to growers from loss of crop due to pest damage, destruction of crop (by order of the CFIA) or loss of market from resulting trade restrictions. The Committee understands the importance of taking quick and decisive action to eradicate these pests. However, the lack of a compensation program associated with these actions makes growers reluctant to take required actions and the resulting political wrangling to get compensation reduces the chances for a quick action, allowing for continued spread of these pests. The existence of a defined compensation program would provide growers with the incentive to self identify (and not hide potential problems) and take quick action to eradicate pests.

OPMRSC Recommendation #3.

Target Agencies:

Laboratory Services Division, University of Guelph

Ontario Ministry of Agriculture and Food, Innovation and Risk Management Branch

Issue: General Level of Dissatisfaction with Pest Diagnostic Services and Support.

Recommendation:

The Committee recommends that the Laboratory Services Division (LSD) work with the OPMRSC and strike a working group to identify and study specific areas of concern to determine what actions, if any, can be taken to address this situation.

Background:

Several technical working groups identified a general dissatisfaction with the level of service provided by the (LSD) and the negative effects this has on IPM and Homeland Security. The Committee feels that LSD is focusing more on routine, high volume testing

in order to maintain cashflow, resulting in their inability to properly diagnose unusual pests and to perform pest validation in a timely manner. Timely validation is critical to the support of IPM programs and the decision process for mitigation strategies. Of particular concern is the inability to identify unusual pests. This has forced growers and consultants to send samples to laboratories outside the country e.g. USA and Holland for identification. This may result in a foreign country becoming aware of potential quarantine situations in Canada thus risking quarantine/border/trade actions before Canadian officials can assess the situation and prepare corrective actions and responses to our trading partners.

OPMRSC Recommendation #4.

Target Agencies:

Pest Management and Regulatory Agency, Chief Registrar

Issue: Registration of Biocontrol Agents, and Pheromone Monitoring Devices and Growth Regulators.

Recommendation:

The committee recommends that PMRA reconsider movement toward the registration of biocontrol agents and pheromone monitoring devices. Further, the committee recommends that the PMRA ensure that growth regulator registration requests be reviewed by personnel with the appropriate expertise.

Background:

The potential increase in regulation of biological agents in a manner similar to chemical pesticides in Canada may impose undue financial burden on biological control companies making it prohibitive for them to develop new biocontrols, or even to continue use of existing ones. Such a situation could render the use of biocontrols very expensive and

uneconomical, thereby possibly reducing use of, or even preventing, continued use of biological control by growers. The undesirable consequence of this situation is a reversal in trends away from biocontrols towards increased reliance on pesticides. Currently, these products are thoroughly reviewed by the Canadian Food Inspection Agency (CFIA) before use and a further "registration" process would be duplicative. Several biocontrol agents are currently being used successfully by greenhouse growers allowing significant reductions in pesticide use.

Pheromone monitoring devices are critical tools in the decision making process of our IPM programs. The cost of registering these devices may force companies to reconsider Canadian sales and move out of our markets, eliminating the availability of these tools.

If the PMRA is serious about the development of risk reduction strategies and IPM programs as a means of reducing pesticide use, it is critical they reconsider this potentially devastating policy.

With regard to the registration of growth regulators, it is the committee's understanding that these are reviewed within the herbicide evaluation section. These products are not herbicides and are quite unique unto themselves. For this reason, the PMRA should re-evaluate how these products are reviewed and attain the appropriate expertise to complete such reviews.

OPMRSC Recommendation #5.

Target Agencies:

Agriculture and Agri-Food Canada

Issue: Concerns Regarding the Research Being Conducted Relative to Priorities as set by the Risk Reduction Strategy

Recommendation:

The Committee recommends that AAFC communicate which research proposals were selected in 2003 and the criteria used to determine these successful projects.

Background:

In the fall of 2002, AAFC commenced work on its Risk Reduction Program by initiating the development of crop profiles. Approximately 40 draft profiles were completed. This fall AAFC engaged the services of consultants to finalize these profiles through further consultations and data gathering with grower groups to ensure consistency, completeness and accuracy. AAFC will then identify priority crops for the development of pesticide

risk reduction strategies. Criteria to rank commodities include: pest complex status, pesticide risk, need for replacement products, availability of integrated pest management (IPM) tools, crop acreage and value, and grower interest. Finally, AAFC will contribute to the implementation of crop-specific risk reduction strategies mainly through research and education. In July 2003, AAFC researchers submitted proposals for approximately 40 projects to develop alternative pest management tools and beneficial management practices, and to support the introduction of minor use pesticides that pose a reduced risk to the environment.

While the OPMRSC applauds this initiative, it has several concerns regarding the sequencing of these initiatives and their subsequent implementation. Specifically, if the risk reduction program predicates itself on the existence of comprehensive, accurate crop profile then the first step is flawed. Unfortunately the crop profiles from last year had to be completely redone this fall because the templates underwent considerable revision requiring far more comprehensive data. Coupled with this, the restrictive timelines have made it impossible to provide complete and accurate data. Therefore any further decisions based upon this data e.g. priority setting will be flawed. While this has been noted to AAFC, there have not been any extensions granted. Subsequently, if the crop profiles were not complete last summer (July), the assumption has to be made that the crop priorities were also not set. If this is accurate, what criteria did AAFC use to determine which research proposals would be funded?

Further, the Committee feels it important to be made aware of the successful projects so that the research is not duplicated here in Ontario and where possible, collaborate or build upon these projects.

Minor Use Program - Update for Ontario Commodity subcommittees and OPMRSC

Major progress in establishing the AAFC Pest Management Center and conducting field trials in 2003 was noted. Additionally a large number of new URMULEs and Joint IR-4 projects were agreed upon for the 2004-growing season. Additionally the new AAFC minor use website was launched in Jan. 2004 and is found at <http://www.agr.gc.ca/prmup>

At PMRA a large number of new personnel and some improvements to submission tracking and reporting were implemented.

OMAF coordinated, facilitated and processed 13 emergency use submissions for Ontario crops. All 13 submissions were approved by PMRA resulting in saving over \$576 M in potential crop losses.

In 2003, 42 Minor use label expansion projects were approved. Over 50% of the approved submissions were sponsored by Ontario. Each of these were reviewed by the provincial minor use coordinator and carefully followed throughout the PMRA review process. Numerous negotiations with PMRA and in some cases, registrants were necessary to secure many of these registrations for Ontario growers.

At present, there are approximately 260 active minor use label expansion projects underway. Numerous rationale documents, clarification letters, data requests, label requests and conference calls were held throughout the year to address project specific issues.

Additionally, OMAF has provided support and guidance to several company submissions including Category A submissions, joint review submissions, reduced risk submissions and URMURs. Examples include Cabrio and Headline fungicides, Tanos fungicide for potatoes, Quadris fungicide for potatoes, Lance fungicide, Intrepid insecticide, Distance and Esteem insecticides.

OMAF assisted financially towards two residue projects being done collaboratively between Ontario and Quebec: Lorsban seed treatment for beans and Apron seed treatment for leafy vegetables. Total project costs for these two exceeded \$60,000.00

Approximately 9 national conference calls were held in 2003 with either or both PMRA and AAFC to address specific minor use issues and concerns and general program operations.

The 2003 Minor use PMRA field tour was held in Quebec in July and was attended by 40 PMRA evaluator staff.

The OMAF Minor use website was updated significantly in 2003 and lists all Ontario minor use priorities, recent registrations and all active minor use projects.

Issues:

Despite the minor use initiative, provinces and growers remain highly frustrated with the apparent lack of progress at PMRA vis-à-vis access to an appropriate, competitive IPM toolkit.

The provinces continue to have serious concerns about the process for obtaining data for crop profiles while at the same time recognizing their importance in advancing minor use decisions.

Access to 1-MCP was a major issue for apple growers in 2003 and until major political

pressure was applied, very little positive action was seen.

Emergency use submissions clearly reflected the lack of management strategies for some crops and pests including diseases on ginseng, diseases of greenhouse vegetables, Fusarium of wheat, pea leafminer of celery, soybean aphids, resistant mites in beehives and diseases of mushrooms.

Impacts of re-evaluation decision for azinphos-methyl and chlorpyrifos have yet to be fully realized. Growers and provinces responded to PMRA in 2003 and have yet to receive a response.

The impact of emerald ash borer and especially Asian long-horned beetle on the agricultural sector was identified as a major concern that we will face in 2004 and 2005.

If OMAF had not remained vigilant and persistent the registration of Surround crop protectant for pome fruit would have been lost due to a label wording dispute between PMRA and the US registrant.

PMRA continues to deflect criticism from the Environment Commissioner of the Federal Auditor General's office. The report will not likely help improve the registration situation for Ontario's minor crop producers.

Timelines for provincial minor use submissions (outside the AAFC system) remains as a big issue since no formal agreement with PMRA currently exists.

FRUIT TECHNICAL WORKING GROUP

Pest Management Issues and Recommendations

Enhancement of Research Capacity for Crop Protection in Ontario

The recent federal commitments to the minor use program and pesticide registration process are good news. However positive actions are still required to address critical issues facing the industry.

There is a continuing need for enhancement of crop protection research capacity to address important insect, mite, nematode, weed and disease problems in fruit crops in Ontario.

Recommendations:

- We encourage research and extension personnel to continue to develop and refine viable and sustainable pest control strategies that are consistent with the objectives of IPM and risk reduction

- We strongly urge AAFC to fill the vacant population ecologist entomologist and vacant nematologist positions at the Vineland AAFC location as soon as possible.
- We urge further work to evaluate the “fit” of newer pesticide alternatives and reduced risk products
- We recommend additional research to demonstrate the “fit” of the older more traditional products including azinphosmethyl, carbaryl and fungicides such as iprodione and the EBDC’s
- We strongly recommend research to support minor use and harmonization of control products that are available to our U.S. counterparts
- We recommend that OMAF work with growers to raise the profile of IPM. Highlight the achievements of the IPM programs to the consumer and the message that Ontario fruit growers take very seriously the health and safety of the products they provide for consumers.
- We encourage PMRA to provide an opportunity for the fruit industry as a whole to comment on re-evaluations of pesticides before decisions are made, similar to the EPA’s National Registry.

Gaps of delivery and implementation of IPM programs in Ontario

Many of the crop protection products currently used by horticultural producers have a wide window of application, are broad spectrum, and provide nearly 100% control within hours of application.

Many new reduced risk crop protection products have one or more of the following characteristics:

- need to be applied at early growth stages of the pest
- target a narrow spectrum of pest species
- do not provide immediate kill
- do not provide close to 100% kill

In order for products with these characteristics to be used effectively, users require a higher level of knowledge of the exact pest species attacking the crop, the biology of the pest, and how the product will affect the pest (speed of control, % control). They also require intensive scouting, sufficient to detect the pest at an early growth stage, accurately identify the pest, and determine the level of infestation. For products that do not provide sufficient speed of control or levels of control of the pest, other IPM strategies must be used in combination in order to protect yield and quality (marketability).

Improper use of these crop protection products may also lead to the development of pest resistance to the product, a consequence of importance to the wider crop production industry.

Further, integrated pest management is an integral part of agricultural risk management, an essential part of a responsible agricultural industry.

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Further, integrated pest management is an integral part of agricultural risk management, an essential part of a responsible agricultural industry.

Presently in Ontario, IPM consulting and scouting services are not available to growers in some areas and some commodities. Where acreage of a given commodity is scattered, rather than concentrated, travel time and expense make it uneconomical for private business to deliver service. In other cases, the time and expense required to adequately scout a commodity make the service unaffordable to the producer due to the economic realities of the commodity. In many cases, private businesses are unable to find and retain well-trained, knowledgeable scouting staff. This is due to the seasonal nature of the work and the lack of people with these skills in the labour pool. An IPM consulting service that has to spend significant resources training staff, only to retain them for one or two seasons, is unsustainable.

A further background issue is that with the loss of older crop protection products and the registration of new products with the characteristics described above; there will be a requirement for a significant research effort into enhanced IPM systems for many crop/pest complexes. This will be crucial in commodities where new crop protection products do not provide the level of control necessary to maintain the viability of the industry due to losses in crop yield and/or quality (marketability). IPM systems research will be needed to develop effective combinations of IPM strategies.

Recommendation:

Whereas Integrated Pest Management (IPM) programs have been developed for many high value crops,

and new reduced risk products need more intensive pest monitoring and understanding of the pest complex and the activity of the product,

and IPM programs, which include resistance management strategies, help to prolong the effective life of pest control products

and IPM is an integral part of agricultural risk management,

and IPM programs have not been fully adopted or available to growers and processors

due to:

1. lack of economic viability for privately delivered IPM consulting/scouting services
2. lack of affordability of such services for growers
3. lack of availability of training opportunities and trained IPM consultants and scouts in some regions

therefore, there should be a commitment from OMAF to effectively address the barriers to IPM implementation and delivery in Ontario, including those identified above.

Human Resources for Pest Management Research, Development and Implementation of Fruit Crops

A common theme that has surfaced in our review of pest management research projects for the fruit crops is the need for a comprehensive research, development and implementation of IPM programs and pesticide resistance management strategies. While an ambitious goal, it is needed to meet the challenges of loss of pesticides, pest resistance, emerging pests and the public growing concern for safe food and a clean environment. This goal takes a team of people who will be able to do the work and work for the long-term goals of these sustainable projects.

- We strongly urge AAFC to fill the vacant population ecologist entomologist and vacant nematologist at the Vineland AAFC location as soon as possible in full time capacity. Also urge AAFC to clarify the roles and responsibilities of the plant pathologists stationed at Vineland as to fruit IPM research.
- Support a position at AAFC Vineland to continue the insecticide efficacy work in conjunction with industry consortium
- OMAF – Simcoe. The sprayer application specialist position (formerly at Simcoe) has been vacant for well over a year. This position is very important in providing education and training packages pertaining to sprayer application technologies. It is not only important to effectively support existing IPM programs but is integral in addressing food safety and environmental issues. Pesticide residue is main key component in food safety. Proper spray coverage and calibration reduces risks of high pesticide use and residues. There is an increasing urban encroachment on horticultural lands and the Pest Management Regulatory Agency is investigating further buffer setbacks. The proper use and innovation of sprayer application technologies is a key to reducing the risk of pesticide drift into the environment. A program lead person in sprayer application technology is essential

GINSENG TECHNICAL WORKING GROUP REPORT

EMERGING PEST MANAGEMENT ISSUES:

1. Slugs, grubs, and mice are increasing problems in ginseng plantings. These problems may be a consequence of reductions in shelterbelt areas and/or reductions in predator activity. There is a need for methods to manage these pests.
2. Lack of disease control in some gardens has raised the issue of emerging resistance to the fungicide Ridomil. Ridomil is one of 2 products used in tandem for the control of *Phytophthora* root rot. Ridomil resistance, if widespread, could lead to serious losses. The industry needs new chemistries for *Phytophthora cactorum* and *Pythium* spp. and a comprehensive survey to determine whether resistance is present. Effective seed treatments might help reduce introduction of pathogens into gardens.
3. Broadleaf weed herbicides are needed to combat increasing chickweed and other weed infestations.
4. Reduction of a North American seed supply may lead to the use of China as a source of seed for Ontario gardens. There is a possibility that diseases not found in Ontario may be imported on this seed. Market intelligence is needed to assess the phytosanitary threat.
5. Issues relating to pesticide residues are becoming of increasing importance to trade in all medicinal herbs. There is a lack of shared international standards and currently no agreement on what levels are acceptable.

PEST MANAGEMENT RESEARCH PRIORITIES:

Diseases:

- 1) *Cylindrocarpon*
- 2) *Rhizoctonia*
- 3) *Phytophthora*
- 4) Rusty root
- 5) *Pythium*
- 6) *Botrytis*
- 7) *Alternaria*

1. *Cylindrocarpon* root rot:
 - Continuation of the Agriculture and AgriFood Canada study on DNA soil extraction to provide growers with the means of identifying high risk fields before planting.
 - Screening products for efficacy against *Cylindrocarpon* under field conditions.
 - Identifying an appropriate seed treatment for control of *Cylindrocarpon* and *Rhizoctonia*
 - *Cylindrocarpon* root rot is appearing with increasing frequency in gardens. Some gardens have experienced losses in the range of 50% and occasionally as high as 90%. Research at Agriculture and Agri-Food Canada has identified *Cylindrocarpon* as the primary causal factor in the ginseng replant problem. It is essential that ginseng growers have access to a means of identifying at-risk fields before planting. Control issues associated with this disease have the single greatest impact on the

ginseng industry in Ontario. The lack of adequate control products for *Cylindrocarpon* remains a concern. The Delhi research farm (AAFC) has a germplasm collection; is disease resistance/tolerance present in this collection? Can it be exploited with respect to cultivar development?

2. Developing efficacy and residue data to support URMULE registration of products to control *Rhizoctonia solani*. Seed treatments might help reduce introduction of *R. solani*, *Cylindrocarpon* and other pathogens into new gardens.
3. Determination of *Phytophthora* resistance to current products and identification of new chemistries that can be efficiently used. This fungus can be explosive under the right circumstances
4. A comprehensive survey of the physiological causes of rusty root and a pictorial factsheet of symptoms.
5. Identification/determination of Ridomil resistance in *Pythium* populations in ginseng soils. Measurement of the impact of fumigant replacements and nutrients on the incidence of *Pythium* diseases.
6. Efficacy and residue trials to support registration of additional control products for *Botrytis*.

Weeds:

Broadleaf

1. Control of chickweed in gardens . Chickweed and other “early” weeds are increasing in ginseng gardens. More research is needed to identify useful broadleaf herbicides.

Insects / Rodents:

1. Grubs
2. Slugs
3. Mice

- bait and application timing, new products, label expansions

RECOMMENDATIONS:

Recommendation:

As the development of unique Canadian ginseng cultivars would provide the Canadian ginseng industry with competitive advantages in the global ginseng market, and may result in the development of pest-resistant cultivars, it is recommended that AAFC staff a ginseng germplasm research scientist position at the Delhi research farm.

Background:

Increasing competition from growers of *Panax quinquefolius* in China may place additional price pressure on the Canadian industry. Creation of *P. quinquefolius* cultivars with unique characteristics that appeal to either consumers (taste, root shape, ginsenoside

profiles) and/or growers (disease and drought resistance, increased yields, uniform seed height and seed set) would give our growers competitive advantages. The Delhi research farm of AAFC has a germplasm collection of about 600 accessions. These lines possess a range of characteristics from which superior lines can be selected and micropropagated using techniques being developed at AAFC-London. Given the current level of fungicide use in the ginseng industry, the deployment of disease-resistant cultivars would have positive environmental impacts and decrease production costs. The Delhi research farm currently requires additional scientific resources to manage and evaluate these lines.

GREENHOUSE FLORICULTURE TECHNICAL WORKING GROUP

Emerging Issues

1. Border Issues

This is currently the major issue facing the industry, with a number of recent challenges associated with movement of plant material into the US. The expansion of the greenhouse floriculture industry in Ontario in the last 10-15 years has been largely built around the export market. As a result, any impact on that market can have extensive repercussions on the industry. Over the past several years, there have been a number of such impacts.

- The heightened security concerns in the US have meant increasing delays at border crossings and development of programs such as PIPs (Partners in Protection) and C-T PAT (Customs-Trade Partners Against Terrorism) have required more paperwork and security measures by growers and wholesalers wishing to export product. Among other commodities affected, are commercially produced biocontrol agents (BCAs), which as of Jan 1 2004 can only enter the US through a limited number of ports of entry, all of which are at airports. Release times may add 2-3 days to the shipping time for these products, unacceptable for a perishable commodity. Currently, significant numbers of BCAs are hand carried across the border at numerous entry points by Canadian producers and by European producers who ship into Canada and repack for US customers. There is real concern in the biocontrol industry about the loss of US markets and the subsequent impact on the viability of Canadian producers, and those shipping into Canada.
- CITES is the Convention for International Trade in Endangered Species, an agreement between participating countries to promote the protection of endangered species. Unfortunately, a number of commonly grown potted plants fall into the same genus as species on the CITES list. This has led to border delays on a number of occasions for growers of crops such cyclamen, kalanchoe, cactus and orchids. There is some concern that this may be used as a non-tariff trade barrier by the US.
- Domestically grown cut flowers are not a major export into the US, however, there is an issue with the import of cut flowers from South America and then the re-export of them as mixed flower bouquets into the US. The exporters are required to label the product with “country-of-origin” information. Many of the South American

“countries-of-origin” have some serious pest problems of quarantine importance to the US, so that the detection of any pests at all in product that originated from these countries results in unacceptable delays or rejection of the shipment. The industry is currently working on a Cutflower Export Certification Program.

- Quarantine issues as discussed above continue to hang over the industry both from the standpoint of incoming product and the threat of introducing pests and diseases that are not established in Canada, and from the difficulties associated with moving product into the US when quarantine alerts are in place. In recent years, this is becoming more common, e.g:

- Chrysanthemum white rust
- Sudden Oak Death
- Swede Midge
- Ralstonia

Other quarantine concerns such as Emerald Ash Borer and Asian Long-Horned Beetle, while not directly related to the industry, continue to focus attention on the need for border vigilance.

Other border issues not related to pest management include CITES (Convention on International Trade in Endangered Species), and the current strength of the \$CD.

Recommendations

Recommendation 1.

Issue: The movement of product across the US border is a major obstacle to the continued expansion of the export market for Ontario’s floriculture industry.

Background: Over the last 10-15 years, the greenhouse flower industry has expanded by about 10% p.a., in large part driven by exports which now account for >50% of Ontario’s total production. Events in recent years at the local, national and international levels have resulted in increased levels of inspections and delays at the Canada-US border.

Details: Concerns over border issues are described in detail in the section on Major Issues. In brief, these can be summarized as:

- Security concerns in the US resulting in more paperwork, security measures, delays (including in the shipment of biocontrol agents)
- Cut flowers imported from South America and re-exported to the US are being rejected (along with local product in the same shipment) whenever pests are found in them (despite the fact that they have been inspected by the USDA in Miami on their way to Canada)
- Quarantine issues such as chrysanthemum white rust, Sudden Oak Death, Swede midge and Ralstonia have affected exports in recent years

Recommendation: It is recommended that the greenhouse industry continues to work with

relevant government agencies (CFIA, USDA) to address these issues. In particular:

- A resolution to the issue of cross-border movement of biocontrol agents needs to be reached, so that the strength of this industry and its value to greenhouse floriculture is maintained.
- A cut flower export certification program needs to be set up to allow the movement of cut flowers into the US under specified guidelines, within which the Canadian industry can work.
- CFIA needs to work with the USDA to investigate the use of rapid diagnosis technologies for identifying insects and diseases in major ports of entry into the USA. This is important for the detection of quarantine pests and diseases, but also to determine when pests are of non-quarantine significance, eliminating or reducing unnecessary border delays.

Target Agencies: Flowers Canada, Flowers Canada (Ontario), CFIA

OASCC Linkages

Ontario Pest Management Research and Services Committee

Recommendation 2.

Issue: Registration of new pesticides for the industry through the minor use registration program

Background: The floriculture industry is at a disadvantage compared to its global competitors. Of primary importance is the need for pesticides with an IPM/biocontrol fit. The lack of new actives also gives rise to concern about the potential for off-label use of pesticides. For example, applications are frustrating and use excessive when using ineffective products; rotation (for resistance management) makes no sense with only 1-2 registered products; and the price of products with the same active ingredient can vary widely between greenhouse and field use products. The use of cheaper products can offer short-term monetary benefits for growers, but ignores the developmental costs, liability issues, and goodwill of chemical companies in committing to the registration process. If the industry is to continue to receive the cooperation of chemical companies, it must address this issue to ensure all growers are fully aware of their responsibilities.

Details:

With the federal government's increased investment into the Minor Use Registration Program, and the success of the first priority setting exercise in March 2003, there are promising signs of progress. However, most of the resources being put into the registration of new products by AAFC are for residue analysis, a requirement that is not needed for non-edible horticulture. To address the special needs of the ornamental sector, IR-4 holds meetings each year specifically for this purpose. In Canada, the minor use needs of greenhouse ornamentals have been addressed over the past 6-7 years by the

appointment of an industry funded pesticide specialist, a position supported by federal government funding. This arrangement has allowed the industry to focus on priority products and the committee would like to see this arrangement continue.

With regard to off-label pesticide use, an information campaign to educate growers about the correct use of pesticides has included articles in the industry newsletter and a grower meeting at which government agencies (PMRA, MOE, OMAF), industry, and registrants participated to inform growers and discuss the issues. The committee commends the industry for its efforts.

Recommendation

It is recommended that:

- PMRA and AAFC ensure that the needs of all agricultural sectors are considered in moving forward with the Minor Use program and that there be flexibility in how agricultural sectors are supported within it (e.g. support of industry positions to work with AAFC; ornamentals priority setting similar to IR-4).
- Efforts by Flowers Canada to address the issue of off-label use of pesticides continue

Target Agency: PMRA; AAFC; Flowers Canada

OASCC Linkages: Ontario Pest Management Research and Services Committee

Recommendation 3.

Issue: The need for pathology expertise in greenhouse ornamentals

Background: The greenhouse ornamental industry is the largest horticultural sector by farm gate sales in Ontario and Canada with 2002 sales of \$745 million and \$1.42 billion respectively. As an industry of great economic importance provincially and nationally, it is appropriate that Agriculture and Agri-Food Canada provide it with appropriate research support.

Details: AAFC has a long history of greenhouse ornamental research at the Vineland Research Station. However, beginning in 1995 with the loss of an entomologist position, continuing in 2002 with the retirement of a virologist, and culminating in 2003 with the departure of the pathologist working in ornamentals research, AAFC Vineland, now has no ornamentals research program, despite its proximity to one of the largest concentrations of this industry in North America. The industry appreciates the entomological research input at Harrow, and requests that similar consideration be given to plant pathology, preferably at Vineland, where the bulk of the industry and OMAF extension resources are located.

Recommendation: It is recommended that AAFC addresses the issue of the research gap in pathology by refilling the recently vacated plant pathology position with an A-base research scientist at the Vineland Research Station

Target Agency: AAFC

OASCC Linkages: Ontario Pest Management Research Services Committee

VEGETABLE TECHNICAL WORKING GROUP

VEGETABLE TECHNICAL WORKING GROUP REPORT

Research and Services Recommendations

Recommendation 1.

Target Agencies: OMAF

Issue: Lack of delivery and implementation of IPM programs in Ontario

Recommendation:

Whereas Integrated Pest Management (IPM) programs have been developed for many high value crops,

and new reduced risk products need more intensive pest monitoring and understanding of the pest complex and the activity of the product,

and IPM programs, which include resistance management strategies, help to prolong the effective life of pest control products

and IPM is an integral part of agricultural risk management,

and IPM programs have not been fully adopted or available to growers and processors due to:

- 1) lack of availability of training opportunities and trained IPM consultants and scouts
- 2) lack of economic viability for privately delivered IPM consulting/scouting services
- 3) lack of affordability of such services for growers

therefore, there should be a commitment from OMAF to effectively address the barriers to IPM implementation and delivery in Ontario, including those identified above.

Background:

Many of the crop protection products currently used by horticultural producers have a wide window of application, are broad spectrum, and provide nearly 100% control within hours of application.

Many new reduced risk crop protection products have one or more of the following characteristics:

- need to be applied at early growth stages of the pest
- target a narrow spectrum of pest species
- do not provide immediate kill
- do not provide close to 100% kill

In order for products with these characteristics to be used effectively, users require a higher level of knowledge of the exact pest species attacking the crop, the biology of the pest, and how the product will affect the pest (speed of control, % control). They also require intensive scouting, sufficient to detect the pest at an early growth stage, accurately identify the pest, and determine the level of infestation. For products that do not provide sufficient speed of control or levels of control of the pest, other IPM strategies must be used in combination in order to protect yield and quality (marketability).

Improper use of these crop protection products may also lead to the development of pest resistance to the product, a consequence of importance to the wider crop production industry.

Further, integrated pest management is an integral part of agricultural risk management, an essential part of a responsible agricultural industry.

Presently in Ontario, IPM consulting and scouting services are not available to growers in some areas and some commodities. Where acreage of a given commodity is scattered, rather than concentrated, travel time and expense make it uneconomical for private business to deliver service. In other cases, the time and expense required to adequately scout a commodity make the service unaffordable to the producer due to the economic realities of the commodity. In many cases, private businesses are unable to find and retain well-trained, knowledgeable scouting staff. This is due to the seasonal nature of the work and the lack of people with these skills in the labour pool. An IPM consulting service that has to spend significant resources training staff, only to retain them for one or two seasons, is unsustainable.

A further background issue is that with the loss of older crop protection products and the registration of new products with the characteristics described above; there will be a requirement for a significant research effort into enhanced IPM systems for many crop/pest complexes. This will be crucial in commodities where new crop protection

products do not provide the level of control necessary to maintain the viability of the industry due to losses in crop yield and/or quality (marketability). IPM systems research will be needed to develop effective combinations of IPM strategies.

The Food Systems 2002 Final Report addresses many of these issues, and provides additional background on the challenges ahead. The Food Systems 2002 Review Committee's recommendations are as follows:

- "It is recommended that a Centre of Excellence for IPM be created to coordinate the diversity of IPM into a central focus and enhance the position of Ontario as a world leader in IPM.
- It is recommended that government funding of pest management research continue for applied, practical research based on partnerships between governments, universities, consultants and industry groups.
- It is recommended that development of IPM programs should continue as a key component of the IPM continuum:
- It is recommended that delivery of IPM programs should be available to all Ontario growers:
- It is recommended that IPM be used to promote Ontario products as having been grown based on safe and responsible choices for consumer, grower and the environment."

GREENHOUSE VEGETABLES TECHNICAL WORKING GROUP

Pest Management Update for 2003

Tomatoes

Pest problems included spider mites, russet mites, cabbage loopers and whiteflies. Disease problems included bacterial canker and Pepino mosaic virus. This year, there was some wilting, the cause of which was undetermined. Year-round cropping is contributing to difficulties in achieving proper clean up between crops.

Cucumbers

Pest problems in order of importance included spider mites, whiteflies, thrips, aphids and cabbage loopers. Broadmites were a problem for perhaps the first time. Major disease problems were powdery mildew, Fusarium, Pythium, and CMV in the fall. Incidence of downy mildew was reported in the Niagara area only. There is concern about the lack of registered IPM-compatible products. is slow in coming. There was an increase in IPM and up to 46% are now using this approach. Up to 38% of the acreage have adopted biological as their major pest management strategy with most use occurring during the spring crops.

Pepper

Pest problems included spider mites, aphids, silverleaf whitefly, cabbage loopers, thrips, fungus gnats, and European corn borers. New pest problems included mealybugs, crane

flies, and broad mites/cyclamen mites. Major disease problems included Fusarium and powdery mildew. Fusarium caused early termination of some crops. Biocontrol programs were challenging and there is need for more biocompatible products to assist in IPM programs.

Major Activities

- 1) Factsheets on whiteflies, thrips, and carbon dioxide were completed.
- 2) Products registered during 2003 include the following:
 - i. Intercept for aphids and whiteflies on pepper
 - ii. Sulphur for mildew in pepper
 - iii. 3M TPW Pheromone for tomato pinworm on tomato
 - iv. Decree for Botrytis in tomatoes
 - v. Temporary registration of Previcur for Pythium in pepper
 - vi. Extension of temporary registration of Ridomil for Pythium root rot in cucumber
- 3) Fungicide screening trial for Fusarium in cucumbers
- 4) Biological control spider mites in commercial cucumbers

Major Concerns

- A. Potentially increased regulation of biological agents in a manner similar to chemical pesticides in Canada. This may impose undue financial burden on biological control companies making it prohibitive for them to develop new biocontrols, or even to continue use of existing ones. Such a situation could render use of biocontrols very expensive and uneconomical, thereby possibly reducing use of, or even preventing, continued use of biological control by growers. The undesirable consequence of this situation is a reversal in trends away from biocontrols towards increased reliance on pesticides.
- B. The lack of harmonization of the registration process between EPA and PMRA not only prolongs the minor use registration process, but also serves to discourage manufacturers from registering products in Canada. Lack of IPM-compatible products continues to be an issue for growers that strive to maintain season-long biocontrol programs.
- C. Increasing incidence of diseases, particularly viral (Pepino mosaic virus and Cucumber mosaic virus) and bacterial diseases (Bacterial canker and soft rots).

DETAILED RECOMMENDATIONS

RECOMMENDATION #1

WHEREAS,

Despite the current regulation in place that is administered by the Canadian Food Inspection Agency (CFIA), there is a move towards equating biological control agents with pesticides by OECD countries. Such an action would place arthropod BCA's under similarly restrictive constraints as pesticides, and could have devastating consequences for both the biocontrol and the greenhouse vegetable industries. Regulations that are currently in place and implemented by the Canadian Food Inspection Agency (CFIA) for new BCA's have worked well to date, and there have been no known adverse consequences as a result of release of any exotic BCA in Canada. There have, however, been incidences of alien and invasive arthropod pest species in greenhouse crops. Such species have disrupted biological control programs. Given the global market that is in place, it is expected that more new invasive species will occur, and will have to be addressed. The threat of new invasive species provides a further need for the continued survival of biological control companies and their continuing development of new BCA's.

RECOMMENDATION:

It is recommended that the status quo for regulation of new biological control agents be minimally changed, if at all, and that instead, resources required at CFIA for proper identification of arthropod species be increased. This is especially critical in light of the influx of new pest species in recent times and the anticipated continuing trend for such occurrences.

RECOMMENDATION # 2:

WHEREAS,

Announcements for increased funding by the federal government for an improved structure for the minor use registration process is much appreciated by the industry. However, our industry lags far behind the greenhouse vegetable industry in other jurisdictions in having accessibility to products, particularly those that are considered as reduced risk and compatible with use of natural enemies. Although harmonization of registration is pronounced to be in place, differences in the registration process in the different jurisdictions within the OECD have severely delayed approvals in Canada. Such differences have served as a deterrent to joint registrations of new products by some chemical companies for fear of delayed registration and loss of market share. There is absolutely no incentive for companies to enter into a joint review.

Examples of lack of harmonization include submissions for the following:

1. Rootshield for greenhouse crops (non-harmonized with the US)
2. Decree on greenhouse cucumber and pepper (non-harmonized with several EU countries including The Netherlands)
3. Spinosad for greenhouse crops (non-harmonized with several EU countries)_

RECOMMENDATION:

It is recommended that the Pest Management Regulatory Agency truly harmonizes the minor use registration process, particularly that for reduced risk products. Such products are key for pest management programs that strive to conform to the ideals of environmental sustainability and the requirements of food safety

Ornamentals, Trees, Turf and Home Gardens Technical Working Group

Emerging Issues

The pesticide issue continues to plague the turf industry in Ontario. To date, six municipalities have pesticide bans of one form or another. They are all different, which makes it difficult for lawn care operators and golf courses to know where they stand. The Urban Pest Management Council has filed suit against the City of Toronto regarding their pesticide ban. There was a hearing on Nov. 10, 2003 and the ruling was against CropLife and in favour of the City of Toronto. This ruling will probably fuel the fire for many other municipalities that were waiting for this ruling before they forged ahead. The IPM Council, along with ECO have been very active at municipal pesticide by-law hearings. The IPM-PHC Council continues to support a voluntary turf IPM accreditation process for lawn care, golf courses and parks. It involves an IPM exam, a company desk audit, an on-site audit and proof of a 50% pesticide reduction.. Ontario Golf Superintendents launched a similar voluntary IPM accreditation during the summer of 2003 as well and the parks sector is in the process of developing a voluntary IPM accreditation. Ridgetown College will administer this program. To date, 130 lawn care companies have enrolled in the voluntary IPM accreditation program.

Another issue that continues in both the turf and nursery industries is the loss of current pesticides. One insecticide (diazinon) that were widely used on surface feeding insects in turf and nursery will only be available for the turf market for one more year. There continues to be a need for low risk replacement products for both the insects and diseases of turf and ornamentals.

1. Research and registration of alternative low risk pesticides for turf, nursery, landscape and home gardens
2. Replacement products for organophosphates for turf and nursery surface feeding insects
3. Research into the biology and management of new and emerging pests including

Asian longhorned beetle, sudden oak death, emerald ash borer, white grubs in field nursery productions, daylily rust, plum pox virus, European crane fly and anthracnose basal rot. The relatively new pest for Ontario turf, European crane fly, continues to expand its area of infestation. There is currently one product labeled for use on European crane flies on golf courses (Sevin T&O) in Ontario but there are no products labeled for use on home lawns.

Moss has become an increasing problem on golf course greens as well as anthracnose basal rot. There are currently no products registered for these problems on golf courses. The OMAF Turf grass Specialist is working with BCMAFF on a minor use label expansion for Kocide 101 for moss control. This involves efficacy trials that will begin this spring and also in the fall.

Discussion of pest management research priorities:

The priorities that will be put forth to the Nursery/Landscape and Turfgrass Subcommittee of the Horticulture Crops Research and Services Committee from the Ornamentals, Turf, Trees and Home Gardens Technical Working Group are as follows:

1. Research and registration of alternative low risk pesticides for turf, nursery, landscape and home gardens
2. Replacement products for organophosphates for turf and nursery surface feeding insects
3. Research into the biology and management of new and emerging pests including Asian longhorned beetle, sudden oak death, emerald ash borer, white grubs in field nursery productions, daylily rust, plum pox virus, European crane fly and anthracnose basal rot.

RESEARCH PRIORITIES AND RECOMMENDATIONS FORWARDED FROM THE FIELD CROPS AND HORTICULTURE CROPS COMMITTEES

7. Research and Services Priorities

Rating System:	A	High Priority - Major concern
	B	Moderate Priority
	C	Low Priority
	1	Increase existing or Establish New Funding
	2	Maintain funding
	3	Decrease or Drop Funding

- A1 **Soybean Aphids/Vectors for Viruses:** Economic impact, chemical controls, efficacy, life cycle, overwintering, vectoring viruses and biocontrol agents
- B2 **Barley Yellow dwarf in winter wheat:** Economic impact, effect of changing cropping/rotational practices, seed treatments, best management practices, plant

- resistance.
- A2 **European chafer** in wheat
Decision thresholds, biology, control measures
 - A2 **Fusarium:** include economic impact statement when sending this to FCRSC and OPMRSC. Resistance breeding, new chemistry, grading system - inconsistent
 - A2 **Soybean Cyst Nematode:** Biocontrol, population dynamics, race-shifts, spread of SCN, management
 - B2 **Root Rots on soybeans:** (*Pythium*, *Phytophthora*, *Rhizoctonia*, *Fusarium*), thresholds, better management tools, biology
 - C1 **Alfalfa Weevil:** Survey to determine status of biological control agents - why they haven't been effective lately
 - C1 **Cereal Leaf Beetle:** Survey to determine status of biological control agents - why they haven't been effective lately
 - B1 **Seed Stinging Pests on soys and edibles:** - TPB, Lygus and Stink Bugs thresholds, management
 - A1 **Canola insect pests:** - Cabbage Seedpod weevil, swede midge- survey of pests and potential biological control agents, thresholds, yield impacts, production practice impact and resistance breeding
 - C1 **Slugs:** New products for no till soybeans and corn
 - B2 **Bean leaf beetle:** economic impact, thresholds, vectors
 - B2 **Dwarf Bunt:** seed treatments, resistance
 - B2 **Corn Rootworm:** risk assessment for soybean variant and transgenic stewardship
 - B2 **White Mould:** resistance management, clonal types
 - B2 **Corn leaf diseases:** ie. Gray Leaf Spot, Stewarts Wilt. monitoring, prediction model, resistance
 - B2 **Potato Leafhoppers on edibles:** thresholds, products, economic impact on edibles
 - B1 **Anthracnose in edible beans:** - seed treatments, evaluate new products
 - C3 **Corn Stalk Rots:** (*Anthracnose*, *Fusarium*, *Gibberella*) looking into genetics
Implications of cropping systems to disease, management

Services Priorities

Potato Leafhoppers: thresholds, products, economic impact on alfalfa. Decision thresholds, biology, control measures

Corn Insect Complex - fall monitoring strategies set to better inform growers to make seed treatment decisions in fall

Fusarium Education - application methods, timing, rotation, IPM

Research Updates at Annual Meeting- continue presenting field crop protection

research from last years funding

- have project list for funded research from commodity groups
- bring a handout discussing results of research (point form)

Emerging Issues:

Soybean Rust - not here in Ontario yet but has potential

On Farm Treatment options - need to clarify issues around why on farm is not an option. If it is possible, look into research on treaters or custom applicators role.

8. FCPSC Objectives for 2004:

1. Folicur registration
2. Soybean Aphid chemical control options and thresholds/guidelines. Sorting out impact, seed quality, pest complex of soybean aphids
3. Keeping track of emerging and cyclic pest issues (ie. aphids, chafer, grey leaf spot, stewart's wilt, rust etc)
4. Minor use applications (send priorities to Jim Chaput by Dec 12th)
5. Revise Publication 812
6. Clarify grower access to seed treatments for wireworms and seedcorn maggot
7. Educate PMRA on major pest issues for field crops

9. Assigning New Chair and Secretary

Nomination for Tracey Baute to become Chair (**Accepted**)

Nomination for Mark Sears to become Secretary with publication responsibilities being separated from this role and given to other OMAF staff members (**Accepted**)

Pest Management Research Priorities From OFCRSC (Tobacco) - 2003

EMERGING PEST MANAGEMENT ISSUES:

- **Tobacco Mosaic Virus (TMV)** is still a concern. There were 2 new cases of TMV this year. TMV had not been a problem on these farms before and no equipment was borrowed. Infections occurred very early, before or at transplanting. NC 297 was grown on 2 farms this year. It is reported that this variety can self-destruct if TMV is allowed to enter through an injury site (i.e. at topping) and the temperature is above 30°C. However, none of this hypersensitive breakdown was observed. In North Carolina, there was a low incidence of this problem.
- **Seedling establishment in trays** – there is some concern with growers re-using

Styrofoam trays. It is not cost-effective to use new trays each year, but diseases/pathogens can reside in the Styrofoam. *Alternaria* is typically not a problem, unless growing conditions are poor. This can setback seedling growth. Also blue-green algae can cause an undesirable environment for seedlings. Other countries use copper treatments for control of certain pathogens, such as bacterial soft rot, which may be controlling potential problems with algae. CTRF looking into the possibility of coating trays with a paint containing copper hydroxide for the control of algae. Copper can prevent root elongation.

- **European chafer (white grubs)** – becoming a more persistent problem. Some research needs to be done. Poncho may have potential as a transplant water treatment and should be considered as a minor use priority.
- **Weather fleck** – was worse this year
- **Wireworm** – only current options are Orthene and Lindane. Another option is needed

PROTECTION AND PRODUCTION RESEARCH PRIORITIES:

-ranked in importance (1 = most important; 13 = least important)

- 1) Development of tobacco varieties, with broad based, high tolerance to pest and diseases (i.e. blue mold, tobacco mosaic virus, black root rot) and good machine harvestability using conventional approaches and investigate the use of marker assisted selection (CTRF/University of Guelph) (Long term research priority, ongoing project-conventional breeding)
- 2) Fungicide screening for damping-off of tobacco caused by *Rhizoctonia solani* (CTRF) (Short term research priority, ongoing project)
- 3) Investigate insecticides with different chemistries for the control of aphids, wireworms, white grubs, seed maggots and cutworms for the purpose of resistance management (CTRF) (short term research priority, aphids – ongoing project)
- 4) Investigate compounds that inhibit the growth of algae in used trays (i.e. copper products) (CTRF) (short term research priority)
- 5) Fungicide screening for control of metalaxyl-insensitive blue mold (CTRF) (short term research priority, ongoing project)
- 6) Evaluation of control measures for control of bacterial soft rot, *Aspergillus* and moldy tobacco which would include the evaluation of sucker control products with improved efficacy and lower usage rates than those used currently (CTRF) (short term research priority, ongoing project)

- 7) Development of fumigant replacements, millet or other nematode suppressing crops to control nematodes (CTRF) (short term research priority, ongoing project)
- 8) Fungicide screening for greenhouse and field control of target spot and *Alternaria* (CTRF) (short term research priority, ongoing project)
- 9) Herbicide screening in tobacco and rye crops. (CTRF) (short term research priority)
- 10) Insecticide screening for the control of harvester ants with the focus on resistance management (CTRF) (short term research priority)

PROTECTION AND PRODUCTION SERVICE PRIORITIES:

1. **For OMAF-**
 - 1) consultative extension
 - 2) continue to provide farm visits
 - 3) increase OMAF tobacco PY's to historical levels
 - 4) continue the publication of Publication 298, including publication years on the front cover
2. **Rapid Detection of Pathogens, especially viruses, in-house (in Ontario and/or Canada) – timely and accurate**

RESEARCH ACCOMPLISHMENTS:

1. **Fungicides were identified that gave excellent control of Target Spot (strobilurins and Actigard)**
2. Interactions of disease (Target Spot), nitrogen rates and varieties are now better understood.
3. Alternative fungicides screening for damping-off (*Rhizoctonia solani*)
4. Tray disinfection experiment was completed. It was found that steam heat was more efficacious than chemical sterilants for the control of common tobacco greenhouse diseases (i.e. *Rhizoctonia*)
5. First haploid line was screened for black root rot resistance
6. Pearl millet in rotation with tobacco is suppressing the root-lesion nematode population in the subsequent tobacco crop.
7. Tobacco hybrids were advanced to the regional trials.

9. Identified some lines that are showing Blue Mold tolerance.

Pest Management Priorities - OHCRSC

Annette Anderson provided the OPMRSC with an overview of the discussions held earlier in the week at the Ontario Horticultural Crops Research and Services Committee meeting. The pest-related issues discussed include:

- IPM Delivery
- IPM Training
- Minor Use Issues
- Diagnostics
- Plant health Issues
- Homeland Security/Border Issues
- New pests – EAB, AHLB, PPV, Swede Midge - economic analysis may be needed to better quantify pest impacts, also old pest re-emergence – resulting from use of new pest specific products.
- Climate Change – adaptive strategies – impact on pest complexes, there may be some opportunities here as well

3 Recommendations (see report for details):

- Implementation and Delivery of IPM Programs (similar to recommendation of Vegetable Technical Working Group)
- Staffing of vacant positions
- Minor Use Registration – ongoing needs

MEMBERSHIP ONTARIO PEST MANAGEMENT RESEARCH AND SERVICES COMMITTEE 2003

ORGANIZATION/ADDRESS	REP	PHONE	FAX	E-MAIL
Laboratory Services Division 95 Stone Rd. W. Guelph, ON N1H 8J7				
Craig Hunter Ont. Fruit & Vegetable Growers' Association 355 Elmira Rd., Unit 103 Guelph, ON N1K 1S5	Stakeholder	519-763-6160 Ext. 119	519-763-6604	research@ofvga.org
Clarence Swanton, University of Guelph Department of Plant Agriculture Guelph, ON N1G 2W1	Researcher	519-824-4120 Ext. 3386	519-763-8933	cswanton@uoguelph.ca
Francois Tardif, University of Guelph Plant Agriculture Guelph, ON N1G 2W1	Researcher	519-824-4120 Ext. 3395		ftardif@plant.uoguelph.ca
Gary Whitfield, Agriculture and AgriFood Canada Harrow, ON N0R 1G0	Fed Gov	519-738-2251	519-738-2929	whitfieldg@em.agr.ca
George Annette, Crop Protection Institute 29 Rickson Avenue, Guelph ON N1G 2W9	Stakeholder	416-674-2977 C: 519-831-1401	416-674-2589	george-annette@
Hugh Berges Ontario Ministry of Agriculture and Food 1 Stone Road West, Guelph, ON N1G 4Y2	Prov Gov	519-826-3288	519-826-3567	hugh.berges@omaf.gov.on.ca
John O'Sullivan, University of Guelph Department of Plant Agriculture Box 587, Blue Line Road, Simcoe, ON N3Y 4N5	Researcher	519-426-7127 Ext. 336		josulliv@uoguelph.ca
Jim Chaput Ontario Ministry of Agriculture and Food 1 Stone Road West, Guelph, ON N1G 4Y2	Prov Gov	519-836-3539		jim.chaput@omaf.gov.on.ca
Mark Sears, University of Guelph Department of Environmental Biology Guelph, ON N1G 2W1	Researcher	519-824-4120 Ext. 6244	519-837-0442	jim.chaput@omaf.gov.on.ca
Mary Ruth McDonald, University of Guelph Muck Research Station R.R. 1, Kettleby, ON L0G 1J0	Researcher	905-775-3783 or 519-824-4120 Ext. 2791	905-775-4546	mrmcdona@uoguelph.ca

Quentin Martin, AgCare R.R. 2, 271 Katherine St. S. West Montrose, ON N3B 2V0	Stakeholder	519-664-3701	519-664-1235	cribit@bond.net
Ross Pettigrew Pest Management Regulatory Agency Canadian Food Inspection Agency 174 Stone Road West, Guelph, ON N1G 4S9	Fed Gov	519-837-9400 Ext. 2112	519-837-9973	pettigrewr@em.agr.ca
Stuart Budd Ontario Ministry of Agriculture and Food 1 Stone Road West, Guelph, ON N1G 4Y2	IRMB Liaison	519-826-4189	519-826-4211	stuart.budd@omaf.gov.on.ca
Wayne Roberts Tender Fruit Board & Apple Commission Box 100 Vineland Station, ON L0R 2E0	Stakeholder	905-688-0990	905-688-5915	grapeont@vaxxine.com