Pesticulars
The Professional Pest Management Association of B.C.

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President's Message:

Past President's Message: Art Guite

Success of this year's conference

I was pleased to see that this year's conference was well received. Again, I would like to thank those who helped organize the event and the speakers who made it a success. Our idea in choosing the topics for the conference was to assure that we drew from a wide variety of pest management fields in an attempt to create greater interest. In the bad old days when I went through the MPM program, an emphasis was placed upon drawing speakers from as many fields of pest management as possible. This breadth of interest assured that experts from many fields would be attracted and that a cross fertilization of ideas would be more likely to happen. In my opinion this approach has been somewhat lacking in the past few years. I have been left with the feeling that most of the recent activity in pest management has been in biological control. While this area is important, and may represent where much of the research interest in IPM lies, it is one of many pest management fields where progress has been made. Let's hear from the others as well.

One area where there is a crying need for attention from pest managers is in developing procedures to manage pests and in providing training for those procedures. My company has held a number of contracts over the years in urban and industrial pest management and recently with commercial ornamental nurseries in the Fraser Valley. We provide our customers with pesticide application services. In my most successful contract with an ornamental grower, I work with a consultant who diagnoses and monitors the pest problem while I arrange to have the crops properly treated with pesticides. You might say that the consultant is the pest manager. Perhaps in the traditional sense. However, a consultant only consults – someone must put the recommendations into action. Opportunities abound for people who can interpret a consultant's recommendations and who can put them into action. We have had continuing difficulty in obtaining a supply of diligent people to do the pesticide application work. In fact, one of my other customers complained to me two years ago that 'the pest management classes in all the colleges are filled with students, but we have a hard time to get anyone to spray'. He has a 500 acre nursery in Chilliwack.

There is a huge training need here – both for the potential employees and for the employers. Both groups must remember that professionalism is an attitude. The most menial job can be done in a professional manner. Modern mature organizations discovered this a long time ago. That is why franchise

businesses can work. The emphasis is not on the worker but the system which makes each worker successful. The idea is to take any job, develop it systematically and assure that those who perform the job stay with the system. The more skilled workers are needed to develop the systems and to assure that they are followed. Large organizations like Orkin PCO or Terminex operate in a similar fashion to assure that there is continuity in their service. There is less reliance on the individual operator in any particular job. Once a worker has achieved a particular level of proficiency, he might choose to go on to the next level or to change to another job. In any case, his skills have grown and the organization continues.

Another area where Pest Managers must develop their expertise is in the field of communications. I remember a student who worked for me for several summers. Part of his work involved pesticide application within buildings, especially restaurants and department stores. He really didn't like to talk to people. They were 'in the way'. Well, getting him over that notion was a challenge, but he is a successful government consultant now and he deals with people successfully. Speaking to customers and actively listening to them or to anyone concerned with the job you're doing is invaluable in solving pest problems. It is especially important in assuring that what you are doing is acceptable. It avoids problems and losses.

If we are to be more successful in pest management work, I really think that it is imperative that we assure that we draw upon a wide variety of pest management fields. This is not always easy, given the financial constraints in attracting diverse groups of professional people. But the cross fertilization of ideas will breed new technical ideas and new ways to communicate those ideas and, through the development of training programs, put them into action.

Elections

The 2006 elected positions that were voted on this year included Vice-President and Membership director. The results were the election of Rob McGregor to Vice-President and Lucian Miriciou to Membership director. Tom Cowan was appointed as student representative.

Phero Tech Award

This year's recipient of the award was Murray Isman. The award was presented to Murray by John Borden of Phero Tech International.

Honorary Lifetime Member Award

John Borden of Phero Tech International presented this year's honorary lifetime award to Bob Vernon.

Student Presentation Abstracts from the 2006 AGM

First place presentation

Saber Miresmailli of UBC was the winner of the PPMABC award for best student presentation. Saber completed his BSc at Tehran University in 2000, then spent a year as the network administrator for SUND University in Iran. With that completed, Saber became the president and CEO of RPCo. Ltd, a pesticide and fertilizer trading company with branches in Tehran and Vancouver. While running his business, Saber has completed an MSC in Plant Science at UBC, and is currently working on his PhD. Congratulations Saber, and the best of luck with your future studies!

Assessing the efficacy and persistence of a rosemary oil-based miticide / insecticide for use on greenhouse tomato

Saber Miresmailli, Faculty of Land and Food Systems, UBC

Efficacy of rosemary essential oil was assessed against two-spotted spider mites (*Tetranychus uriticae*) and greenhouse whiteflies (*Trialeurodes vaporariorum*) as well as its effects on the tomato host plant and bio-control agents.

Laboratory bioassay results indicated that pure rosemary oil and EcoTrol (a rosemary oil-based pesticide) caused complete mortality of spider mites and whiteflies at concentrations that are not phytotoxic to the host plant. The predatory mite, *Phytoseiulus persimilis*, is less susceptible to rosemary oil and EcoTrol than twospotted spider mites both in the laboratory and the greenhouse, whereas the parastic wasp, *Encarsia formosa*, is more susceptible to rosemary oil than whiteflies. Rosemary oil repels both spider mites and whiteflies and can affect oviposition behavior.

Rosemary oil and rosemary oil-based pesticides are non-persistent in the environment and their lethal and sub-lethal effects fade within one or two days. EcoTrol

is safe to tomato foliage, flowers and fruits even at double the recommended label rate.

A greenhouse trial indicated that a single application of EcoTrol at its recommended label rate could reduce a twospotted spider mite population by 52%. At that rate, EcoTrol did not cause any mortality among predatory mites *Phytoseiulus persimilis* nor did it affect their eggs.

Toxicity of individual and incomplete mixtures of Constituents of rosemary oil to spider mites indicated significant synergy among the constituents. Highest mortality was only obtained when all constituents were present in the mixture.

In general, EcoTrol was found to be a suitable option for small-scale IPM programs for controlling spider mites and whiteflies in greenhouse tomato plants.

Second place presentation

Second place in our student presentation competition went to Samantha Vibert of SFU. After finishing her BSc at the Universite Claude in France, Samantha completed her MSc under Dr. R. Maurer's supervison at the Universite de Geneve (Switzerland). Her thesis was entitled: *Study of the use of elemental and configural geometry of landmarks by rats (*Rattus norvegicus*) in a transparent vs. opaque Morris water maze.*
After her thesis, Samantha held many research assistant positions at SFU; she worked with spiders, reared numerous insects, conducted field experiments on pollinator plant interactions between fireweed and bumble bees and ran laboratory experiments looking at group foraging behaviours of juvenile Archer fish. Samantha is currently working on her PhD at SFU, under the supervision of Dr. Gerhard Gries.

Sexual communication in hobo spiders
Samantha Vibert, M. Salomon, and G. J. Gries
Insect Communication Ecology, SFU

This study investigates potential use of pheromonal communication and mating signals in hobo spiders, *Tegenaria agrestis*. We present experimental data providing evidence for a female-produced airborne pheromone. We also show images of courtship behavior, suggesting the presence of a male-produced pheromone.

Investigating the use of essential oils as part of an integrated approach for apple production and pest control
Cristina Machial, Faculty of Land and Food Systems, UBC

Apple growers face a variety of challenges in producing suitable fruit for sale in current markets. Apples must be free of blemishes, of appropriate size and of high quality, meaning that growers must control insect pest populations (e.g. *Choristoneura rosaceana, Cydia pomonella and Dysaphis plantaginea*), use effective weed management, and reduce crop load to levels that can be sustained by the trees. In addition to these challenges, there are mounting pressures to reduce the use of toxic chemicals and to integrate approaches that promote the use of reduced-risk pesticides and biological control.

To address some of these challenges, essential oils are currently being investigated for their potential use within apple orchards. While they have been traditionally used for their medicinal, flavor and scent properties, essential oils have also been evaluated more recently for their insecticidal and herbicidal properties. Based on these properties, EcoSMART Technologies, Inc. (USA) has developed several commercial essential oil-based products. One of these products, Matran, a herbicide containing 50% clove oil, was tested during the 2005 harvest year for use as an apple thinner at reduced application rates of 0.5% and 1.5% Matran in the South Okanagan and Similkameen Valleys. Gala trees sprayed with Matran at 1.5% had significantly lower fruit set and larger fruit than that of unthinned trees; however, Ambrosia trees were not significantly affected at either concentration suggesting that higher concentrations would be required for hard to thin varieties such as Ambrosia. Although Matran effectively thinned Gala trees, there were concerns about apple russetting and phytotoxicity (expected given that Matran is an herbicide). Future research to be conducted during the 2006 harvest year will look to determine if application technology may have been a factor and if using an airblast sprayer will reduce the observed problems.

Research in the lab also attempted to determine if Matran or any of the other commercially available essential oil formulations could be used to control the oblique-banded leafroller, *C. rosaceana*. These formulations did not effectively control 1^{st}-2^{nd} instar larvae, however, it is expected that future generations of these products will produce better results. In contrast, research conducted by others in our lab has shown that these essential oil products can effectively control the two-spotted spider mite and various aphid

species. Given this information, essential oil-based products do show promise for use in apple orchards, however, much work is still required before these products can be successfully applied as part of an integrated production system.

The resurgence of bed bugs
Eric Siljander,
Insect Communication Ecology, SFU

The common bed bug, *Cimex lectularius* (Hemiptera: Cimicidae), has been a human pest throughout recorded history. Bed bugs were very common until after WWII when potent pesticides such as DDT came into widespread use and effectively eliminated bed bugs from industrialized countries around the world. For the next 50 years, bed bugs were so rare that they fell from public consciousness.

That was until the late 1990's, when pest management companies and regulatory agencies from industrialized countries around the world began to notice a significant increase in the number of bed bug infestations being reported. This trend has continued to this very day, and has garnered a lot of media attention.

No one knows precisely why bed bugs are enjoying this resurgence, but there are several leading theories that are all likely contributing to it:

Increased Global Mobilization – Increase in international travel provides bed bugs with greater opportunity to disperse.

Changes in Pest Management Practices – Materials and methods previously effective against bed bugs are no longer available for use in most industrialized countries. Newer materials and methods make it much more difficult to effectively control bed bugs.

Development of Pesticide Resistance – Ineffective treatments are leading to rapid development of resistance to registered pesticides.

Lack of Knowledge – General public and professional unfamiliarity with bed bugs has allowed them to "slip under the radar".

Without improvements to the current climate, bed bugs will once again become commonplace. The most desperately needed changes are needed in education and research. Poor understanding of the pest has led to poor control. Therefore as professionals and the public become more informed, and as better knowledge and new tools are developed through research, we may be able to put an end to this resurgence.

Our 2006 Sponsors

The morning and afternoon coffee breaks at the 2006 AGM were graciously paid for by our corporate sponsors:

Phero Tech International

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Endnotes

Electronic Publishing Pesticulars is now an electronic publication. To ensure that you receive your copy, please send us an updated email address. Email addresses and mailing information (for ballots and voting information) can be sent to Lucian Miriciou at bioconcept@gmail.com.

Website The PPMABC website is now up and running. Our new address is: www.sfu.ca/~ppmabc. Check it out for information on our association, contact details, copies of Pesticulars, and upcoming events.

Pesticulars is always looking for pest management topics to publish. If you or know of others who have information to relay, exciting research to share, or you would like posted in one of our issues, please contact Melanie Hart: greenmellybean@yahoo.ca