

Bedbug Resistance Confirmed

By Michel Maheu, B.Sc., Biologist

Back in January 2001, we raised the possibility that bedbugs had developed a resistance to pyrethroid insecticides. This hypothesis was recently confirmed by the team of Romero, M.F. Potter and Haynes, at the University of Kentucky.

After field testing with technicians from Permakil Pest Control of Cincinnati, Ohio, Dr. Michael F. Potter's team decided to push their investigation a bit further. They were able to observe bedbugs (*Cimex lectularius*) that were absolutely unaffected by sprayings of the latest bedbug-fighting products.

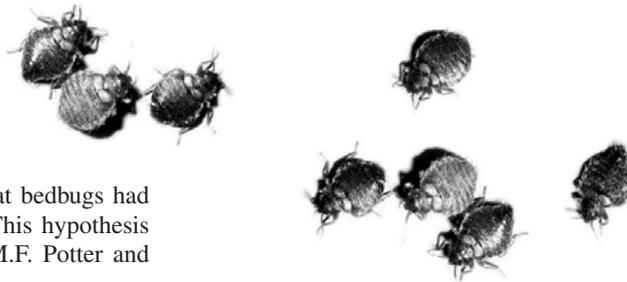
The laboratory then sent a call out across the U.S. for specimens so they could compare different strains. The researchers already had at their disposal a 30 year old strain from New Jersey and a 20 year old strain from Florida. Never having been exposed to pyrethroid insecticides, these could serve as control groups for their experiment.

Bedbug stock was fed warm chicken blood they sucked through a stretched Parafilm membrane to simulate human skin.

The Final Test

The research team prepared a set of filter papers treated with the pyrethroid insecticides deltamethrin and lambda-cyhalothrin (sold under the brand name Demand CS in Canada) in accordance with label instructions. The filter papers were then laid out in petri dishes where stage 3 to 5 nymphs were placed for observation.

A mortality rate of 100% was obtained for the New Jersey 30 and Florida 20 strains. However, for 14 of the 16 strains collected from



across the U.S., a mortality rate of 0% was observed. Even at 10 times the manufacturer's recommended dose, mortality remained zero. These results confirm the insecticide resistance of most U.S. bedbug populations. The same phenomenon has also been confirmed in South Africa and England.

Based on this study and our own observations in the field over the last few years, we suggest that this phenomenon is also established in Canada. The multiplication of pyrethroid molecules in the last ten years has led to the selection of resistant strains through the mechanism of cross resistance. Cross resistance refers to the fact that when insects become resistant to a particular molecule (such as permethrin), they may also gain resistance to other molecules (such as cyfluthrin or lambda-cyhalothrin) in the same family (in this case pyrethroids).

These results are particularly disturbing since all the organophosphates and carbamates registered for eliminating bedbugs have been banned. It is becoming clear that alternative approaches such as heat, steam, and vacuuming will be increasingly used. Incidentally, it is now possible to use specially trained dogs to detect bedbug infestations. The dogs sniff around the room where these pests are suspected and scratch with their front paws if they find them. ●

Remembering Paul O. Maheu

By Michel Maheu

Paul was born in Quebec City on June 16, 1936. He graduated in Business Administration at St. Thomas University NB in 1956. He works as a student with Maheu&Maheu during summers of 1952 through 1956. He starts a biology course in Laval University and is tagging fish in le Parc des Laurentides during Summer 1957. Paul won't be able to complete his B.Sc. because he needs to replace his father Horace-Azarie as general manager later in '57. Horace deteriorating health did not allow him to run the business any longer. Paul will study accounting and financial maths at night in 1961-62 while working in daytime. He will quit evening studies after the birth of a second child in 1962.

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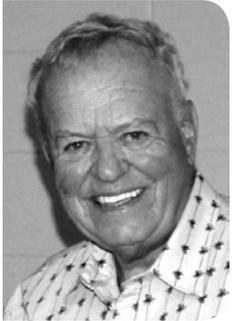
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Paul Maheu was president of Maheu&Maheu from 1965 through 1993 and Director for special projects until 1998. With other leaders of the Canadian industry, he contributed to the strong voice of pest control in their relationships with government and suppliers. His public relation skills helped in growing the company beyond the Province of Quebec but also in attracting suppliers to register their products in Canada. He worked very closely with his uncle and godfather Oscar W. Maheu who was president of Mysto until the mid-seventies.

Prior to the time that products needed registration, EPA registered products were common in use in the country. Crown Chemicals, Gold Crest Chemicals (Velsicol), McLaughlin Gormley King (MGK), Van Waters & Rogers, JT Eaton were suppliers of Maheu&Maheu at that point. In 1974, he made the company the first Canadian Distributor for Bell Laboratories and we still are 33 years later. He also worked closely with Air Guard Control Ltd along with his brother André to pave the way for Konk products that became very popular in the late 70's, early 80's.



Paul was president of the Canadian Pest Control Association from 1970 to 1972. In those days, the industry across Canada rallied behind a strong and well attended federal association. Paul's leadership was instrumental in making the association and its annual conferences a great success. He organized the annual meeting in Quebec in 1972 at Le Château Frontenac. He repeated in 1989 as the Provincial was joining the National for a major convention. This time, André Maheu was greatly involved in logistics and the organization of social events.

One of the few Bridge Life Masters in Québec, he was president of the Quebec Bridge League from 1958 to 1967. Much involved in the community, he founded a Figure Skating Club in Villeneuve in 1973 and was president from 1973 to 1975. This amazing golf lover was also generous with Le Club de golf du Lac St-Joseph being president from 1976 to 1979. He also occupied many positions on the board of directors. His involvement gave the chance to his 3 kids to enjoy the game and this legacy will "follow through" generations.

Businessmen are often gamblers as they must take risks along the way. Besides Maheu&Maheu, Paul and some friends started a tennis and racquetball club on the South Shore of Québec in 1979 but this was not a great success. He tried very hard to make it work as he was a big fighter and a born winner. But in the end he said, "sometimes we win and sometimes we lose. We cannot be masters in all fields." This was another lesson of life to us.

Paul Maheu died on May 5, 2007 after battling almost 2 years without any complaint against his late diagnosed prostate cancer. Paul will be remembered for his generosity, enthusiasm and sense of humour. He redefined the meaning of the words "catch the moment". Everybody who had the chance to meet this great man will keep long lasting memories of time spent with him. ●

Over 98% of Our Customers are Satisfied

As specified in our ISO 9001:2000 quality management system, we conduct a satisfaction survey of our pest management agreement customers every 2 years. Of the 2,279 survey forms we sent out over the summer, 432, or 19%, were returned, while our satisfaction rating rose from **98.5%** in 2005 to **98.9%**.

These are excellent results and will be a real attention getter for potential customers considering entrusting their good name to us. ● **MM**

**All the employees at
Maheu&Maheu join us
to offer you our
Best wishes for a great
Holiday Season and
a wonderful New Year!
May this year bring
peace, joy, hope, and
success to you and your
family.**

The GateKeeper Team



Technicians of the Year named at the annual Gala of the Horaces!

This year, Maheu&Maheu held its annual employee get-together at the Hôtel Classique. Together with their spouses, attendees at the banquet were the first to discover who would receive the awards for 2006. The event is known inhouse as the Gala of the Horaces because winners receive a statuette bearing the likeness of the company's founder, Horace Maheu.

The most coveted Horace is undoubtedly the award for "Technician of the Year," calling as it does for exceptional performance in service, sales, and ISO 9001:2000 quality system application.

Congratulations to all who stood tall in 2006—and you can rest assured that competition will be even fiercer in 2007. ● *MM*



Appointment of Jean-Philippe Tremblay

Jean-Philippe is new to Maheu&Maheu but already has over seven years of pest management experience. He applied for the position of Director of our Quebec City/Chaudière-Appalaches regional office in the fall of 2006 and after a series of very convincing interviews was chosen over the other finalists.



Jean-Philippe has a genuine interest in pest management and a real knack for human relations, one of the reasons management was willing to risk putting a candidate from outside the company in charge of a regional office. For Jean-Philippe, the

risk has paid off, as it has for Maheu&Maheu. Now fully rooted in our corporate culture, he has all the leadership skills to ably manage his group.

Welcome to Maheu&Maheu, Jean-Philippe—and all the best for a bright future! ● *MM*

Mouse Population Explosion



By *Michel Maheu, B.Sc., Biologist*

Mice appeared much earlier than usual in Quebec this year. Generally they spend the summer outdoors and enter buildings in the fall in search of a warm place to spend the winter. This summer, however, all species regularly showed up in our indoor multiple catch traps, including house mice, deer mice, and white-footed mice.

Such a situation is quite unusual. We assumed it was a local phenomenon at first, unique to the Lower St. Lawrence. A health facility nearly closed due to a serious mouse infestation. Then cases started to crop up in the Laurentians, Central Quebec, and the Quebec City region.

We have been attempting to identify what could be behind this change, and have these possible explanations:

- Ecological roadside vegetation management has created favorable habitat for small rodents and provided additional food sources.
- Corn production has increased with the growing popularity of bio-fuels.
- Since the Pesticide Management Code came into force in 2003, fewer and fewer chemicals are being applied to lawns in residential areas. This could affect the availability of small rodent food (more grasshoppers, crickets, and so forth).
- And of course there is the one-size-fits-all argument that climate change—which is used to explain virtually anything—might result in more food being available.

The combination of these possibilities could easily explain the recent increased prevalence of mice. A positive influence on any point in the "rodent survival triangle" (shelter + water + food) could cause a rapid increase in rodent population.

The Maritimes and Ontario seem to have been less affected by this increase in rodent activity. However, at the 2007 PestWorld International Convention and Exposition in Orlando, our discussions with North American industry experts confirmed that the phenomenon is practically universal in the United States and may be attributable to rodent population cycles.

The situation might be no more than a high point in the population cycle, but one thing is certain—mice have been everywhere this year. ●



Multiple catch trap

The Serge Boutin Merit Scholarship

For over 10 years this scholarship has been awarded to children of Maheu&Maheu employees who excel in their studies, the arts, or sport. It was established to honor the memory of the late Serge Boutin, regional director at our Rimouski office, who died on August 6, 1995.

Originally a \$500 scholarship was awarded, but second and third place scholarships were added in 2006, bringing the total to \$1,000. This year winners are:

1st place, \$500: Kim Birnie, daughter of Gary Birnie, for outstanding academic achievement

2nd place, \$300: Véronique Lebel, daughter of Denis Lebel, for her success in English

3rd place, \$200: Jordan Richard, Maurice Richard's young son, for his courage and determination as a minor hockey goaltender

● MM



From left to right: Michel Maheu, Kim Birnie and Gary Birnie

One of Our Own: Martin St-Pierre

Martin has worked for Maheu&Maheu since April 1989, when he signed on as a technician in Trois-Rivières. Always up for a new challenge, he has since held a number of positions and was appointed the company's technical director in 2004.

Martin has been on Maheu&Maheu's board of directors since 1994. He's responsible for significant improvements in fumigation practices and established the heat treatments the company has been using since 1996. Martin is also a well-known expert on structural fumigation. You'll recognize him right away by that haircut that hasn't changed much in all the time we've known him.



This nature-loving outdoorsman knows all about plant species and animals and is always glad to tell you about them. Martin has his own woodlot where he lets his manual side take over and refuels with a little hewing of wood and hauling of water—not something he gets to do much at the office! An eternal optimist, you can call him up when you're feeling down and in a few minutes he'll have you believing your problems are all glorious opportunities in disguise.

Martin is a great fan of scuba diving and plans all his vacations around the underwater potential of the places he visits. So far, though he's dived in Mexico, South America, and Hawaii, his best memories remain those of Quebec's North Shore.

A father of two, he loves introducing the young ones to the joys of nature and sports. His physical condition is outstanding and he won't think twice about, say, hitting the slopes of the Canadian Rockies despite not having skied for 25 years. Seeing him attack the double blacks at Sunshine and Lake Louise after Pest Management Canada 2006 in Banff was a sight to behold.

Martin enjoys his food and is usually rather slow to rise from the table. On the other hand, don't be surprised if you see this natural athlete speed past you on his snowshoes next time you head out to the winter woods! ● MM

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