THE gatekeeper
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Maheu&Maheu
Pest Management

Heard about Flour Beetles? (Part 2)

By Guilaine Pageau, M. Env.

Now that we are able to identify the two most widely known Flour Beetle species (see *Issue #20 of The Gatekeeper*), let's take a closer look at their biology and the means by which we can keep the pests at bay. The Confused Flour Beetle and Red Flour Beetle are very similar in biology and habits.

The female beetle can lay some 350 eggs and their larvae molt eight times before transforming into pupae, and finally into adults. The complete life cycle (from egg to adult) takes from one to four months depending on the environmental conditions—temperature, humidity, and the quality of the food source. The more favorable the conditions for development, the shorter the life cycle will be. The optimum temperature for Red Flour Beetle development is 36˚C and for the Confused Flour Beetle, 32˚C. An adult can live 3 years or more and reproduce all year round when inside a heated building.

The larvae and adults do a lot of damage. These small, rather flat insects can easily find their way into many kinds of packages and storage containers. They attack a great variety of products, including damaged grain (but not the undamaged whole grain kernels), flour, cereals, dried fruits, nuts, and chocolate to name just a few. They feed mainly on flour-based products. Flour infested with a large number of beetles takes on a gray color. What's more, the insects' scent glands secrete a liquid with a nauseating odor, giving the infested food a disagreeable smell. An experienced technician can detect the characteristic smell in foods that are highly infested.

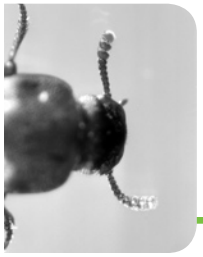
A synthetic pheromone simulates the Flour Beetle's natural pheromone very well. This reproductive pheromone lure is generally put in a sticky trap which is then installed in various places.

Other traps combine a reproductive pheromone with a food attractant. Once lured to the trap, the insects can enter from any direction, but become imprisoned in the pit due to its depth and smooth sides. The insects also become saturated with the oily food attractant lure in the soaked pad at the bottom. This kind of trap is placed on the floor. Regardless of the trap you choose, you should place a number of them strategically around the building.

Do you have flour beetles in your facility? You must locate the food source in order to find a solution to the problem. Understanding the insect's biology and habits will enable you to effectively target areas for inspection. Remember that the Red Flour Beetle can fly and the Confused Flour Beetle can't. This should help when looking for the source of infestation. For example, if you find a Confused Flour Beetle on the floor of your warehouse, the infestation source is not far, so you should search nearby first.

Having proper monitoring tools and performing regular building inspections will help you rapidly locate sources of infestation. It will prevent the insects from spreading from department to department or finding their way into consumers' homes via a finished product.

A sanitation program combined with a customized pest management program is essential in the fight against one of the most formidable enemies of the food industry—the Flour Beetle.



Red Flour Beetle

Confused Flour Beetle

IN THIS ISSUE:

ROUTING

Combination fumigation with Eco_2Fume in a flour mill

By Michel Maheu, B.Sc., Biologist

Maheu&Maheu is always on the lookout for alternatives to methyl bromide, and so it concluded an agreement with a flour mill in order to conduct comparative studies on various types of treatment. Departments were selected for study and two treatment methods will be used over a period of two years: methyl bromide and a combination of heat, carbon dioxide, and phosphine.

In November 2005, the mill's bagging department was fumigated with Eco_2Fume after creation of an atmosphere of 7% carbon dioxide at 35 °C. Any materials sensitive to phosphine (e.g., electronic control panels) were first sealed and pressurized throughout the fumigation.

The study results were supervised by Dr. Paul Fields of Winnipeg's Agriculture and Agri-Food Canada Cereal Research Centre (http://home.cc.umanitoba.ca/~fieldspg/fields/fields.htm). Fumigation resulted in total mortality of adult insects while a very small quantity of those at the "egg" stage survived on the fourth floor of the treated area.

These results confirm that this is a viable alternative to methyl bromide. Remember that regular use of methyl bromide in Canada ceased on January 1, 2005. Since then, the treatment has been allowed only in establishments with a Critical Use Exemption (CUE) (see http://www.ec.gc.ca/ozone/Docs/SandS/MBR/NMS/EN/finalNms.cfm for more details), using imported methyl bromide. Quarantine and preshipment fumigations are also authorized, and in fact were exempted from the 1995 allocation system under the Montreal Protocol. ●

Maheu&Maheu revamps its secure customer site

By Louis-Philippe Maheu, CMA

We have completely redesigned our extranet site to make navigation more fluid and enable our customers to access new functions via a more user-friendly interface. We've also made structural changes enabling customers using corrective action requests (CAR's) to access CAR's supported with digital pictures (CARPESC) transparently. As well, you can document your corrections of CAR's via the extranet.

The site now offers handheld-consultable pest capture reports for companies with pest management agreements using this option.

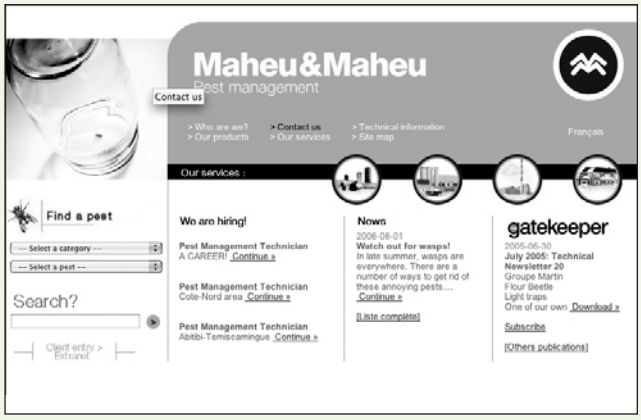
It is also now possible to create numerous users for a single customer and configure each customer's accessible pages according to function and/or need. ●

maheu-maheu.com is now more user friendly!

Despite constant updates since its creation in 1998, Maheu& Maheu website's page setup and navigation platform needed a major overhaul. Well consider it done! We are proud to present our new, more interactive, easier-to-navigate version.

The main vocation of **maheu-maheu.com**, has always been to provide information, and this is still the case. It's chockfull of technical information on pests and includes all issues of our technical newsletter *The Gatekeeper* in PDF format.

So, click away and let us know what you think! ● ***MM***



From extermination to pest management in agricultural sector: Making biosecurity a priority

By Bernard Rodrigue, B.Sc., Biologist

In agriculture, pest control—especially rodent control—has greatly evolved in the past few decades. Over 20 years ago, it was common practice to ignore their presence. When the situation became too serious, steps were taken to lower the population.

In the 1980s, the involvement of extermination firms was very limited and most stayed away from this market, believing it to be unappealing and too complicated. At the time, Maheu&Maheu noted a growing need in this niche and developed an innovative approach aimed at totally eliminating rodents and keeping them eliminated through followup, which is essential in this area.

From the start, we have worked with representatives at numerous feed mills. These people also saw the need to act and, leading by example, did not hesitate to blaze a trail.

The situation when we started out was very worrying. The bulk of cases referred to us were critical: our role was to "save the building." The main concern was material damage caused by rodents. At one time, it was not uncommon for fires to be caused by rodent-damaged wires.

The 1980s brought a heightened concern for prevention. The most progressive breeders supported the idea that it was important to ward off problems to prevent major losses. The simultaneous development of specific pathogen-free hog farms raised another concern: animal health. Maheu&Maheu had already been asked in 1988 to work with Fédération des Producteurs d'œufs de consommation du Québec in order to develop a rodent elimination program for poultry houses, a program that fit with its strategy to eradicate the *Salmonella enteritidis* bacteria.

It is important to know that rats can cover a distance of 3.3 km in one night. And even though mice are more cautious when covering open areas, they can travel just as far. Mice generally migrate due to adverse conditions, such as a lack of food, overpopulation, or following the destruction of a building. In addition, rodents are known to spread several pathogens, generally through their excrement and urine. In this regard, a rat can produce 18,000 droppings and 7 liters of urine per year. They therefore play a key role in spreading epizootic diseases quickly.

In the early 1990s, the agrifood processing industry—notably slaughterhouses—started to apply HACCP standards (Hazard Analysis Critical Control Points). Initially, only meat processing companies that exported to the U.S. were affected. These standards were later applied to other sectors of the food processing industry, moving up the chain to also include livestock and feed production.

Our role has therefore changed in the past decade from *pest exterminator* to *pest manager*. We have become animal health experts: our activities, which used to focus on rodent elimination, have broadened to include other pests (wild birds, flies, mealworms, etc.) that are potential disease vectors. Our method has evolved to include the notion of biosecurity. It is now crucial to limit pest access to buildings. This is why we must work from the exterior as much as possible by addressing various environmental factors (vegetation, various shelters, access routes).

Our priority is now biosecurity. In addition to respecting very stringent biosecurity standards, all our energies are focused on preserving the sanitary status of our customers' herds by preventing the spread of disease by pests.

2005 Technicians of the Year are unveiled

On March 24 and 25, 2006, Maheu&Maheu held its annual employee meeting. At the banquet that included spouses, the 2005 recognition awards were presented. Employees have dubbed the evening the "Gala of the Horaces" as the prize is a statuette bearing the likeness of the founder's face.

The technicians' most coveted Horace Award is "Technician of the Year" because it extols exceptional performance in service and sales, as well as implementation of the ISO 9001:2000 quality management system. The winners are as follows:

Congratulations to all who took center stage in 2005—we're convinced that in 2006, the competition will be tighter than ever! ● ***MM***

One of our own: Robert Couture

Robert began his career at Maheu&Maheu in 1991 as a technician for the Rimouski regional office. In 1995, he replaced the late Serge Boutin as regional manager, a position he held for over 10 years. Robert was recently promoted to the company's Corporate Development Department.

Robert is a hard worker with a penchant for carpenter ants, which he likes tracking during the summer months. In his free time—a rarity as he is expecting his fourth child soon—Robert enjoys fishing and big game hunting in the Sagard region.

A hockey enthusiast, Robert is quite the straightshooter—and not just on the ice! He played center for the company all stars, staying in shape with friends over the winter. Have you heard he may take up golf again? Perhaps he'll have more chance to play with his new position! ● ***MM***

The GateKeeper is a technical newsletter published by Maheu&Maheu and distributed for free. Do not hesitate to forward your comments and suggestions.

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