



Health  
Canada

Santé  
Canada

*Your health and  
safety... our priority.*

*Votre santé et votre  
sécurité... notre priorité.*

# Pesticide Incident Reporting Program Third Annual Report

**January 1, 2010–December 31, 2010**

Prepared by the  
Incident Reporting Program of the  
Health Evaluation Directorate  
Pest Management Regulatory Agency  
Health Canada

Canada 

## Table of contents

<b>Forward .....</b>	<b>1</b>
<b>Executive Summary .....</b>	<b>1</b>
<b>1 Introduction.....</b>	<b>3</b>
1.1 Incident Reporting Requirements.....	3
1.2 Data Limitations .....	4
1.3 How Pesticide Incident Data is Used .....	4
<b>2 Summary of All Incident Report Data (April 2007 – December 31, 2010).....</b>	<b>4</b>
2.1 Total Number of Incidents Received .....	4
2.2 Product Information .....	5
2.3 Active Ingredient Information.....	6
<b>3 Incident Reports Received in 2010 .....</b>	<b>6</b>
3.1 General Analysis .....	6
3.2 Summary of Human Incident Reports.....	7
3.3 Summary of Domestic Animal Incident Reports .....	8
3.4 Summary of Environment Incident Reports.....	8
3.5 Summary of Packaging Failure Incident Reports .....	8
<b>4 PMRA Assessment of Incident Reports.....</b>	<b>9</b>
4.1 Causality Assessments .....	9
4.2 PMRA Incident Evaluations.....	10
4.2.1 Single Incident Reports.....	10
4.2.2 Identification and Evaluation of Trends .....	11
4.3 Using Incident Reports in PMRA Risk Assessments.....	12
<b>5 Conclusion .....</b>	<b>13</b>
<b>6 What to do in the Case of Pesticide Exposure.....</b>	<b>13</b>

# Forward

Health Canada's Pest Management Regulatory Agency (PMRA) regulates pesticide use in Canada. Pesticides are subject to the *Pest Control Products Act* and are rigorously tested and evaluated for safety of use before and after they are registered. One way in which the PMRA continues to monitor the safety of pesticides after registration is by collecting and evaluating reports of incidents related to these products. The purpose of the Pesticide Incident Reporting Program is to identify unforeseen risks to the health of Canadians and the environment from the use of pesticides and to take corrective actions to help prevent further incidents from occurring.

This document describes the incident reports that have been received by the PMRA and summarizes the PMRA's use of incident data to inform the Canadian pesticide regulatory process.

## Executive Summary

The Pesticide Incident Reporting Program (IRP) began in April 2007 and by the end of 2010 had received over 5000 incident reports. This Third Annual Report provides a brief overview of all incident reports received by PMRA since the program began, as well as a detailed summary of the incident reports received in 2010 and the PMRA's evaluations of these incidents.

Activities in the first two years of the IRP were directed at developing policies and procedures related to the collection and evaluation of incident report data, as well as providing education and training to staff and various stakeholders. The IRP has received a significant number of incident reports, and is now focusing more on the detection and the evaluation of potential risks.

In 2010, a total of 1867 incident reports were submitted to the PMRA. Most incident report submissions were classified as domestic animal incidents followed by human, packaging failure, environment and scientific study incidents. The majority of incidents were not serious in nature (over 60%). Most incidents involved the use of a pesticide product (as opposed to, for example, a spill). Applications to animals were the most frequently reported uses, followed by applications in residential areas. As with other years, no single product was more prominently reported than another. However, domestic class insecticides were reported more frequently than other product types.

The majority of human incidents occurred as a result of exposure to a pesticide in a non-occupational setting (70%). The primary routes of exposure in human incidents were dermal and inhalation, exposure was generally short-term in duration, and effects were usually temporary.

Domestic animal incidents predominantly involved cats or dogs exposed directly by treatment with a pesticide (for example, for the control of fleas and ticks). Symptoms usually occurred within 24 hours following exposure to the pesticide.

In environment incidents, adverse effects to plants were most frequently reported, and were usually associated with lawn damage from applied herbicide products.

Although there was an increase in the number of incidents reported in 2010, across all three reporting years, the patterns observed in the incident data (for example, the type of incident reported, or severity) remained the same.

The PMRA evaluates incident information in order to identify potential risks to health or the environment. One part of this evaluation involves establishing the likelihood that the effects reported in an incident are related to the pesticide (otherwise known as the causality level). In general, the information provided in a single incident report is not sufficient to identify a potential risk. A comprehensive evaluation that takes into consideration many other variables (such as scientific studies) must be conducted in order to establish reasonable grounds to recommend appropriate action. Incident reporting information is also considered in pesticide regulatory decisions.

To date, nearly 2600 incidents have been reviewed to determine the causal relationship between the reported exposure and effects. These have been used in 41 comprehensive risk evaluations. Furthermore, incident report data has been incorporated in 89 regulatory decisions as part of the weight of evidence approach to pesticide evaluations.

In 2010 alone, the PMRA conducted comprehensive evaluations of 30 single Canadian incidents, including one human death, six human major, 16 environment major (13 of which were related to a fire at a pesticide warehouse), and two environment moderate incidents. Four trends were identified as requiring evaluation (two evaluations are completed and two are ongoing), and continuing work is being conducted on the flea and tick control product evaluation.

There have been several actions taken by the PMRA as a direct result of these evaluations, including label amendments, compliance activities, and changes to product packaging. In the future, the IRP will continue to monitor the number of incidents reported for these products in order to assess the effectiveness of the mitigation measures that have been implemented.

# 1 Introduction

This Third Annual Report from the Pest Management Regulatory Agency's (PMRA's) Pesticide Incident Reporting Program (IRP) provides a brief overview of all pesticide incidents received by Health Canada since the initiation of the program in April 2007 as well as a detailed summary of the incident reports received in 2010, the third year of the program. The evaluations of pesticide incident reports conducted by the PMRA in 2010, and other activities related to pesticide incident reporting in Canada are also included in this report.

## 1.1 Incident Reporting Requirements

Pesticides are regulated in Canada under the federal *Pest Control Products Act*. The *Pest Control Products Act* requires Canadian pesticide manufacturers (in other words, pesticide registrants and applicants for the registration of a pesticide) to report all information that they receive about incidents that are related to their product(s). Generally, pesticide manufacturers receive information about incidents from the public. The public can also report incidents directly to Health Canada.

An incident is an effect that relates to the health or environmental risk of a pesticide. Incidents include effects on humans, domestic animals, or the environment, packaging failure that could result in human exposure or injury, excessive residues in food, and scientific studies that indicate a new hazard or increased risk.

Human, domestic animal and environment incidents are further classified by severity based on criteria outlined in the Pest Control Products Incident Reporting Regulations. There are four severity categories of human and domestic animal incidents: death, major, moderate and minor. These severity categories depend on the type and duration of symptom(s) reported in the incident, whether medical treatment was necessary, and the duration of hospitalization, if required. For environment incidents, there are three severity classifications: major, moderate and minor. These severity classifications are determined based on the type and number of organisms affected.

Pesticide manufacturers are required to report to the PMRA a subset of incidents that occur in the United States if the pesticide suspected to be responsible for the incident is associated with a Canadian pesticide. This subset includes incidents classified as human death, human major and domestic animal death. As such, the number of American incidents reported to the PMRA does not reflect the total number of incidents that are reported to authorities in the United States, nor did all human death, human major and domestic animal death incidents occur in Canada.

All submitted incident reports are publicly available through the Health Canada website on the PMRA Public Registry.

## **1.2 *Data Limitations***

There are inherent limitations to the information collected through post-market surveillance activities. The information provided in pesticide incident reports is unsubstantiated and often incomplete. Most effects reported in pesticide incidents are not specific to pesticides and can have many other causes. Furthermore, the reporting of a particular effect does not necessarily mean that it was caused by the pesticide. Therefore, incident report data requires a thorough investigation that incorporates all available information in order to identify potential risks.

Another limitation of any post-market surveillance program that relies on the public to report incidents is under-reporting. The IRP collects pesticide incidents through a passive surveillance system, which relies on the public to provide information voluntarily to pesticide manufacturers, who are then legally required to submit this information to the PMRA.

As the PMRA can only evaluate incidents that are reported, improving reporting rates of incidents is always a priority. Two communication tools, a Fact Sheet and a poster, were developed with this goal in mind. The Fact Sheet is available on the Health Canada website and is also being widely distributed at events such as agricultural trade shows. The poster may be requested from Health Canada. In addition, the IRP has recently initiated a provincial network to tap into other sources of incident reports and to promote the awareness of pesticide incident reporting in general.

## **1.3 *How Pesticide Incident Data is Used***

The purpose of the post-market surveillance of pesticides is two-fold: to identify potential risks to Canadian health or the environment and to take corrective actions in order to mitigate any identified risks. Because of the limitations of incident data, the IRP considers many factors when deciding if action needs to be taken, such as the likelihood that the pesticide caused the effect, the relevance of the reported incidents to the Canadian use pattern, the severity of the reported effects, the frequency of the incidents, the likelihood of re-occurrence, as well as information from other sources (such as scientific studies).

If a risk from the use of a pesticide is identified through an evaluation of pesticide incident data, appropriate regulatory action is implemented, such as amending the pesticide product label or focusing outreach on a particular issue. Summaries of the evaluations of pesticide incident reports are posted on the Health Canada website.

## **2 *Summary of All Incident Report Data (April 2007–December 31, 2010)***

### **2.1 *Total Number of Incidents Received***

From April 2007 to the end of 2010, the PMRA received 5206 pesticide incident reports, 64% of which occurred in Canada while the remaining incidents occurred in the United States. Of all the incidents reported, 70% were domestic animal incidents and 20% were human incidents, while environment and packaging failure incidents each represented 5% of the reports.

The severity levels for each category of Canadian incident are summarized in Table 1. Note that one report may contain multiple incident categories (for example, packaging failure and an effect in a human). Therefore the sum of the reports by category is higher than the total number of incident reports received. The majority of incidents were minor to moderate in severity.

**Table 1 Category and severity of Canadian incident reports received from April 27, 2007 to December 31, 2010.**

Category	Death/Major	Moderate/Minor	Total
Human	14 <sup>1</sup>	991	1005
Domestic Animal	229	2470	2699
Environment	21	346	367
TOTAL	264	3807	4071

1. Two incidents were classified as 'death'.

When reporting patterns by year were evaluated, there was an increase in the overall number of incidents reports received in 2010 compared to 2009, particularly with regards to domestic animal and packaging failure incidents. This was due, in part, to the late reporting of some incidents that should have been included in the 2009 report. Generally, the patterns observed in the incident data (for example, symptoms, product type) remained the same across the years.

## **2.2 Product Information**

Although there are 6350 pesticide products registered in Canada, only 571 of these products (9% of all registered products in Canada) were involved in the Canadian incidents reported to the PMRA. Of the 571 products reported in incidents, most products (99%) were implicated in only a few cases and no single product was involved in more than 5% of all Canadian incidents reported.

Of all the Canadian products identified in incident reports, 60% were insecticides, 13% were herbicides, 12% were vertebrate control products (for example, rodenticides), and 12% were fungicides.

Domestic class products were involved in 86% of all Canadian incident reports and commercial products represented 12% of products involved. For incidents in which a product was applied, it was reported that the product was not used according to the label directions 21% of the time, and that label directions were followed 34% of the time.

No single pesticide product was more prominently reported than another in the incident report data. However, domestic class insecticides were reported more frequently than other product types.

## **2.3 Active Ingredient Information**

There are 592 pesticide active ingredients registered in Canada. The incident reports received from 2007 to 2010 involved 272 of those actives (46% of all actives currently registered in Canada). Although several different active ingredients were reported in the incident data, only a small number were reported with high frequency. For example, of the 272 active ingredients reported, 20 were involved in over 60% of all incident reports received.

Due to the high frequency with which these 20 active ingredients were reported in incidents over the past three years, they were further assessed for potential risk. An evaluation was initiated for 16 of these 20 active ingredients, as a potential risk to human or domestic animal health or the environment was identified based on the effects reported (see Section 4). Many of these active ingredients are found in flea and tick control products. Other active ingredients most frequently reported included DEET (which was implicated in a number of packaging failure incidents), active ingredients found in rodenticides, and pyrethroids/pyrethrins. The PMRA has implemented regulatory actions for several of the issues identified, namely the flea and tick control products and the DEET packaging failure incidents (as described in Section 4) as well as the rodenticides (as described in Re-evaluation Note REV 2010-17).

The other four active ingredients most frequently reported involved incidents of lawn damage and were not considered to pose a risk to health or the environment. As such, no further evaluation was warranted.

It was noted that the number of incidents involving the active ingredient carbaryl was significantly lower in 2010 and 2009 when compared to 2008. This decrease in reporting may be related to the change in use pattern of carbaryl products. Following the re-evaluation of carbaryl in 2009, the PMRA proposed the phase-out of domestic class carbaryl products as well as the application of commercial class products containing carbaryl in residential settings. The final re-evaluation decision for carbaryl has not yet been made. The IRP will continue to monitor this trend in the future.

## **3 Incident Reports Received in 2010**

### **3.1 General Analysis**

In 2010, the PMRA received 1867 pesticide incident reports. There were 1362 incidents that occurred in Canada (73%), and 482 incidents that occurred in the United States (26%), which represent a subset of all American incidents (see Section 1.1). Incidents occurred in all 10 provinces and one territory in Canada. The majority of the Canadian incidents occurred in the province of Ontario (52%). An incident was reported in the territory of Nunavut for the first time in 2010.



The majority of the incident reports submitted in 2010 were categorized as domestic animal incidents (71%) followed by human (13%), packaging failure (10%), environment (5%), scientific study (1%) and food residue (<1%) incidents. Most incidents related to the use of a pesticide product (as opposed to a pesticide spill, for example), with the treatment of animals as the most frequently reported site, followed by the treatment of outdoor and indoor residential sites.

### **3.2 *Summary of Human Incident Reports***

In 2010, the PMRA received 251 human incident reports concerning 271 individuals. There were 216 incidents (involving 235 individuals) that occurred in Canada and 35 incidents (involving 36 individuals) that occurred in the United States (see Section 1.1). Most incidents were reported to the pesticide manufacturer by the individual involved in the incident, while a medical professional reported the incident in 7% of cases.

Most individuals experienced minor symptoms. Overall, people who were older than 64 years reported more serious effects than younger people. There were three Canadian incidents classified as major and one incident resulted in death. A summary of the PMRA evaluations of these incidents are provided in Section 4.

For most human incidents, exposure to the product occurred in a non-occupational setting (70%). Of these, a little over half of the affected people reported exposure to the pesticide through activities associated with product application, mostly as a result of treating residential indoor sites. The second most commonly reported activity involved contact with a treated area, such as playing on treated lawns.

In occupational scenarios, individuals most frequently reported exposure to the pesticide product as a result of treatment of agricultural outdoor sites, followed by public indoor sites.

The primary routes of exposure were dermal followed by inhalation. The majority of the affected people were aged 19 to 64 years. Children under 12 represented 7% of incidents. People under the age of 19 were exposed mainly via the dermal route, in particular from the application of personal insect repellents. Males were involved in incidents slightly more frequently than females. Most people did not seek any medical treatment and hospitalization was reported in 22 cases.

The human incidents generally involved short-term exposure. Symptoms in most people occurred within 24 hours following exposure to the product and lasted for more than 30 minutes but less than three days. Skin effects were the most frequently reported symptoms followed by nervous and muscular, breathing and stomach symptoms. This pattern is consistent with the primary routes of exposure. The symptoms most frequently reported in human incidents were skin irritation (including red or itchy skin), headache, nausea or vomiting, eye irritation, dizziness, shortness of breath and coughing. These symptoms are considered minor in severity, as they are minimally bothersome, and normally only last a short time.

Pyrethrins and pyrethroids were the active ingredients implicated in a high number of human incidents. An analysis was initiated in 2010 to review the human and domestic animal incidents involving these pesticides (see Section 4 for further information).

### ***3.3 Summary of Domestic Animal Incident Reports***

The PMRA received 1325 domestic animal incident reports in 2010. A total of 875 incidents occurred in Canada and 450 incidents occurred in the United States. The types of animal most commonly affected were cats (54% of incidents) and dogs (44% of incidents). Of the Canadian incidents, most were classified as minor. Incidents were most frequently reported by the animal owner, followed by a medical professional.

Most cats (86%), and to a lesser extent dogs (54%), were exposed via direct treatment with a pesticide product. The most frequently reported pesticide products were domestic class products used for the control of fleas and ticks on cats and dogs (see Section 4 for an update on the flea and tick control product evaluation). Label violations were more commonly reported in incidents involving cats than in the incidents involving dogs. The animals affected were generally young and, in most cases, weighed less than 5 kilograms. For cats, slightly more females were affected than males; whereas for dogs the pattern was reversed.

Symptom onset generally occurred within 24 hours following exposure to the pesticide. In incidents involving cats, nervous and muscular effects were most frequently reported, whereas in dogs, gastrointestinal effects were more frequent.

Other animal types (for example, bird, cow, sheep) accounted for 4% of all domestic animal incidents reported in 2010. Further evaluation of the other animal types did not reveal any specific reporting trends (likely due to the low number of incidents).

### ***3.4 Summary of Environment Incident Reports***

In 2010, the PMRA received 91 environment incident reports, all of which occurred in Canada. The most commonly reported sites of product application were outside residences (71%), followed by outdoor agricultural sites (16%). In nearly half of the incidents, the reported pesticide exposure occurred as a result of pesticide application, as opposed to drift or a pesticide spill. Plants were the most frequently affected organism, with symptoms of either visible injury (for example, bleaching) or death, and were predominantly associated with lawn damage from the application of herbicide products.

There were 16 environment incidents reported that were considered major in severity. Thirteen of these incident reports were related to the same incident that involved fish death following a fire at a pesticide warehouse. Four incidents involved honey bee mortality, and one incident involved hundreds of weakened or dead lobsters. Evaluations of these serious environment incidents are discussed in Section 4.

### ***3.5 Summary of Packaging Failure Incident Reports***

In 2010, the PMRA received 185 packaging failure incident reports, which reflected a significant increase from previous years. All of these incidents occurred in Canada.

A packaging failure incident involving a pesticide must be reported if the failure could have resulted in potential exposure or injury to humans. In 2010, only one packaging failure incident resulted in adverse effects, which were minor in severity.

In 2010, 45% of packaging failure incidents were associated with one product. Due to the high number of packaging failure incidents reported for a single product, the PMRA conducted an evaluation of the potential risks to property and human health from the packaging failures. The results of this evaluation are outlined in Section 4.

## **4 PMRA Assessment of Incident Reports**

Since its initiation in 2007, the IRP has conducted over 41 detailed evaluations of incident report data. In addition, incident report data has been considered in registration decisions related to 89 pesticide evaluations. The IRP is also using incident report data to validate precautionary statements on domestic class product labels, starting with pyrethroid and pyrethrin products for the upcoming re-evaluations.

There have been several actions taken by the PMRA as a direct result of the above evaluations, including label amendments, compliance activities, and changes to product packaging. In the future, the IRP will review the effectiveness of the mitigation measures that have been implemented as a result of incident evaluations by monitoring the number of incidents reported for these products. The IRP will also continue to conduct evaluations of incident reporting data to identify potential risks to human health or the environment.

### **4.1 Causality Assessments**

Assessing risk in incident data requires an analysis of the likelihood that the pesticide caused the effect (in other words, causality). Several questions are asked when determining the level of causality. How likely is it that exposure to the pesticide occurred? Is it plausible that the effects were caused by the reported exposure? Are there multiple incidents with the same or similar effects? Also considered is whether there was any physical evidence of exposure (such as blood tests), and whether the timing of the effects was consistent with the reported exposure. Other considerations include whether the incident involved one or many products, and the description of events leading to the incident report.

The IRP is in the process of assessing the causality level for all incident reports submitted, prioritized by the number of incidents reported for a given active ingredient and the severity of the reported effects. Since 2007, nearly 2600 incidents have been assessed for causality, of which 631 were assessed as having a causality level of highly probable, 682 were considered probable, 890 were determined to be possibly related to the pesticide, and 271 were considered unlikely to be associated with the pesticide. The effects in nine incidents were determined to be unrelated to the pesticide exposure, and 105 incidents had insufficient information to evaluate the causality.

The causality level helps to inform the trend evaluations and can be used as part of the weight of evidence in the evaluation of new pesticides and the re-evaluation of older pesticides. Additionally, causality levels help prioritize incident evaluations and identify risks.

## **4.2 PMRA Incident Evaluations**

In 2010, the PMRA conducted detailed evaluations of 30 single Canadian incidents, including one human death, six human major, 16 environment major, and two environment moderate incidents. Four trends were identified as requiring evaluation (two evaluations are completed and two are ongoing), and continuing work is being conducted on the flea and tick control product evaluation. Several evaluations resulted in regulatory action by the PMRA.

### **4.2.1 Single Incident Reports**

Some notable evaluations of single incident reports are described below.

- An incident report (2010-1615) involving the death of a man after his mattress had been sprayed with a pesticide product was reviewed by the PMRA. It was determined that it was unlikely that the reported exposure had resulted in the subject's death.
- Three incident reports (2010-0377, 2010-0901 and 2010-0902) involving eye irritation studies relating to specific DEET products were reviewed by the PMRA. As a result, statements communicating the associated eye irritation hazards were required to be added to the labels for these products.
- An American incident (2010-0794) involving the deaths of two children following exposure to phosphine gas was evaluated. The PMRA determined that it was highly probable that the reported deaths were related to exposure to the phosphine gas. In response to this incident, the PMRA required that the use of phosphine rodenticides be strictly prohibited in residential areas in Canada, and that application be at least 500 metres away from any residential areas or buildings. These label changes were made as part of the re-evaluation decision (Re-evaluation Note REV2010-03). Additionally, Canadian registered products containing phosphine gas as the main active ingredient for use as a fumigant are also subject to the above regulatory actions.
- In an environment major incident report (2010-0841), it was reported that weak or dead lobsters were found in lobster traps off the coast of New Brunswick on more than one occasion. Laboratory results detected cypermethrin in the lobster tissue. The PMRA determined that it was probable that the reported effects were due to exposure to the pesticide. There was uncertainty about the source of the cypermethrin, which is not registered in Canada for use in aquaculture settings. Environment Canada investigated the possibility of potential Fisheries Act violations, and has since laid charges.
- Bee mortality was reported at a commercial cranberry production site in an environment major incident (2010-3618), which included an analysis of a sample of dead bees. This analysis identified the presence of diazinon and its metabolite diazinon oxon. The PMRA determined that it was highly probable that the reported effects were due to exposure to the pesticide. According to the 2009 re-evaluation decisions (Re-evaluation Decision RVD2009-18), the use of diazinon on cranberries will be phased out and will no longer be registered in Canada.

## 4.2.2 Identification and Evaluation of Trends

The PMRA uses incident reports to identify signals of potential risk. These groups of incidents that constitute a signal, or trends, are then evaluated for any indication that a link may exist between exposure to a pesticide and the reported effects. When evaluating trend data, relevant incidents from all reporting years are considered.

### 4.2.2.1 Packaging failure incidents involving DEET

Since 2008, 94 incidents of packaging failure have been reported to the PMRA regarding the insect repellent “Off! Familycare Insect Repellent Smooth and Dry (PCP Reg. No. 28648)”. This is an aerosol product containing 15% DEET that was registered relatively recently (2007). In all incidents, the failure in the package was described as ‘leaks’, sometimes resulting in property damage. In some incidents, significant leaks were noted where the entire contents of the canister emptied spontaneously. The incidents reported for this product represent almost 30% of all packaging failure incidents.

There was one human minor incident that occurred as a result of the packaging failure (2008-3222). Based on the information provided in the report, it was concluded that it is highly probable that the symptoms reported in the incident would be expected from the reported exposure scenario.

The potential for the leaking contents to cause property damage was also assessed. Both the active ingredient and the other ingredients present in the product have the potential to damage many types of surfaces (for example, plastic materials, paints, water-proof fabric lining); as such, there is a precautionary statement on the product label that addresses this issue.

The high number of incident reports indicated that there was a systemic issue with the packaging of this product. The pesticide manufacturer has taken corrective action by changing the valve and gasket on the product. The PMRA will continue to monitor the incident report data for packaging failure incidents associated with this product to ensure that the changes to the packaging address the problem.

### 4.2.2.2 Foray 48B – Human incidents

Four incident reports (one human minor and three human moderate incidents) relating to an aerial spraying of the pest control product Foray 48B were submitted to the PMRA in April and May of 2010. This product contains the active ingredient *bacillus thuringiensis* sub-species *kurstaki* (Btk) strain HD-1 and was sprayed to control a European gypsy moth infestation. Four individuals living within or near the spray area reported experiencing symptoms around the time of application. Aside from these four incident reports in 2010, the PMRA had received one other report of an individual with a history of asthma who experienced difficulty breathing following a similar spray program in another community in 2008.

Based on the information available, the PMRA concluded that it was unlikely that the effects in one case (where the reported symptoms were malaise and muscle weakness) were related to the spraying of Foray 48B, as the person lived too far outside of the spray zone for exposure to have occurred. In the other three cases, it was determined that it was possible that the respiratory

effects could be related to the spraying of Foray 48B. However, the results of this assessment by the PMRA are inconclusive given that the reported symptoms could have been caused by several other factors and that these three individuals had underlying medical issues. The IRP will continue to monitor for additional incidents related to Btk.

#### **4.2.2.3 Pyrethrins and pyrethroids**

Pyrethrins and pyrethroids were implicated in a high number of incidents that were reported between 2007 and 2010. Incidents involving these active ingredients account for more than a third of human incidents and more than half of domestic animal incidents received by the PMRA. These active ingredients are scheduled to be re-evaluated in Canada and the United States. As part of the re-evaluation, an extensive evaluation of the Canadian human (343 incidents) and domestic animal (742 incidents) incidents involving the active ingredient pyrethrins or an active ingredient from the pyrethroid class of pesticides is underway.

#### **4.2.2.4 Flea and tick control spot-on type products**

In 2009, the PMRA undertook an extensive analysis of the domestic animal incidents reported for flea and tick control spot-on products. As a result, the PMRA published Regulatory Directive DIR2010-02 as a preliminary step to strengthen the labels of spot-on pesticides used on companion animals for flea and tick control. The PMRA is continuing to work on additional regulatory actions to help mitigate potential risk associated with the use of spot-on products. These actions include working in collaboration with the United States Environmental Protection Agency to improve the protocols used to assess the safety of companion animal products, considering reducing the amount of product used while maintaining efficacy, and increasing outreach efforts to consumers and veterinarians. All of these activities will continue over the next few years.

#### **4.2.2.5 Pollinator (Bee) incidents**

Three incident reports involving pollinator mortality were received in 2010 (2010-4374, 2010-3391 and 2010-3100). When assessed individually, it was considered highly probable that the pesticide exposure caused the bee mortality. Pollinator issues are a global issue concern and a PMRA priority. As such, a trend analysis has been initiated by the PMRA, which will permit further understanding of the circumstances that lead to the observed bee mortality and may help guide the development of additional risk mitigation measures.

### **4.3 *Using Incident Reports in PMRA Risk Assessments***

The PMRA uses incident reporting information as part of the weight of evidence in the evaluation of new pesticides and the re-evaluation of older pesticides.

In 2010, pesticide incident report information was used in the evaluation of five new pesticides and the re-evaluation of 20 pesticides (for example, aluminum phosphide, rodenticides).



## 5 Conclusion

Now in its fourth year, the IRP continues to receive pesticide incident data that is critical to the post-market surveillance of the safety of pesticide products. The IRP analyzes the entire collection of incident report data on an annual basis. A review of the data received in 2010 revealed that no single pesticide product was reported in a large number of incidents. However, most incidents involved a particular product type, namely domestic class insecticide sprays. Furthermore, a small subset of registered active ingredients was reported in a large proportion of incidents. Evaluations of the most frequently reported active ingredients, as well as other risks identified in the incident reporting data, are underway or have been completed.

Several of these evaluations have resulted in the implementation of risk mitigation measures. The IRP will actively monitor the incident reporting data to assess the effectiveness of these risk mitigation measures, and will continue its ongoing surveillance of the data for signs of potential risks to health or the environment.

## 6 What to do in the Case of Pesticide Exposure

Instructions on the pesticide label are designed to minimize exposure to both workers and the general public. In case of accidental exposure to pesticides:

- Follow the first aid statements on the label
- Call your local poison control centre immediately and seek medical attention
- Take the pesticide container or label with you to an emergency facility or physician
- In case of accidental poisoning of pets, seek veterinary attention immediately
- Report pesticide incidents to the manufacturers (get the correct contact information from the label)—they are required to send these reports to Health Canada

It is important to report incidents to the pesticide manufacturers. Reporting pesticide incidents helps Health Canada identify possible unexpected issues related to the use of a pesticide.

More information is available at:

[www.healthcanada.gc.ca/pesticideincident](http://www.healthcanada.gc.ca/pesticideincident)

or by contacting Health Canada at:

**The Pest Management Regulatory Agency**

2720 Riverside Drive

Ottawa, Ontario

A.L. 6606D2

(Attention: Pesticide Incident Reporting Program)

**Within Canada:** 1-800-267-6315

**Outside of Canada:** 1-613-736-3779 (long distance charges apply)

**Email:** PMRA-incident-ARLA@hc-sc.gc.ca