

**Canadian National Management Strategy  
For the Phase-out of Methyl Bromide  
Critical Use Exemptions**

**Prepared by**

Ozone Protection Programs  
Environment Canada

**In cooperation with**

The Methyl Bromide Industry-Government Working Group

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## List of Acronyms

AAFC	Agriculture and Agri-Food Canada
CNMA	Canadian National Millers Association
CUE	Critical use exemption
CUN	Critical use nomination
EPPO	European Plant Protection Organisation
ExMOP	Extraordinary Meeting of the Parties
MB	Methyl bromide
MBTOC	Methyl Bromide Technical Options Committee
MBWG	Methyl Bromide Industry-Government Working Group
MP or Montreal Protocol	Montreal Protocol on Substances that Deplete the Ozone Layer
PCP Act	Pest Control Products Act
Pic	Chloropicrin
PMRA	Pest Management Regulatory Agency
PRDD	Proposed Regulatory Decision Document
TEAP	Technology and Economic Assessment Panel
VIF	Virtually Impermeable Film

## 1 Introduction

The National Management Strategy sets out the process for the management and phase-out of methyl bromide critical use exemptions. It is a tool to encourage the phase-out and strictly manage any remaining critical uses of methyl bromide. It describes a process for:

- Continuous pressure to find alternatives and to phase out methyl bromide as soon as the alternatives are available;
- A Panel of experts to rigorously scrutinize requests for exemptions using criteria established by the Parties to the Montreal Protocol;
- Principles for the transparent management of such exemptions;
- Provisions for timely reporting and accountability regarding the use of exempted quantities.

It also satisfies a key requirement of the Montreal Protocol to prepare such a Strategy.

The Fourth Meeting of the Parties to the *Montreal Protocol on Substances that Deplete the Ozone Layer* agreed to add methyl bromide to the list of ozone-depleting substances subject to control. The Seventh Meeting of the Parties agreed to phase-out the production and consumption of methyl bromide by January 1, 2010. The Ninth Meeting of the Parties revised the phase-out date to January 1, 2005 and established interim reduction steps.

The Ninth Meeting of the Parties agreed to allow for possible exemptions to this production/consumption phase-out date in order to meet the marketplace demand for uses that are considered critical. The Parties established (Decision IX/6) criteria to assess nominations for critical use exemptions (CUEs). The Parties also agreed (Decision IX/7) to allow the use, in response to an emergency event, of quantities not exceeding 20 tonnes of methyl bromide.

Canada, as a signatory to the Montreal Protocol, must ensure that the requirements of this international treaty are implemented in Canada. Canada has developed a domestic control program to do so. In 1995, Canada's Ozone Layer Protection Program was revised and it was decided to phase-out methyl bromide by January 1, 2001.

In 1998, because of the change in position of Canada's major trading partners regarding their domestic phase-out date, Canada changed its position and decided to adopt the international phase-out schedule of January 1, 2005.

This National Management Strategy is a transition strategy, designed to facilitate and accomplish the phase-out of methyl bromide. This National Management Strategy has been developed in response to Decision Ex.I/4 of the Parties to the Montreal Protocol made at the Extraordinary Meeting of the Parties (ExMOP) held in March 2004. In Decision Ex.I/4, the Parties decided:

- *To request each Party which makes a critical use nomination after 2005 to submit a national management strategy for phase-out of critical uses of methyl bromide to*

*the Ozone Secretariat before February 1, 2006. The management strategy should aim, among other things:*

- *To avoid any increase in methyl bromide consumption except for unforeseen circumstances;*
- *To encourage the use of alternatives through the use of expedited procedures, where possible, to develop, register and deploy technically and economically feasible alternatives;*
- *To provide information, for each current pre-harvest and post-harvest use for which a nomination is planned, on the potential market penetration of newly deployed alternatives and alternatives which may be used in the near future, to bring forward the time when it is estimated that methyl bromide consumption for such uses can be reduced and/or ultimately eliminated;*
- *To promote the implementation of measures which ensure that any emissions of methyl bromide are minimized;*
- *To show how the management strategy will be implemented to promote the phase-out of uses of methyl bromide as soon as technically and economically feasible alternatives are available, in particular describing the steps which the Party is taking in regard to subparagraph (b) (iii) of paragraph 1 of Decision IX/6 in respect of research programmes in non-Article 5 Parties and the adoption of alternatives by Article 5 Parties.*

With industry cooperation, Canada has made excellent progress in respecting its Montreal Protocol commitments (refer to Table 1). In the coming year Canada will work with Canadian stakeholders with the objective to establish a target date for elimination of methyl bromide critical uses.

This document contains Canada's initial transition strategy to phase-out our critical uses of methyl bromide. The strategy is a living document that may be revisited from time to time as the transition evolves.

## **2 Background**

Methyl bromide is a broad-spectrum fumigant used in soils, structures and commodities. As it is an ozone depleting substance, most uses were phased out by January 1, 2005 in Canada, as required by the Montreal Protocol for non-Article 5 Parties (developed countries).

Quarantine and pre-shipment applications continue to be exempt under both the Montreal Protocol and the *Ozone-depleting Substances Regulations, 1998*. Critical uses are also exempt but are, however, subject to decisions of the Parties.

Table 1 shows the phase out schedule that was adopted by Canada in 1998.

**Table 1: Methyl Bromide Phase-out Schedule**

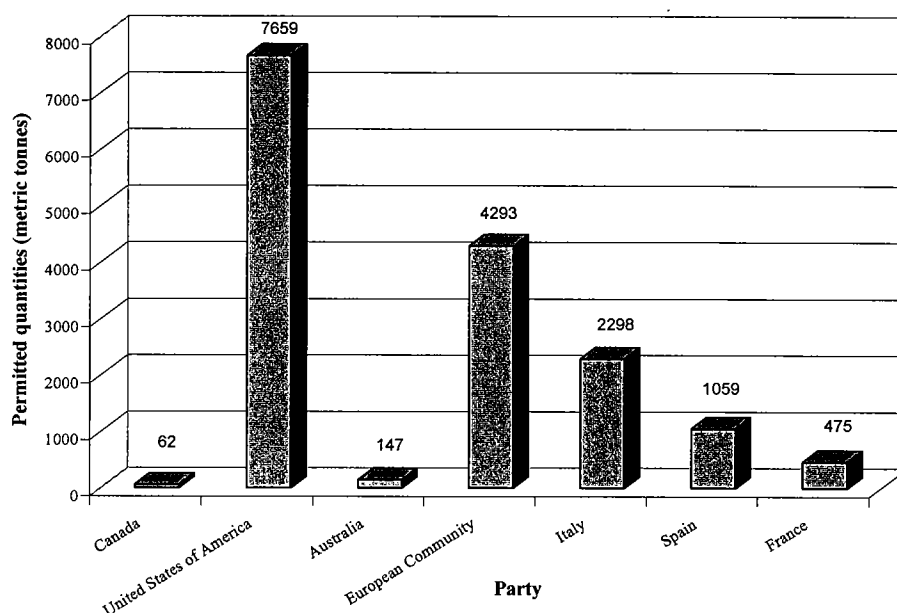
<b>Year</b>	<b>MB available in Canada (T)</b>
1995	200
1996	200
1997	200
1998	150
1999	150
2000	150
2001	100
2002	100
2003	60
2004	60
2005	0

Starting in 2005, consumption under critical and emergency uses may occur as these uses are temporarily exempted from the phase out. These exemptions have been granted for circumstances where alternative fumigants or technologies are not commercially available, and technically and economically feasible.

In the final decision (Ex.I/4) on conditions related to authorization of methyl bromide to be exempted for critical uses, the ExMOP decided that Parties should submit information on methyl bromide alternatives (available or under development) to the Secretariat, and requested that the Secretariat post this information in a methyl bromide alternatives database on its website. The ExMOP also requests Parties submit a national management strategy for phase out of critical uses to the Secretariat before February 1, 2006, if filing a critical use nomination (CUN) after 2005; consider and implement Technology and Economic Assessment Panel (TEAP) and Methyl Bromide Technical Options Committee (MBTOC) recommendations on actions to reduce critical uses; and describe in its nomination the methodology used to determine economic feasibility.

### **2.1 Quantities Used in Canada**

Canada consumes very little methyl bromide as compared to other countries worldwide. In fact, Canada consumes approximately one-half of one per cent of the combined use of the United States, the European Community and Australia. Figure 1 shows the 2005 permitted levels of production and consumption of methyl bromide for critical uses for Canada and other consumers of methyl bromide.



Numbers were taken from the Reports of the 1st Extraordinary Meeting of the Parties and the 16th Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer.

The quantity permitted for the European Community includes quantities permitted for Italy, Spain and France.

**Figure 1: 2005 Permitted Levels of Production and Manufacture of Methyl Bromide authorized by the Parties for Critical Uses**

As shown in Table 2, Canada and others are making progress towards the reduction of their critical use exemptions.

**Table 2: Approved Critical Uses Worldwide (in tonnes)**

	2005	2006	2007*
Canada	61.8	53.9	40
United States	7659	7659	7300
European Community	4293	3225	*
Australia	147	75	41
Japan	748	656	650

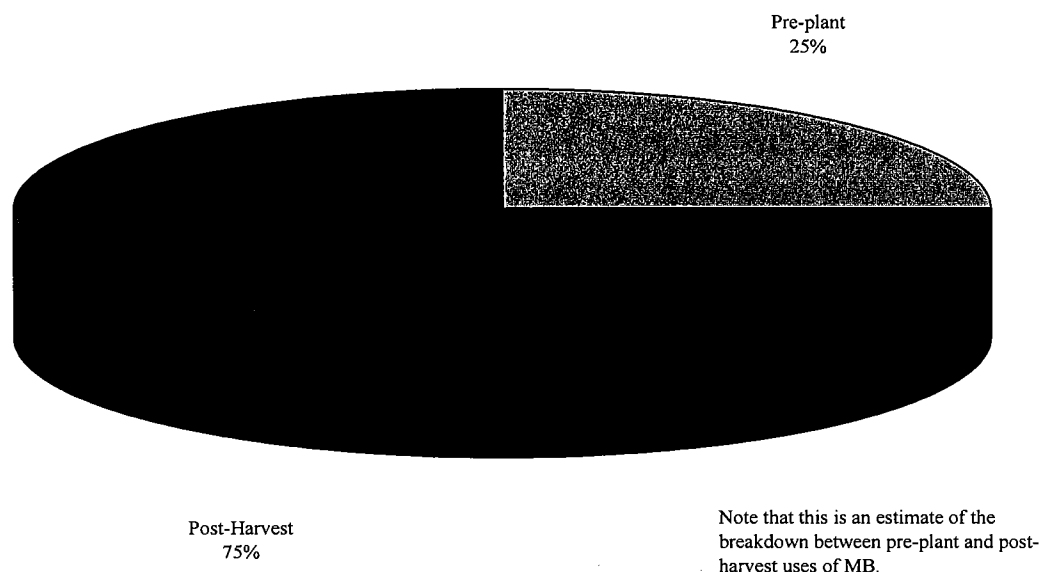
\* at the time this document was prepared, the CUNs for 2007 had not been approved by the Parties and the European Community had not applied for critical use nominations for 2007.

In 2004, 57.6 tonnes of methyl bromide were used for pre-plant agricultural and post-harvest structural fumigations. For 2005, 61.8 tonnes of methyl bromide were granted to Canada under the critical use exemption process. This increase in quantity resulted from the prohibition of an alternative to methyl bromide, Telone, by the province of Prince Edward Island.

Alternatives to methyl bromide are subject to multiple levels of regulatory jurisdiction in

Canada. Substances that are registered under federal regulations may not be permitted for use in all Canadian provinces as a consequence of provincial regulatory requirements or prohibition. Municipalities may also further restrict use.

The following chart represents an estimate of the breakdown between pre-plant and post-harvest uses



**Figure 2: Breakdown of Use Sectors in Canada (2004)**

## 2.2 Alternatives

The application for pesticide registration is beyond the control of both the end user (millers and growers) and the government of Canada and is in fact at the sole discretion of the technology owner (chemical industry). The cost of registration of alternatives is significant for the manufacturing company given the small Canadian market. However, once an application for registration of a product that may be an alternative to methyl bromide has been submitted, the Pest Management Regulatory Agency (PMRA) has committed to a priority review of the technology/substances identified as alternatives to methyl bromide.

Several facilities in Canada have used alternatives to methyl bromide for the control of pests. In some cases, the use of methyl bromide was eliminated. In other cases, the alternatives have been successful in lengthening the time needed between methyl



bromide applications, thereby reducing the total quantity of methyl bromide used.

Most pre-plant agricultural uses of methyl bromide have been phased out although exemptions for the use of methyl bromide on strawberry runners remains critical as a technically and economically feasible alternative has not been identified in Canada.

Lists of potential alternatives for post-harvest and pre-plant applications are appended to this document as Appendix A and B, respectively.

### ***2.3 Origin of the Methyl Bromide Sold in Canada***

Methyl bromide is not manufactured in Canada; all quantities of the substance must be imported for use. It is predominantly imported from the United States of America; however, the following countries are also known to manufacture methyl bromide: China, France, India, Israel, Japan, Romania, and Ukraine.

## **3 Transition Strategy Principles**

All elements of Canada's National Management Strategy and actions undertaken to achieve complete phase-out of critical uses must be in accordance with the following principles, which were developed jointly with Canadian stakeholders and regulatory authority:

1. Phase-out critical uses of methyl bromide in Canada as alternatives become technically and economically available.
2. Encourage users to phase-out methyl bromide by discouraging methyl bromide use through:
  - a. Rigorous review/approvals process
  - b. Accountability for results in reporting scheme
3. All those involved must work collaboratively towards a smooth and efficient transition to the use of alternatives to methyl bromide.
4. The Strategy will be developed, implemented and revised as appropriate in consultation with stakeholders, in a transparent manner.
5. The Strategy will respect the criteria for critical use exemptions.
6. The Strategy will facilitate responsible and optimal use of the limited quantity of methyl bromide permitted for importation (allow for transfers among companies who have been granted critical use exemptions).
7. Promote multi year consumption plans for methyl bromide wherein the quantity of methyl bromide used may be reduced.

### ***3.1 MBTOC Standard Presumptions***

Critical use nominations will attempt to reflect MBTOC's standard presumptions outlined in the Technology and Economic Assessment Panel/Methyl Bromide Technical Options Committee (TEAP/MBTOC) handbook. Any deviation from the presumptions will be explained in the critical use nominations. For example, the dosage rates for specific uses

are specified on the pesticide (including methyl bromide) label, any deviation from those rates is considered illegal in Canada.

MBTOC's standard presumptions are outlined in Table 3 below.

**Table 3: MBTOC's Standard Presumption for Pre-plant Fumigation**

	<b>Comment</b>	<b>CUN Adjustment</b>	<b>Exceptions</b>
1. Dosage Rates	Maximum guideline rates for MB/Pic 98:2 – 45 g/m <sup>2</sup> (cold heavy soils) or 35 g/m <sup>2</sup> (sandy soils), both with barrier films (VIF or equivalent); for MB/Pic 67:33 – 20 gMB/m <sup>2</sup> , under barrier films. Exceptionally, where VIF or equivalent is not feasible, maximum guideline rates for MB:Pic 98:2 – 60 g/m <sup>2</sup> . All rates on a 'per treated hectare' basis.	Amount adjusted to maximum guideline rates. Maximum rates set dependent on formulation and soil type and film availability.	Higher rates accepted if specified under national legislation or where the Party had justified otherwise.
2. Barrier Films	All treatments to be carried out under barrier film (e.g. VIF)	Nomination reduced proportionately to conform to barrier film use.	Where VIF prohibited or restricted by legislative or regulatory reasons
3. MB/Pic Formulation: Pathogen control	Unless otherwise specified, MB/Pic 50:50 (or similar) was considered to be the standard effective formulation for pathogen control as a transitional strategy to replace MB/Pic 98:2.	Nominated amount adjusted for use with MB/Pic 50:50 (or similar)	Where MB/Pic 50:50 is not registered, or chloropicrin is not registered
4. MB/Pic Formulation: Weeds/nutgrass control	Unless otherwise specified, MB/Pic 67:33 (or similar) was considered to be the standard effective formulation for control of resistant (tolerant) weeds, as a transitional strategy to replace	Nominated amount adjusted for use with MB/Pic 67:33 (or similar)	Where chloropicrin or chloropicrin-contained mixtures are not registered

	MB/Pic 98:2.		
5. Strip vs. Broadacre	Fumigation with MB and mixtures to be carried out under strip	Where rates were shown in broadacre hectares, the CUN was adjusted to the MB rate relative to strip treatment (i.e. treated area). If not specified, the area under strip treatment was considered to represent 67% of the total area.	Where strip treatment was not feasible e.g. some protected cultivation or open filed production of high health propagative material

VIF – virtually impermeable film

MB – methyl bromide

Pic- chloropicrin

**Table 4: MBTOC's Standard Presumptions for Post-harvest Fumigation**

	<b>Comment</b>	<b>CUN Adjustment</b>	<b>Exception</b>
Dosage Rate – structural	20g/m <sup>3</sup>	Nominations using higher dosage rates were reduced proportionally	Where approved label rates require higher dosage rate or where substantiated by the Party
Dosage Rate – commodities	EPPO standard, as given in MBTOC (1994, 1998)	Nominations using higher dosage rates were reduced proportionally	Where approved label rates require higher dosage rate or where substantiated by the Party

EPPO – Europe Plant Protection Organization

### 3.2 MBTOC Recommendation

End users with a critical use exemption will make every effort to consider and implement, where feasible, TEAP and MBTOC recommendations on actions which a Party may take to reduce critical uses as indicated in their reports. MBTOC's recommendations to date include:

**Table 5: MBTOC's Recommendations for Pre-plant Fumigation**

	<b>MBTOC Recommendations</b>
For 2005 nomination	MBTOC recommends that for an open field use of MB in 2005, that a maximum of 30g/m <sup>2</sup> of MB be used unless it can be demonstrated a higher rate is needed.
For 2006 nomination	The Party is urged to consider use of reduced rates of MB with virtually impermeable film (VIF) as a transition strategy.

For 2007 nomination	The Party is urged to consider use of reduced rates of MB with barrier films as a transition strategy.
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**Table 6: MBTOC's Recommendations for Post-harvest Fumigation**

	<b>MBTOC Recommendations</b>
For 2005 nomination	Canada is requested to ensure that MB is restricted to those premises and circumstances where alternatives are not technically and economically feasible.
For 2006 nomination	No actions recommended.
For 2007 nomination	No actions recommended.

## 4 Administration of Quantities

### 4.1 Domestic Process

Every year, Environment Canada publishes a *Notice to Anyone Engaged in the Use of Methyl Bromide* in the *Canada Gazette*, Part I, pursuant to subparagraphs 68(a)(ix) and 68(a)(xiii) of the *Canadian Environmental Protection Act, 1999*. The notice describes the criteria, process and schedule that Environment Canada (EC) will use to determine the relevance of nominations received for an exemption for a "critical" use of methyl bromide, as agreed to under the *Montreal Protocol on Substances that Deplete the Ozone Layer*.

The domestic critical use nomination process was elaborated by a sub-committee of the Methyl Bromide Industry-Government Working Group (MBWG) in 1998. Several members from the MBWG, including representatives from the Canadian National Millers Association, other federal government departments, the pest control products and service industries and environmental non-governmental organizations participated in developing the process.

Under the domestic process, the nominations are evaluated by a Methyl Bromide Advisory Committee, comprising experts from government, non-governmental organizations and industry. The purpose of the Advisory Committee is to evaluate nominations and forward to Environment Canada its recommendations concerning the nominations. The representatives of the Advisory Committee were chosen by Environment Canada based on their expertise, knowledge of the history of use of methyl bromide and their availability.

### 4.2 Permitting System

Import permits are issued pursuant to the *Ozone-depleting Substances Regulations, 1998* and only to those companies that successfully participated in the critical use exemption process or to companies that may import on their behalf. The permits are issued annually

and are valid for one calendar year.

### **4.3 Reporting**

The *Ozone-depleting Substances Regulations, 1998* requires companies that import methyl bromide to submit yearly reports to Environment Canada. The Regulations will be amended to require any company that is involved with methyl bromide to submit such reports as well. For uses of methyl bromide, Environment Canada will request that the annual report is submitted by December 15. This will enable Environment Canada to issue import permits for the subsequent year for the quantity approved under the critical use exemption.

## **5 Management Strategy Objectives**

In its reports, the MBTOC had indicated it foresaw a gradual reduction in critical uses of methyl bromide over time. Until such a time as these uses are eliminated completely, the specific objectives of the National Management Strategy are as follows:

- To phase-out critical use of methyl bromide in Canada as rapidly as possible while respecting the principles identified in Section 3 above
- To minimize use of methyl bromide by:
  - Minimizing emissions during the application of methyl bromide;
  - Encouraging the use of alternatives;
  - Encouraging manufacturers and producers of alternatives to register their product(s) in Canada;
  - Expediting the regulatory evaluation of alternatives that are subject to regulatory approvals to permit use.
- To provide a consistent and transparent regulatory and policy approach for the agriculture and industry sectors affected by phase-out of methyl bromide

Canada will report annually on the progress being made in implementing the National Management Strategy and update this strategy accordingly.

### **5.1 Phase Out of Quantities Granted as Critical Use Exemptions**

This National Management Strategy has been developed taking into account the following success factors identified by Canadian stakeholders as being essential to achieving reductions in the quantities of methyl bromide used:

1. Flexibility to allow the transfer of quantities of methyl bromide for critical use exemptions among facilities that are included in the nomination to ensure efficacious and responsible use of the declining available supply of methyl bromide;
2. Recognition that the use of federally registered alternatives may be restricted or prohibited by provincial/territorial/municipal government departments and agencies

3. Recognition that to be viable, alternatives must be both technically and economically feasible; and
4. Pest control product registrations that permit the use of alternatives in conjunction with methyl bromide during the shutdown periods that are required for fumigation.

The first success factor will be implemented through amendments to the *Ozone-depleting Substances Regulations, 1998*. The target date for these amendments to be complete and in place is January 1, 2007. The Regulations will be amended to allow transfers of methyl bromide among those companies that have been granted a critical use exemption in a given year. These amendments will encourage the use of alternatives and allow industry to optimize the efficacy of the limited quantities of methyl bromide available under critical use exemptions in Canada.

The second success factor depends on individual jurisdictions in Canada. A registered product by the PMRA may be prohibited for use or may have its use restricted by another legal authority in Canada. Environment Canada will monitor provincial regulatory requirements and the re-evaluations of registered products as these are undertaken by the federal Pest Management Regulatory Agency.

Technical and economic feasibility of alternatives are already taken into account in Canada's CUE process and will continue to be recognized as the phase-out proceeds. This factor will be considered on a site-specific basis.

Pest control product registrations are made pursuant to dosage rates and conditions of use proposed by the registrant in evaluation submissions. Environment Canada will continue to provide human and financial resources in cooperation with Agriculture and Agri-Food Canada to enable the MBWG to continue as a forum for dialogue, information exchange and advice to EC and other Canadian regulatory departments and agencies. Additional information concerning Canada's product registration process is provided below.

## **6 Approval of Alternatives**

Pesticides imported into, sold or used in Canada are regulated nationally under the *Pest Control Products Act* (PCP Act) and its Regulations. The Pest Management Regulatory Agency is responsible for administering this legislation, registering pest control products, re-evaluating registered products from time to time in accordance with regulatory requirements and setting maximum residue limits under the *Food and Drugs Act*.

The registration process is designed to evaluate the safety, merit and value of pest control products through pre-sale assessment and registration. The conditions under which each product may be sold, the purposes for which it may be used and the conditions or restrictions for use are established at the time the product is registered.

All applications for registration of pest control products must be made to PMRA, Health Canada. Submissions are made on a single-product basis; that is, each product must be

documented and applied for individually.

The following is a brief outline of the proposed submission management process:

- Within seven days of receipt, all submissions are verified by the Submission Control Unit to ensure that all the required information has been provided.
- Submissions are screened for acceptability based on current data requirements within 45 days of receipt by the Submission Screening Section.
- Depending on the nature of the proposed registration one of five review processes is assigned.

Based on a full review of the application and the supporting information, proposed regulatory decision documents (PRDDs), are produced for public consultation for all new active ingredients and some major new uses of currently registered pesticides. The consultation period for all PRDDs is normally 45 days from the date of publication. The comments received during the consultation period are assessed, and the final decision is made within 45 days from the end of the comment period.

The applicant is then notified of the decision. If the proposed registration is acceptable, the applicant receives a consolidated letter of intent to register from the Chief Registrar, outlining the regulatory decision.

The applicant then has 365 days to submit a final label in response to the letter of intent to register. Approval of the final label and issuance of the Certificate of Registration takes place within 45 days of the receipt of the final label.

PMRA has published guidelines to aid the applicant in completing the necessary forms and submitting the necessary information. The time required for approval may be shortened by submitting a complete, high-quality submission.

Additionally, once registered federally by the PMRA, some provinces/territories or even municipalities may issue additional permits and/or place control measures (such as supplementary registration) on the substances as long as the measures they adopt are consistent with any conditions, directions and limitations imposed under the PCP Act.

It is also important to note that in an integrated North American market where alternatives may be available to United States based companies but not their Canadian counterparts, the United States regulatory agency takes a risk versus benefit approach to the evaluation of pest control products; whereas the PMRA does not consider the benefits but considers only whether the risks to health and the environment are acceptable.

### ***6.1 Deregistration of Alternatives***

Provinces, territories and municipalities are able to impose additional control measures on a federally approved alternative. It is possible these additional restrictions, which may include stringent risk mitigation measures, may render an alternative product technically infeasible, economically nonviable or completely prevent its use within the area of jurisdiction of the government imposing the restrictions.

## **7 Research and Dissemination of Information**

A number of factors may influence acceptance of alternatives: lack of awareness of new practices or alternatives; general caution by end users; and lack of perceived benefits to the end users. In order to ensure a smooth transition it is essential that information on alternatives be available to end users.

The Methyl Bromide Industry-Government Working Group, co-chaired by Environment Canada and Agriculture and Agri-Food Canada (AAFC) will continue to provide a forum for government, industry, and environmental non-government organizations to share information on trials and research being conducted in the various sectors.

Canada will continue to encourage and support research programs. One such program, Advancing Canadian Agriculture and Agri-Food program, is funded and administered by Agriculture and Agri-Food Canada. The Canadian National Millers Association (CNMA) has completed one collaborative project to evaluate alternatives with the support of AAFC and is currently managing a second two-year (2005-2006) initiative to assist companies and pest controls service providers in evaluating alternatives. Results of the evaluations will be published by CNMA by first quarter of 2007.