



Agriculture and
Agri-Food Canada

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Pest Management Centre Agriculture and Agri-Food Canada Pesticide Risk Reduction and Minor Use Programs

**Ken Campbell
Global Minor Use Summit
Rome, Italy
December 6, 2007**



Canada

Responding to Grower Need

- Access to new minor use pest management tools
- Improved grower competitiveness and environmental sustainability
- Addressing public concerns over human and environmental health

AAFC Pest Management Centre

Risk Reduction

Grower led strategies

Lower risk products, practices

Integrated pest management

Minor Use

Submission
Preparation

AAFC
Sites

Data Generation

- Field Trials
- Lab Analysis

Applied Research

Biopesticides initiative

Screening Initiative

Implementing new technologies

Program Features

- Modeled after the U.S. IR-4 Program
- Integration with U.S. minor use pesticide programming
- High degree of grower focus with transparent processes to select priorities
- Collaboration with a broad range of stakeholders
- Focus on priority pest management problems
- Grower group focus for risk reduction strategy development
- Research support for technology development and implementation to reduce risk in pest management

Intended Outcome of Programs

Short term:

- registration of reduced risk and minor use pesticides
- improved access by growers to safer pest management products and practices

Long term:

- Growers using improved pest management tools and practices
- Contributing to the economic and environmental sustainability of Canadian agriculture

Minor Use Pesticide Program

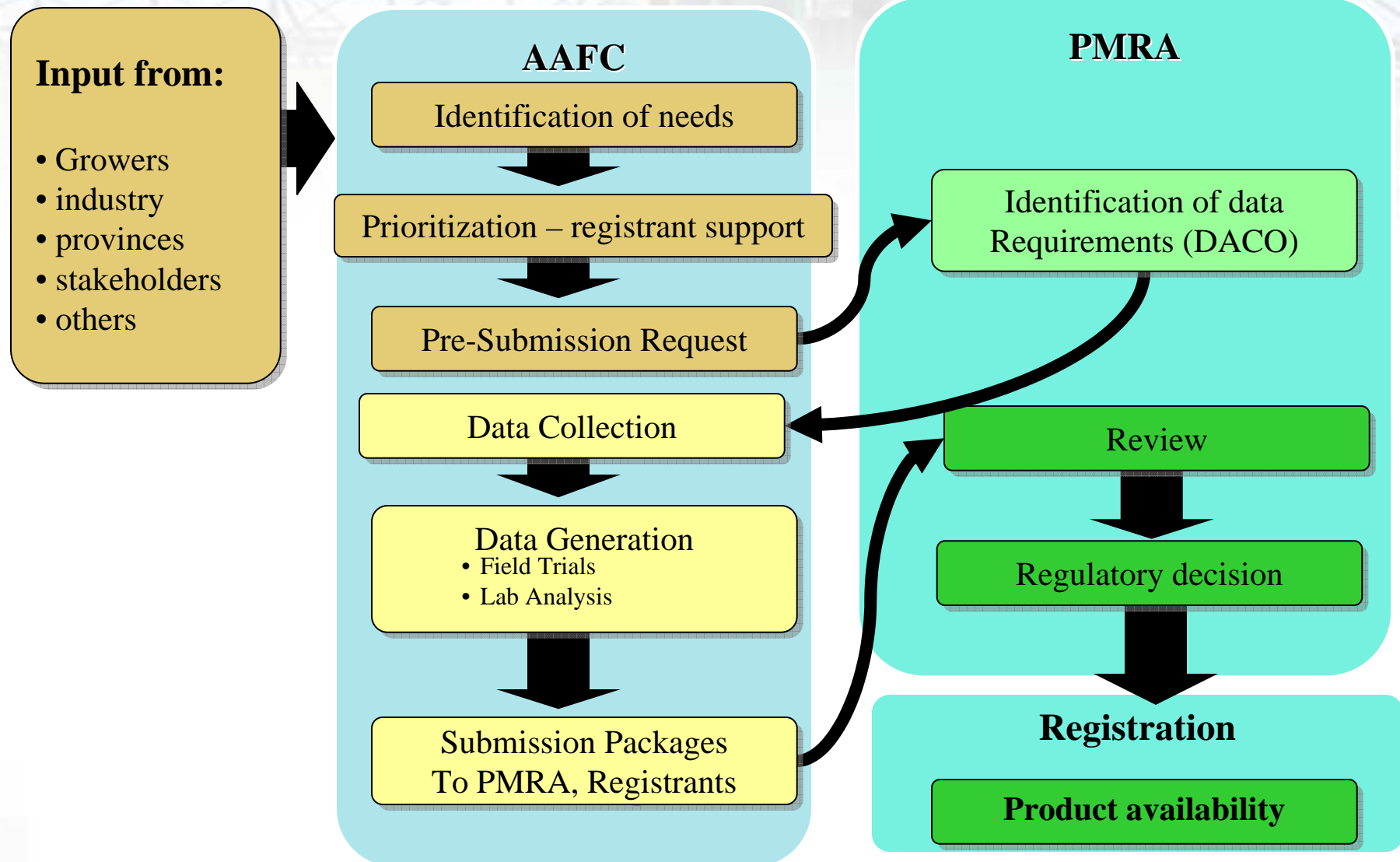
Canadian Minor Use Pesticides Priority Setting Workshop

- Growers work with Provinces to determine a National List of priorities on a crop-specific basis, determine key pest problems for insects, diseases, weeds.
- Provincial Minor Use Coordinators, Grower Groups, PMRA, IR-4, Pesticide Industry, Specialists meet annually. (April 1-3, 2008, Ottawa, Ontario)
- Through consensus, determine national priorities for the following year:
 - 10 weed science, 10 entomology, 10 pathology, 1 organic and 5 regional projects (any discipline).

Joint Projects with IR-4

- Using the grower identified priority needs, we attempt to match with the US, and an additional 10-15 joint projects per year with the U.S. are chosen for joint submission and review
- Similar process, and Canadian timelines for joint projects
- AAFC coordinates value trials
- IR-4 usually coordinates residue studies with AAFC site participation in trials
- IR-4 laboratories conduct analyses
- AAFC is the lead on two projects in 2008.

Minor Use Pesticides Process



Minor Use Program – Progress Update

- Since startup in 2003, there has been much progress:
 - 2400 field trials
 - 104 submission packages forwarded to the PMRA
 - 52 registrations – many new uses
 - 464 projects initiated
 - 110 of these are joint projects with IR-4
 - 31 have been completed without submission
 - field sites organized
 - GLP accreditation obtained

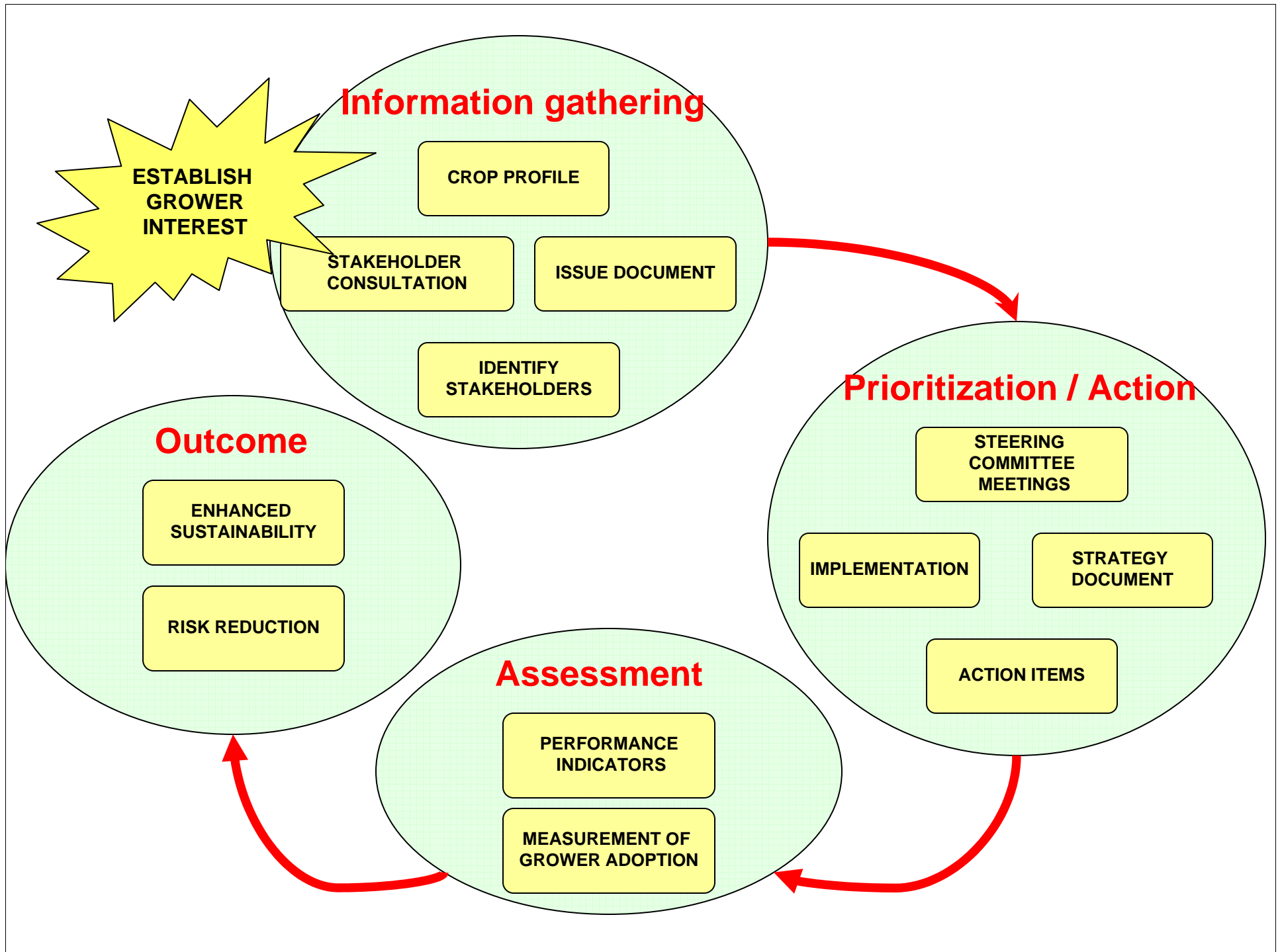
Pesticide Risk Reduction Program

Goals

- Promote use of reduced risk and low risk pesticides
- Support development and adoption of integrated pest management (IPM)
- Provide pest management solutions to support farm profitability, public safety and agro-industry competitiveness
- Support transition from pesticides under re-evaluation

Pesticide Risk Reduction Program

- Priority crops have been selected for risk reduction work based on a number of criteria:
 - Grower needs, gaps in pest management
 - Grower interest
 - Production factors such as distribution, value, area
 - Environmental or health risks
- List reviewed annually with PRR program technical working group for opportunity to prioritize more crops



Implementation of Risk Reduction Strategies

- Through project support for applied research and implementation (annual call for proposals and short term project funding).
- Through the biopesticides initiative.
- Through communications activities.

Applied Research Initiatives

- 100 Projects addressing high priority issues identified in commodity-specific pesticide risk reduction strategies.
- Regulatory work with biopesticide registrants to encourage registrations of these low-risk solutions.
- Screening trials to identify reduced-risk pest control solutions for high priority issues identified in commodity-specific risk reduction strategies or through the minor use priority-setting process are supported by the fund.

Example of Strategy Development and Implementation

- Apple – Fire Blight Management
 - Funding provided to review available fire blight management practices
 - Formation of a steering committee to develop a long-term management plan for fire blight.
 - Joint EPA/PMRA review of **two biopesticides, which have now been registered in Canada**
 - Management guidelines, brochures and CD published, and workshops held to promote adoption of integrated pest management tools (forecasting models, pruning, alternative products)
 - Registration of Streptomycin granted for 2 years (due to strategy for replacement)

Strategy Case Study: Fire blight of apple and pear



Integrated Management of Fire Blight on Apple and Pear in Canada



What is fire blight?

Fire blight, caused by *Erwinia amylovora*, is a bacterial disease of apple, pear, hawthorn, crabapple and ornamentals in the Rosaceae family. The disease can result in the loss of branches and tree structure. In severe cases, when the bacteria progresses into the trunk or infects the rootstock, entire trees can be killed. The severity of disease is dependent on cultivar and rootstock susceptibility, general tree health, cultural practices and environmental conditions. Economic losses to fire blight occur due to a loss of fruit-bearing surface and tree mortality. Trees may need to be removed and replanted or, in severe cases, whole blocks of trees may need to be replaced.

What does fire blight look like?

The symptoms of fire blight depend on the part of the tree that is attacked. Blossom blight (Figures 1 and 2) results in blackened shriveled blossoms in clusters. Shoot blight (Figures 3 and 4) is characterized by the typical "shepherd's crook" symptom. Cankers (Figures 5, 6 and 7) form once fire blight progresses into larger branches, trunk and the rootstock. Cankers are typically smooth edged when first formed, but the margins become cracked and more pronounced with time. Infections can also be identified by the discharge of bacterial ooze from infected plant surfaces.

Where does fire blight come from?

Fire blight bacteria overwinter in cankers or stubs on host trees. In the spring, the bacteria can multiply very quickly, causing the surfaces of cankers to ooze bacteria. Bacteria are spread to blossoms by insects (e.g. fire, honeybees) and splashing rain. Rainfall, high relative humidity and/or downward the bacteria to travel into the stigma of flowers and into the tree. Blossom infections often result in shoot infections later in the season.

How do I save my trees once they are infected with fire blight?

There is no cure for fire blight, but the spread of bacteria can be limited by using sound pest management strategies in an integrated management program. Such a program should include diligent pruning to remove cankers in the winter, pruning during the growing season the removal of blight symptoms as they appear, a balanced nutrition program and the use of prediction models to determine appropriate timing for the application of control products to limit the spread of the disease.

How do I avoid problems with fire blight in the future?

Today, the trend is to plant higher density orchards with more valuable cultivars (many of which are highly susceptible to fire blight), making it difficult to avoid the disease all together. Risks can be minimized by selecting cultivars and rootstocks carefully when planting new orchards (a list of the susceptibility of some common cultivars and rootstocks is included in this publication). Sites chosen for orchards should have well drained soils with a pH between 5.5 and 6.5 and have adequate organic matter. The application of excess nitrogen should be avoided. An integrated pest management program for sucking-planting insects (e.g. leafhoppers, aphids, plant bugs) should be implemented. An annual pruning program to remove as many fire blight cankers as possible is critical. The use of control products (copper or Bordeaux mixture before buds open, streptomycin for blossom blight control in combination with a prediction model to time bloom applications) will help limit disease spread. The use of Apogon® in mature bearing trees where blossom blight has been detected may help reduce susceptibility to the disease. With all the different factors involved in fire blight management, integrated pest management strategies are essential.

Pesticide Risk Reduction Program: Pest Management Centre
www.agr.gc.ca/pmrpp

This document was assembled and assembled by David Stipanuk of Dufferin Greening Inc. and The Macdonald of Agriculture and Agri-Food Canada for the Council for the Orchard Council. It has been reviewed and approved by members of the field of using which pest management, focusing on this pest control was not intended. See their Management Centre, Agri-Food and Agri-Food Canada. Information on the specific uses and products for which this document was prepared for other uses (especially for other uses) is not intended to be used by growers as a pesticide guide. The field publications should be considered for growers for their information. They often have been made to ensure that the information is published in a timely and accurate manner. Information and Agri-Food Canada does not assume any liability for errors or omissions, of persons or items, nor intend to be held, responsible for any errors or omissions associated with this publication. Please contact the editor of the website of the Orchard Council for subsequent updates.

Blossom Blight

Figure 1



Figure 2



Shoot Blight

Figure 3



Figure 4



Infections



Some examples of successful projects to-date include:

- New applications approaches and formulations of RR greenhouse pest control products and technologies
- Work with biopesticide registrants resulting in new submissions
- Potato stem crusher for control of European corn borer in potato crops and carrot trimmer to reduce sclerotinia pressure
- Carrot trimmer
- Canola Disease Identification Card
- Grasshopper identification booklet
- BMP package for management of root weevils in strawberry
- New dry bean breeding lines with multiple pest resistance

Regulatory Support for Biopesticides

- 3 new biopesticide product registrations (*BlightBan C9-1, Bloomtime and Serenade/Rhapsody*)
- 7 submissions to the regulator (*Prestop, Rootshield, Rootshield HC Drench, Botanigard, Met 52, Blightban 506 and Contans, plus 1 submission to the registrant -Surround*)
- Work underway on a number of other submissions for product registrations including Biosave, Facin and Agriphage.

International Cooperation

- PMC – IR-4 – PMRA – EPA Minor Use joint projects
- NAFTA Minor Use joint review
- OECD joint project on new active ingredient
- Participate in the NAFTA Technical Working Group on Pesticides
- Participation on OECD Registration Steering Group (RSG) – on Minor Uses.
- Technology Gap

THANK YOU!

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