



Agriculture and
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Pest Management Centre Progress with Biopesticides

Since its establishment Agriculture and Agri-Food Canada's Pest Management Centre (PMC) has supported biopesticides development and implementation with more than \$5.0 million committed to over 50 biopesticides projects between 2003 and 2011. PMC also assists the biocontrol industry in registering and commercializing their products. Successes include the development of new approaches for control of fireblight, cabbage looper, wireworms, root weevils, and plant diseases and projects which provide regulatory support to industry. Assistance for registration submissions ranges from "regulatory pathfinding" to substantial work toward the completion of dossiers. Work funded through the PMC has led to 14 product submissions comprising almost 100 uses. Numerous additional uses and products are also in the process of commercialization.

Biopesticides Industry Study

In 2007 Dr. Stéphane Dupont conducted a study on behalf of PMC where he evaluated the options and gauged interest from the Canadian biocontrol industry in improving their representation. This study identified areas where the Canadian biopesticide industry would benefit from a concerted voice. Canadian companies also demonstrated a high degree of interest in forming such representation. Results of the survey were presented to the biopesticides industry for further consideration.

Botanigard ES & 22 WP in Canada

Beauveria bassiana (active ingredient of Botanigard), has been known to control pests since the late 1800s. However it was not registered for pest control in the U.S. until 1999. In order to help register this product in Canada, the PMC contacted the registrant and assisted in various ways: conducted literature surveys, prepared scientific responses to questions raised by the regulators, re-formatted data package and prepared e-Index, and submitted the registration package to PMRA March, 2006. The draft label includes many greenhouse crops. In the future label expansions will be pursued to include new delivery technologies and outdoor uses.

Prestop is Registered

Prestop is a biopesticide based on *Gliocladium catenulatum* which controls a wide variety of foliar and soilborne fungal diseases such as (Pythium, Fusarium, Rhizoctonia, Phytophthora, Botrytis, etc.) in ornamentals, greenhouse and field vegetables. Both PMC programs assisted in the submission and generated and assembled efficacy data. Path finding assistance was also given for the Cat A submission. PMRA has approved numerous uses.

Canada 

PMC Biopesticide Registrations and Submissions*

Product	Active Ingredient	Crop	Issue
Registered (new active ingredients)			
BlightBan C9-1 BloomTime Prestop	<i>Pantoea agglomerans</i> C9-1 <i>Pantoea agglomerans</i> E325 <i>Gliocladium catenulatum</i>	Apple, Pear Apple, Pear Ornamentals, vegetables (greenhouse and field)	Fireblight Fireblight Foliar & soilborne fungal diseases (Pythium, Fusarium, Rhizoctonia, Phytophthora, Botrytis, etc.)
Rhapsody Rhapsody	<i>Bacillus subtilis</i> QST 713 <i>Bacillus subtilis</i> QST 713	Pome fruits Beans, carrots, peas, greenhouse vegetables and ornamentals	Fireblight Fungal diseases (Sclerotinia, Botrytis, Peronospora, powdery mildew, etc.)
Serenade Max	<i>Bacillus subtilis</i> QST 713	Asparagus, bulb vegetables, celery, cole crops, legume vegetables, lettuce, peppers, tomatoes, strawberry	Fungal diseases (Sclerotinia, Botrytis, Peronospora, powdery mildew, etc.)
Serenade Max	<i>Bacillus subtilis</i> QST 713	Pome fruits	Fireblight, Scab
Submitted (new active ingredients and label expansion submissions)			
Biosave	<i>Pseudomonas syringae</i>	Pome fruits, potatoes	Storage diseases (blue mould, silver scurf, dry rot, etc.)
BlightBan A506 Botanigard 22WP	<i>P. fluorescens</i> A506 <i>Beauveria bassiana</i> GHA	Apples, Pear Greenhouse vegetables and ornamentals	Fireblight Aphids, thrips, whiteflies
Botanigard ES	<i>Beauveria bassiana</i> GHA	Greenhouse vegetables and ornamentals	Aphids, thrips, whiteflies
Contans WG	<i>C. minitans</i> CON/M/91-08	Agricultural and horticultural soils cabbage, canola, carrots, celery, dry bean, lettuce, potato, snap bean, soybean, sunflowers, tomato	Sclerotinia sclerotiorum, Sclerotinia minor
Met-52 Root Shield Granules RootShield HC	<i>Metarhizium anisopliae</i> F52 <i>Trichoderma harzianum</i> T-22 <i>Trichoderma harzianum</i> T-22	Berry crops, strawberry Outdoor nursery plants Outdoor nursery plants, agricultural field crops, strawberry, turf	Black vine weevil, root weevil Pythium, Rhizoctonia, Fusarium, Botrytis Pythium, Rhizoctonia, Fusarium, Botrytis Sclerotinia homeocarpa (turf)
Surround WP	kaolin	Carrot, dry bean, potatoes, raspberries, strawberries	Leafhoppers

*The Pest Management Centre's Pesticide Risk Reduction Program provides companies assistance with the registration process for biopesticides which address pesticide risk reduction priorities. The PMC works with the company to prepare an information package, which is submitted to Health Canada's Pest Management Regulator Agency (PMRA) to support the registration of the biopesticide. The PMRA reviews the information and decides whether or not to accept the biopesticide for the requested uses in Canada. Once registered, the product can be used according to the label.

For more information on other biopesticide related work underway at the PMC visit the PMC website at www.agr.gc.ca/biopesticides

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