



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada



Working in Partnership with CABI

Michèle Marcotte
Ottawa Research and Development Centre
Ottawa, Ontario, CANADA



A Partnership for 67 years

1929 – **Imperial Parasite Service** of the Imperial Agricultural Bureaux, located at the Farnham House Laboratory in England, was responsible for Canada's work overseas.

1940 – **Imperial Agricultural Bureaux** relocated Imperial Parasite Service to Belleville to escape the World War II

1948 – headquarters of **Commonwealth Bureaux of Biological Control** transferred to Ottawa, Canada

1951 – **Commonwealth Institute of Biological Control (CIBC)**, substations in Switzerland, West Indies (Trinidad) and California, USA

1959 – CIBC moved from Ottawa to Trinidad

1984 – CIBC headquarters moved to Ascot, UK

Building capacity

The Canadian government through the Canadian International Development Agency (CIDA) funded totally or partly the establishment of station buildings in Kenya, India and Pakistan.



Kenya Station



India Station



Pakistan Station



Trinidad Station

CABI Switzerland

1948 – CBBC substation set up in Switzerland to serve Canada’s needs; based in Feldmeilen close to Zurich

1963 – new laboratory opened in Delémont on “Rue des Grillons” (Cricket Street)

2000 – addition added to accommodate growing programmes

Canada 



Other partnership contributions

CABI council

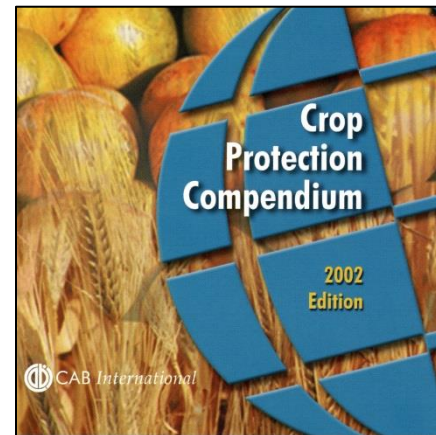
- Canada was Executive Council Chair 2007-2011



Dr. Gary Whitfield

CABI compendia

- AAFC scientists have contributed to the *Crop Protection and Invasive Species compendia*



Vincetoxicum rossicum (European swallowwort)	
Index:	Summary
Phytos:	Last modified: 16 April 2012
Identity:	Distribution Pattern: Invasive Species
Summary of Invasiveness:	Plant Type: Vine
Taxonomic Tree:	Distribution:
Notes on Taxonomy and Nomenclature:	Preferred Scientific Name: Vincetoxicum rossicum
Origin:	Preferred Common Name: European swallowwort
Plant Type:	Taxonomic Tree:
Distribution Table:	Domain: Eukaryota
History of Introduction and Spread:	Kingdom: Plantae
Risk of Introduction:	Phylum: Spermatophyta
Habitat:	Subphylum: Angiospermae
Habitat List:	Class: Dicotyledoneae
Health Services Affected:	Summary of Invasiveness:
Host/Plant/Grass Affected:	V. rossicum has spread extensively throughout the lower Great Lakes Basin, particularly Lake Ontario, including New York State, USA and Ontario, Canada, afflicting thousands of acres. A recent report that hundreds of acres have been lost to just a couple of decades. The...
Growth Stages:	
Biological and Ecological:	
Art Temperature:	
Health:	
Soil Temperature:	
Natural Enemies:	
Notes on Natural Enemies:	
Means of Movement and Dispersal:	
Pathway Vectors:	
Plant Trade:	
Impact Summary:	
Impact:	
Environmental Impact:	
Impact Tradeability:	
Special Impact:	
Risk and Impact Factors:	
Notes:	
Substrates to Other Species/Conditions:	
Prevention and Control:	
References:	
Distribution Maps:	

Our collaborative work



In the early days, CABI's work with Canada involved studying forest pests. The emphasis has gradually shifted and CABI is now studying agricultural pests and weeds almost exclusively.



CABI's role in Canadian efforts targeting invasive insect pests and weeds

Assessing feasibility of biological control

- Field and literature surveys to look for possible biological control agents

Discovering potential biological control agents

- Field collections, setting up rearing colonies
- Determine the biology/life history of agents

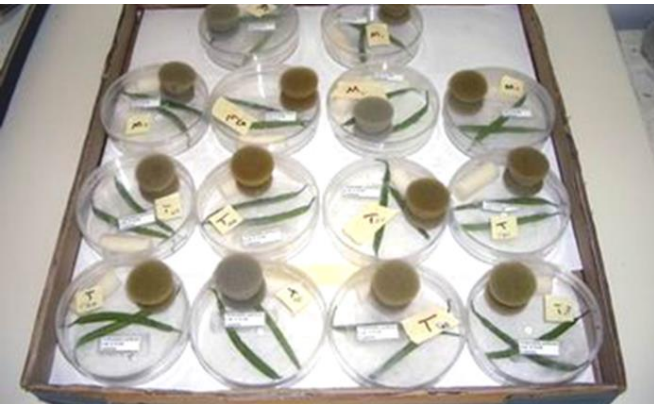
Selecting and assessing suitable agents

- Host-specificity testing for safety
- Evaluate potential for damage



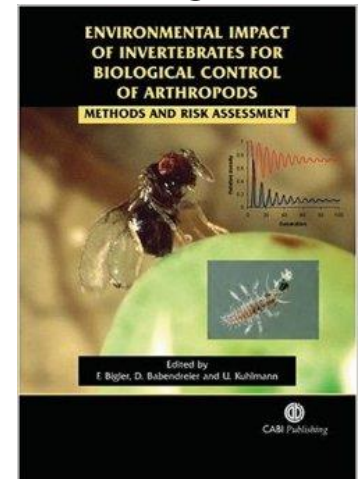
Canada 





Towards safer biological control

- Joint efforts of CABI and AAFC to improve protocols for regulation of exotic biological control
- Major focus on risk assessment for classical biological control agents
- CABI and AAFC scientists made a major contribution to development of new testing methodology/international guidelines
- Ongoing testing to validate guidelines through practice



Releases of biological control agents

Petition for cage- and open field release of *Tetrastichus scirifer* (Hymenoptera: Eulophidae) for biological control of the Lily Leaf Beetle, *Liloceris lili* (Coleoptera: Chrysomelidae) in Canada



Submitted by:
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Petition to introduce *Diadromus pulchellus* Wesmael (Hymenoptera: Ichneumonidae) as a Classical Biological Control Agent for Leek Moth, *Acrotropis assectella* (Zeller) (Lepidoptera: Acrolepiidae), in Canada

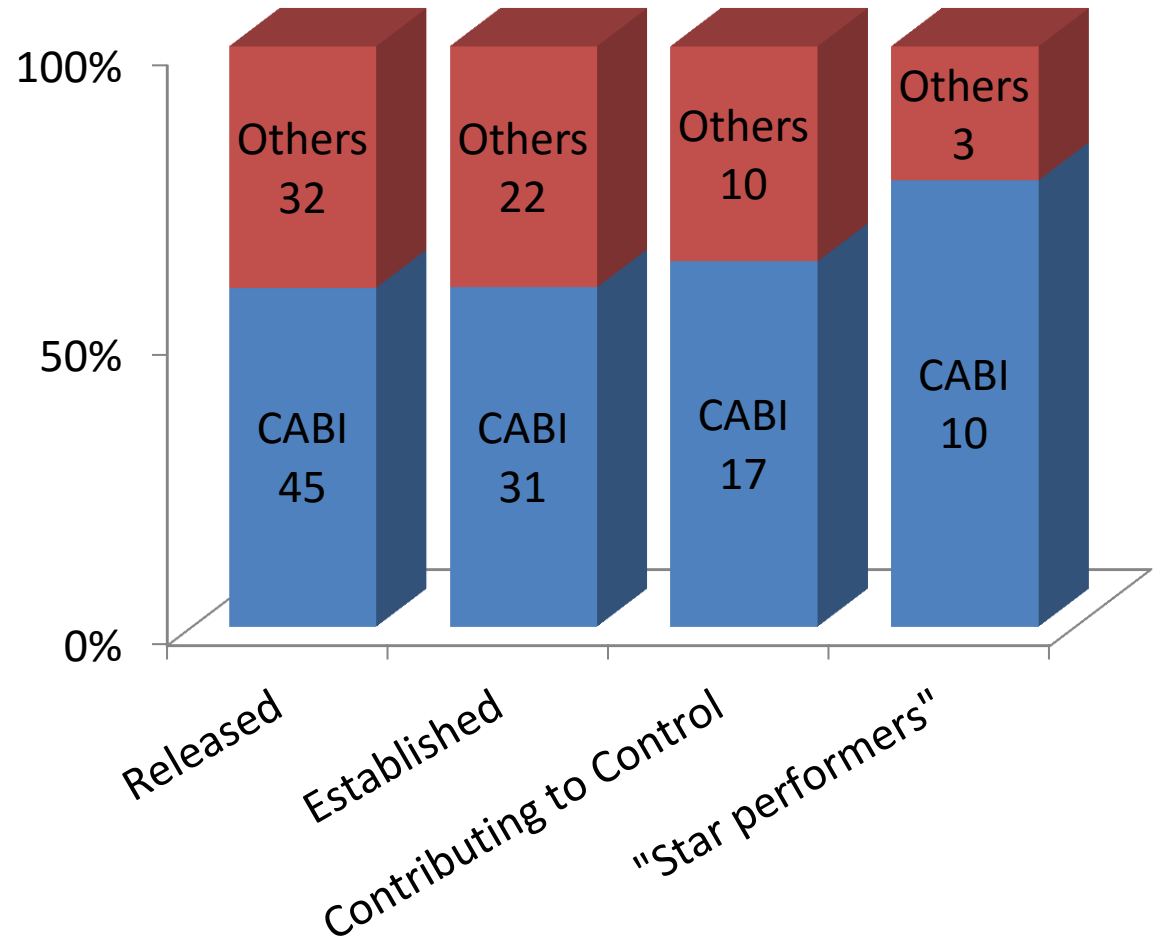


Submitted by:
Peter G. Mason¹, Wade H. Jenner², Jean-François Landry³,
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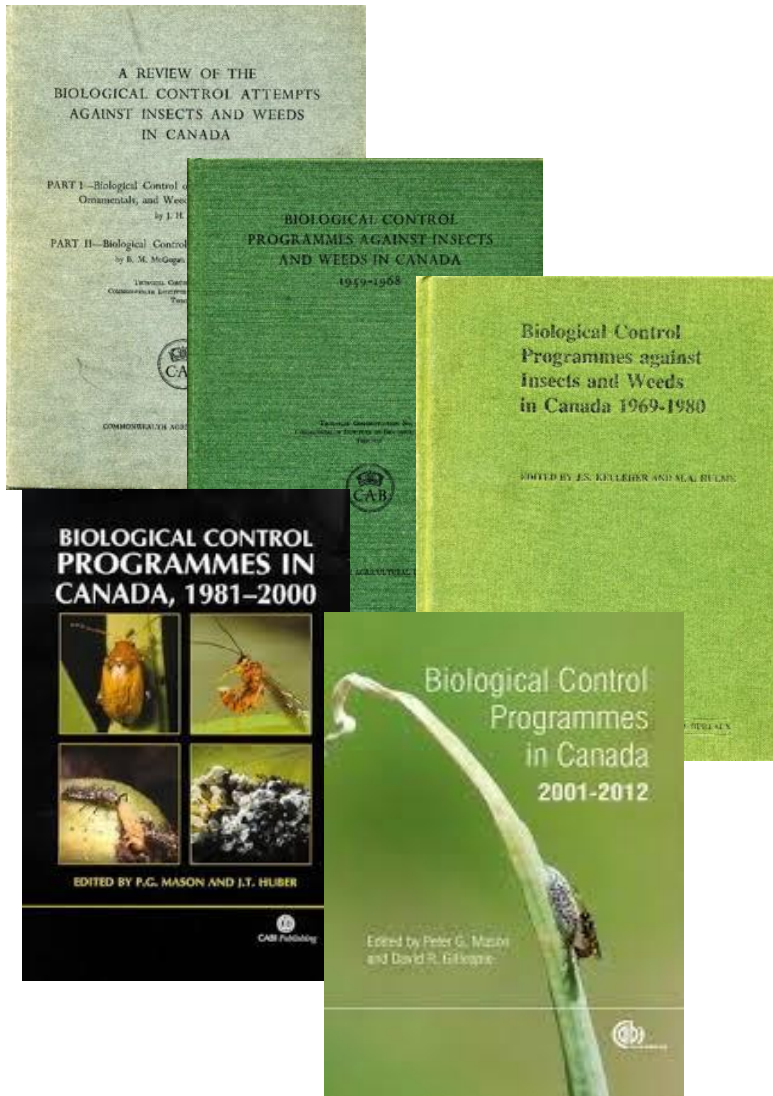
¹Agriculture and Agri-Food Canada, K.W. Sharkey Building, 960 Carling Avenue, Ottawa, Ontario, K1A 0G5 CANADA. Tel: 613-796-1008 Fax: 613-796-1701 email: peter.mason@agr.gc.ca
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- In 2010 the Canadian government approved the releases of parasitoids against the invasive leek moth and the lily leaf beetle
- Control agents from Europe have been released against more than 50 invasive agricultural pests, primarily in North America. CABI contributed to the successful control of important agricultural pests such as **cereal leaf beetle**, apple ermine moth, **alfalfa weevil** and **Lygus plant bugs**

Weed biological control agent releases



Scientific output



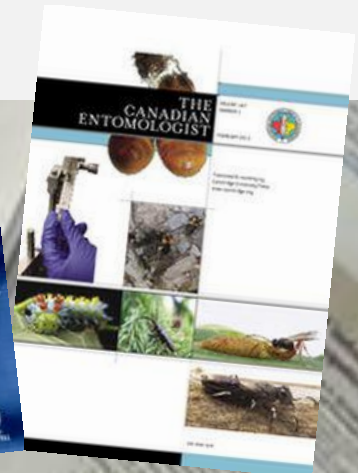
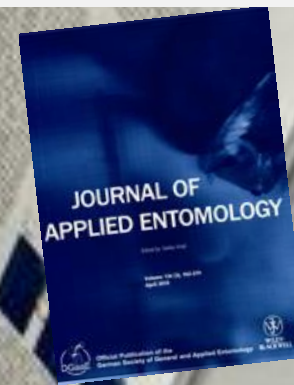
Joint publishing initiatives are also a feature of this unique partnership

Co-authored by CABI scientists from Switzerland and their Canadian counterparts, CABI published the 5th volume of “Biological Control Programmes in Canada from 2001 to 2012”. This series dates back to research done since 1910

Scientific output

1999-2014:
109 co-authored papers have
so far been published, 64 of
which were in peer reviewed
journals

Agricultural & Forest Entomology
Basic & Applied Ecology
Biocontrol Science & Technology
Biocontrol/Entomophaga
Biological Invasions
Biological Control
Bulletin of Entomological Research
Canadian Entomologist
Entomologia Experimentalis et Applicata
Environmental Entomology
Journal of Applied Ecology
Journal of Applied Entomology
Journal of Integrated Pest Management
Journal of Ecology
Journal of Insect Behavior
Journal of Pest Management
Molecular Ecology
Phytophaga



Canada-CABI collaborators

**BC Ministry of Forests,
Lands and Natural Resource
Operation:**
Susan Turner
Val Miller

AAFC Beaverlodge:
Jennifer Otani

AAFC Summerland:
Joan Cossentine

Simon Fraser University:
Bernie Roitberg

AAFC Agassiz:
Dave Gillespie

AAFC Lethbridge:
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Rosemarie DeClerck-Floate
Robert Bouchier
Kevin Floate

University of Alberta:
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University of Toronto:
Sandy Smith

OMAFRA:
Hanna Fraser

AAFC London:
Tara Gariepy

Canada



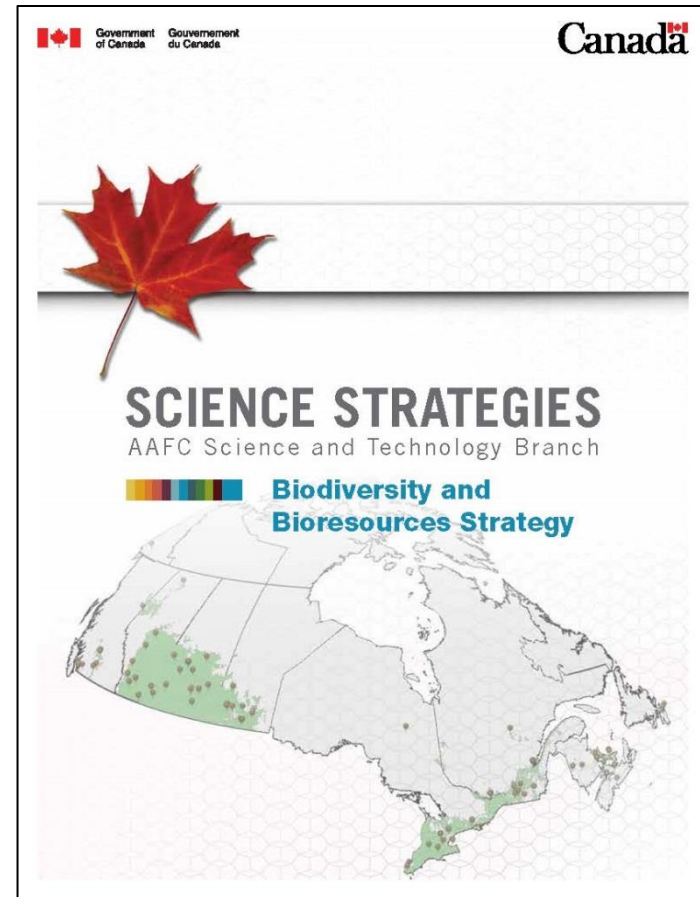


The next generation - career of former Canadian CABI students

- Tara Gariepy (PhD student)
 - Research Scientist, AAFC London
- Jennifer Otani (summer student)
 - Research Biologist, AAFC Beaverlodge
- Kathy Makela (summer student)
 - Pest Management Centre, Ottawa
- Lisa Bartels (summer student)
 - Research technician, AAFC Ottawa
- Mike Wogin (MSc student)
 - CFIA Vancouver
- Kimberly Riley (MSc student)
 - Biobest, Leamington
- Lars Andreassen (MSc & PhD student)
 - Post-doc Research Scientist, AAFC, Saskatoon
- Wade Jenner (MSc and PhD student)
 - CABI Switzerland
- and others.....

Canada's national priorities

- Development of mitigating biological control strategies for integrated pest management (IPM) for established invasive pests.
- Mining biological collections for agriculturally relevant organisms and development of appropriate identification tools using modern technologies.
- Development of mitigating biological control strategies for integrated pest management (IPM) for emerging, invasive, or quarantine pests.



Challenges for the Americas



- The International Union for Conservation of Nature (IUCN) has identified the world's 100 worst invasive alien species. Of those, 50 can be found in China
- The eastern Palaearctic region, mainly China and Japan, is the origin of 15% of invasive plants to Canada
- Two major pests arrived in Canada:
Spotted Wing Drosophila in 2009
Brown Marmorated Stink Bug in 2010
- High potential for more big pests to arrive in Canada



Americas-CABI: the future

Strengthening partnership with CABI

- supporting CABI laboratories in source countries (e.g. China)
- contributing to Invasive Species Compendium

Partnering with other CABI member countries

- pooling resources to discover potential IAS and biological control agents
- understanding Access & Benefits Sharing legislation
- scientist & student exchanges to address global issues such as climate change



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Thank you!

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