

Baculovirus products of Andermatt BIOCONTROL AG, Switzerland



Daniel Zingg
Andermatt BIOCONTROL AG
CH-6146 Grossdietwil

Our goal



- To substitute wherever possible good biological alternatives, such as beneficial insects and microbial control products, for chemical pesticides.

History of Andermatt BIOCONTROL AG



1987



1989



1993



1998



2001

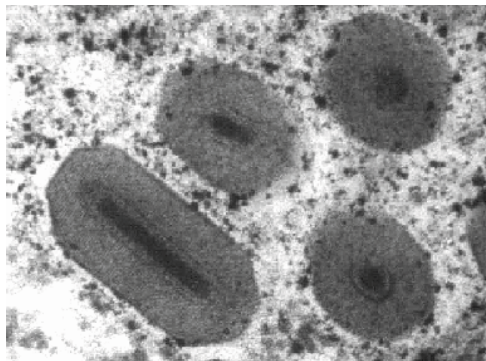
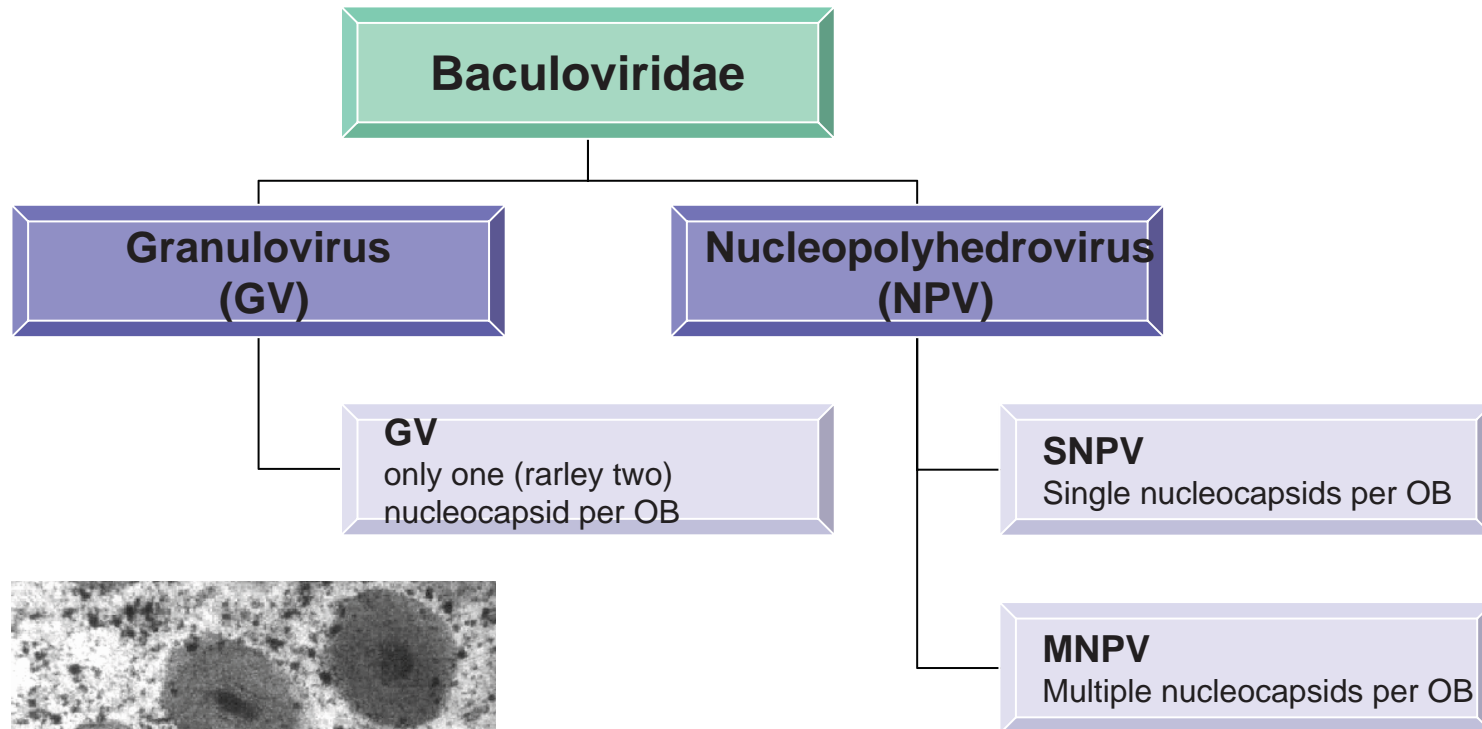


2003

Baculoviruses

Taxonomic considerations

(Murphy et al. 1995)



Baculoviruses are safe and do not cause any health hazards !

*Human health considerations
(OECD consensus document
No.20, 2002)*

- Naturally occurring insect pathogens
 - Lepidoptera, Hymenoptera, Diptera and Coleoptera
- Host range is exclusively restricted to insects
- No infection to plants or vertebrates
- Ubiquitously present in the environment
- Used for biological control for more than 100 years

Baculovirus

- Ingestion needed
- Slow mode of action compared to other insecticides
- UV-sensitivity
- Conservation

Virus products of Andermatt BIOCONTROL AG

Baculoviruses

- MADEX[®] *Cydia pomonella* GV
- MADEX Plus[®] *Cydia pomonella* GV
- CAPEX[®] *Adoxophyes orana* GV
- CRYPTEX[®] *Cryptophlebia leucotreta* GV
- HELICOVEX[®] *Helicoverpa armigera* NPV
- SPEXIT[®] *Spodoptera exigua* NPV
- LITTOVIR[®] *Spodoptera littoralis* NPV



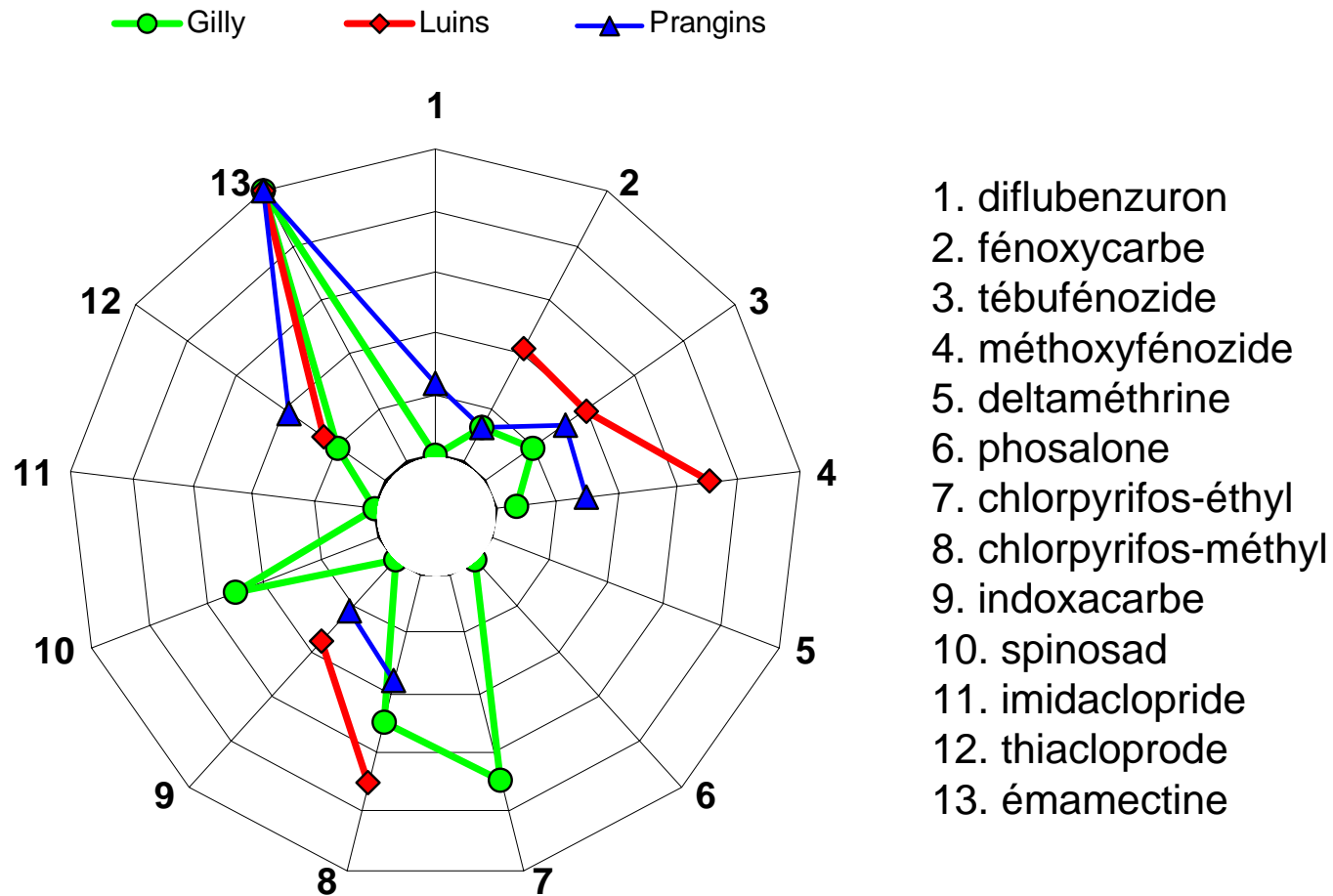
MADEX[®]

(*Cydia pomonella* Granulovirus)

- 3×10^{13} GV/Litre
- 100 ml/ha
- Damage control and population control
- Early applications recommended
- Resistance

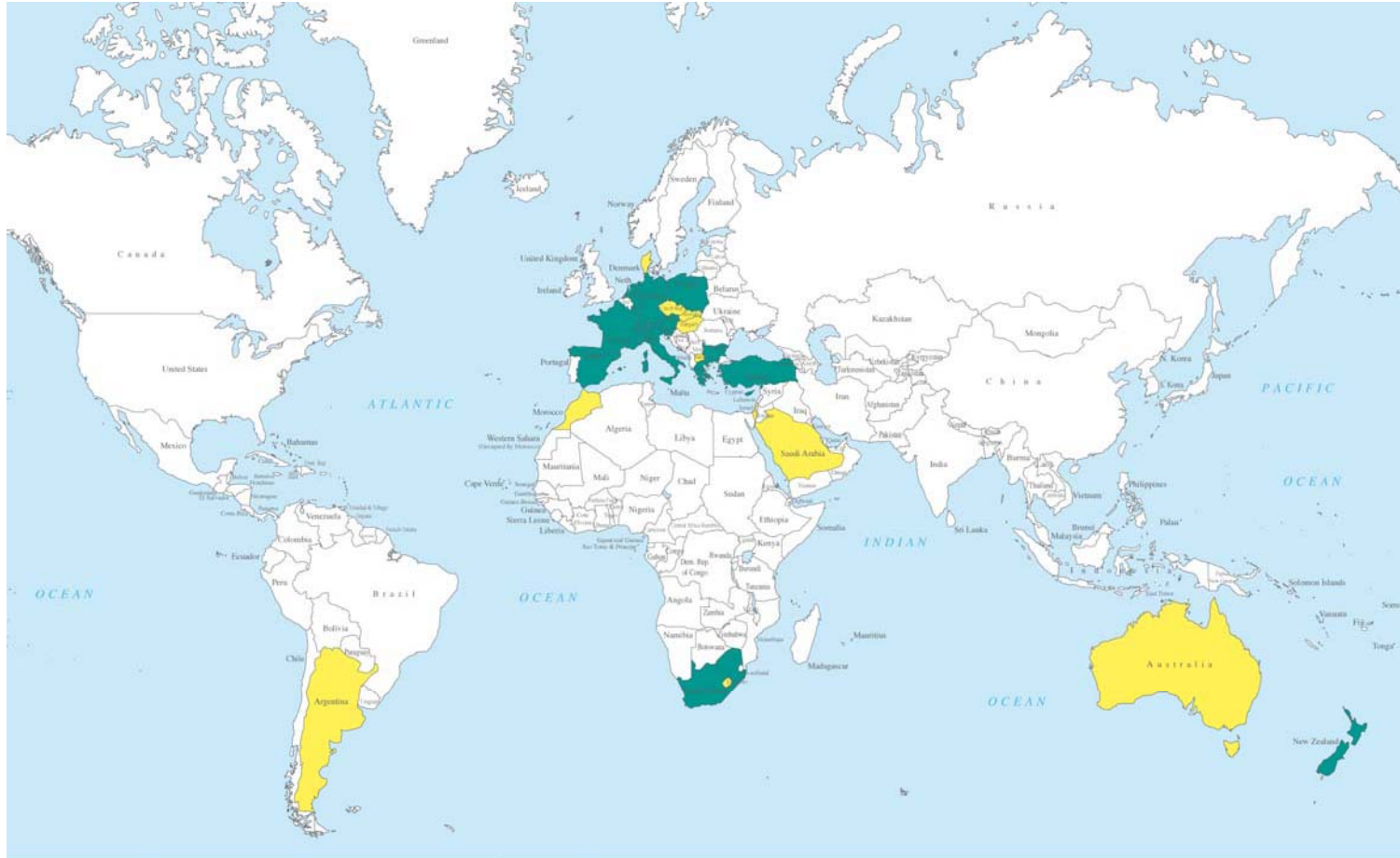


Cross-Resistance against chemical insecticides (Switzerland)



Charmillot, 2004

Registrations of MADEX

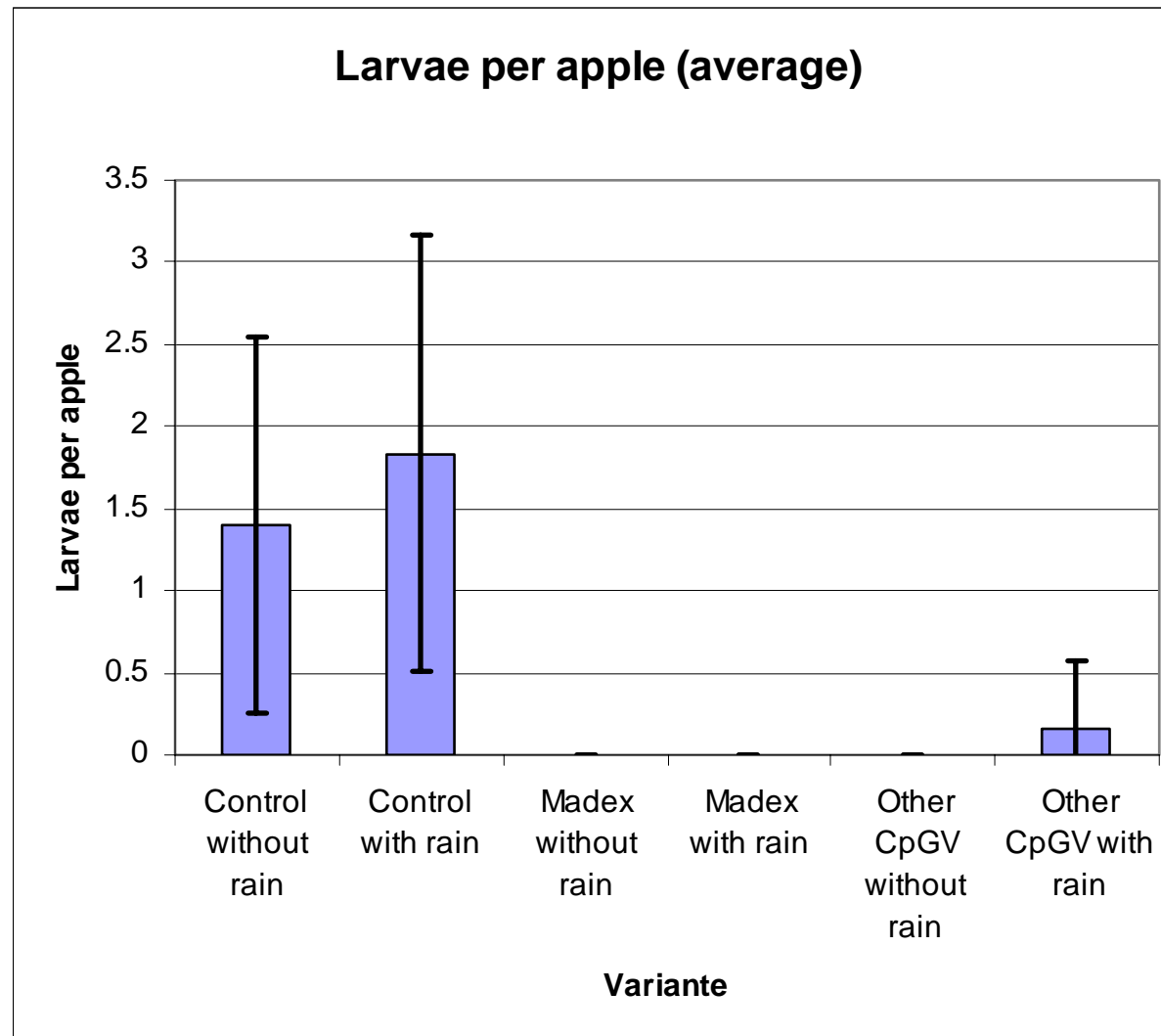


Registered

Registration expected soon

MADEX[®]

Rain resistance



MADEX Plus[®]

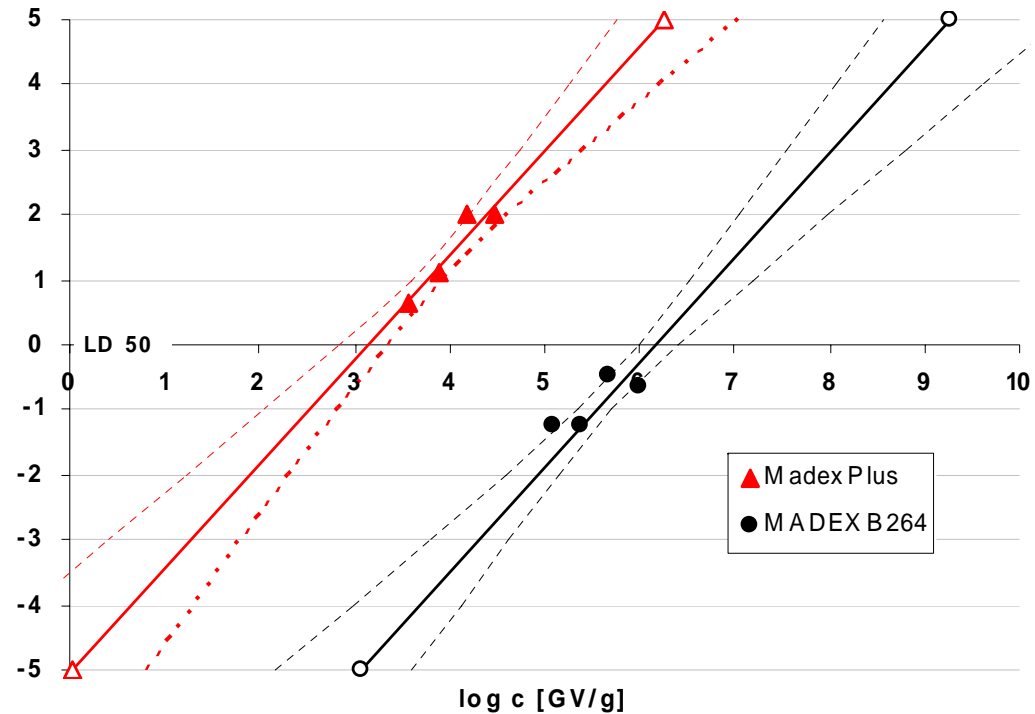
(*Cydia pomonella* Granulovirus)

- 3×10^{13} GV/Litre
- 100 ml/ha
- Selected from *CpGV*
Mexican Strain
- Good bioassay results on
virus resistant codling moth



Bioassay results

Efficacy of CpGV on *C. pomonella* (resistant strain)



	LD50 [GV/g]	LD50 95% lower limit	LD50 95% upper limit	RP relative potency	RP 95% lower limit	RP 95% upper limit
Madex Plus	1'383	690	2'228	1'060	516	3'086
MADEX B264	1'465'300	977'420	2'502'700	1.0	0.6	1.7

Field trials with MADEX Plus in 2006



CAPEX[®]

(*Adoxophyes orana* Granulovirus)

- 5 x 10¹³ GV/Litre
- 100 ml/ha
- Target Pest: Summer fruit tortrix
- Larvae mainly killed in L5
 - Spring application: damage + population control
 - Summer/autumn application: population control



Registrations of CAPEX



Registered

Registration expected soon

CRYPTEX[®]

(*Cryptophlebia leucotreta* Granulovirus)

- 2×10^{13} GV/Litre
- 200-330 ml/ha
- False codling moth
on Citrus, Macadamia
an other crops



Registrations of CRYPTEX



Registration expected soon

HELICOVEX[®]

(*Helicoverpa armigera* NPV)

- 7.5 x 10¹² PIB/Litre
- 50-200 ml/ha
- Cotton bollworm on cotton, tomatoe and many other crops



Field trials with HELICOVEX in 2006



HELICOVEX[®]

	damage			efficacy (abbott)			
	MEAN	DEV.ST.		MEAN	DEV.ST.		LSD
DELFIN	5 ±	1.154701		76.9 ±	6.24		ab
HELICOVEX	2.25 ±	1.5		89.2 ±	7.73		c
STEWARD	7 ±	0		67.5 ±	6.75		a
CONTROL	22.25 ±	4.573474					

Field trial on tomatoes 2006

Source: Intrachem, Italy

SPEXIT®

(*Spodoptera exigua* NPV)

- 3.75×10^{12} PIB/Liter
- 200 ml/ha
- Beet armyworm on paprika, strawberries, melons and many other crops



Field trials with SPEXIT in 2006



LITTOVIR[®]

(*Spodoptera littoralis* NPV)

- 2 x 10¹² PIB/Liter
- 200 ml/ha
- Egyptian cotton leafworm on cotton, paprika, strawberries and many other crops



Field trials with LITTOVIR in 2006





Thank you for your attention