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Globaalsed trendid taimekaitses

Dirk Aerts
Sales Manager
Biobest Belgium NV

biobest®
SUSTAINABLE CROP MANAGEMENT

History Biological control

Synthetic Pesticides (DDT,1939) → Resistance

1920 — 1930 — 1940 — WWII — 1950 — 1960

▲ 1926
UK: Speyer
Encarsia formosa

▲ 1930's
Commercial production of E.f.

▲ 1939 - 1956
production E.f. → 0

1° introduction of Ph. p
1968 ▼

Commercialization Ph.p.
▼ 1973

1960 — 1970 — 1980 — 1990 — 2000 — 2010

▲ 1962
NL: Bravenboer
Phytoseiulus persimilis

▲ 70's
Mass infection whitefly
= re-appreciation *Encarsia*

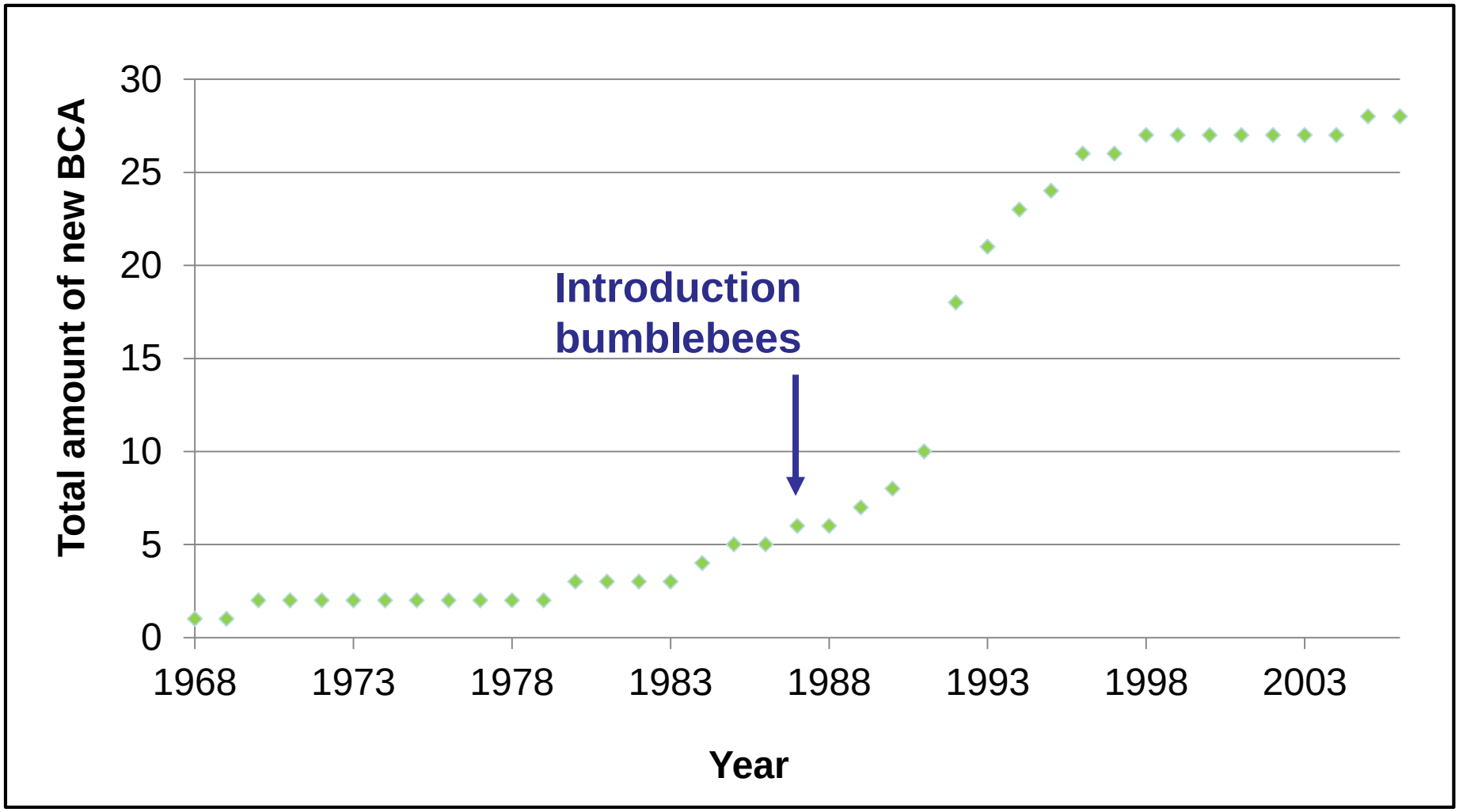
▲1987
Introduction
Bombus terrestris
by BIOBEST

2010 ▲
Over 230 predators/
parasitoids used in
biological control

(SOURCE: Van Lenteren, 1988)

Bumblebees
Trigger for Biocontrol and IPM

Bumblebees
Trigger for Biocontrol and IPM



(SOURCE: Van Lenteren, 1988)

Foundation of Biobest

1987

Creation of Biobest

First commercial bumblebee hives in the world

Dr. Roland De Jonghe, Veterinary

- Production and marketing of bumblebees for natural pollination
- Production and marketing of beneficial insects and mites used for biological crop protection
- Marketing of monitoring – and trapping systems
- Registration and marketing of biopesticides
- Contract research (side effect trials)

Global presence

Offering **Sustainable Agriculture** worldwide
through a network of subsidiaries and distributors

Pollination

Pollination: bumblebee species

B. terrestris

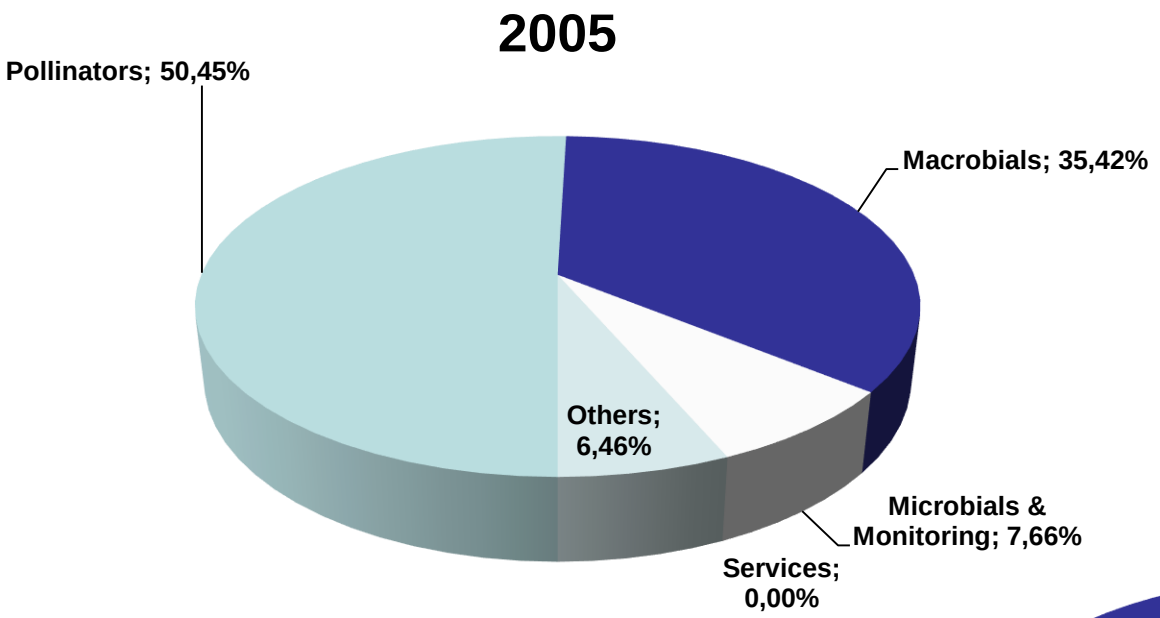
B. canariensis

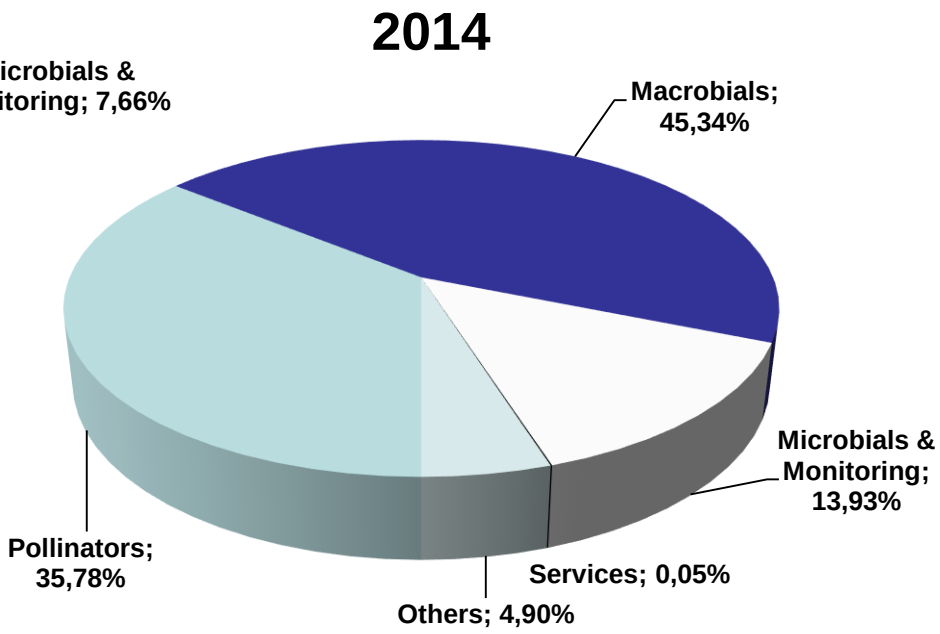
B. impatiens

B. ignitus

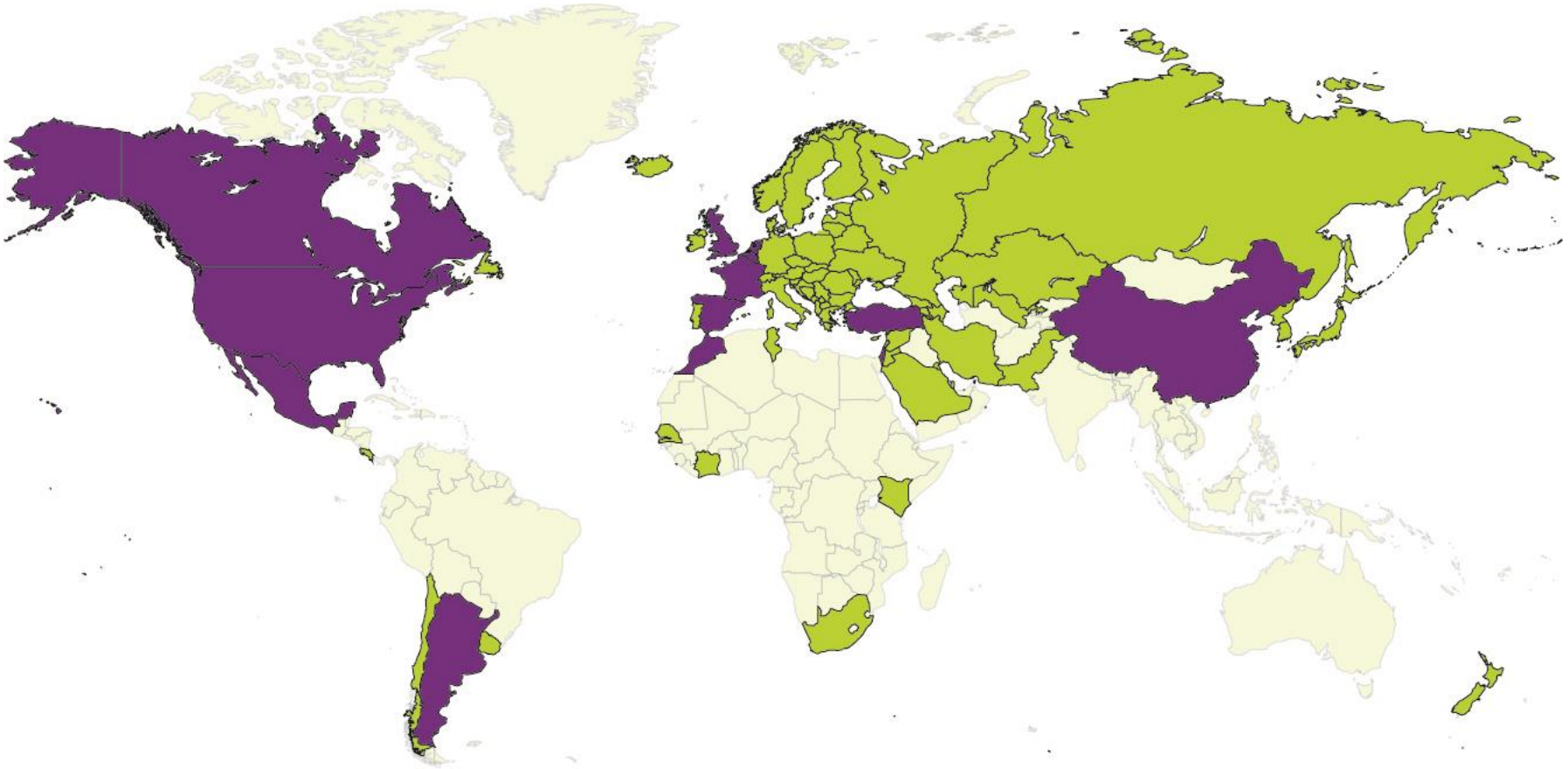
Biological Control

Sales per product group





Sustainable Agriculture



Offering **Sustainable Agriculture** worldwide
through a network of subsidiaries and distributors

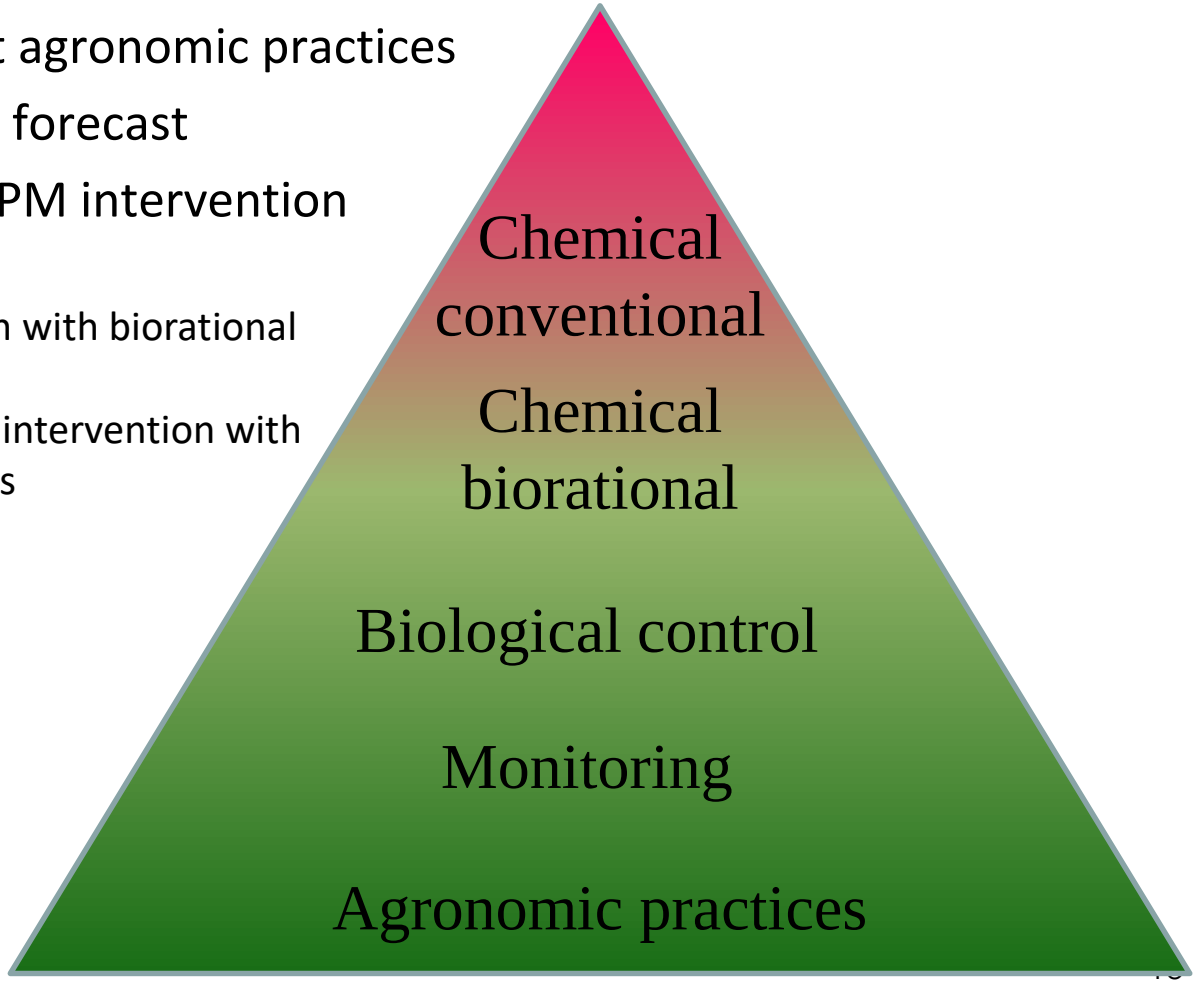
Sustainable Agriculture

- Facts:
  - World population: 7,3 billion people
  - Food security – Need for nutritious food
  - Efficacy of inputs
  - Resistance of pests against chemicals
  - Residue management
  - Environmental impact

G. Steinmetz

Sustainable agriculture through Integrated Pest Management

- IPM is the selection and use of pest control actions that will ensure favorable economic, ecological and social consequences
  1. Prevention by correct agronomic practices
  2. Monitor, identify and forecast
  3. Deciding the proper IPM intervention
     1. Biological control
     2. Chemical intervention with biorational products
     3. Last resort: Chemical intervention with conventional products



Organic, residue-free, Pesticide-free

- "Organic grown"
  - Growing food according to recognized programs:
    - Special requirements for soil history
    - Organic seeds, no GMO's
    - Use of **synthetic, chemical** fertilizers, pesti herbicides,... is n allowed
    - Use of **organic, natural** fertiliz , pe des, ici es,... is allowed
    - Certification necessary nclud ll e s rel to equi ed sa ng, inspections, accreditati

HYPE??

Organic, residue-free, Pesticide-free

- “Residue Free” farming
  - End product quality claim
    - Use of synthetic fertilizers is allowed
    - Use of chemicals that leave no or non detectable resudues (mostly < 0,01 ppm) is allowed
  - Certifiable

CERTIFIED PESTICIDE RESIDUE FREE SCS GLOBAL SERVICES

CERTIFIED PESTICIDE RESIDUE FREE SCScertified.com

Verified with Lab Testing at 0.01 ppm

- “Pesticide-free” farming
  - End product quality claim
  - As residue-free but no chemicals or pesticides are used
  - Not-certifiable, based on trust

PESTICIDE FREE

Flandria label

- Quality label since 1995
- Over 70 fruit and vegetables are grown under the label
- Quality through environmentally conscious cultivation
  - Hygienic growing
  - Adapted cultivation
  - Use of biological control agents: predators, parasitoids, biopesticides

RESPONSIBLY FRESH
FLANDRIA

Future perspectives in Biocontrol

- New predators/parasitoids
- Feeding natural enemies
- Biopesticides
- Precise targetting of pests and diseases




New Predators/parasitoids

- Predatory insect against aphids: Sphaerophoria
- Parasitoid insect against *Drosophilla suzukii*: *Trichopria drosophilae* (in development)
- Polyphagous predatory mite against thrips, whitefly, spidermite: Dyna-Mite G-system (*Euseius gallicus*)

Feeding natural enemies
Food for thought

- Support of launched or naturally occuring predators
- Predatory insects: Nutrimac, Artemac
- Predatory mites: Nutrimite
  - Greenhouse
  - Open field

innovert® gold
Awarded by professionals competition 2014

Biopesticides

- Conventional application techniques (mostly spraying), but additional adaptations may be required (nozzle choice, agitation, tank and sprayline cleaning,...)
- Useful for resistance management
- Useful for residue management
- Favorable climatic conditions required?
- Compatible with rest of IPM programme?
- Host specificity?
- Efficacy?

Biobest Flying Doctors system
Optimizing your tools

- Flying doctors, bridge between pollination and biological control
- Targeted application of biopesticides exactly where they are needed
- First commercial dispenser system for bumblebees

Biobest Flying Doctors system
New challenges

- Flower-transmitted diseases & pests




...

- Pollen vectoring

Biobest Flying Doctors system

- Disease control application:
  - In combination with Prestop 4B / Prestop Mix
  - Effective control of Botrytis in strawberry and raspberry

Biobest Flying Doctors system
Conclusion

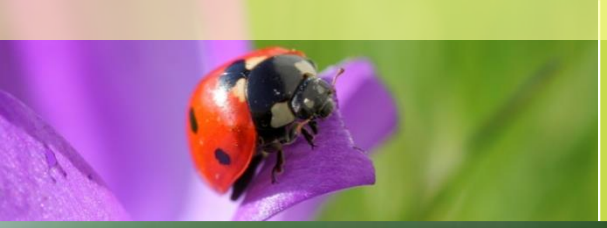
Applications

- Disease Control
- Pest Control
- Pollination

In all bumblebee pollinated crops

Advantages

- Targeted product delivery
- Strong reduction in product use
- Continuous application
- Considerable savings in labour



Thank you for your attention