Regulation and use of biological control agents in Hungary

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Biological control is an environmentally sound and effective means of reducing or mitigating pests and pest effects through the use of natural enemies.

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Types of biological control agents

- **Macroorganisms**
  - Predators
  - Parasitoids
  - Pollinators

- **Plants**

- **Microorganisms**
  - Bacteria
  - Fungi
  - Virus

- **Tools**
  - Mass trap
  - Mating disruption
  - Trap
Biological control ≠ ecological production
Legal background

   Articles 3 & 12, Annex III
Regulation on PPP authorization 1107/2009 EC

Decree 43/2010. FVM on pesticide use:
   Annex 8 about IPM principles
Decree 89/2004. FVM about authorization
   Annex 9 – authorization of not PPPs
National Action Plan
Authorization of biological control agents in Hungary

• **Macroorganisms**
  
  not PPP, not under the scope of 1107 in many countries not to be registered

• HU: To be registered according to national decree 89/2004 FVM, annex 9 (not PPPs)

• Data requirements:
  
  • Identity of the formulation containing macro-organisms
  • Biological properties
  • Biological activity, mode of action, efficacy
  • Effects on human health, non-target organisms and the environment
  • In case of newly introduced organism the opinion of environmental authority is essential
    (bad example of *Harmonia axyridis* - harlequin ladybird)
Authorization of biological control agents in Hungary

- **Plant Protection Tools – not PPP**
- **Traps** without pheromones or with pheromones but not used for mass trapping are not PPPs
- **Tools** containing repellents against wild animals and moles

- **Simplified data requirement**
  - description of tool and substance,
  - description of application
  - efficacy
Authorization of biological control agents in Hungary

- Plant Protection Tools - PPP
- Mass traps and mating disruption pheromone treatments
- 1107/2009 EC regulation – zonal evaluation,
- Pheromone must be on EU positive list
- A.s. and product data requirement
Authorization of biological control agents in Hungary

- Microorganisms (Bacteria, Fungi, Virus)
- To be considered as plant protection products
- 1107/2009 EC regulation is relevant
- Not specially ‘light’ data requirements
- Active substance can be ‘Low risk substance’, PPP can be ‘Low risk product’
- Advantage: longer approval for a.s. (15 years vs. 10 years) shorter PPP evaluation time for zRMS (120 days vs. 1 year)
Authorization of biological control agents in Hungary

EU regulation 1107/2009 EC

HU decree 89/2004 FVM

Microorganisms (biopesticides)

PP Tools, pheromones

Macroorganisms
Number of products and certificates authorized in Hungary

<table>
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<th>Product</th>
<th>Certificate</th>
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<td>191</td>
</tr>
<tr>
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<td>64</td>
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</table>
Biopesticides authorized in Hungary

• Control of pathogens (i.e. bacteria and fungi in the soil, on the root system, also on the leaves, shoots and fruits):
  • Blossom Protect (*Aureobasidium pullulans* + citric acid)
  • Boni Protect, Botector (*Aureobasidium pullulans*)
  • Constans WG (*Coniothyrium minitans*)
  • Mycostop (*Streptomyces griseoviridis*)
  • Polyversum (*Pythium oligandrum*)

• Control of pests by microorganisms:
  • *Bacillus thuringiensis*: Bactospeine WG, DiPEL DF, Novodor FC
  • *Beauveria bassiana*: Naturalis-L
  • *Cydia pomonella Granulo Virus*: Carpovirusine, Madex
Macroorganisms authorized in Hungary

- **Predatory mites**: Biobest Ragadozó Atka, Koppert LIMONICA, SPIDEX, SPICAL, ENTOMITE, MACRO-MITE, SWIRSKI-MITE, THRIPEX (Amblyseius californicus, Amblyseius andersoni, Amblyseius degenerans, Amblyseius swirskii, Amblydromalus limonicus, Hypoaspis miles, Hypoaspis aculeifer, Macrocheles robustulus, Phytoseius macropilis, Phytoseiulus persimilis)
  
  Biobest Amblyseius (Amblyseius cucumeris)

- **Hymenopteran parasitoids**:  
  Biobest Encarsia, Koppert EN-STRIP (Encarsia formosa)  
  Koppert ERCAL (Eretmocerus eremicus)  
  Biobest Fürkészdarázs, Koppert APHIPAR, ERVIPAR, APHILIN, MIGLYPHUS, MINUSA, PLANOPAR, TRICHOSTRIP (Aphidius colemani, Aphidius ervi, Aphelinus abdominalis, Coccidoxenoides perminutus, Diglyphus isaea, Leptomastix dactylopii, Trichogramma achea, Trichogramma brassicae)  
  Trichoplus Fürkészdarázs (Trichogramma pintoi, Trichogramma evanescens)
Macroorganisms authorized in Hungary 2

- Control of pests by macroorganisms:
  - **Predatory bugs**: Biobest Macrolophus, Koppert MIRICAL (*Macrolophus caliginosus*)
  - Biobest Orius, Koppert THRIPOR (*Orius laevigatus*)
  - Koppert NESIBUG (*Nesidiocoris tenuis*)
  - **Predatory ladybird beetles**: Biobest Ragadozó Katicabogár (*Adalia bipunctata, Cryptolaemus montrouzieri, Delphastus catalinae*)
  - Control of pests by entomopathogenic nematodes:
    - Biobest Parazita Fonáltéreg, Nemacel, Nemastar, Nemasys-M, Nematop
    - *Steinernema feltiae, Phasmarhabditis hermaphrodita, Steinernema carpocapsae, Heterorhabditis bacteriophora*
Pollinators and natural insecticides

• Pollinator: *Bombus terrestris* - Biobest Virágbeperzó, Bumble Bee Poszméh Virágbeperzó, Koppert Poszméh Virágbeperzó

• Natural insecticides – natural pyrethrins, pyrethrum: Bioplanterella Flora Koncentrátum & Permet, Margareta Levéltetőirtó Aeroszol, Vape Garden-Fito Levéltető Elleni Aeroszol, Vape Garden-Fito Pajzstető Elleni Aeroszol
Recent development and result

- An alien chalcidoid parasitoid wasp, *Torymus sinensis* (fam. Torymidae) was introduced and released in Hungary for the biological control of the invasive alien species, oriental chestnut gall wasp, *Dryocosmus kuriphilus* (fam. Cynipidae) – as a viable management option.
Area of eco-production in Hungary
now cc. 2.5% of total agrucultural area

source: Biokontroll Hungária kft  2015
Practical significance of macroorganisms in Hungary

- Mostly used: Trichogramma in field vegetables and sweet corn
  Area > 20,000 ha
- Predatory mites in field ornamentals, vegetables
- Glasshouse use (non-eco !) - Area > 2000 ha
- Glasshouse use (eco) – Area < 2ha

Due to legislative reasons we do not have exact data on use of biological control agents
• New challenges – new hemipteran invasive alien species arrived: *Nezara viridula & Halyomorpha halys* (both fam. Pentatomidae), etc.
Thank you for the attention!