

# **Biocontrol solutions proven to work in Slovenian agro-environment**

**Z raziskavami podprte alternative  
kemičnim pesticidom v Sloveniji**

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Kmetijski inštitut Slovenije**

Ecological transition starts with agronomy, increasing IPM uptake and significant pesticide dependency reductions, 20 October 2022, Slovenian Parliament

## Talk outline

Two case studies:

1. **Entomopathogenic nematodes (EPN) vs. *Diabrotica virgifera virgifera* (western corn rootworm)**
2. **Effect of cover crops on pests' natural enemies in vineyards**



- **Biological control** (s.lat.) = **biotično varstvo rastlin** = the use of pests' **natural enemies** (= naravnih sovražnikov) for crop protection

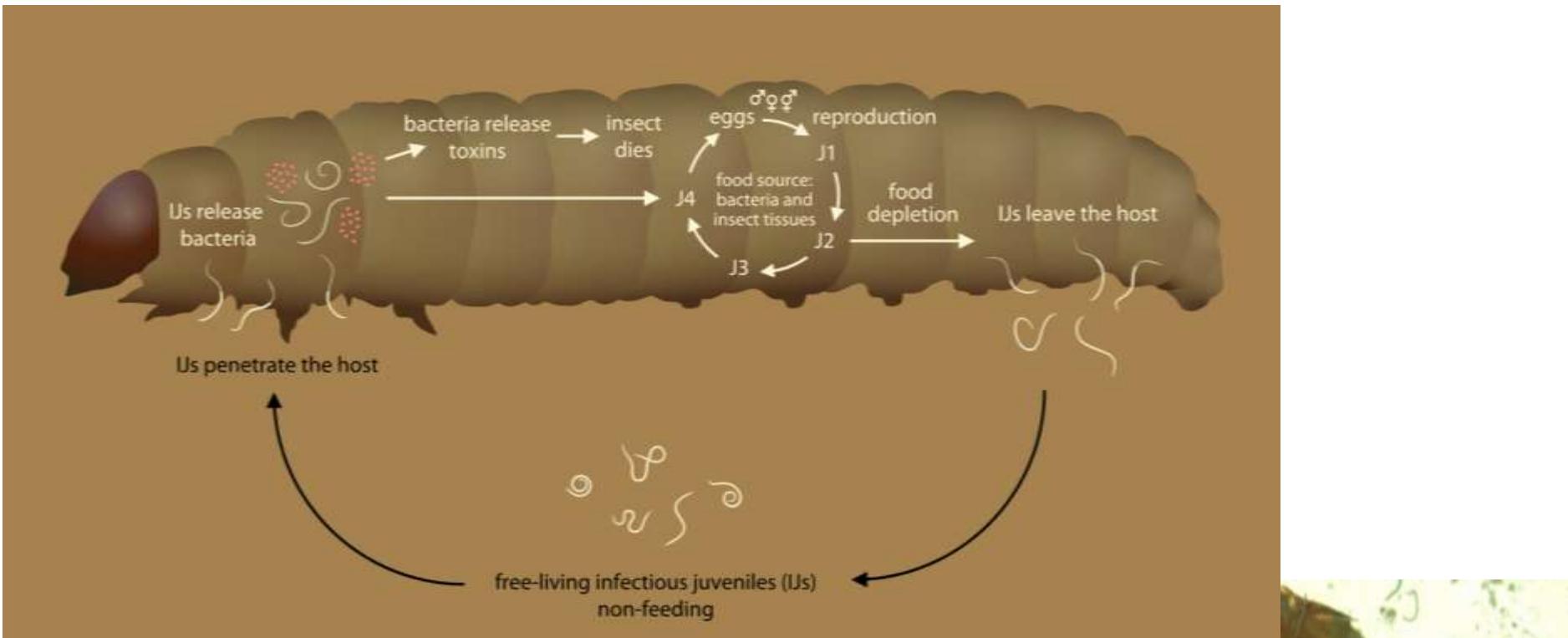
# Entomopathogenic nematodes vs. *Diabrotica virgifera virgifera* (western corn rootworm)





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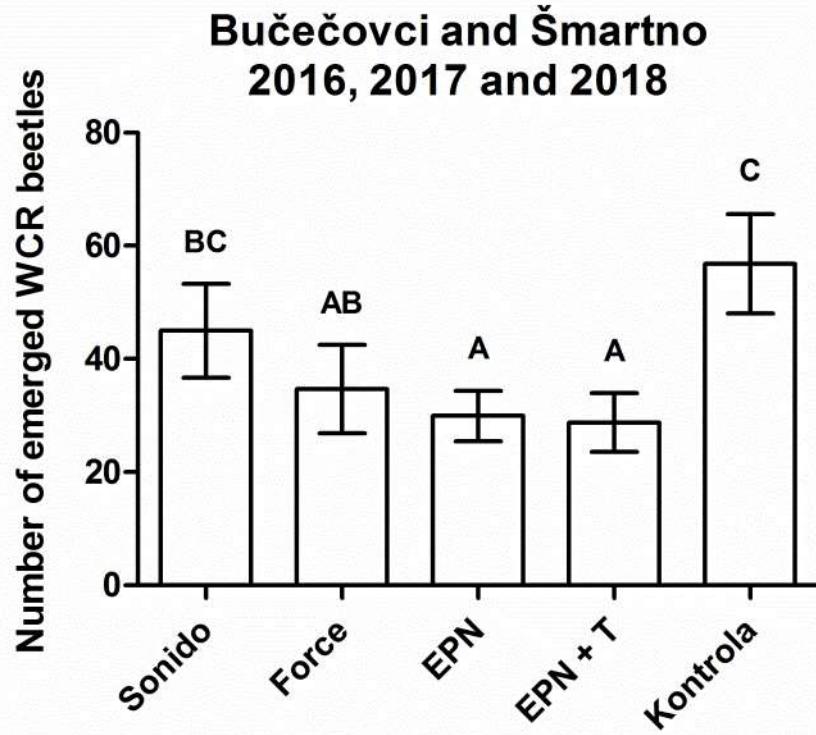
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# Entomopathogenic nematodes vs. *Diabrotica virgifera virgifera* (western corn rootworm)



Leto:	Aktivna snov:	enota:	Prodaja doma:
2020	lambda-cihalotrin	kg	314,87
2020	teflutrin	kg	360,98
2020	tiakloprid	kg	1.052,26

1.275 t of  
pyrethroids  
used in  
2020 in EU

**Sonido** (a.i. tiakloprid, neonicotinoid); **Force** (Tefluthrin, pyrethroid); **EPN** (*Heterorhabditis bacteriophora*, entomopathogenic nematodes - EPN); **EPN + T** (EPN (Dianem) + 20 % alcohol ethoxylate (Transformer))

# Effect of cover crops on pests' natural enemies in vineyards



Conventional



Organic



Organic with cover crop

**Yellow sticky trap-KIS**



**Yellow sticky trap  
-Agroscope**



Arthropod  
trapping  
methods

**Yellow water trap-KIS**



**Yellow water trap  
-Agroscope**



**Pitfall trap-KIS**



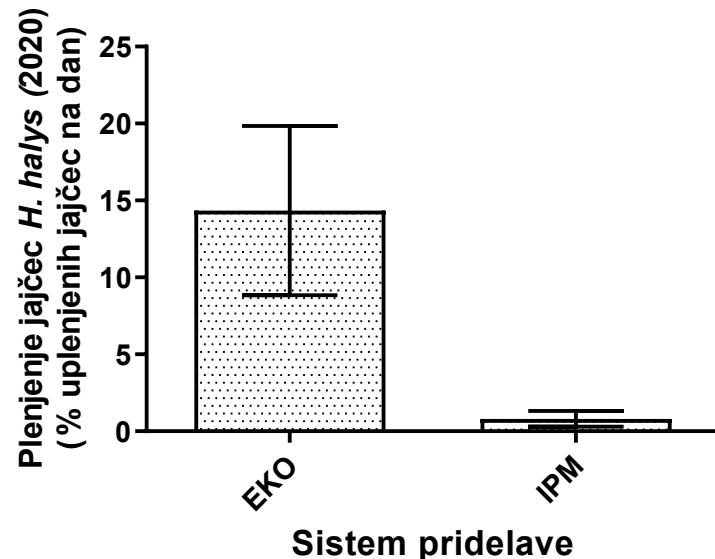
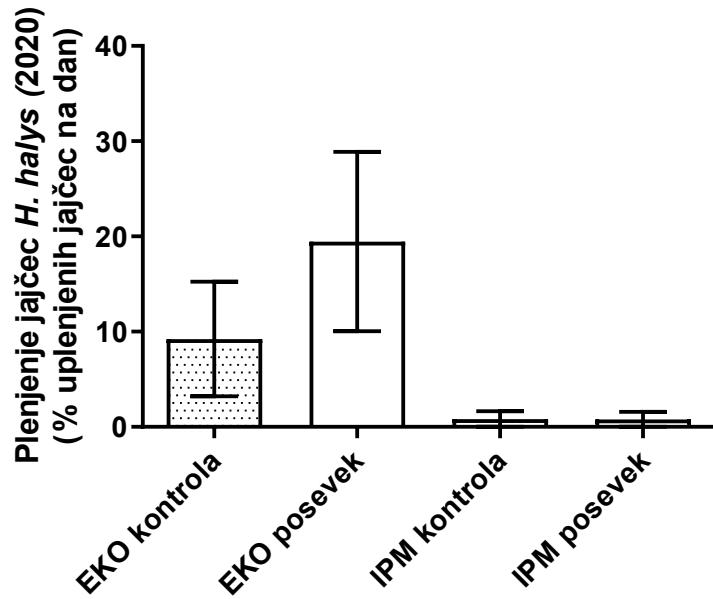
**Pitfall trap-Agroscope**



Sentinel eggs of *H. halys* were exposed in order to assess how cover crop affects parasitism and predation

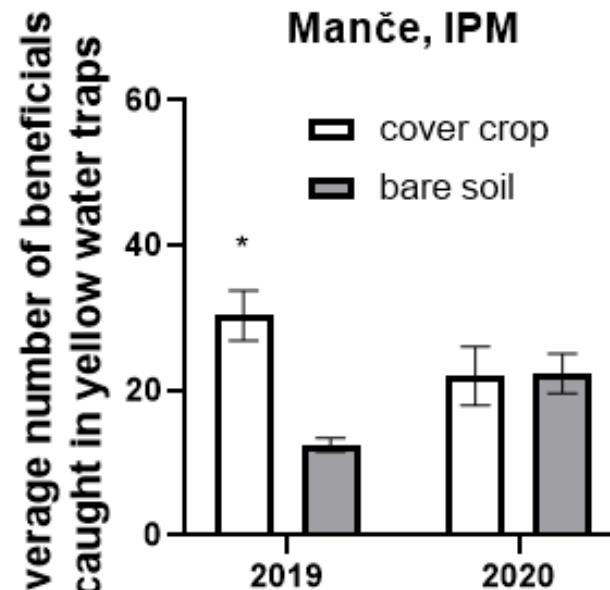
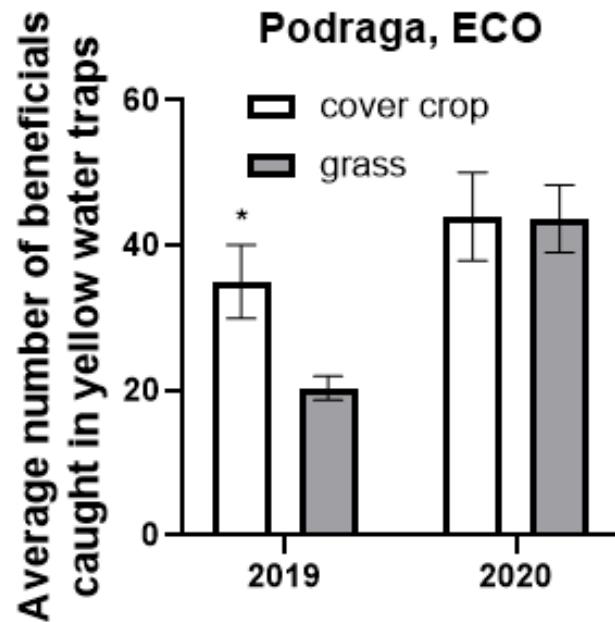


# REZULTATI



Pljenjenje jajčec marmorirane smrdljivke (desno) (% ± standardna napaka) v posameznih obravnavanjih v 2020. Pomemben vpliv posevka in sistem apridelave!

# REZULTATI



Povprečno število koristnih členonožcev ujetih v rumenih vodnih pasteh v vinogradu (EKO–Podraga) (levo) in (IVR–Manče) (desno). (% ± standardna napaka).



1.

Biocontrol alternatives exist



2.

Necessary to inventorize  
biocontrol agents



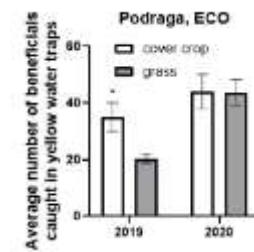
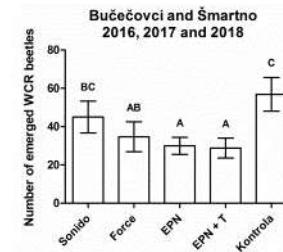
3.

Necessary to evaluate  
biocontrol solutions under local  
agro-ecological conditions



4.

Adoption of biocontrol  
solutions by the farmers





Zahvala: strokovne naloge OVR-Kmetijskega inštituta Slovenije, ki jih finančirata **MKGP** in **UVHVVR**; **ARRS**, EU H2020 CORE Organic Cofund **BIOVINE**, ter H2020 projekta **PURE** in **Excalibur**



REPUBLIKA SLOVENIJA  
MINISTRSTVO ZA KMETIJSTVO,  
GOZDARSTVO IN PREHRANO



Horizon 2020  
European Union Funding  
for Research & Innovation



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 enema

 metrob  
Javno izvorno izkoristki

 EXCALIBUR