

# dianem<sup>®</sup>

## Biological Control of the Western Corn Rootworm with *Heterorhabditis bacteriophora*

### AREA OF APPLICATION

The Western Corn Rootworm (*Diabrotica virgifera virgifera*) is an invasive corn pest. Since its introduction in 1992 in Serbia, it invaded large parts of Middle and Eastern Europe. *Diabrotica v. virgifera* is univoltine. Hibernation of the insect is in the egg stage. Larvae hatch in May and develop through three larval stages and the pupa to adults, which emerge between late June and early August.

Yields can be severely reduced due to root damage and lodging. Subsequent acropetal growth leads to the typical 'gooseneck' symptom. In seed and sweet corn production damage can also occur when adults feed on the silk, which reduces pollination and causes irregular development of kernels.

### MODE OF ACTION

**dianem<sup>®</sup>** contains a highly virulent strain of the entomopathogenic nematode *Heterorhabditis bacteriophora* obtained by selective breeding. Infective nematode juveniles actively search for *Diabrotica* larvae and pupae in the soil. Two days after invasion the insects die. Dead insect turn orange-red. The nematodes propagate inside the insect cadaver. After two weeks, thousands of new infective juveniles emerge and hunt for the surviving larvae and pupae.

### APPLICATION

The recommended application rate of the improved strain is 1 billion nematodes per ha with 200 litres of water. **dianem<sup>®</sup>** is applied during sowing by liquid injection into the rows. Nematodes are applied after the catcher roller of the sowing machine onto the seeds. Special injectors can be mounted to the sowing machine. The efficacy is not affected by fertilizers and most agrochemical plant protection products.

### EFFICACY

Results of 15 years field-testing in Hungary (CABI) and Austria (AGES) with plants infested with insect eggs have demonstrated that efficacy of **dianem<sup>®</sup>** is equal or higher than results obtained with chemical insecticides. In most trials **dianem<sup>®</sup>** was superior in the reduction of adult emergence, why the repeated use of **dianem<sup>®</sup>** provides sustainable management and long-term reduction of Corn Rootworm populations.

**Further information needed?  
Please contact us!  
We will be happy to answer  
your questions!**

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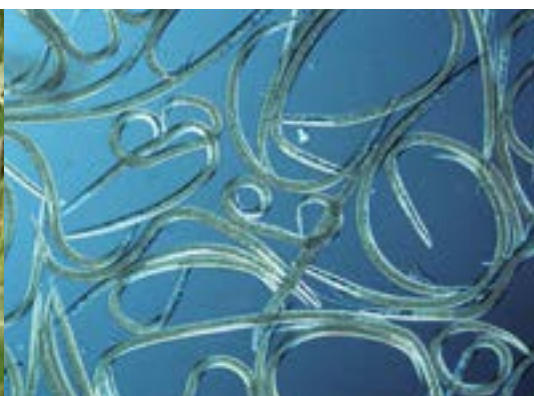
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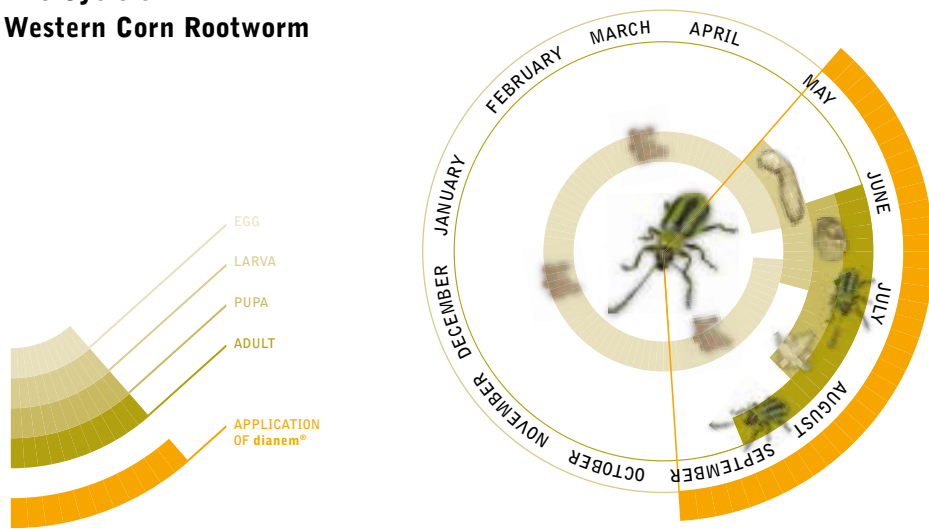
Plant lodging due to root damage.

***Heterorhabditis bacteriophora*** – highly efficient against ***Diabrotica virgifera virgifera***.

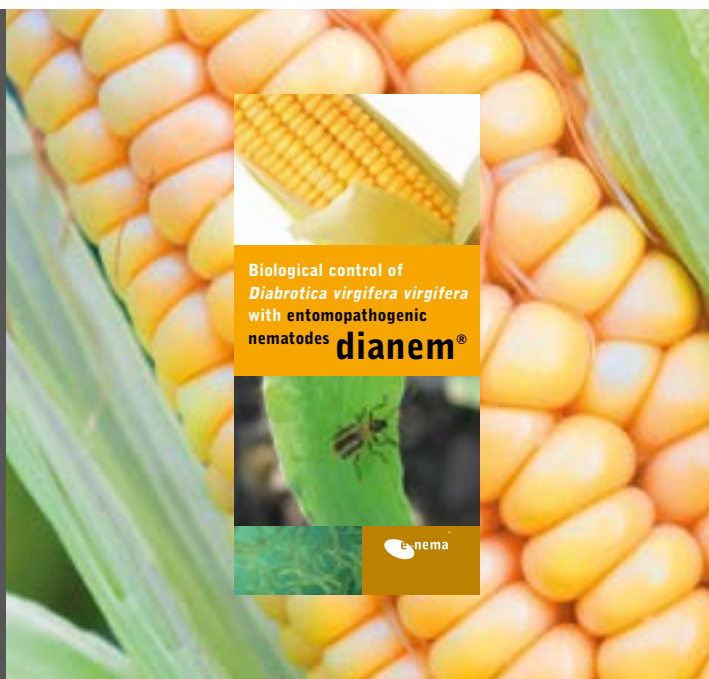
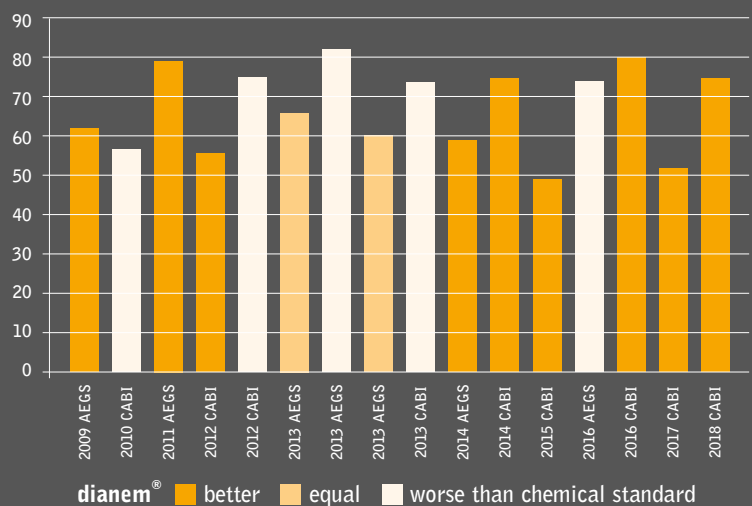
Nematodes sprayed onto seeds.



### Life Cycle of Western Corn Rootworm



**REDUCTION OF BEETLES IN %** (Hungary and Austria)  
Artificial infection with 100-300 eggs/plant, 2 billion nematodes/ha



Biological control of *Diabrotica virgifera virgifera* with entomopathogenic nematodes **dianem®**