

Sustainable growth of corn



Using the example of the Western root corn borer *Diabrotica virgifera virgifera*



The one billion dollar chafer

Using the example of the Western root corn borer *Diabrotica virgifera virgifera*



Introduced from USA into Europe in 1992

Using the example of the Western root corn borer *Diabrotica virgifera virgifera*



**Feeding at the pollen threads
disturbs pollination and
causes yield losses**

Using the example of the Western root corn borer *Diabrotica virgifera virgifera*



**Root feeding causing lodging
and yield losses**

Think in systems!

Never mind!



Neonicotinoids for seed
treatment have been banned.



How to avoid lodging and
pollination feeding?

Think in systems!

soil treatment

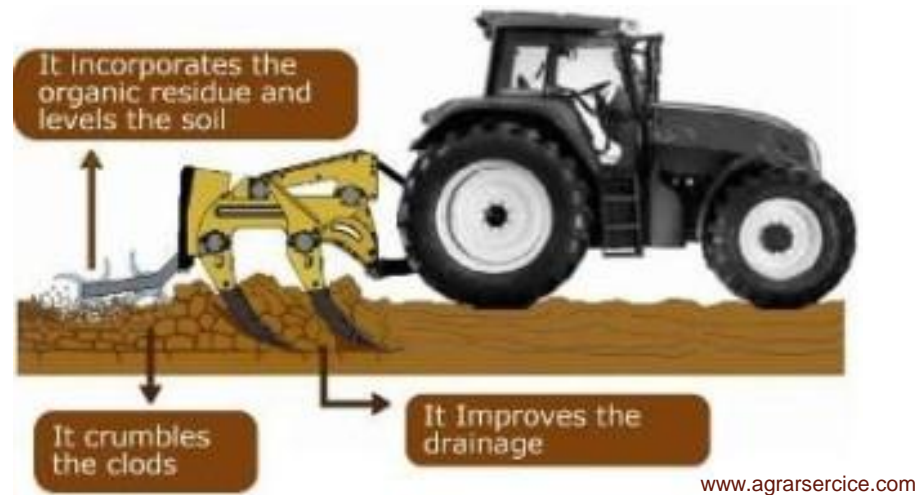
fertilisation

corn variety

biological
pesticide

crop rotation

soil treatment



Depth loosener gives a better rooting system

corn variety



**There are big differences
between corn varieties in
development root systems**

**The pollination of early flowering varieties
past over before the main time of flight**

crop rotation

**Growing only two years
corn after corn interrupted
the multiplication**



**Avoid attractive catch
crops between the corn
periods**

**Go for a biological treatment
already first year after crop
rotation**

biological
pesticide



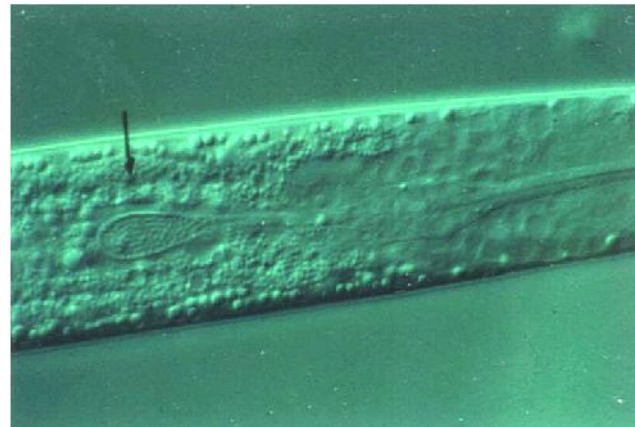
Beneficial nematodes
Entomopathogen nematodes (EPN)

biological pesticide



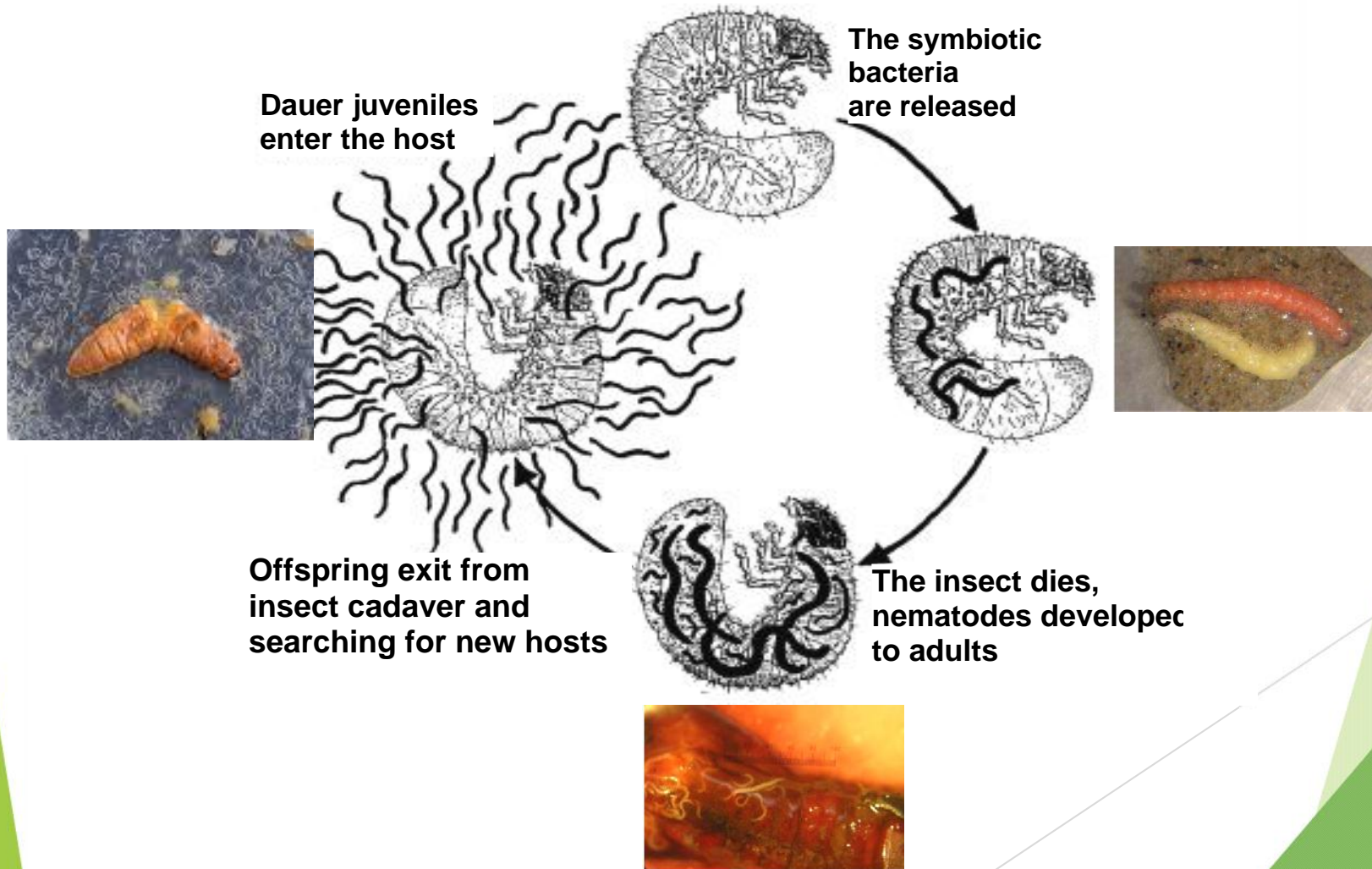
Entomopathogene nematodes

- ▶ **Worms of 0.5 - 0.9 mm length**
- ▶ **Present in all soil environments (endemic)**
- ▶ **Dauer juveniles (DJ) free-living in the soil, reproduction only in host insects**
- ▶ **High host specification**
- ▶ **DJ well adapted for long-term survival in the soil (fat reserves, non-feeding, ambushing)**
- ▶ **Symbiotic bacteria in the intestine, which is responsible for the death of the insect pest**



biological pesticide

Life cycle



biological
pesticide



**All larval stages and
pupa are susceptible**

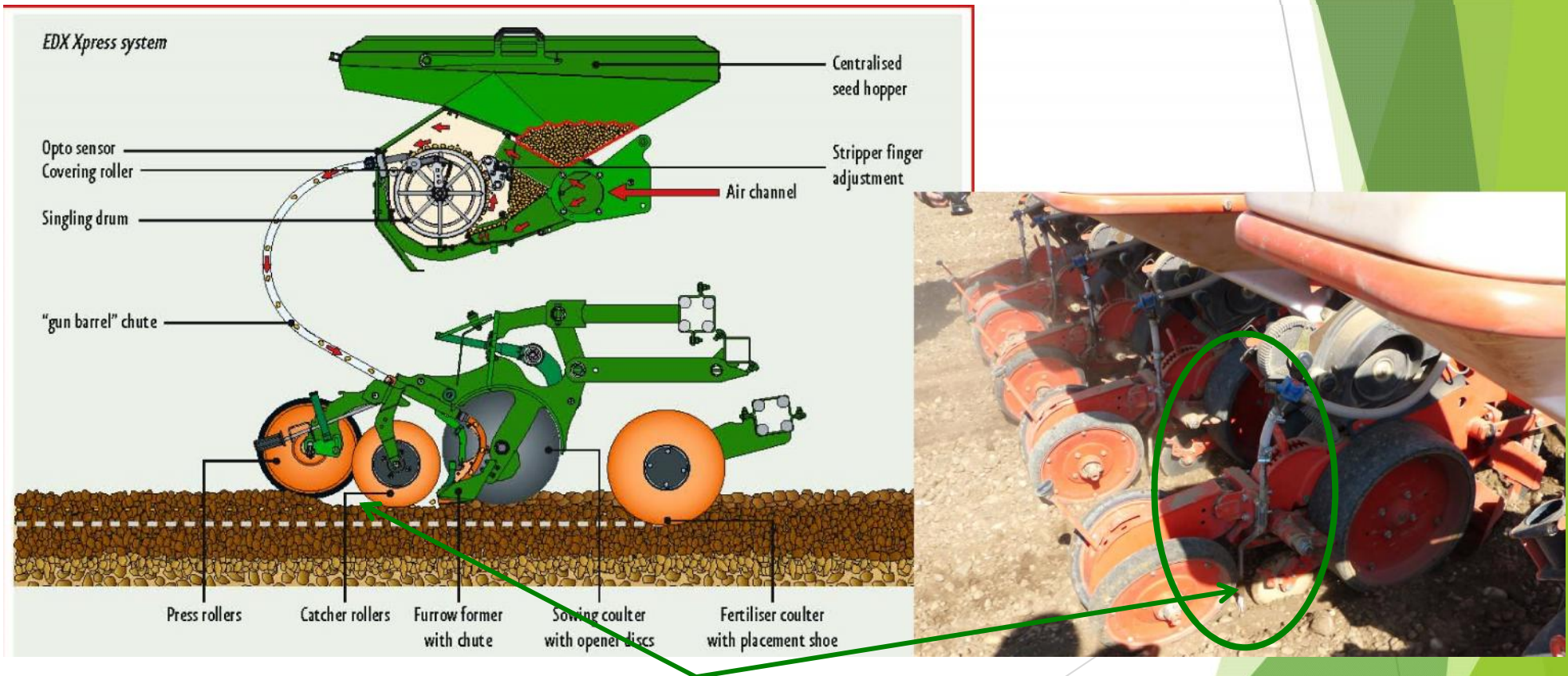
film

biological pesticide



**Most of the needed application is standard
technology
No extra working process is needed**

biological pesticide



Special liquid injection was developed

biological pesticide



Liquid application on top of the seeds

biological pesticide



Easy handling without any risk
for the environment and user

**Have success -
think in systems!**



soil treatment

crop rotation

biological
pesticide

fertilisation

corn variety



Thank you!