

# Biological control of grubs in potatoes in Rwanda



## White grubs, “Ibishorobwa” in Kinyarwanda (*Anomala graueri*; *Melonthini sp.*, *Hoplochelus sp.*)

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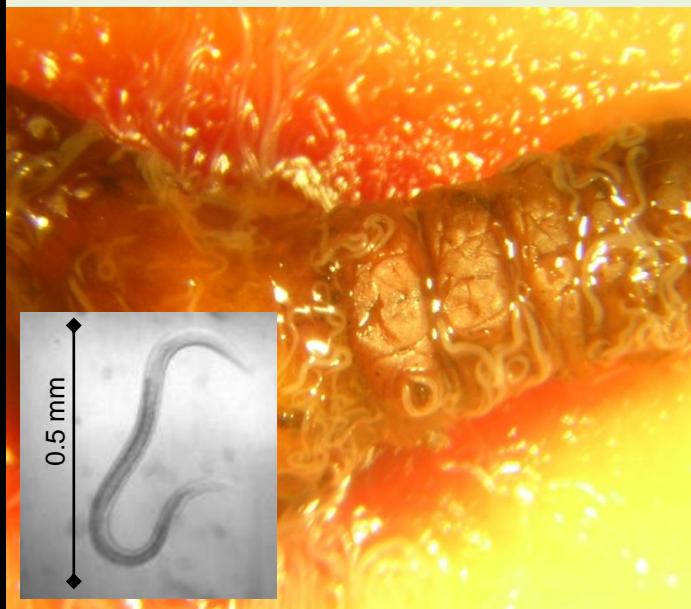
- Larvae are creamy-whitish, thick, c-shaped.
- Larvae have brown heads. Larvae are seen when digging up soil around roots.
- Larvae are found throughout the year
- Roundish adult beetles have dark hard backs.



## Damage of grubs in potatoes

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- Only the larvae are damaging tubers and roots
- They damage potato, sweet potato, cassava.
- Roots and tubers are chewed and have holes.
- Affected plants are scattered across the field.
- Affected plants may wilt.



## Insect killed by beneficial nematodes ☺ (*Heterorhabditis spp.*; *Steinernema spp.*)

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- In the soil also live tiny worms that kill grubs.
- They are called “beneficial nematodes”.
- They are not pests like plant-nematodes.
- Nematodes are safe pest control agents.
- Obtain them from the Biocontrol Factory at Southern RAB Rubona (contact Joelle Kajuga, 0727801614 / 0788525794; toll free call 4675).



## Beneficial nematodes in sponges

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- Obtain beneficial nematode “*Steinernema carpocapsae* RW14-G-R3a-2” “*Steinernema sp.* RW14-M-C2b-1” or others from RAB.
- Nematode are alive, transport them quickly, hold them cool (cool box, fridge, shadow).
- You can keep them for 1 week only
- You get them formulated in sponges.

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## Prepare nematode – water mix

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- Dilute sponges in water. Squeeze them for a minute, so that nematodes go into water.
- Take or sieve the sponges out.
- 10-20 million nematodes (=10 to 20 sponge pieces or 5 to 10 gram sponges) in 8 to 10 litres of water for 400 to 600 plantings (on 200m<sup>2</sup>).
- Equals 15000 – 45000 nematodes per planting, or 60 – 150 million per acre.



## Open the planting furrow

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- Work on a cool cloudy day, in evenings, and not in the sun as on the photo.
- Open soil furrows for planting



## Spray the nematode-water mix

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- Immediately apply nematodes before the soil in the furrow becomes dry.
- Use a handheld or knapsack sprayer, or simply a can to spray nematode-water mix into furrow.



## Plant potatoes, quickly close the soil

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- Add fertilizers if needed.
- Immediately plant tuber or tuber pieces
- Immediately close the soil, so that the nematodes do not dry out.