Using insect-killing nematodes to control the cabbage stem flea beetle

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Take-home message

Nematodes are effective in controlling cabbage stem flea beetles in the lab, and the next step is to test them under field conditions to see if they would remain effective in commercial crops.

Context

Cabbage stem flea beetle (CSFB), major pest in oilseed rape crops

Severe economic damage from reduced yields or total crop failure

European Union in 2013 → ~~Neonicotinoid insecticides~~

Only alternative: **Pyrethroid insecticides** but **insects are resistant**

Objectives

Find viable alternatives to synthetic pesticides such as microscopic worms called nematodes used as biopesticides. To date, no laboratory studies have been completed to evaluate the effect of nematodes on adult CSFB mortality

Methods

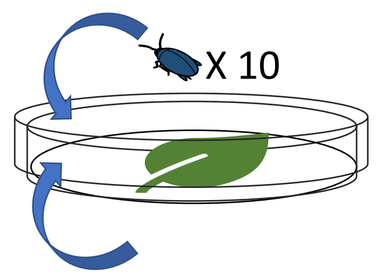
Four species of nematodes were screened in the lab against 10 adult CSFB in each of three replicates:

- *Steinernema feltiae*
- *Steinernema carpocapsae*
- *Steinernema kraussei*
- *Heterorhabditis bacteriophora*

Three concentrations (nematodes/ml) of each species were tested

- 4,000,
- 10,000
- 40,000

Results recorded as cumulative mortality after 2, 4 and 6 days (d)

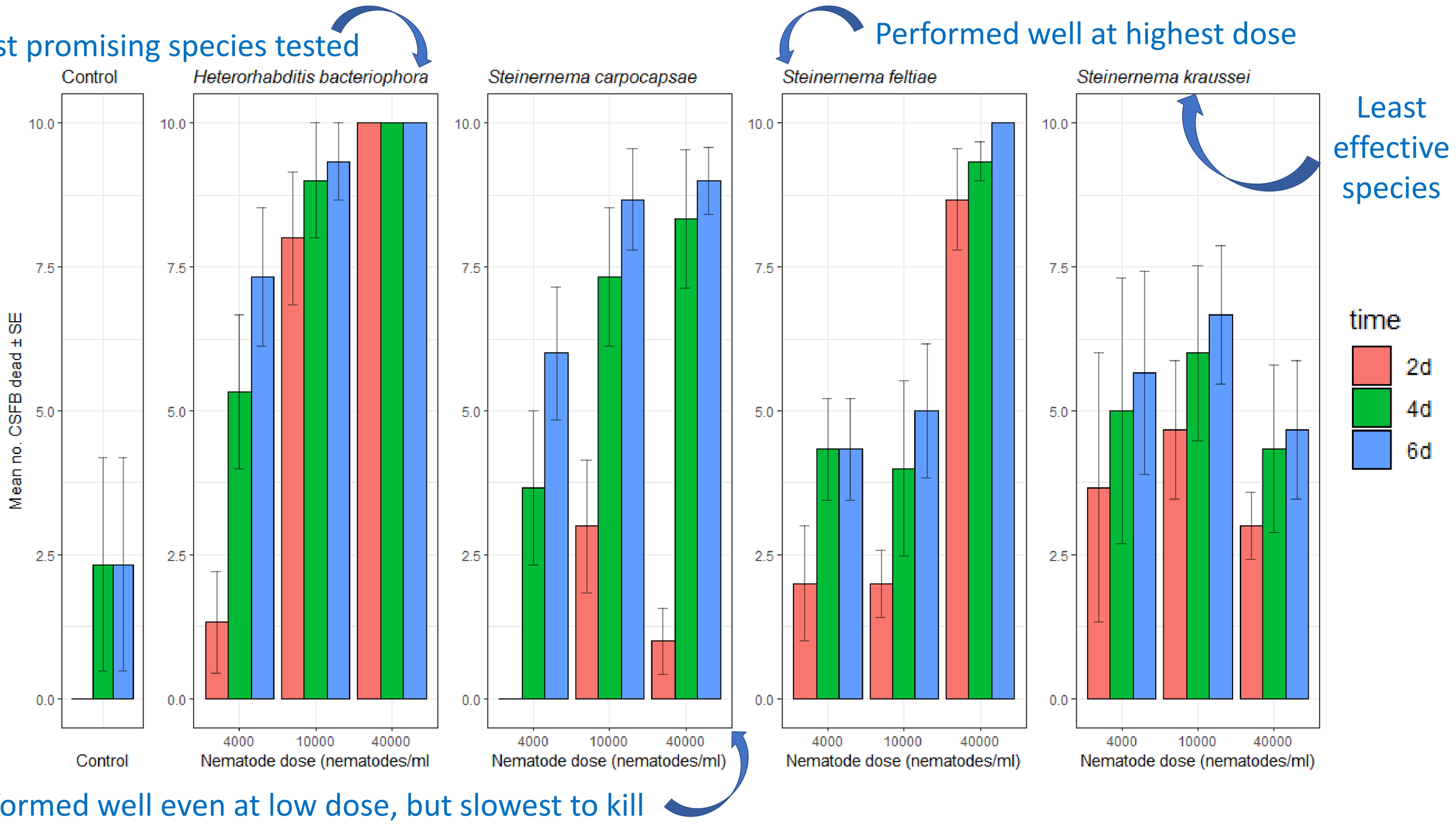


1ml of nematode solution

Most promising species tested

Performed well at highest dose

Least effective species



Performed well even at low dose, but slowest to kill