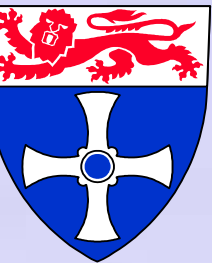


**Sublethal effects of the parasitic
nematode *Phasmarhabditis
hermaphrodita* on the slug
Deroceras panormitanum and the
snail *Oxyloma pfeifferi***

Ingo Schüder¹, Gordon Port¹

Jude Bennison² and Heather Maher²



**¹ University of Newcastle upon
Tyne, School of Biology**

² ADAS Boxworth, Cambridge



Target:



Deroceras panormitanum

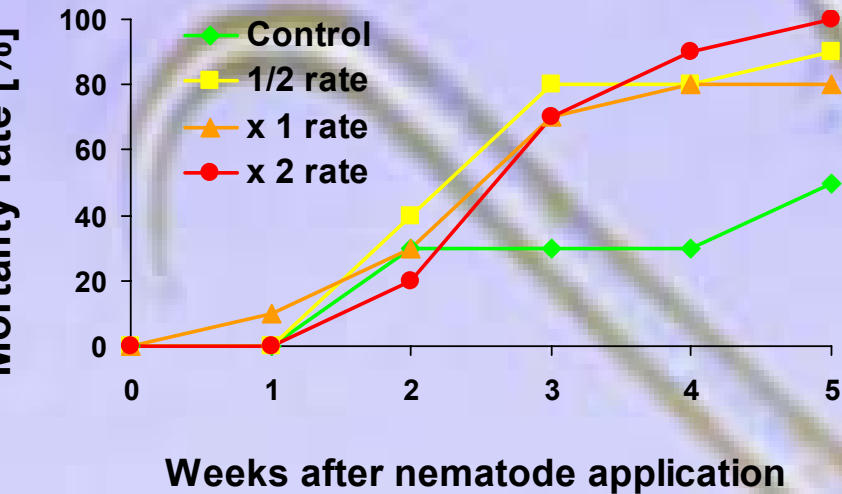
Target:



Oxyloma pfeifferi

Lethal effects of *P. hermaphrodita*

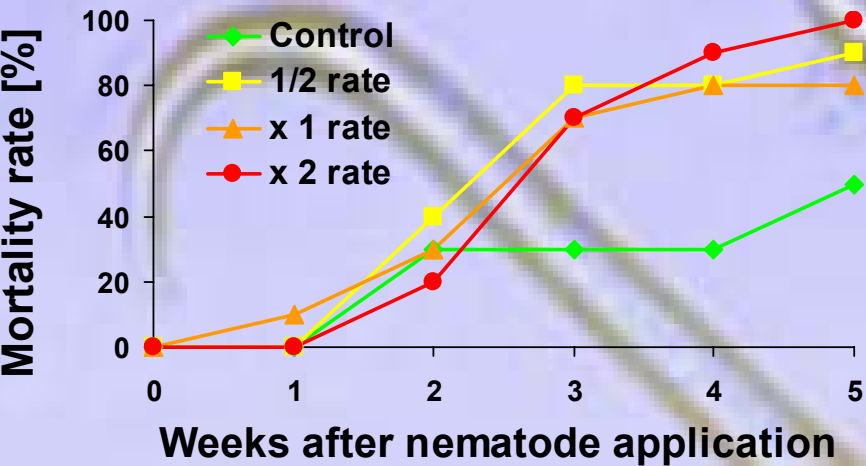
D. panormitanum:



Significantly raised mortality
after three weeks

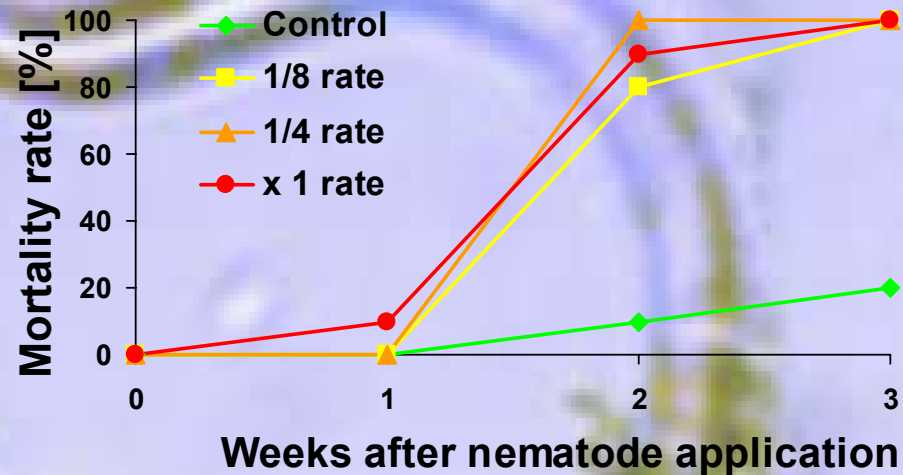
Lethal effects of *P. hermaphrodita*

D. panormitanum:



Significantly raised mortality
after three weeks

O. pfeifferi:



Significantly raised mortality
after one or two weeks

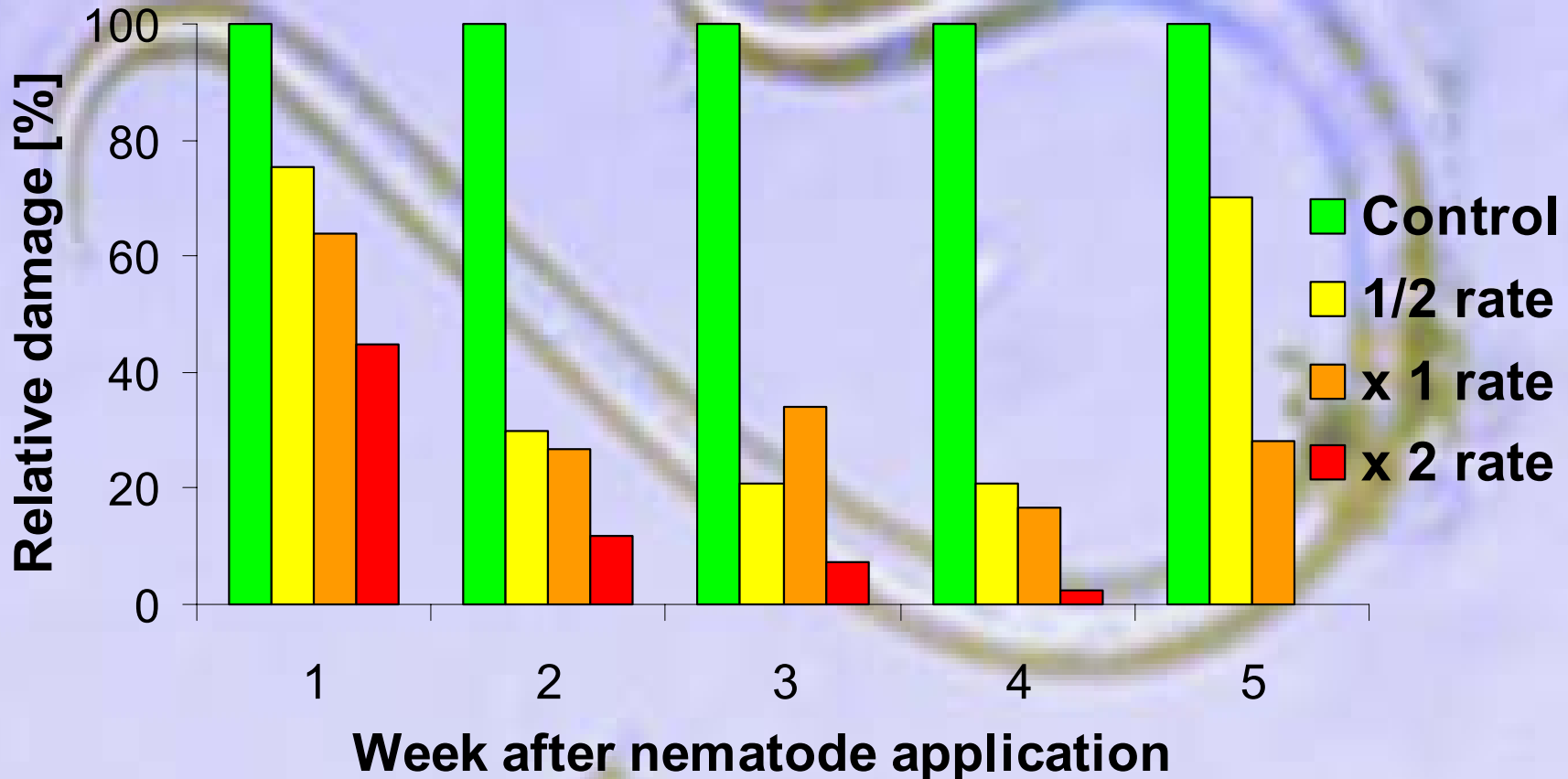
WHAT IS HAPPENING IN THE MEANTIME !?

Bioassays with *P. hermaphrodita*

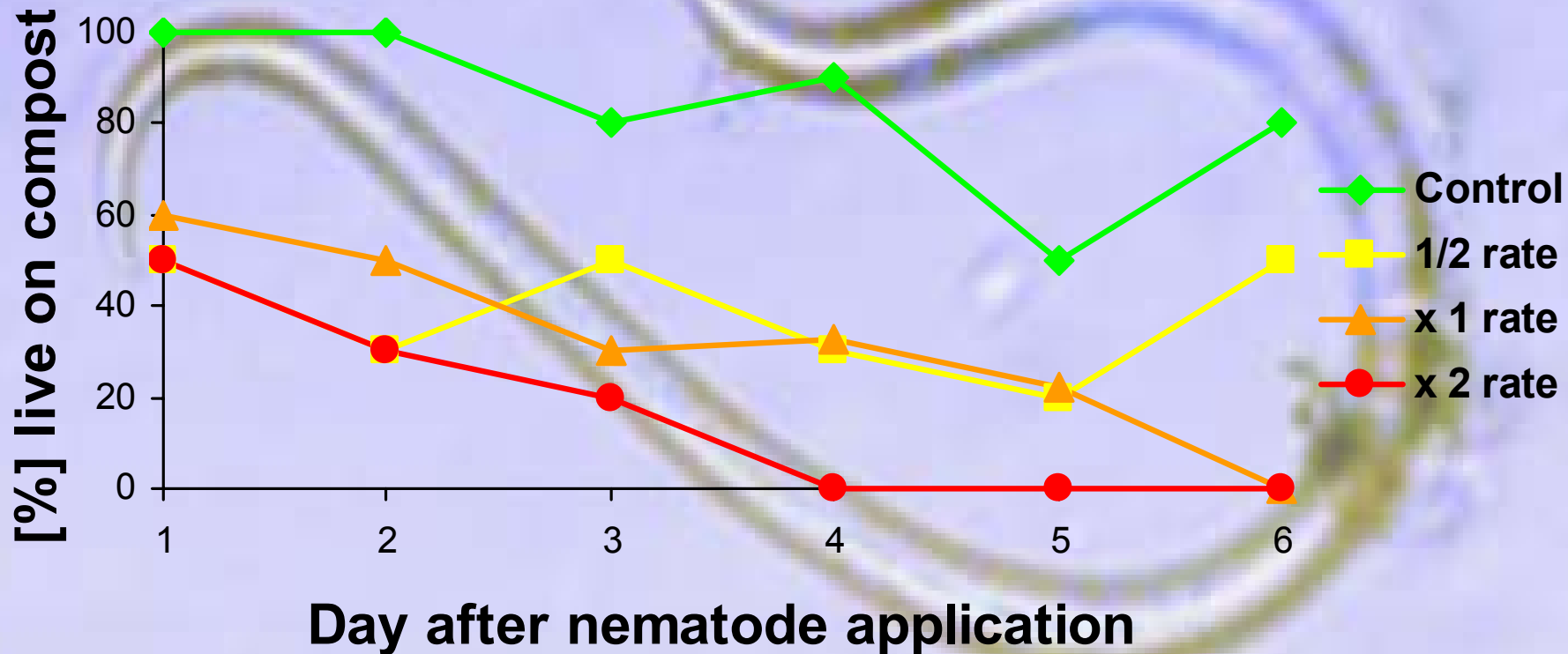


- In addition to mortality other sublethal effects were observed:
 - Antifeedant effect
 - Repellency
- more detailed studies to quantify sub-lethal effects are necessary

Antifeedant effect of nematodes on *D. panormitanum*

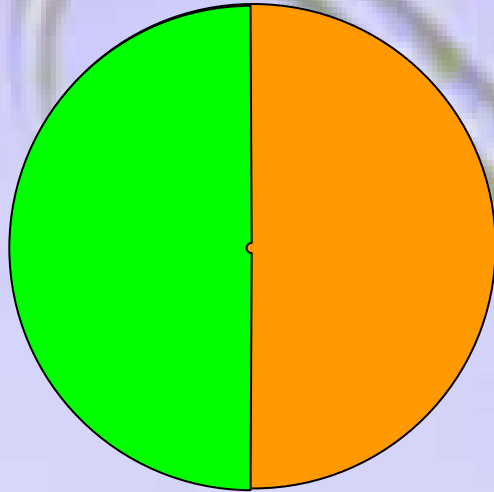


Repellent effect of nematodes on *D. panormitanum* in first week



Behavioural response of slugs and snails

Choice test

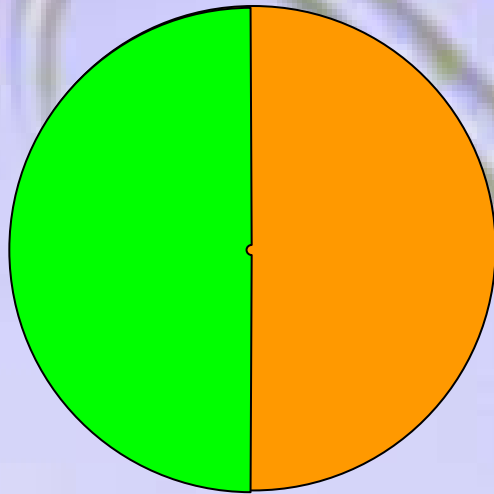


→ Repellent effect



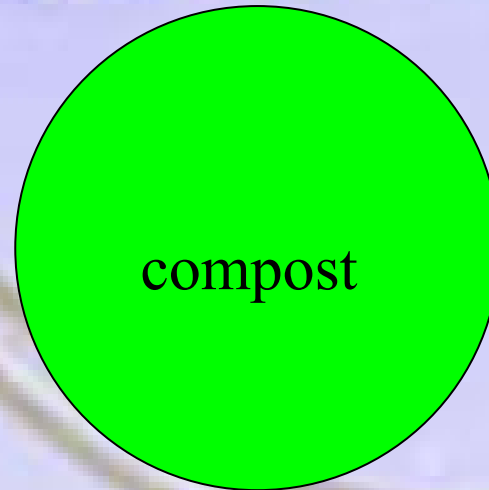
Behavioural response of slugs and snails

Choice test

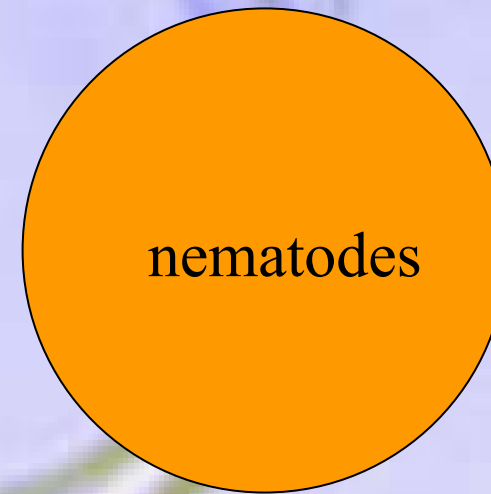


→ **Repellent effect**

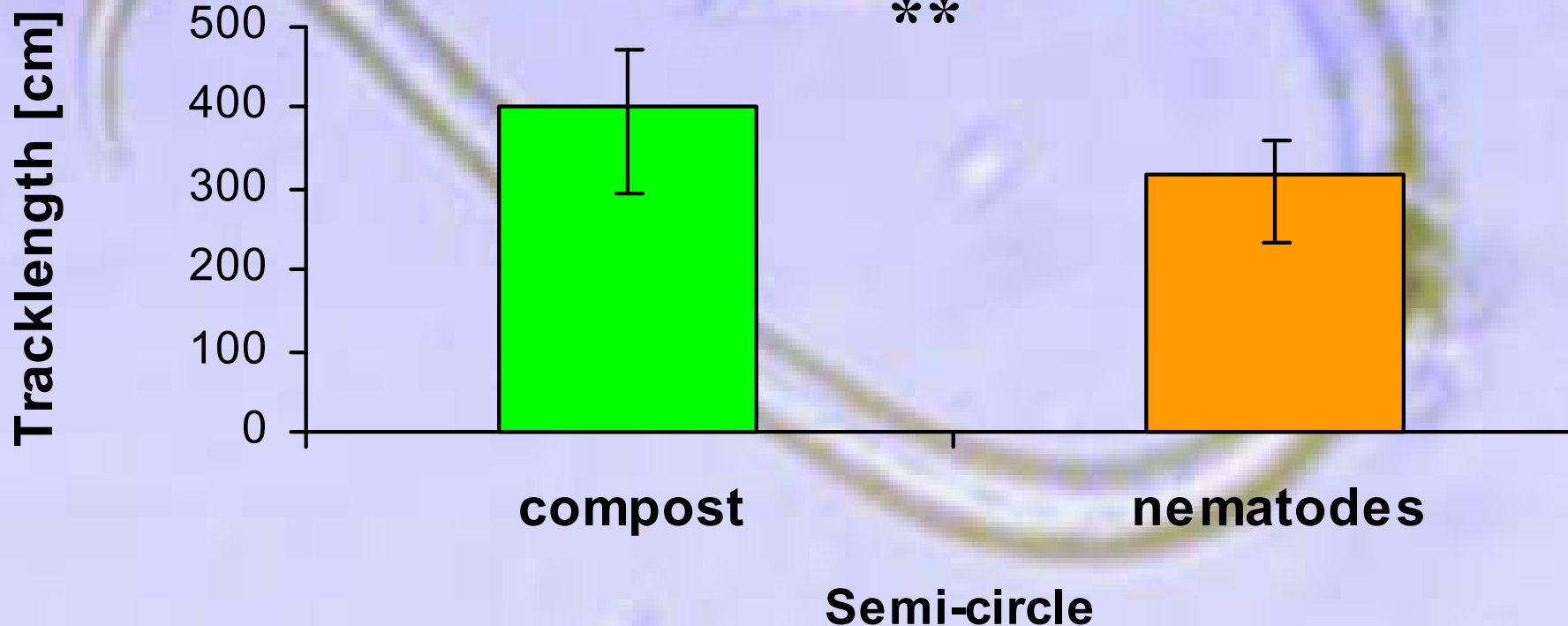
No-choice test



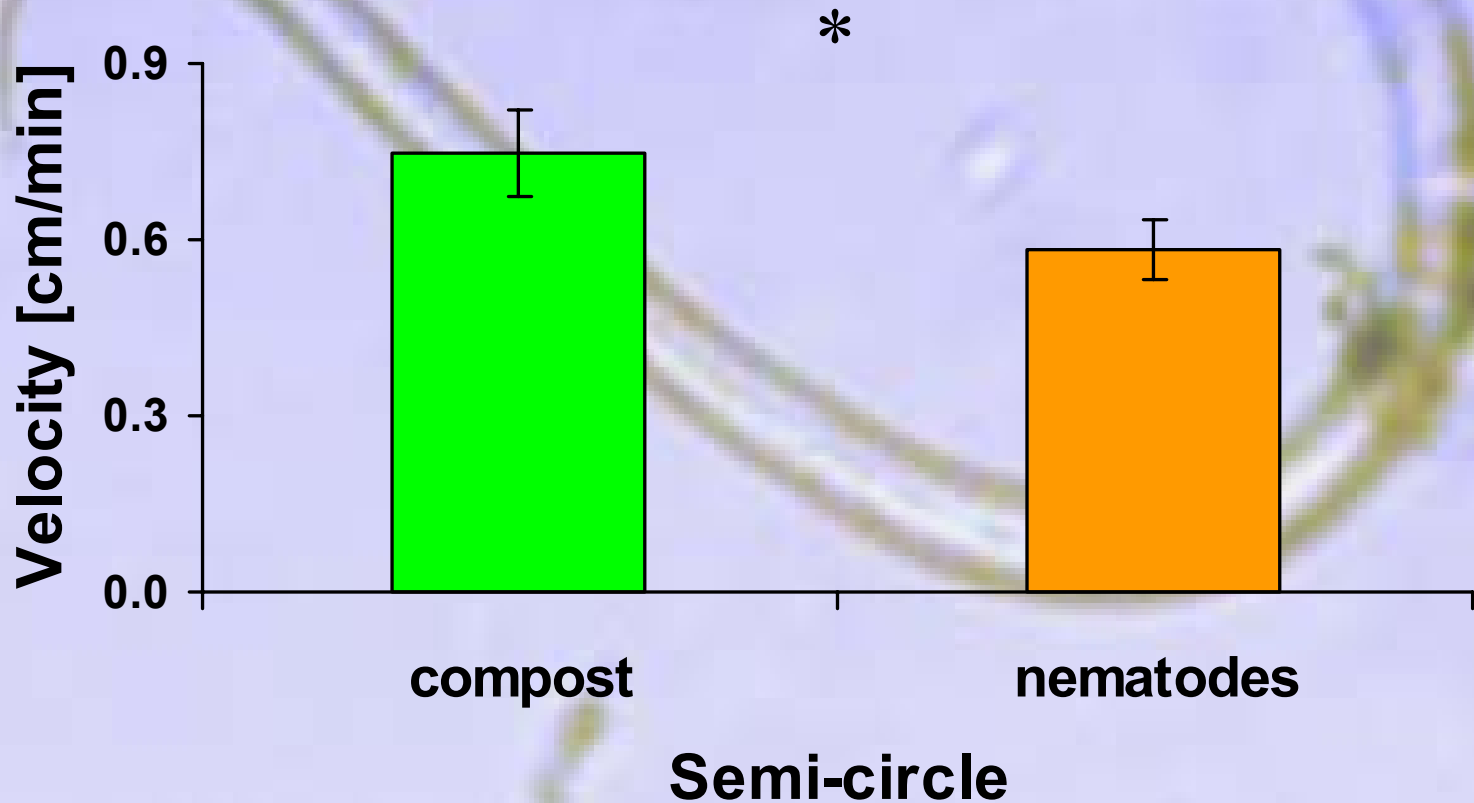
→ **Irritating effect**



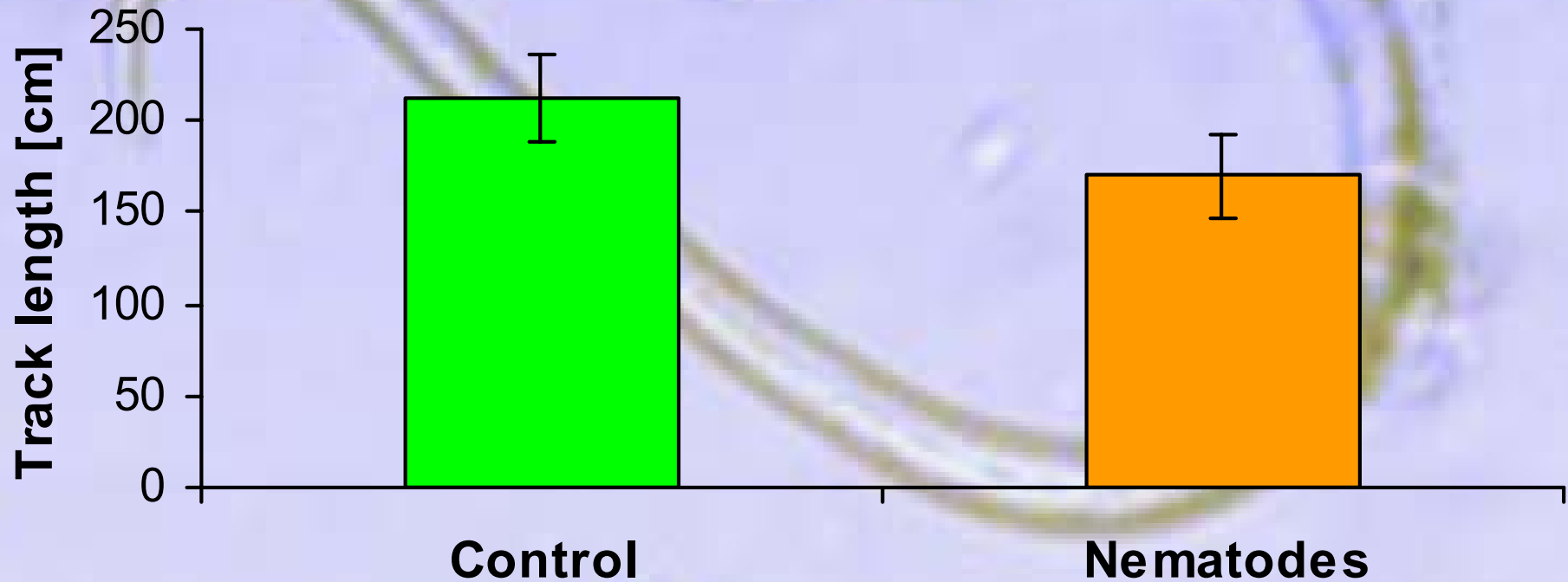
Repellent effect of nematodes on *D. panormitanum* (choice)



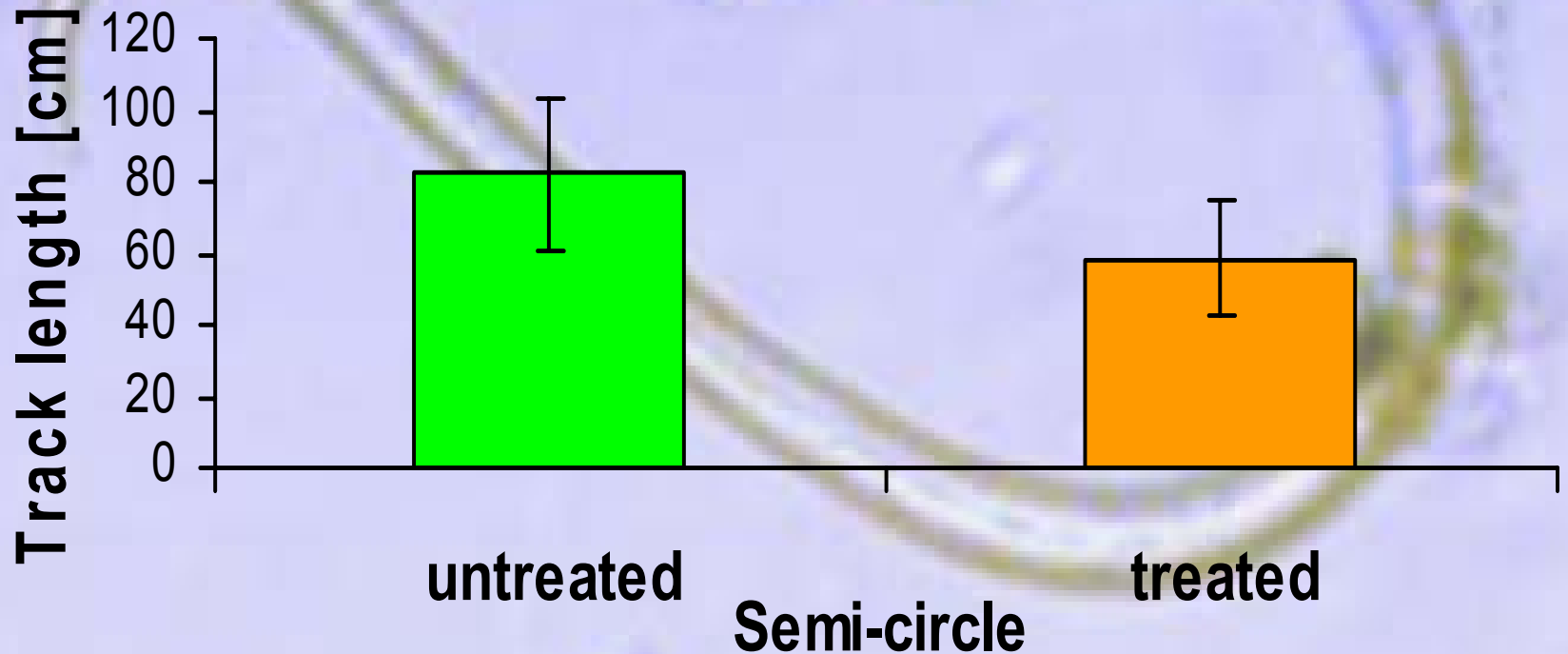
Reduced viability of *D. panormitanum* on nematode-treated surfaces



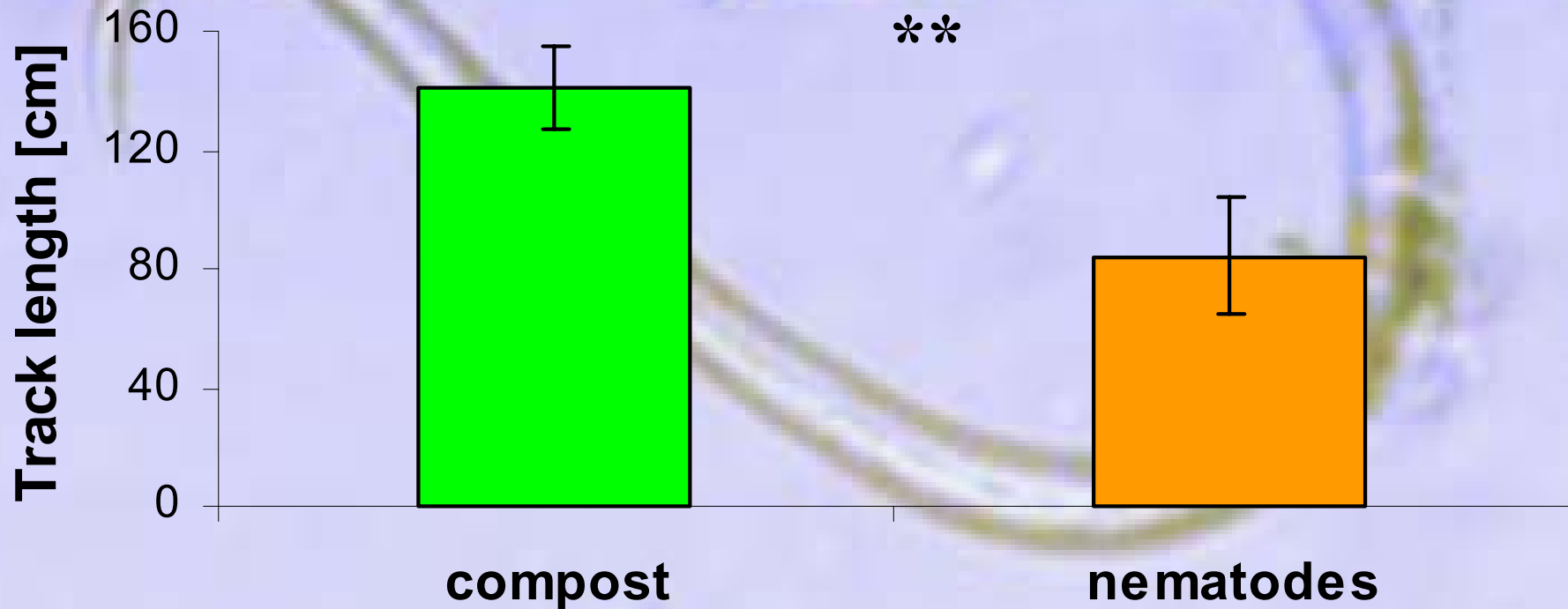
Irritating effect of nematodes on *D. panormitanum* (no-choice)



Repellent effect of nematodes on *O. pfeifferi* (choice)



Irritating effect of nematodes causes reduced activity in *O. pfeifferi*



Conclusions

✓ Significant lethal effects set in after one week (*O. pfeifferi*) and three weeks (*D. panormitanum*)

Sub-lethal effects can protect crop in the meantime:

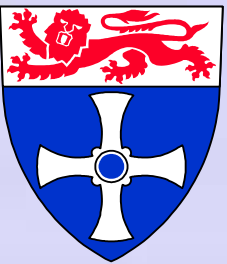
- ✓ Slug damage reduced by more than 40%
- ✓ Repellent effect for slugs significant
- ✓ Irritating effect reducing activity of slugs by 22%
- ✓ Irritating effect on snails significant with 40 % reduction of activity
- ✓ Viability of slugs and snails on treated surfaces significantly reduced
 - Will reduced viability result in reduced egg production?
 - Will treated areas be avoided for egg production ?

Sublethal effects of the parasitic nematode

Phasmarhabditis hermaphrodita ...

Liked this presentation !?

- I am looking for a job!
 - Submission of PhD thesis summer 2003
 - Challenging position in UK or Germany



Ingo.Schueder@ncl.ac.uk

