

Summit Workshop COST 850  
"Biocontrol Symbiosis"

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Christian-Albrechts-University of Kiel  
Institute for Phytopathology

**More questions than  
answers:  
Application and  
establishment in  
agriculture ecosystems**

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# For successful establishment, what is needed?

- 1. When should we applied EPN in order to achieve the best establishment?**
- 2. Which kind of crops and soils are „friendly“ to EPN?**
- 3. What is the best application technique?**

**If we knew better, we might need less  
nematodes!!**



# Application

Flat nozzle spray

0.5 million/m<sup>2</sup> Hb

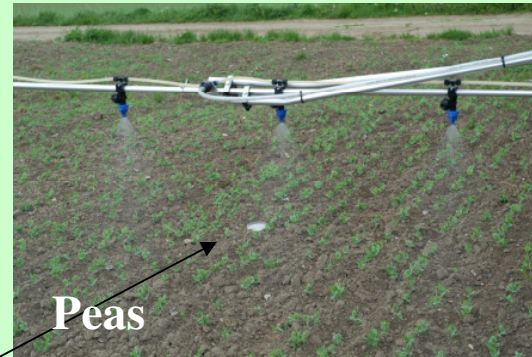
1,200 ltr water /ha

EPN density at soil  
level recorded  
with Petri dish

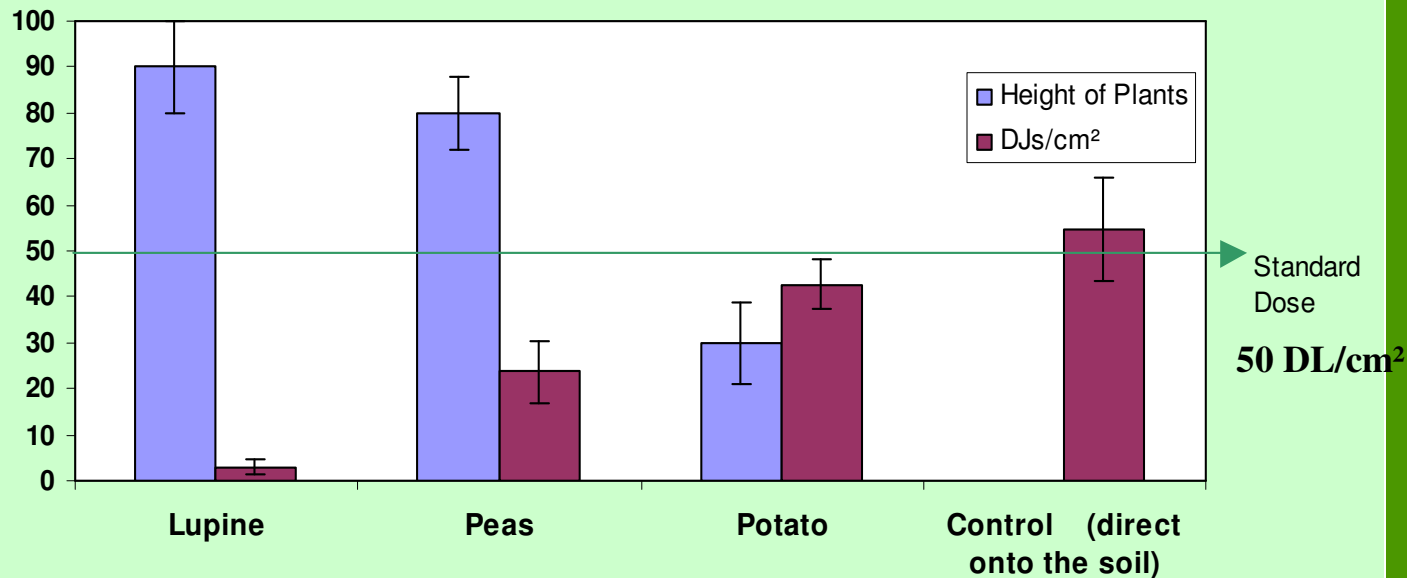
Climatic data recorded

Plant height recorded

Establishment recorded  
with *G.m.* method



# Crop height influences EPN establishment



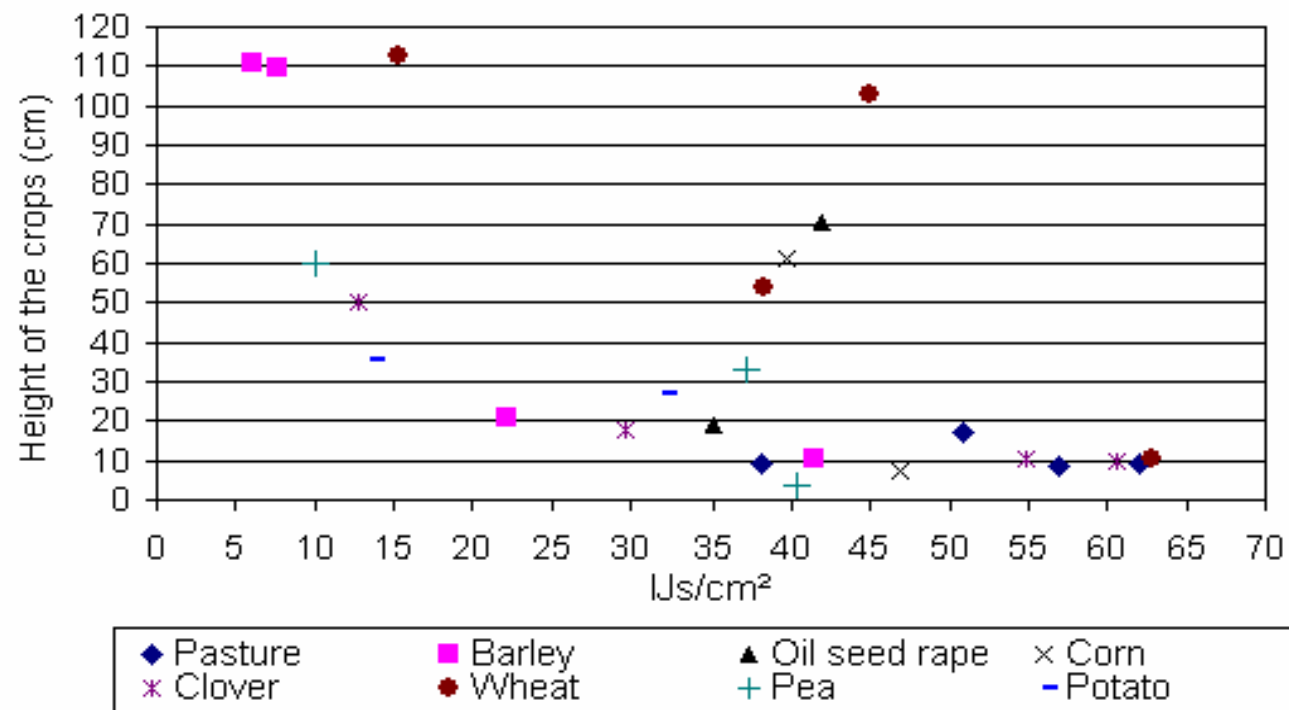
## *DJ/Petri dish after application in field*

Peas:	$23.6 \pm 6.7$ DJs/cm <sup>2</sup>
Lupine:	$3.02 \pm 1.8$ DJs/cm <sup>2</sup>
Potato:	$42.6 \pm 5.3$ DJs/cm <sup>2</sup>
Control:	$54.8 \pm 11.2$ DJs/cm <sup>2</sup>

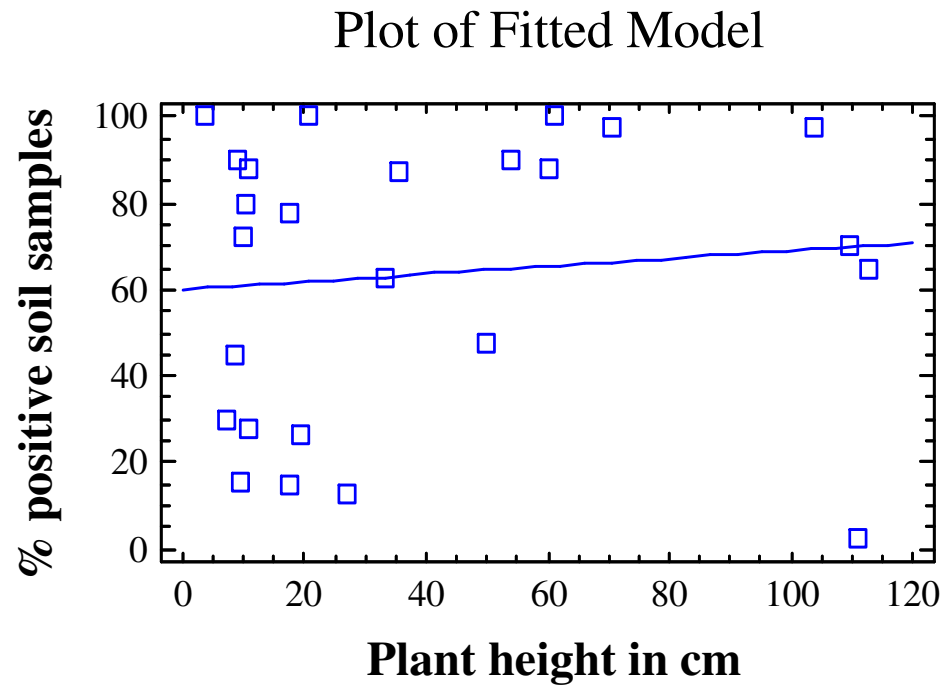
# Plant height and # EPN in dishes

IJs per cm<sup>2</sup> recovered from Petri dishes below the plants at the time of application

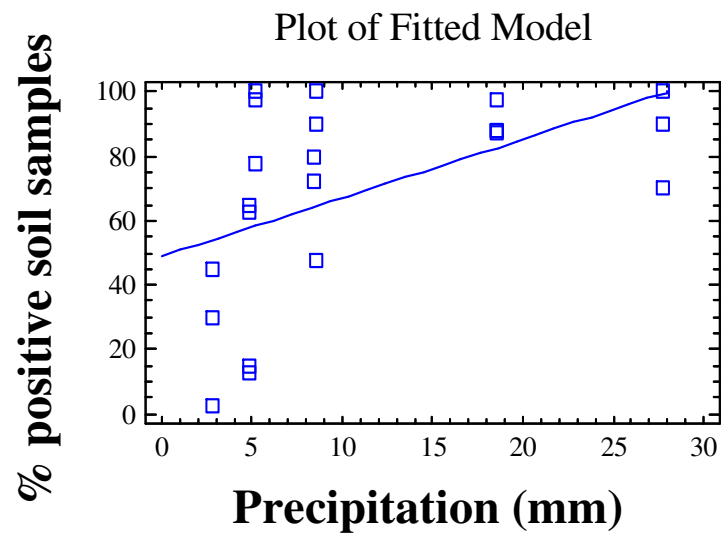
Negative correlation ( $r = -0.62$ ,  $P = 0.001$ )



# No relation between plant height and successful establishments



# Significant relation between precipitation and successful establishments



# Relations (Correlation-coefficient Spearman)

	Height	# EPN	Rain	Rad.	°C Soil	°C Air	rH
<b>Spearman</b>	0,08	0,13	0,65	-0,35	-0,30	-0,43	0,68
<b>n</b>	25	25	22	22	22	22	22
<b>p-Wert</b>	0,69	0,52	0,003	0,11	0,167	0,051	0,002

Green: significant at 5%

Yellow: significant at 5%

No influence of crop on establishment



# Questions

- How long can EPN persist on plant foliage before they establish in the soil?
- Are EPN transported with rain or are they migrating downwards?
- Are there differences between plants in their ability to provide shelter for EPN
- Do we underestimate establishment and survival in canopy
- Cabbage heads: effects on DBM was recorded 14 days after application (Indonesia)

