

Always thinking ahead



Nemasys C to control codling moth

Dr. Andrew Brown



Presentation overview

- Introduction to beneficial nematodes
- Use of Nemasys C to control codling moth
- Factors affecting efficacy of Nemasys C
 - Nematode dose
 - Rainfall during application
 - Time of year – Spring/Autumn
 - Nematode species
- Latest global trials results

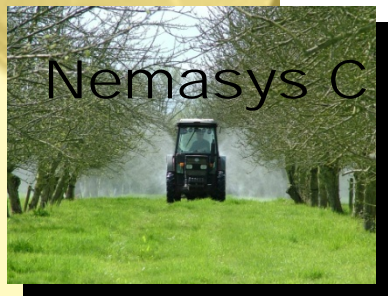
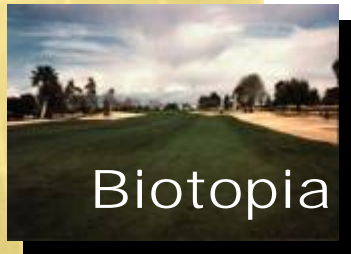
Becker Underwood – *Nematode specialists*



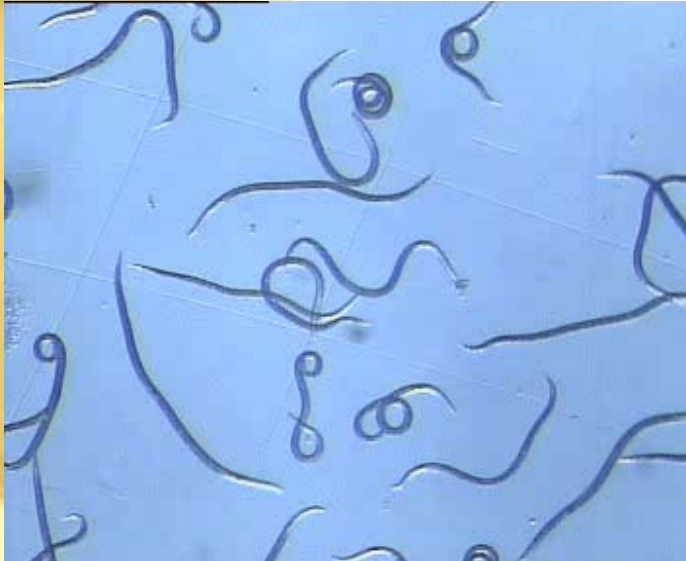
- Largest nematode supplier in the world
- State of the art factory in England
- Nematodes distributed in Europe and North America

BioControl Products

Nematodes



Benefits of nematodes



- Reliable performance
- Relatively uncomplicated biological
- Application strategies similar to chemical
- Persistent in the soil for long term control.
- Crop safe
- No REI
- No Harvest Intervals
- Suitable for IPM practices
- Safe to crop, users and environment
- Suitable for organics

Nemasys C

for codling moth control



A product from


**BECKER
UNDERWOOD**

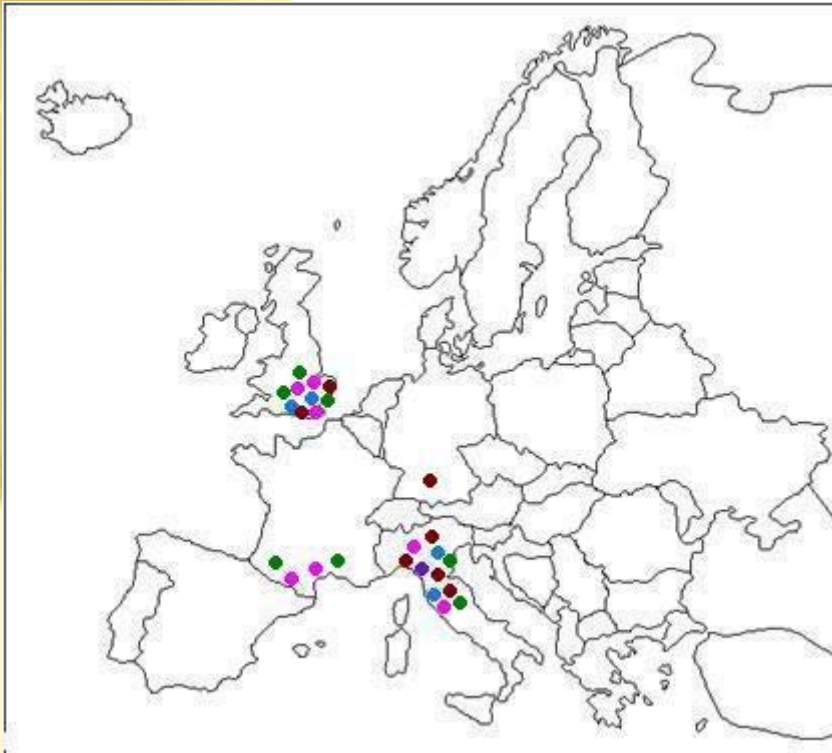

Nemasys C to control codling moth



- Pest reduction **before** first flight and damage
- Reduced chemical inputs the following year
- Complement to other strategies requiring good population management (mating disruption, virus)
- Use as part of a resistance management programme

Field trials - Summary

Extensive, successful field trials have been carried out in a number of different territories:



- 1998 - 2005 – USA
- 2004 – Italy (x1)
- 2005 – UK (x2), Italy (x2)
- 2006 – UK (x3), Italy (x2), France (x2)
- 2007 – Germany (x1), Italy (x4), UK (x2)
- 2008 – Italy (x2), UK (x3), France (x2)

Field trial setup



Nemasys C

for codling moth control

Effect of nematode dose



A product from

**BECKER
UNDERWOOD**

Trials: Autumn 2006 - Italy

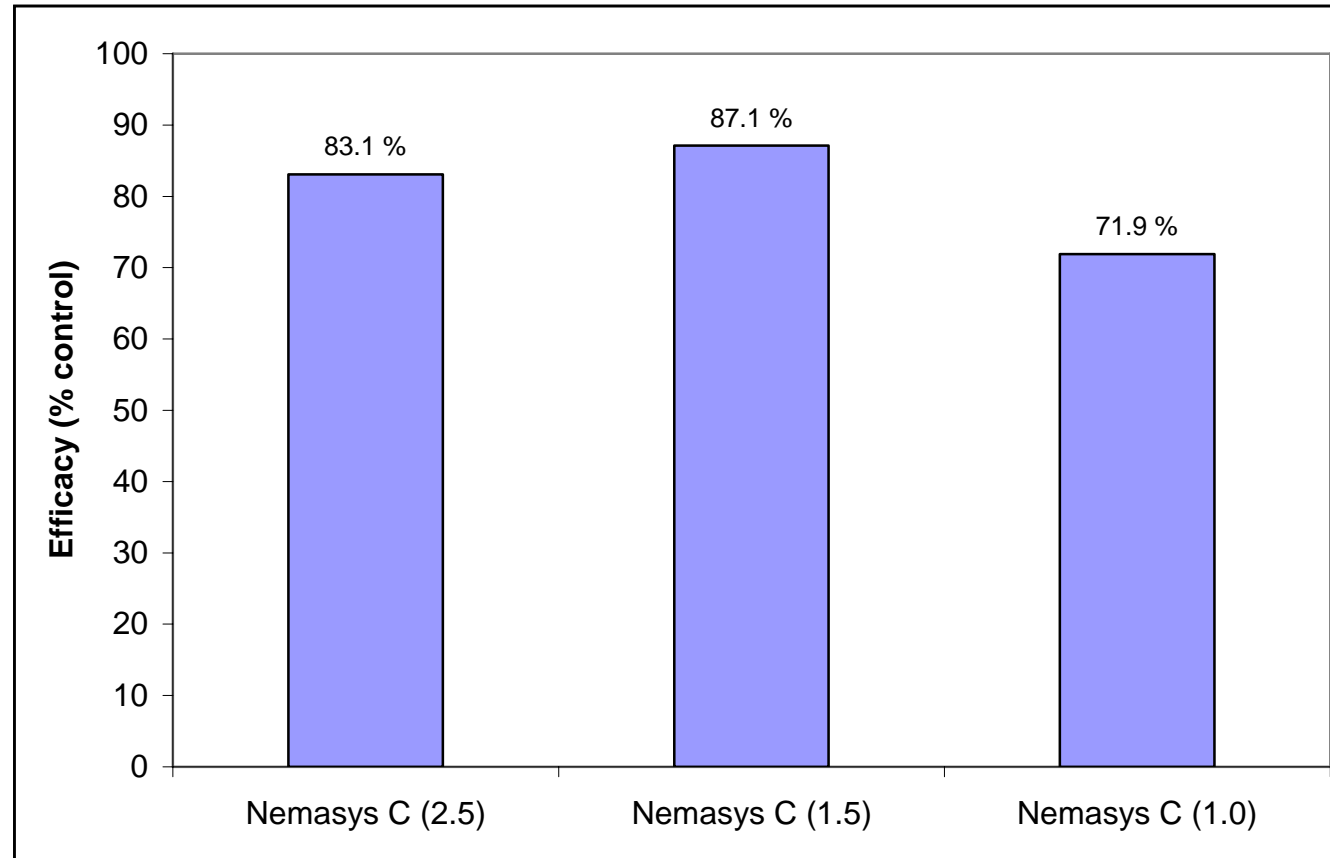


- Application method:
Airblast sprayer
- Application rate:
 - 2.5 billion nematodes per ha
 - 1.5 billion nematodes per ha
 - 1.0 billion nematodes per ha
 - Un-treated control

1500 l water per ha

- Assessments made;
 - Sentinal larvae

Trials: Autumn 2006 - Italy



No difference between application doses of 2.5 or 1.5 billion /ha

Nemasys C

for codling moth control

Effect of rainfall during application

A product from

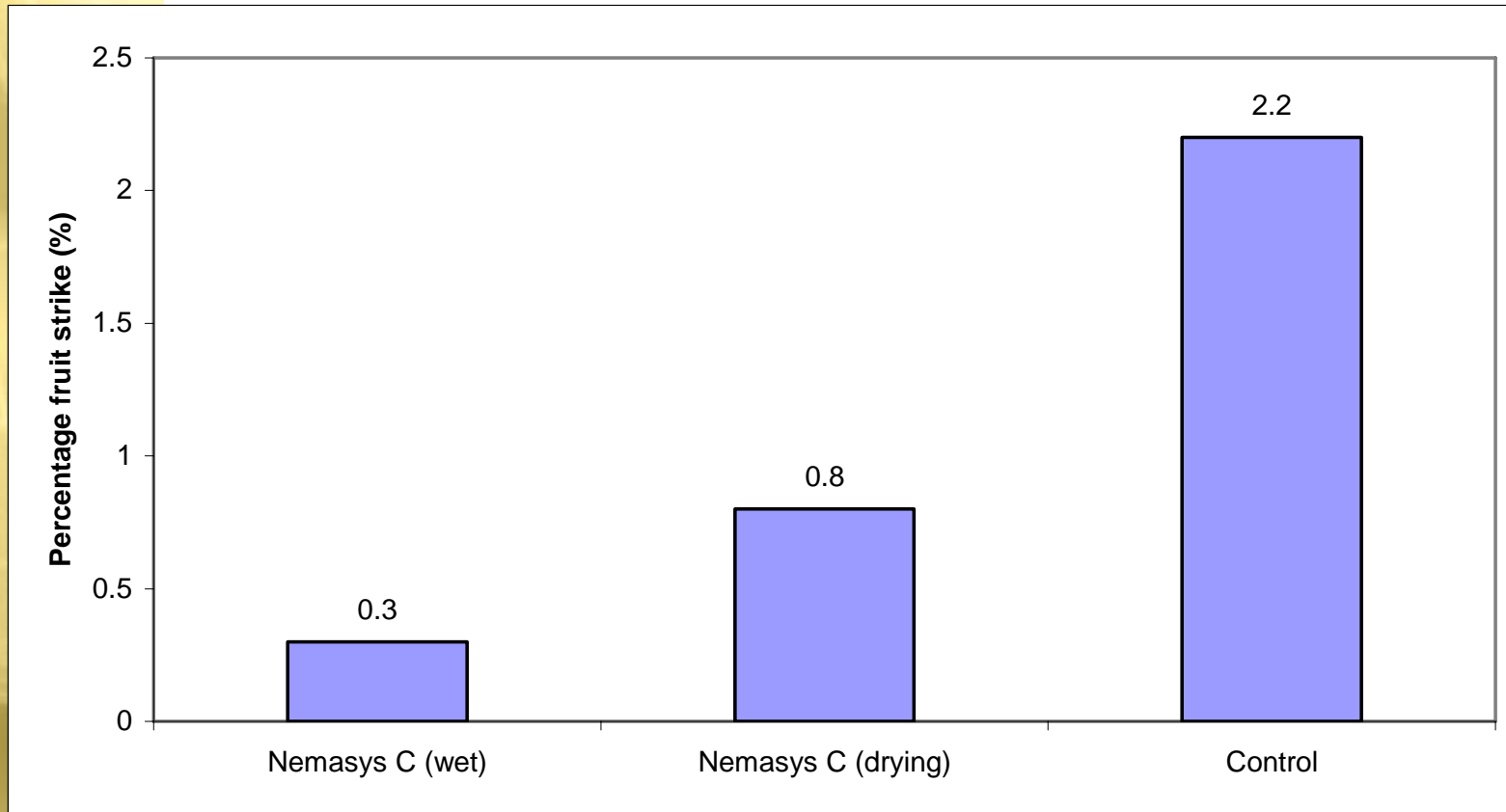
The logo for Becker Underwood, featuring a grid of blue dots above the company name in bold black letters, with another grid of blue dots below. **BECKER
UNDERWOOD**

Trials: Autumn 2006 - UK



- Application method: Airblast sprayer.
- Application rate:
 - 1.5 billion nematodes per ha.
 - 1500 L water per ha.
- Application date: 6th October 2006.
- 2 treatment blocks:
 - Block 1 – wet application
 - Block 2 – dry application

Trials: Autumn 2006 - UK



Application of Nemasys C in wet conditions gave a 74% reduction in fruit strike.
Application in drier conditions resulted in a 64% reduction in crop damage.

Nemasys C

for codling moth control

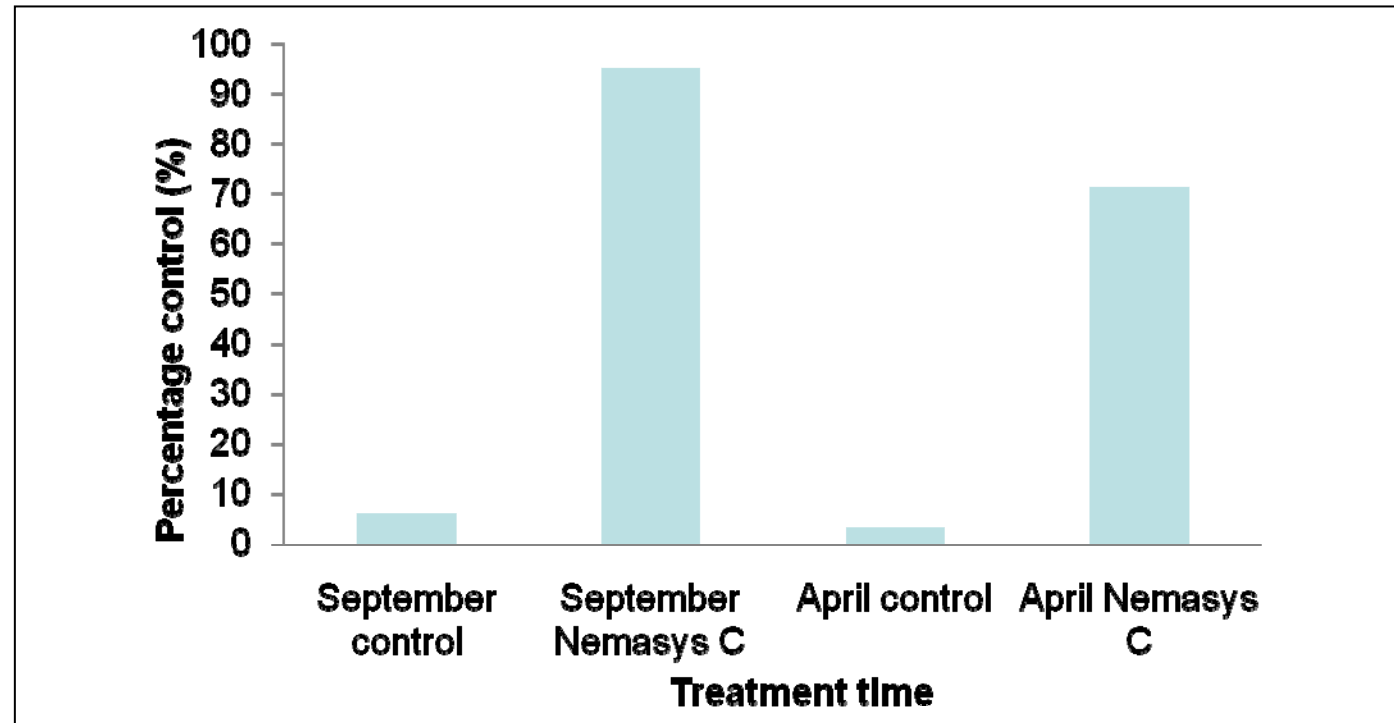
Effect of time of year



A product from

**BECKER
UNDERWOOD**

Trials: Lacey USDA - USA



- Higher control with autumn application due to higher average temp.
- Rainfall required for application, autumn application gives more flexibility.

Nemasys C

for codling moth control

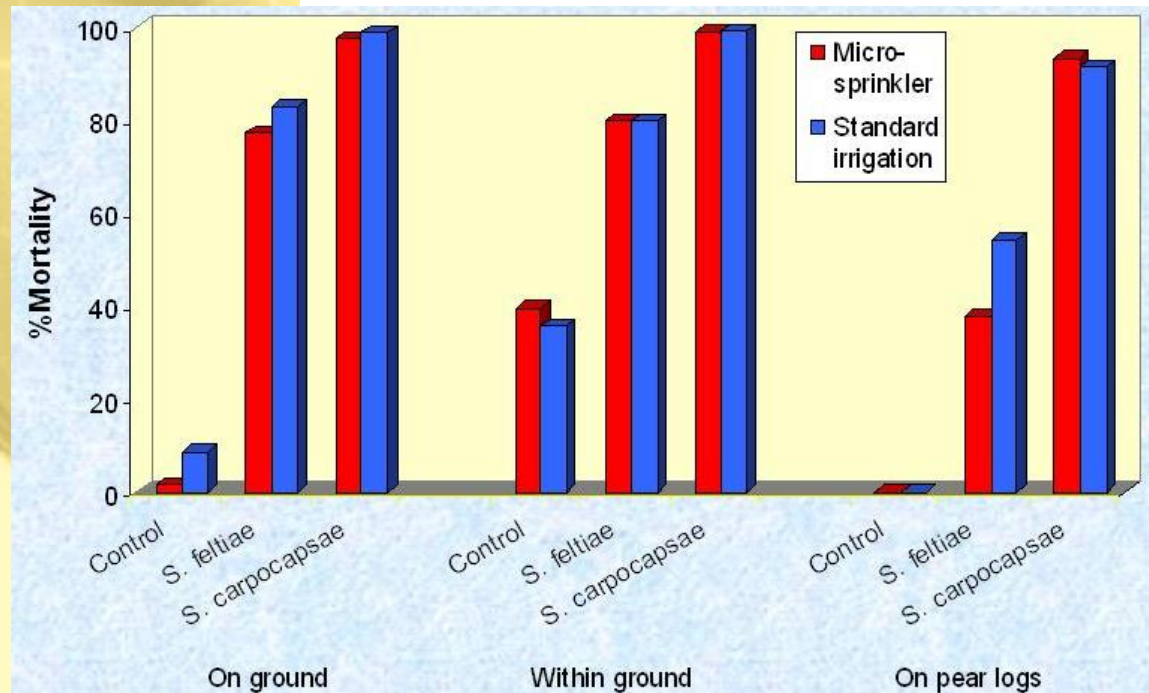
Effect of nematode species

A product from

The logo for Becker Underwood, featuring a grid of blue dots above the company name in bold black letters, with another grid of blue dots below. **BECKER
UNDERWOOD**

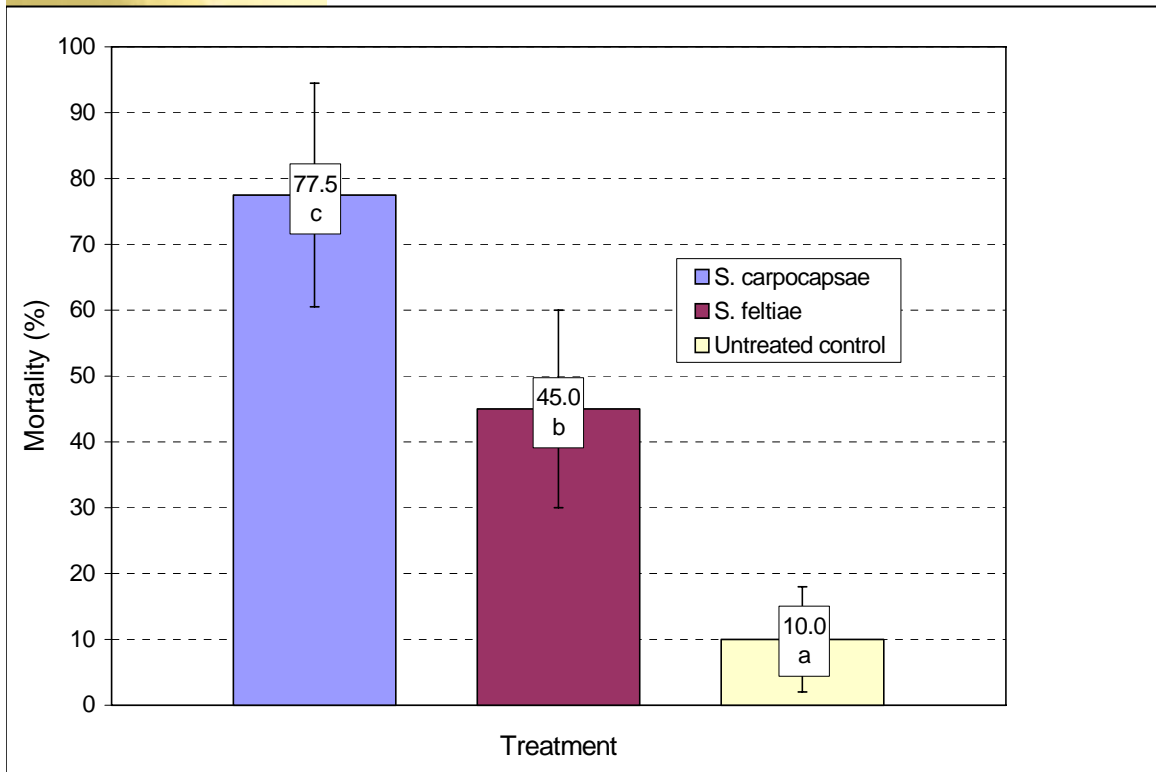
Trials: Lacey USDA - USA

Efficacy against pest in different locations



- Airblast application
- October treatment
- 1 billion / ha
(100 000 EPNs / m²)
- Moisture maintained 8 hrs post treatment

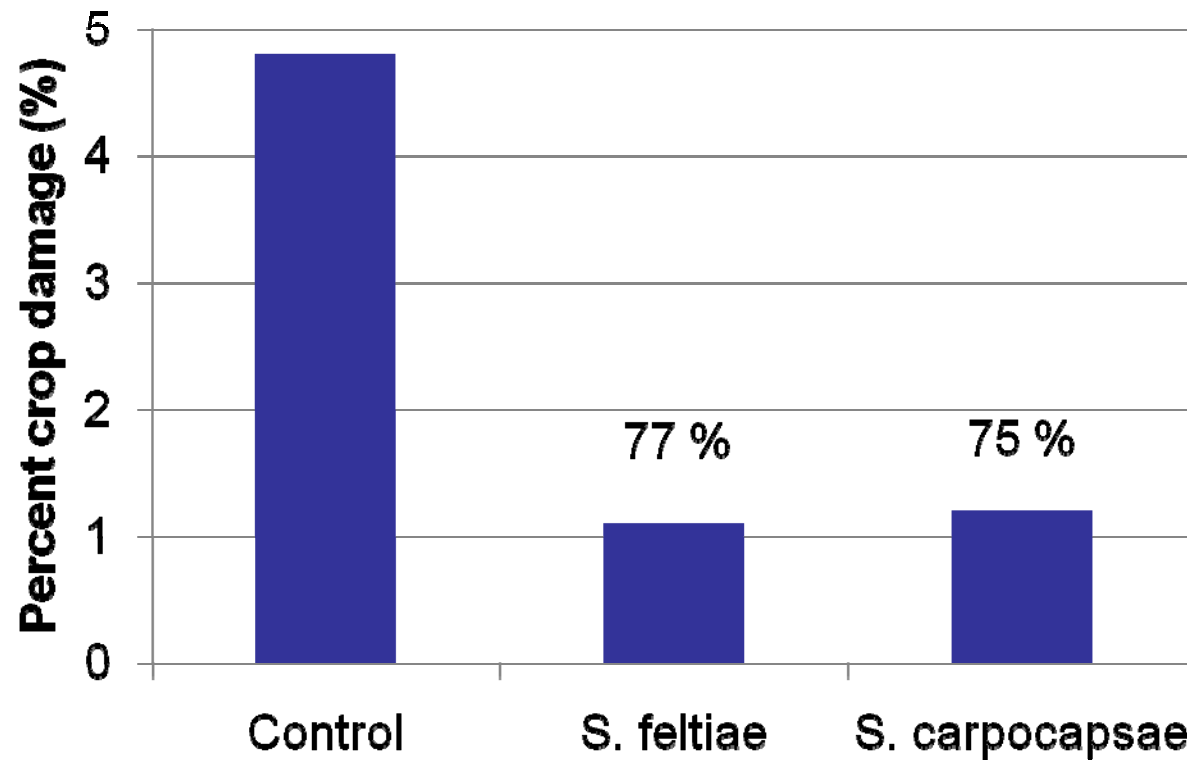
Trials: Spring 2004 - Italy



- Napsack sprayer application
- Comparison Sf / Sc
- 1.5 L / tree
- 2.5 million EPNs / tree
- Post irrigation
- Sentinel larvae method

Trials: Autumn 2008 - Germany

- *S. carpocapsae* resulted in 75% reduction in crop damage at harvest (10.10.08).





Nemasys C

for codling moth control



Latest global trial results

A product from



**BECKER
UNDERWOOD**

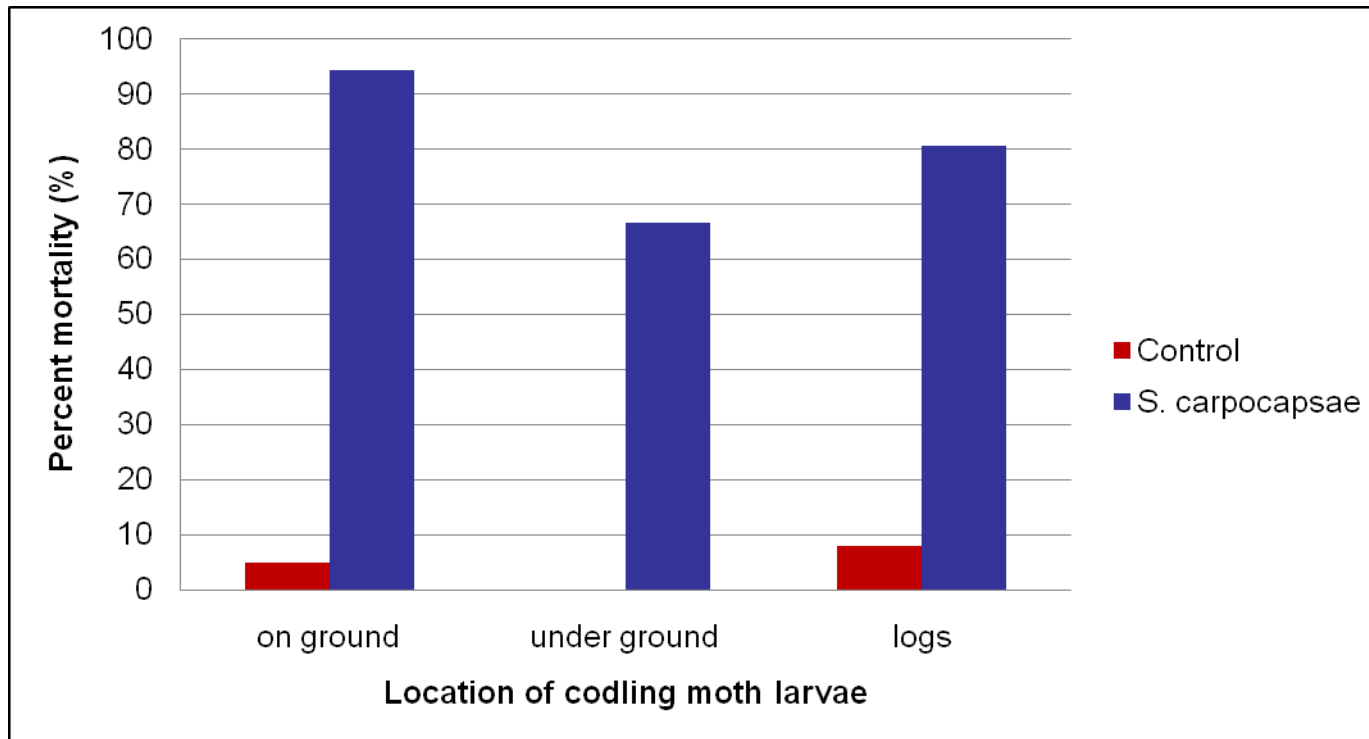
Trials: Autumn 2008 - Italy

- Two trials in Italy autumn 2008
- Trial 1: Villafranca di Forli = 86% control of larvae
- Trial 2: Monestrillo = 89% control of larvae

Study site no.	Weather conditions during spray applic.	No. overwintering CM larvae	% mortality due to EPNs
1	R.H.=90.6% Rainfall=8.2 mm T min=9.8 °C T mean=14.4 °C T max=18.8 °C	1648	86.3
2	R.H.=89.1% Rainfall=11.8 mm T min=9.7 °C T mean=14.9 °C T max=20.4 °C	617	89.3

Trials: Autumn 2008 - France GRCETA

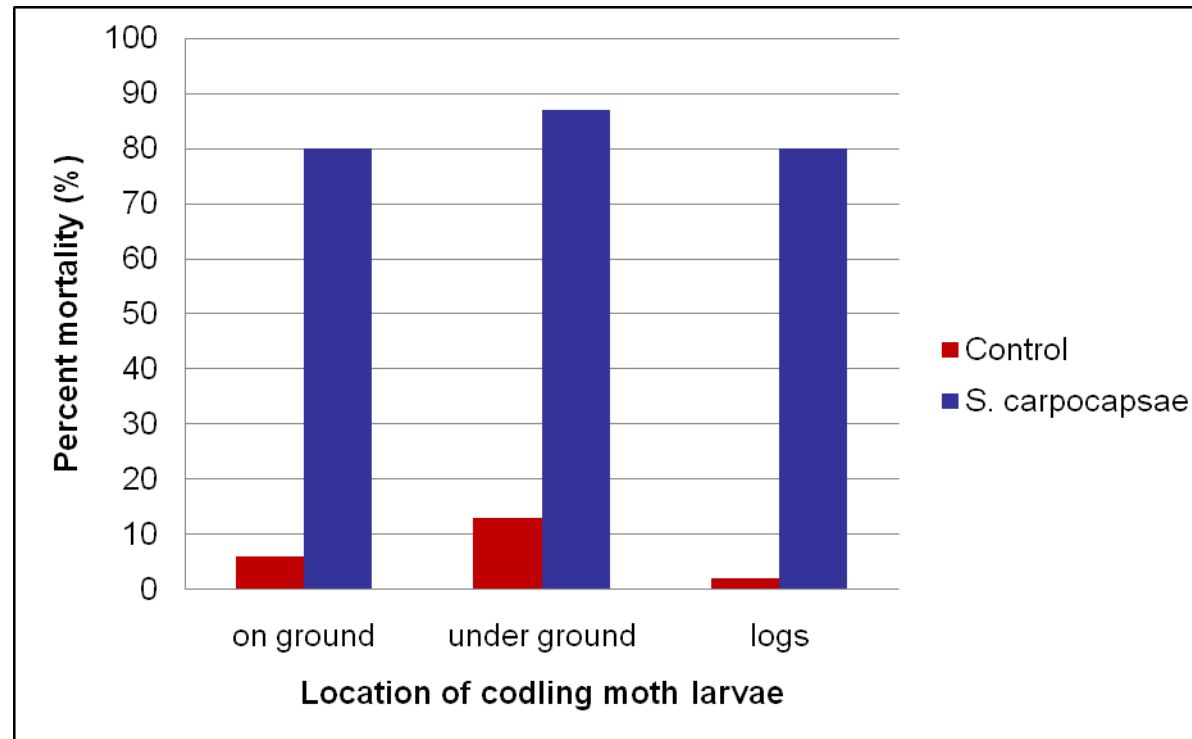
- Application rate: 1.5 billion IJ/ha
- Application volume: 1500 l/ha



- Mean level of control of codling moth larvae 81%

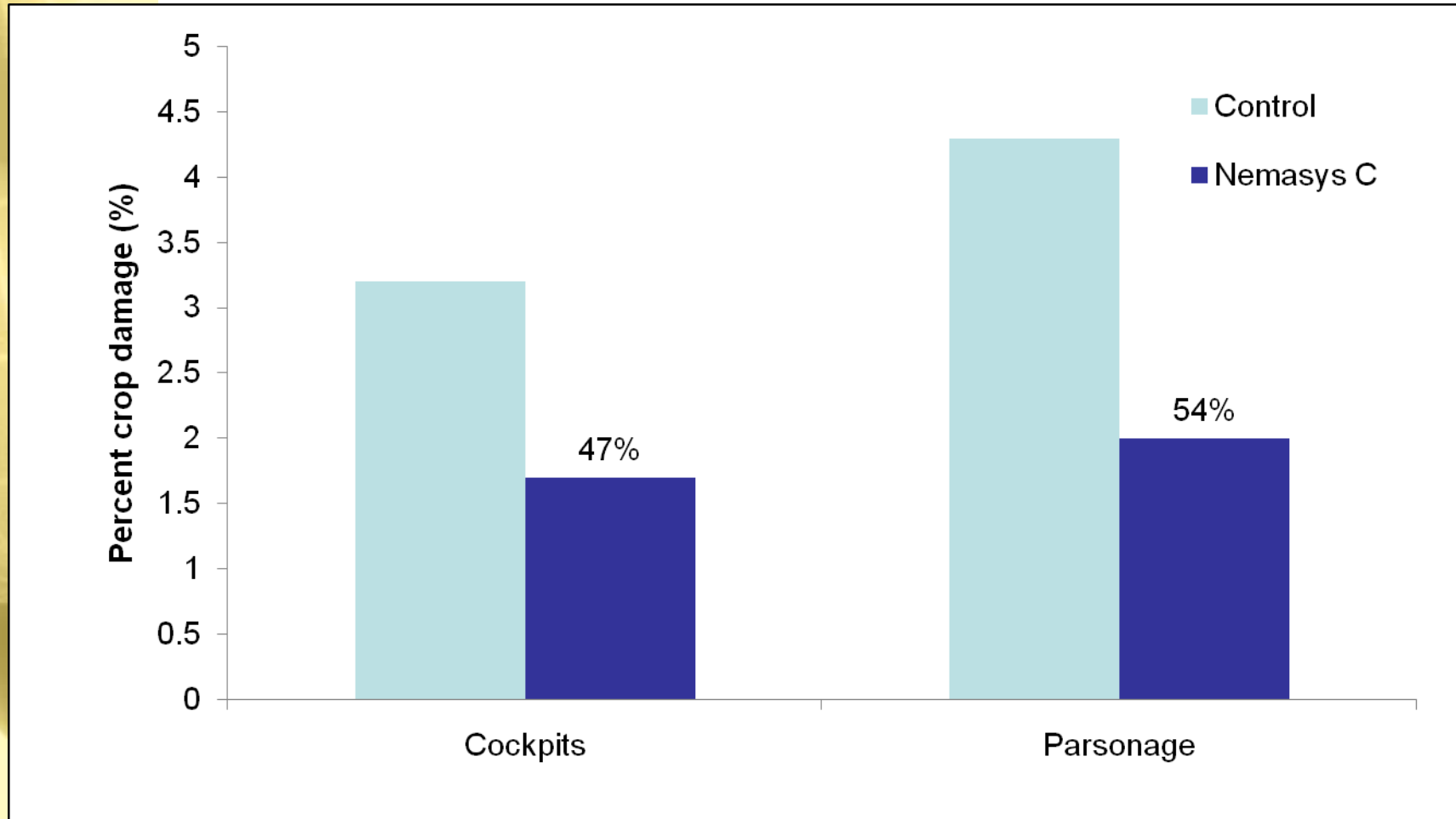
Trials: Autumn 2008 – France - Cavaillon

- Application rate: 1.5 billion IJ/ha
- Application volume: 1500 l/ha

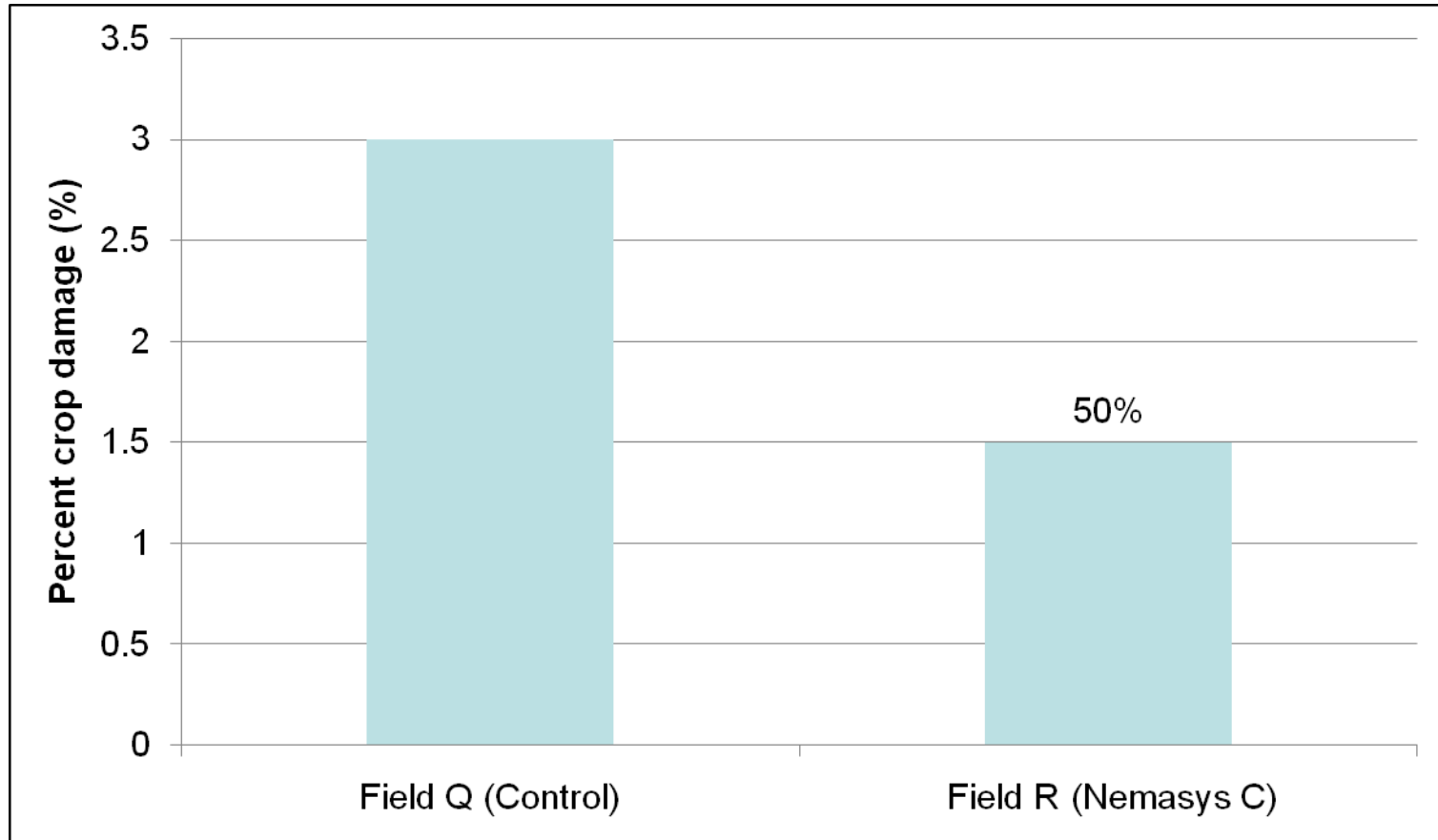


- Mean level of control of codling moth larvae 82%

Trials: Autumn 2008 – UK



Trials: Autumn 2008 – UK



Treatment with Nemasys C resulted in a 50% reduction in crop damage

Nemasys C

for control of *Cydia* spp. in chestnut

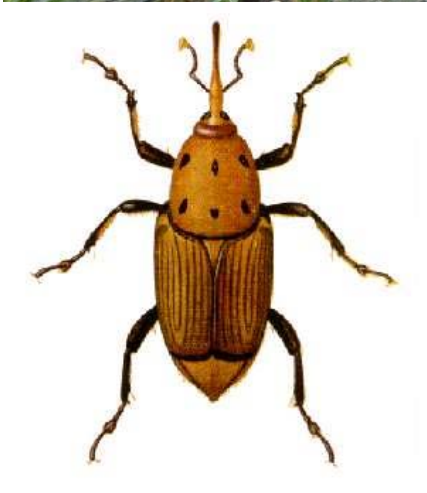


A product from


**BECKER
UNDERWOOD**


Nemasys C

for Red Palm Weevil control



A product from

**BECKER
UNDERWOOD**

Nemasys C

for control of *Paysandisia archon*

A product from

The logo for Becker Underwood, featuring a grid of blue dots above the company name in bold black letters, with another grid of blue dots below.

**BECKER
UNDERWOOD**



Always thinking ahead



Nemasys C to control codling moth

Dr. Andrew Brown