



Agriculture & Horticulture  
DEVELOPMENT BOARD

Giving growers access to tested  
biocontrol tools through a member  
state programme  
**SCEPTRE**

Vivian Powell

HDC Crop Protection Liaison Manager

## HDC - Who are we?

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- **Horticultural Development Company**
- **Established in 1986 - Since April 2008 part of**
- **Agricultural and Horticultural Development Board**
- **Other sector companies include: Cereals, potatoes, milk, meat and livestock**



# HDC – What do we do ?

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- **All growers with an annual turnover in excess of £60k pa pay 0.5% of that turnover to the Horticultural Development Company (HDC)**
- **The total amount collected each year is approximately £4 million and increasing**
- **Levies collected are used to fund research**
- **By working together growers can solve problems that individually they would not have been able to fund**
- **Over 300 crops Artichokes to Zucchini**



**Field Vegetables**



**Hardy Nursery Stock**

# Panels



**Tree Fruit**



**Bulbs and Outdoor Flowers**



**Soft Fruit**



**Protected Edibles**

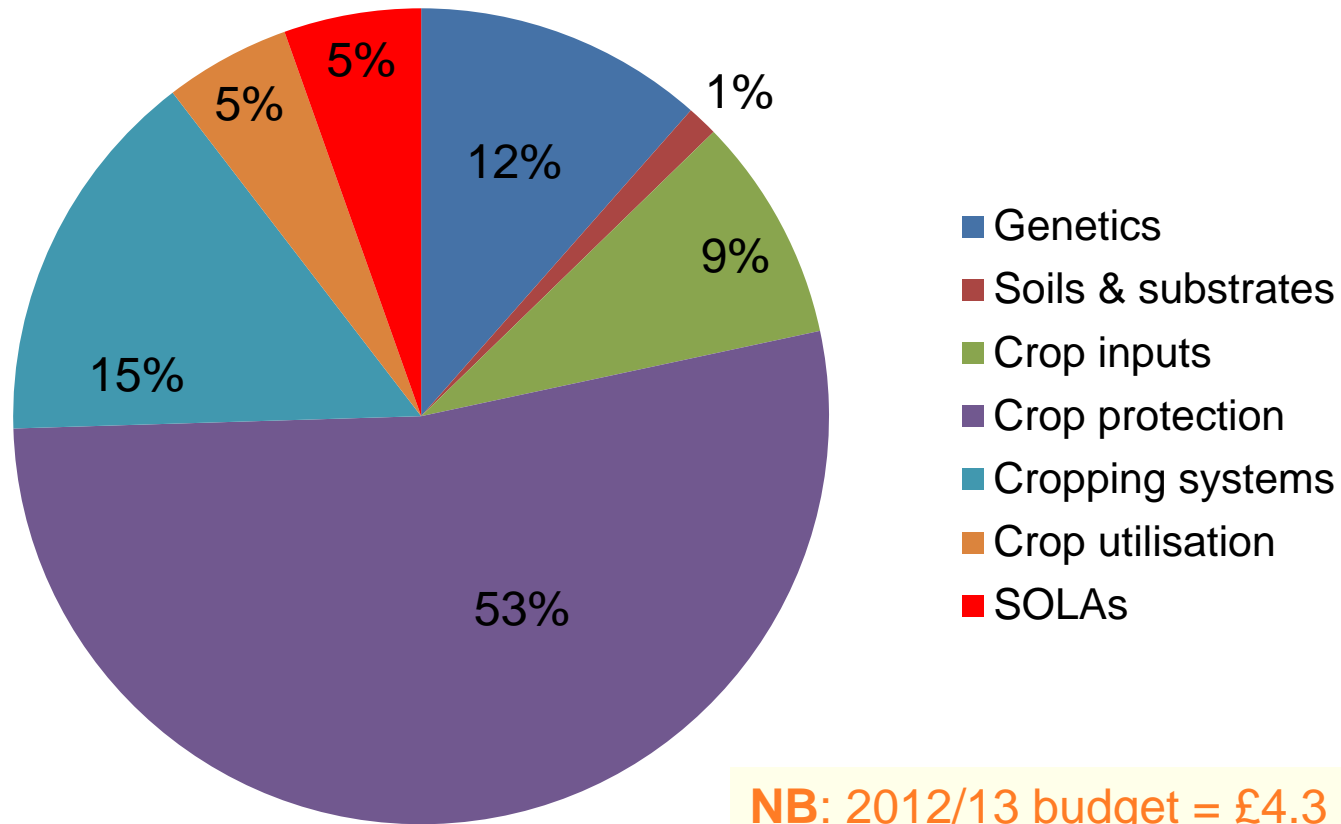


**Protected Ornamentals**



**Mushrooms**

# Committed Research Spend by Topic 2012/13



**NB:** 2012/13 budget = £4.3 million  
SOLA (EAMU) work = 3% of budget

# Aim of HDC crop protection work – maintain the armoury and develop new solutions

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*HDC funded by UK growers to co-ordinate R & D on horticultural crops*



*Need a range of weapons – Integrated Strategies*

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# EAMUs or Extension of Use (formerly SOLAs)

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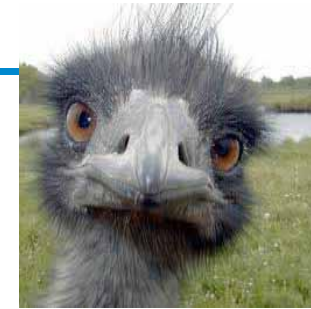
- EAMU (extension of use/off label approval)
- Scheme permits grower or grower group to apply for use of a product on a specific crop/crop group (now manufacturers)
- Product must have a UK label recommendation
- Opportunity for 'emergency' status
- Needs safety data, e.g residues – except biopesticides
- Use entirely at growers risk re safety to the crop and efficacy
- For biopesticides – use must be justified and within the DAR already considered as part of label recommendations





# EAMUs or Extension of Authorisation for Minor Use some recent UK examples

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- **Bacillus subtilis (strain QST 713) Use as a soil drench on a range of crops following earlier approvals for foliar applications**
- **Gliocladium catenulatum use on a range of crops**
- **Metarhizium anisopliae var. anisopliae strain F52 on a range of crops**
- **Trichoderma asperellum strain T 34 on ornamentals to extend from label authorisation on carnation**
- **Ampelomyces quisqualis strain AQ 10 on a range of crops**



# SCEPTRE – an introduction



# SCEPTRE

Sustainable Crop & Environment Protection  
- Targeted Research for Edibles

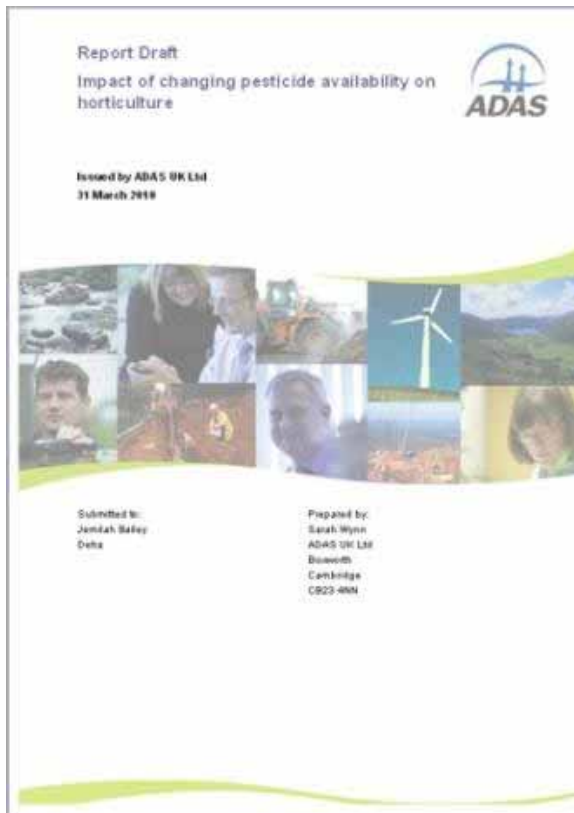


# Background

- Loss of actives - 91/414/EEC
- Loss of Long Term Arrangements for Extension of Use
- Future threats to actives - 09/1107/EEC, SUD, WFD
- Need for food security
- Opportunity from new technologies



# Background



Impact of changing pesticide availability on horticulture and an assessment of all impacts and priorities on a range of arable, horticultural and forage crops. - IF01100

<http://randd.defra.gov.uk>

Report Published May 2011



# SCEPTRE

## Sustainable Crop & Environment Protection - Targeted Research for Edibles

- Securing pesticides and biopesticides for sustainable production
- Four-year HortLINK project
- Applied research on high priority disease, pest and weed problems in fruit and vegetable crops
- Support approvals of new products and devise integrated pest management (IPM) programmes



# SCEPTRE

- Careful selection of products
- Working with consortium member companies and others
- Roma Gwynn (Rationale biopesticide strategists) is consultant to project
- Confidence that products will be taken forward to UK registration
- Products are coded – only the donor company and researchers have access to codes
- Trials conducted according to ORETO standards





# Consortium members



Bayer CropScience



H & H Duncalfe



Sustainable Crop & Environment Protection  
- Targeted Research for Edibles

# SCEPTRE

## Work programme for year 1

	<b>Pests</b>	<b>Diseases</b>	<b>Weeds</b>
<b>Brassicas</b>	Cabbage root fly, caterpillars, whitefly, aphids	Downy mildew, Alternaria	Annual broad leaf
<b>Lettuce</b>	Aphids		Annual broad leaf
<b>Alliums</b>	Thrips		
<b>Carrot</b>	Aphid		
<b>Tomato</b>	Spider mite, whitefly	Botrytis	
<b>Cucumber</b>		Powdery mildew	
<b>Pepper</b>	Thrips		
<b>Strawberry</b>	Capsid	Soft rots	Annual broad leaf
<b>Raspberry</b>	Aphids	Blight	Perennials
<b>Apple</b>		Powdery mildew	
<b>Pear</b>		Botrytis	



# SCEPTRE

## work programme for year 2

	<b>Pests</b>	<b>Diseases</b>	<b>Weeds</b>
<b>Brassicas</b>	IPM & Aphids	Powdery mildew & ring spot	Annual broad leaf
<b>Lettuce</b>	Aphids & caterpillar		Annual broad leaf
<b>Alliums</b>	Thrips	Rust (leek)	
<b>Tomato</b>	Spider mite, whitefly	Botrytis	
<b>Cucumber</b>		Powdery mildew	
<b>Pepper</b>	Thrips		
<b>Strawberry</b>	Capsid	Mucor & rhizopus Crown rot	Annual broad leaf
<b>Raspberry</b>	Aphids	Cane spot	Perennials
<b>Apple</b>		Powdery mildew	
<b>Pear</b>		Botrytis	

# Evaluating bioherbicides/conventional herbicides for perennial and annual weed control

## *Objective*

Investigate the efficacy of a range of bioherbicide products and one novel product to control common horticultural perennial and annual weeds and strawberry runners.

## *Methodology*

Replicated (x4) outdoor pot-screen

Visual score assessment: 2 DAT, 1, 3 & 6 WAT



# Summary Results



- SH2012-FVF-116 - good control of fathen, groundsel & redshank
- No tested bioherbicide controlled perennial weeds with one application
- SH2012-FVF-116 – very good control of docks with 2 applications
- SH2012-FVF-116 – good control of thistles, nettles & strawberry runners- 2 applications
- No bioherbicide controlled vol. potatoes or annual meadowgrass

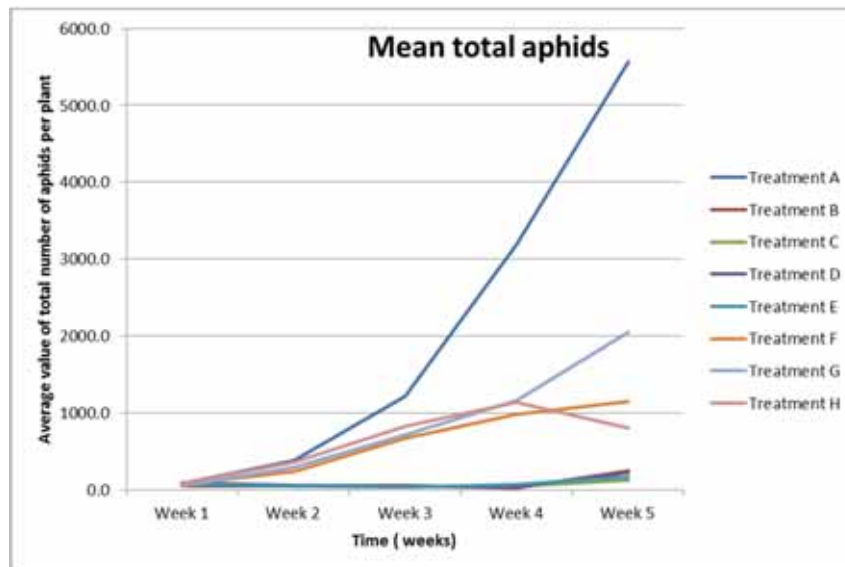
# Raspberry aphid trial 2012 (JHI)



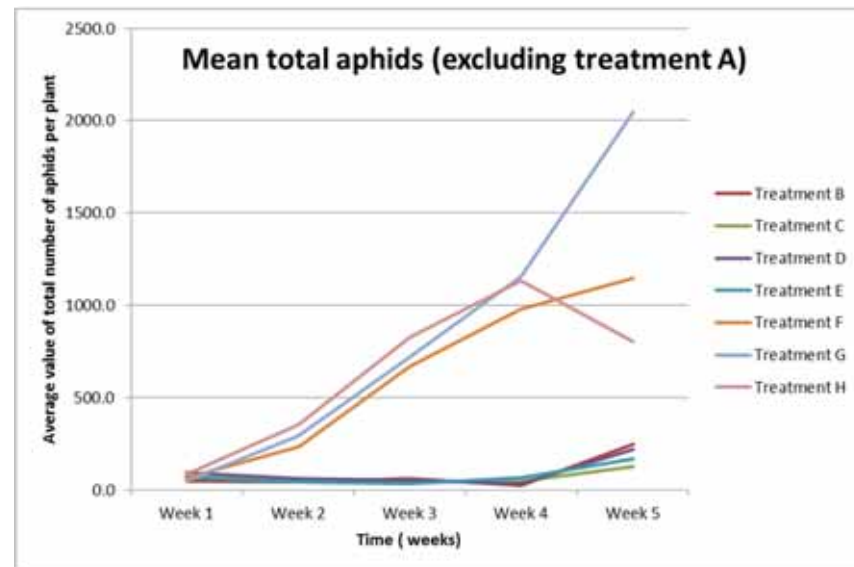
- Glasshouse raspberries (Glen Ample) were inoculated with 10 adults then sprayed with 8 different treatments (x5 weeks):
- Water (A), Calypso (B),
- 3 new conventionals (C-E),
- 3 new biopesticides (F-H).
- Randomised block design with 24 reps/treatment.

# Raspberry aphid: Results 2012

All treatments (including water control = A, with very high counts)



Treatments (excluding water control A)



B= Calypso, C-E = conventionals, F-H = biopesticides

Weekly counts for 5 weeks post application with precision sprayer



# Raspberry aphid: Next steps (2013)

Selected glasshouse trial  
'winners' trialled in  
experimental polytunnels



Combine biopesticides with key natural  
enemies (e.g. parasitoids, – commercial  
suppliers)



# Powdery Mildew in Cucumber

## *May-July 2012*



Untreated



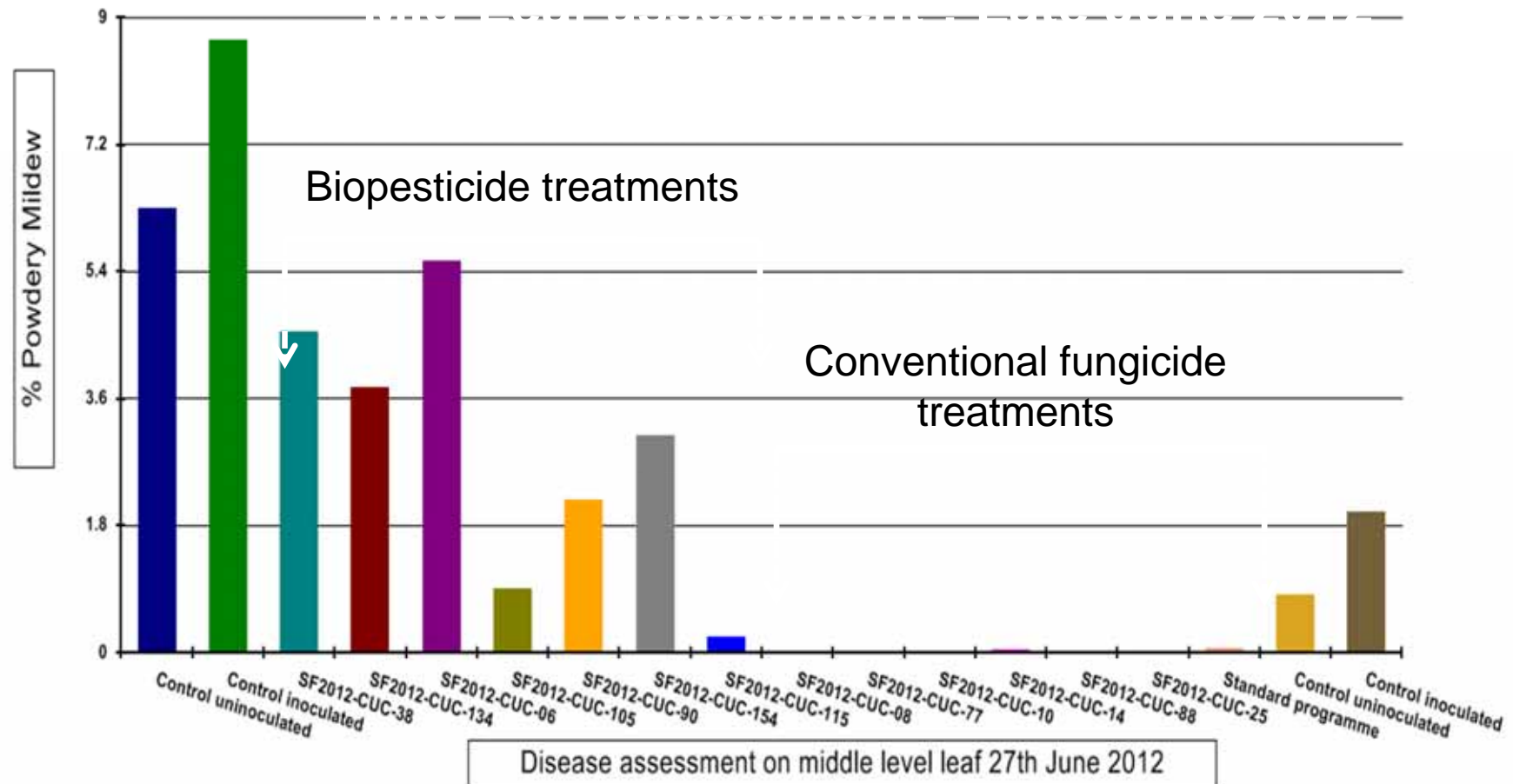
Some Test Products Showing  
Excellent Potential

**SCEPTRE**  
Sustainable Crop & Environment Protection  
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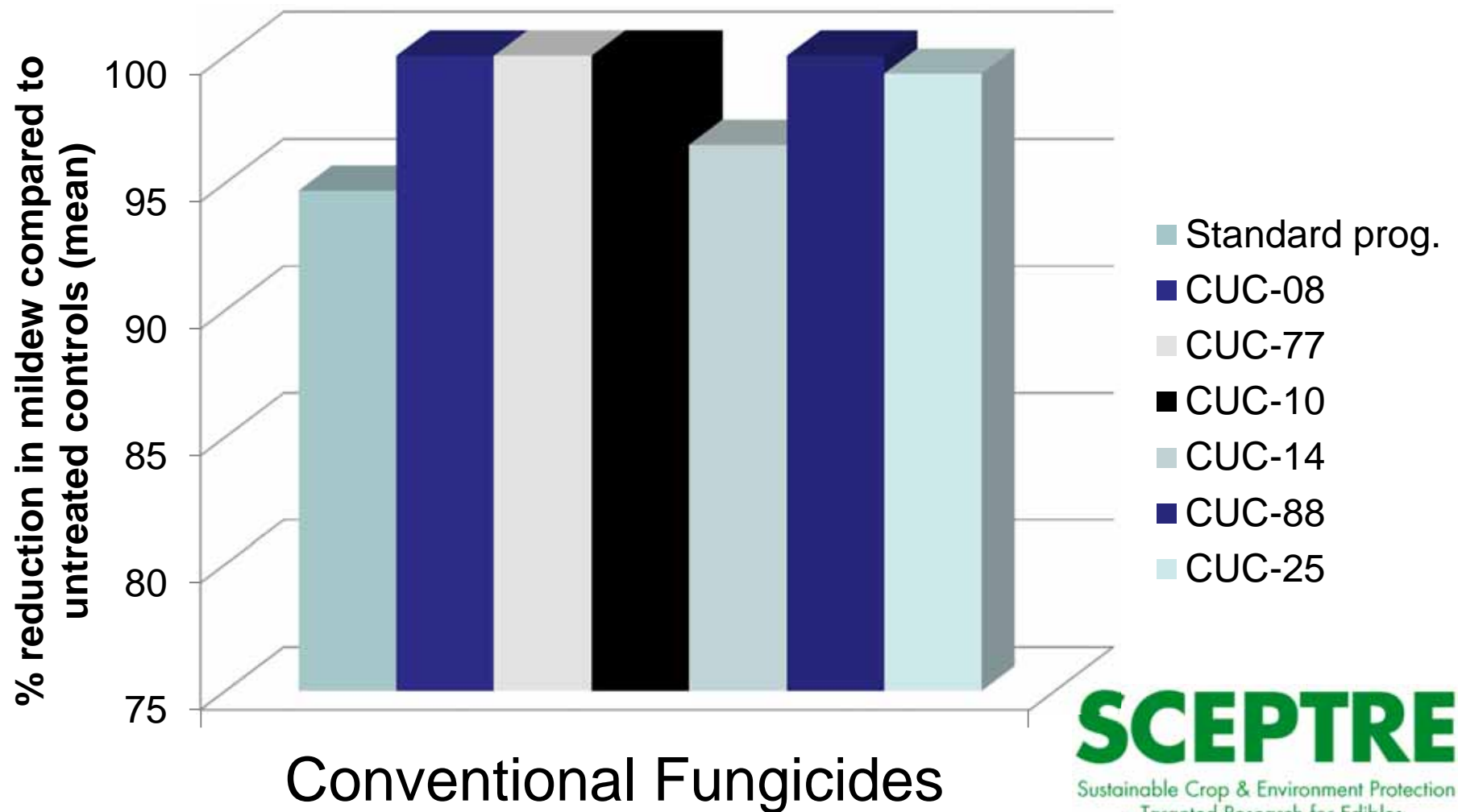
# Cucumber Powdery Mildew

## May-July 2012



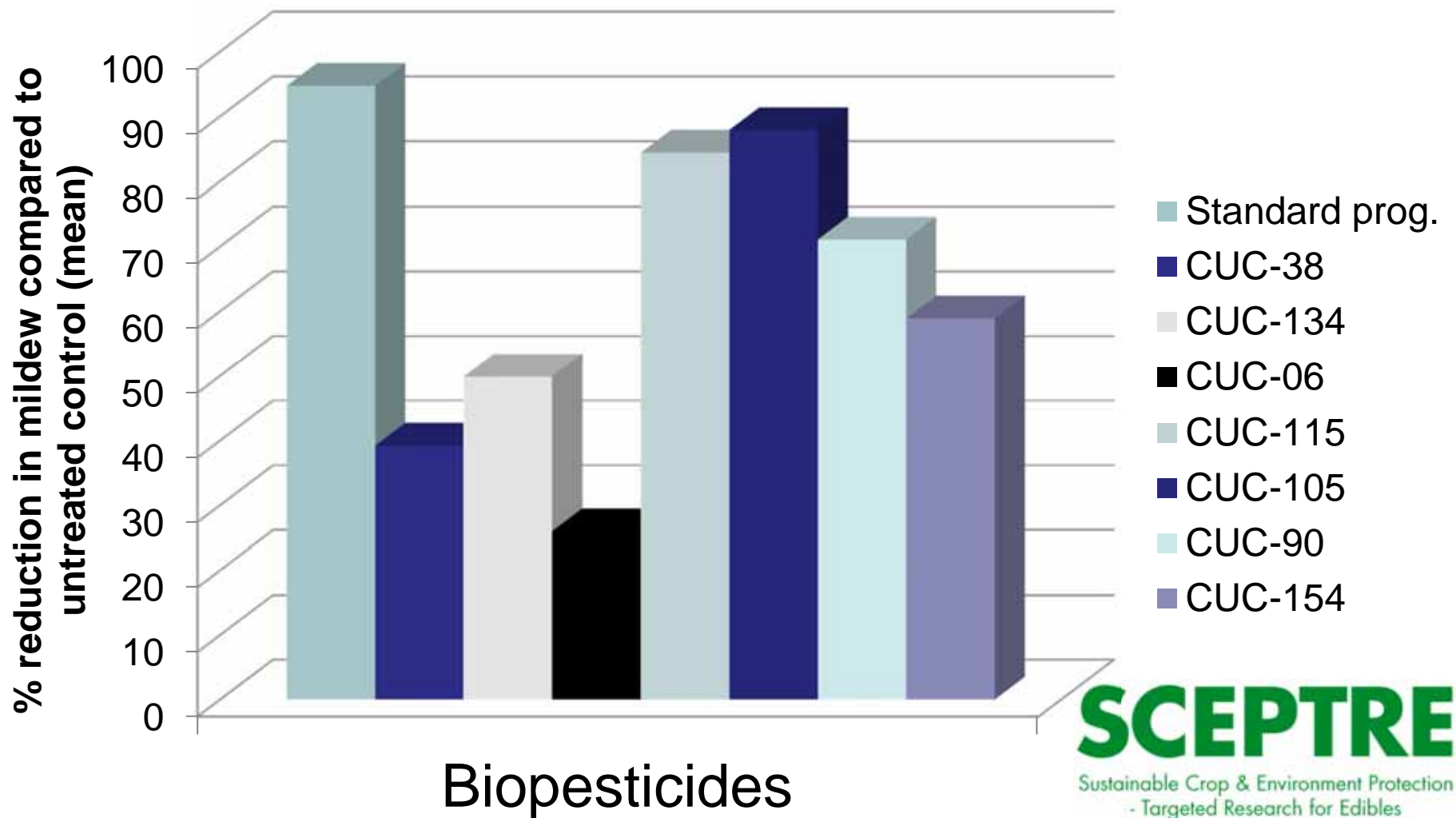
# Cucumber Powdery Mildew

Mid-Leaf assessment : June 2012



# Cucumber Powdery Mildew

Mid-Leaf assessment : June 2012



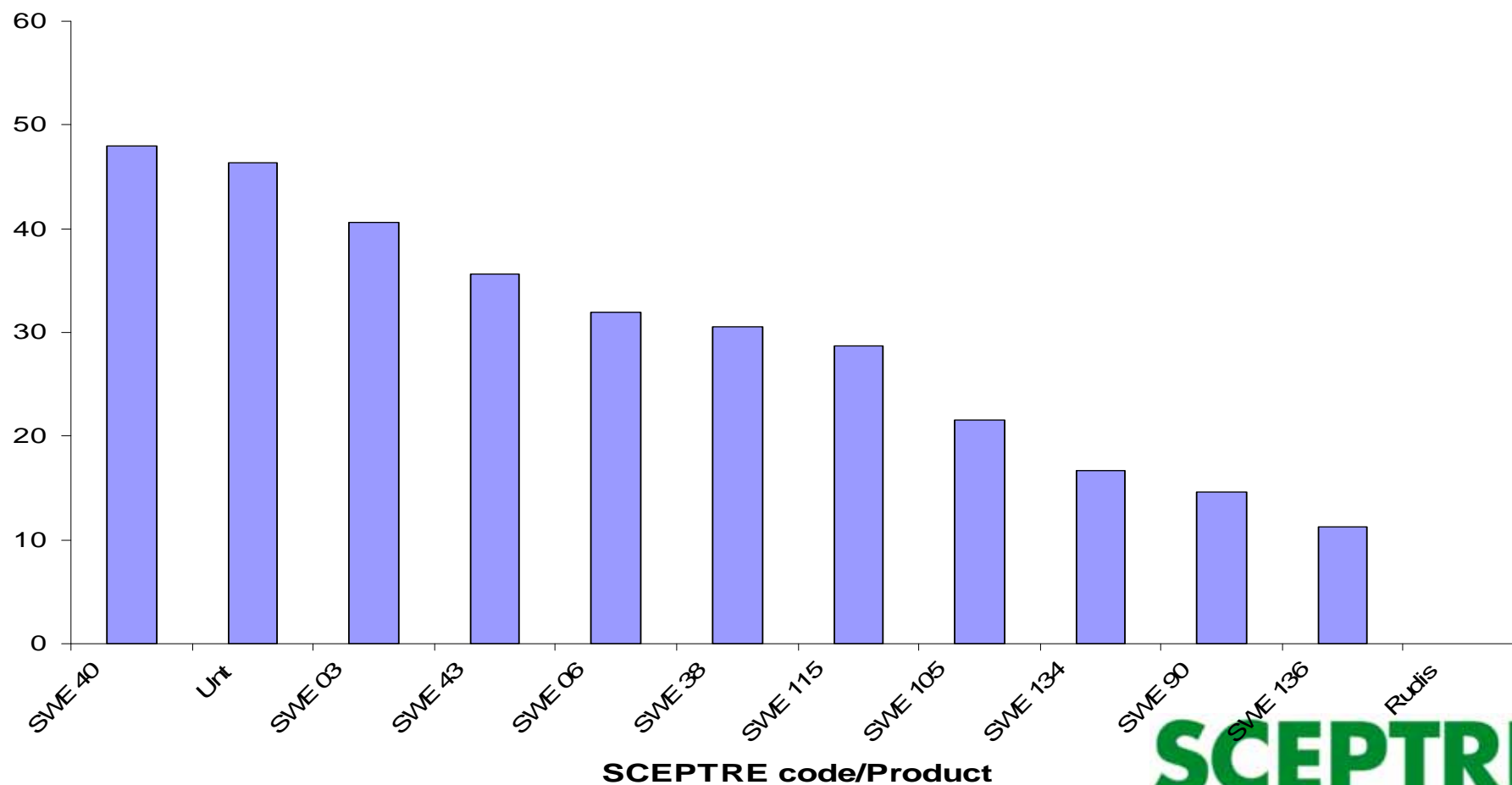
# Powdery Mildew on Brassicas



- Powdery mildew on swede (*Erysiphe cruciferarum*)
- Biofungicide screening trials
  - 6 replicates
  - Commercial standard (Rudis)
  - 10 products applied at -7, 0 days pre- inoculation and +7 and +14 days post inoculation

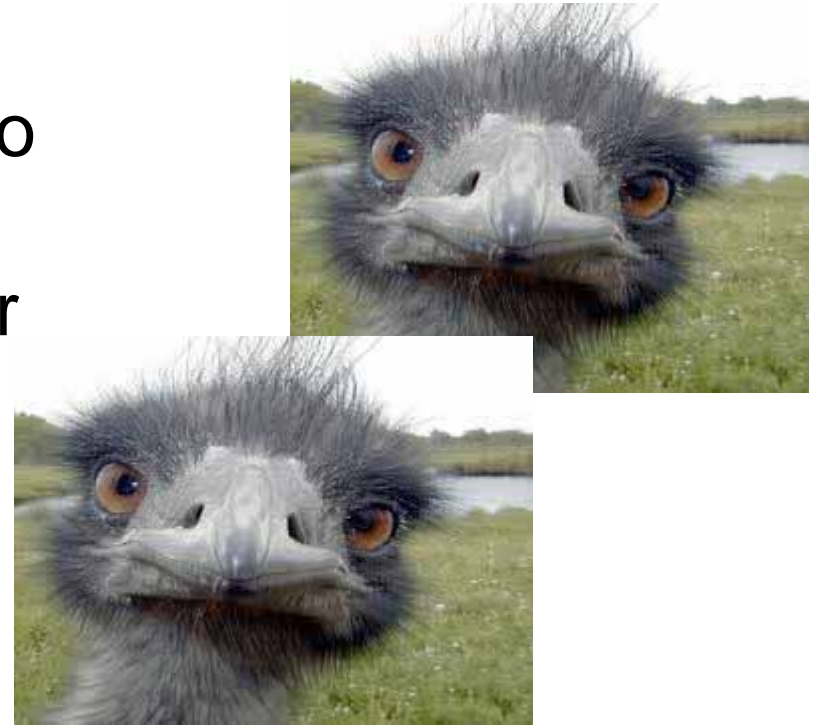
# Powdery Mildew on Swede - Biofungicides

% leaf area affected (7 days after final spray)



# Next steps

- Report promising products to manufacturers and work toward authorisation – either as label or EAMUs
- Develop integrated programmes
- Consider potential for ornamentals where relevant







# Thank You

