

Bringing in the Bugs

How can local biodiversity be
harnessed in our greenhouses?

Peter Dollimore – Hankham Organics



Tetrastichus Asparagi

Parasitoid wasp of asparagus beetle, *Crioceris asparagi*.

Photo: ©Nigel Cattlin, Holt Studios International Ltd



Mature Asparagus Jungle



Tetrastichus Asparagi

Parasitoid wasp of asparagus beetle, *Crioceris asparagi*.

Photo: ©Nigel Cattlin, Holt Studios International Ltd



Cotesia glomerata

Parasitoid wasp of large white (butterfly) larvae *Pieris
brassicae*

Photo: © Nigel Cattlin, Holt Studios International Ltd



Cotesia glomerata

Photo: © Nigel Cattlin, Holt Studios International Ltd



Cotesia glomerata

Photo: © Nigel Cattlin, Holt Studios International Ltd



Cotesia glomerata

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Felix L. Wäckers

- Optimizing field margins for biocontrol services
- Assessing the suitability of flowering herbs as parasitoid food sources
- Nectarivory by the plant-tissue feeding predator *Macrolophus pygmaeus* Rambur
- A comparison of nectar- and honeydew sugars with respect to their utilization by the hymenopteran parasitoid *Cotesia glomerata*
- Effects of flower attractiveness and nectar availability in field margins on biological control by parasitoids



Flowering coriander next to red russian kale



Flowering coriander next to red russian kale



**Flowering rocket next to tomatoes and onions
May 2014**



**Flowering rocket next to perpetual spinach
(leaf beet) – May 2013**



Hoverfly - *Syrphidae* spp

Photo: © Nigel Cattlin, Holt Studios International Ltd



Hoverfly larvae amongst aphid

Photo: © Nigel Cattlin, Holt Studios International Ltd



Hoverfly larvae amongst aphid

Photo: © Nigel Cattlin, Holt Studios International Ltd



Hoverfly pupae

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Spring greens with poached egg plant
Limnanthes douglasii



Spring greens with poached egg plant
Limnanthes douglasii



Predator / Nectar strip

Golden Rod (Solidago), Milfoil (Achillia),
Marigold (Calendula), Borage, Nasturtium,
Oregano, Thyme, Marjoram





**Ladybird (*Coccinella 7-punctata*) larvae feeding on
Yarrow Aphid (*Macrosiphoniella millefolii*)**



Ladybird larvae feeding on Yarrow Aphid



**Collecting ladybird larvae from perpetual spinach
in late April**





Ready for relocation

BioGreenhouse - WG3: Crop Health

- functional diversity of natural enemies,
- food sprays,
- banker plants,
- habitat and climate management, and
- induced plant resistance



***Aphidius colemani* – parasitoid wasp**

Lays young into Aphis gossypii and Myzus persicae

Photo: © Nigel Cattlin, Holt Studios International Ltd



***A. colemani* ovipositing into Aphid**

Photo: © Nigel Cattlin, Holt Studios International Ltd



Parasitized Aphid

Photo: © Nigel Cattlin, Holt Studios International Ltd



Flowering coriander....again!



Nectar = Energy



Macrolophus caliginosus

Photo: © Nigel Cattlin, Holt Studios International Ltd



Macrolophus - Adult

Photo: © Nigel Cattlin, Holt Studios International Ltd



Macrolophus - nymph

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Calendula officinalis

Self seeded, Winter 2014-15



Outside – hedges and fields are more opportunities to improve biodiversity!



**Cornfield annuals sown with clover/grass
fertility building phase.**



**Corncockle, corn marigold, cornflower, poppy,
corn chamomile**





Phased cutting in strips



It's not just about the invertebrates y'know!