Landscape Perspectives on Biological Control

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Biological Control

Use of natural enemies to keep unwanted pest populations low

Types of Biological Control

- **Classical:** introduction of non-native natural enemy to control a pest population.
- **Augmentative:** periodically increase natural enemy population with an artificially reared release.
- **Conservation:** maintain or enhance existing natural enemy populations.

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Natural Enemy Needs

Alternate host/prey

Shelter

- Moderated microclimates
- In-season refuges
- Overwintering sites

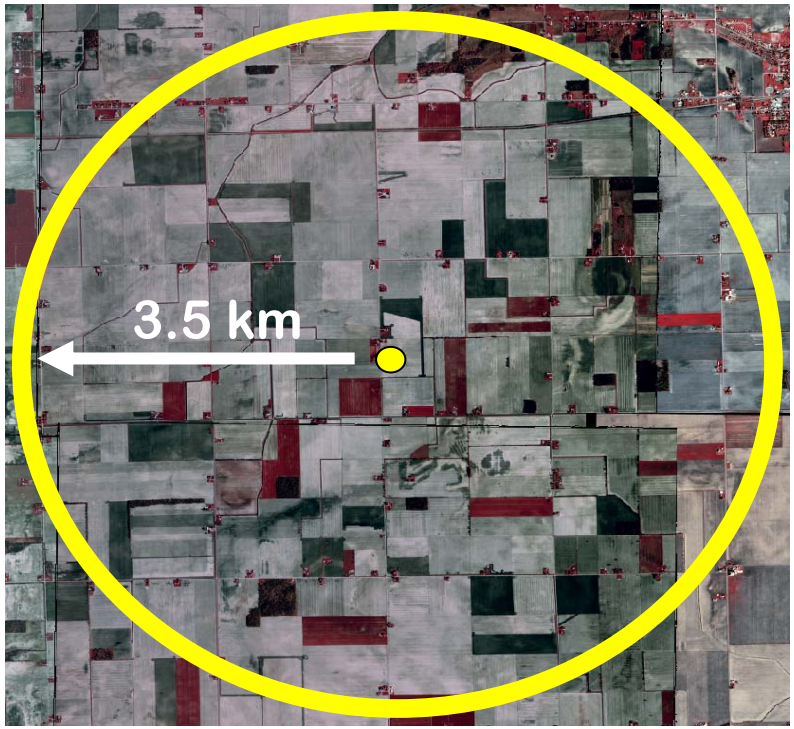
Food

- Nectar
- Pollen
- Sap, honeydew

Michigan Landscapes - Complex

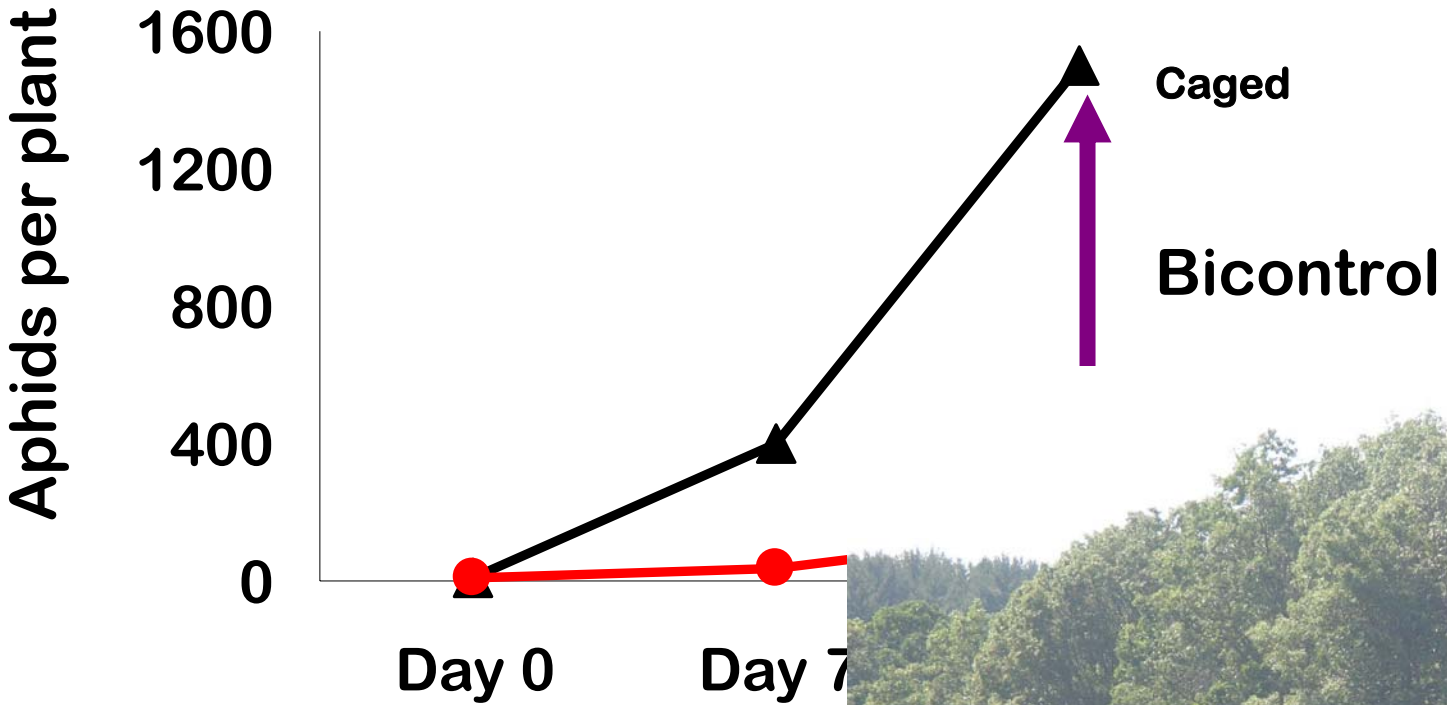
Michigan Landscapes - Simplified

Landscape Effects Study



Gardiner et al. *in review*

Landscape Effects Biocontrol



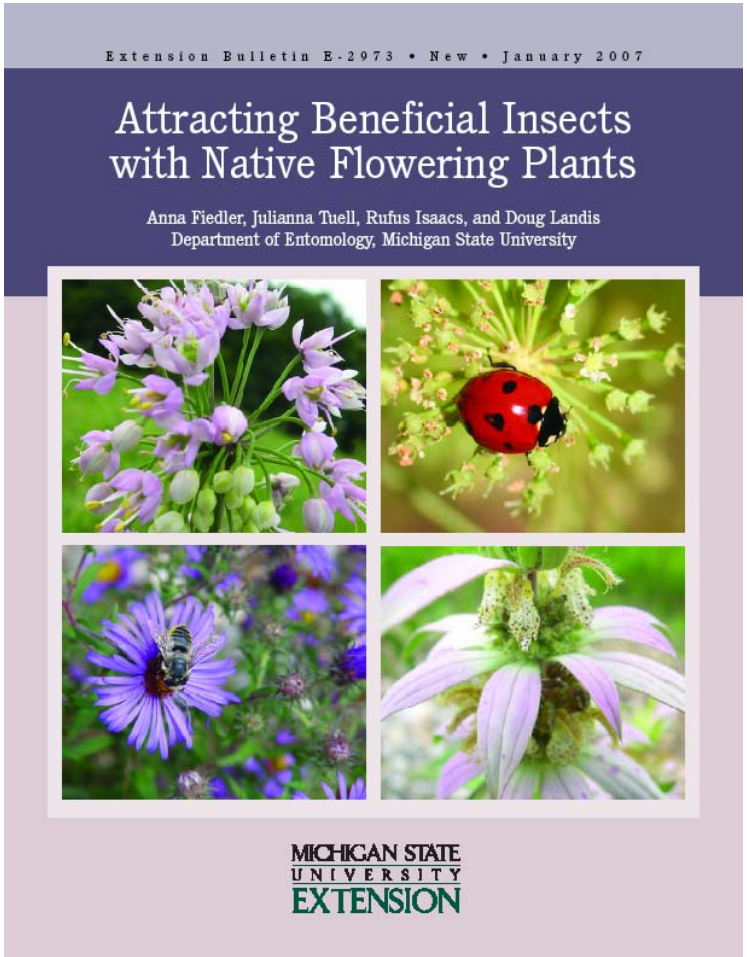
How to Increase Biocontrol?

Increase diversity and non-crop habitat with floral resources

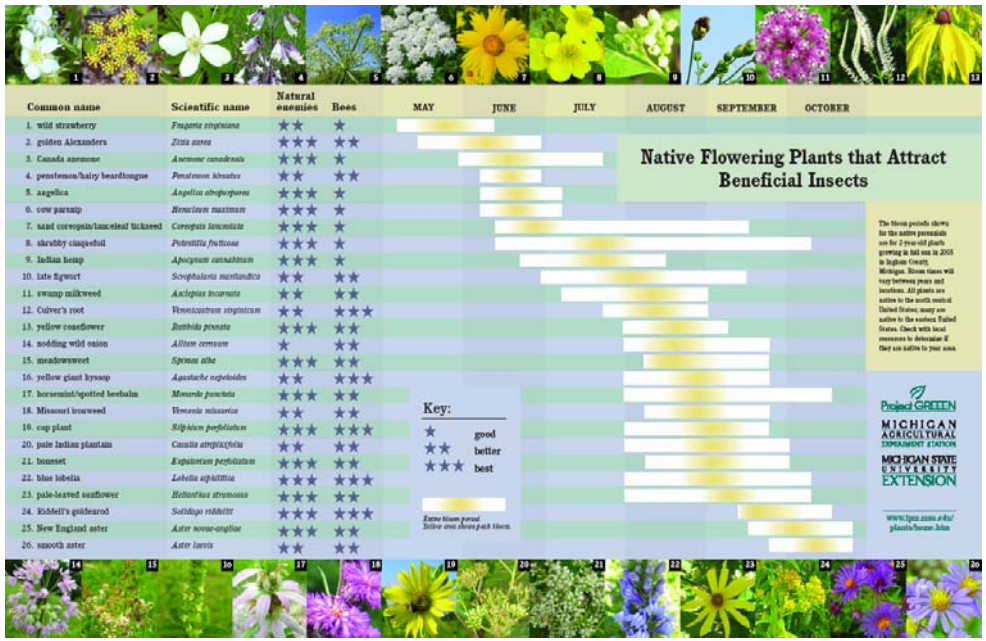
Native MI perennials are more attractive than commonly recommended plants

Fiedler & Landis 2007

Plants to Use to Attract Beneficials



http://nativeplants.msu.edu



How Effective Will Floral Strips Be?

Site Design

Soybean field with floral strip

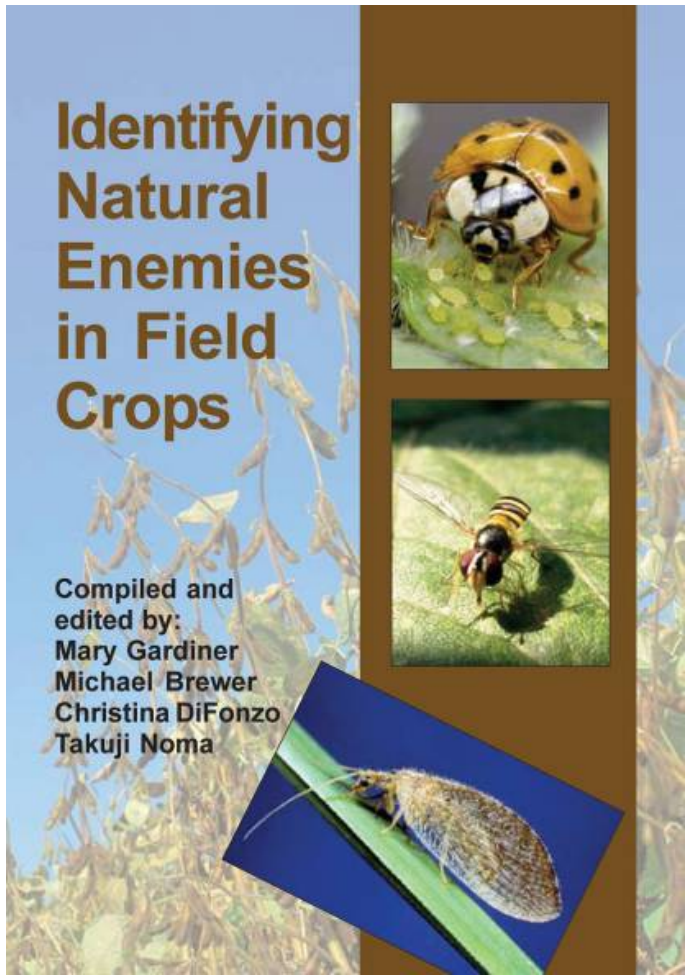
Conclusions

Diversity and non-crop habitat are important

Increase both by planting floral habitat

Several native plants are highly attractive

New study will test effects on biocontrol



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