

Functional agrobiodiversity for pest control in apple

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Functional agrobiodiversity

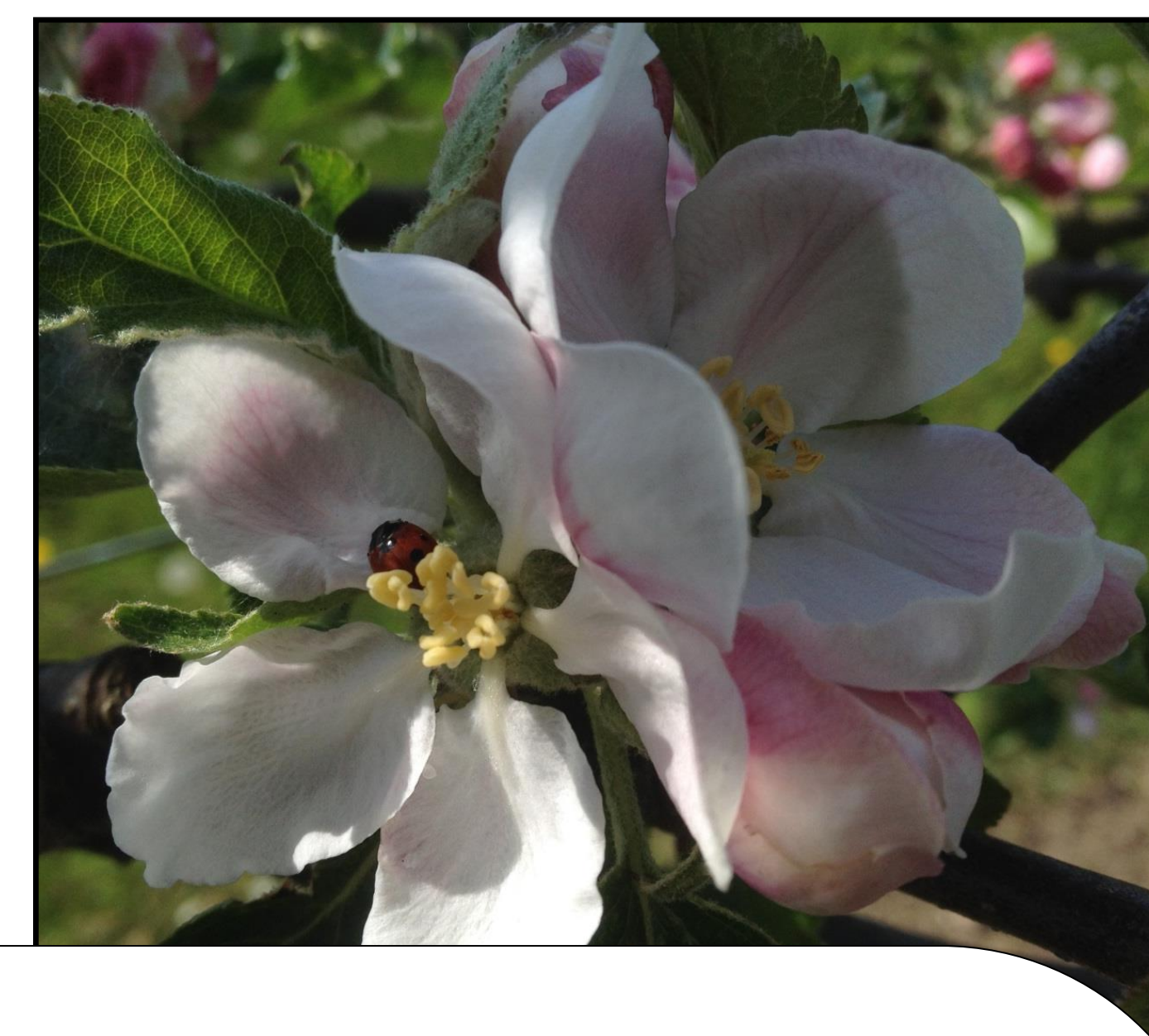
Functional agrobiodiversity (FAB) has been shown to

- reduce pest damage
- increase abundance and diversity of natural enemies
- allow growers to reduce pesticide use

The rosy apple aphid, *Dysaphis plantaginea*, is a major pest in apples. Flower strips can provide a good habitat for naturally occurring predators, such as spiders, coccinellids, anthocorids, lacewings and syrphids
- all natural enemies of aphids

In this project we investigate the effect of wild flower strips in organic apple orchards, by assessing

- pest infestation
- crop damage
- predator abundance and diversity
- predation activity
- predator longevity and fecundity



Field assessments

Flower strips were established in 2015, consisting of 40 perennial plant species.

The flower strip is replacing a row of apples. Pest and predator assessments are done 2 m and 10 m from the flower strip.

Assessment methods include:

- Visual observations of aphid colonies and predators
- Predation activity assessed by sentinel prey
- Beating samples
- Damage assessments

Field trials have been conducted in 2016 and repeated again in 2017.

The value of flowers to insects

There is a growing body of literature reporting direct beneficial effects of specific flowering plant species for predators.

How and to which extent do flowering plant species improve predators' fitness?

A meta-analysis of flowering plant species on predators' fitness

- comprehensively evaluate the suitable floral resources available for predators
- focusing on **predators' longevity and fecundity**

The potential of selected flowering plants to improve predators' fitness

- Seven plant species will be tested
- The dietary value of access to floral pollen and nectar for *Adalia bipunctata* development time, mortality, longevity and fecundity
- How access to pollen and nectar affect predation activity of *A. bipunctata*



Links

ProtecFruit: <http://icofs.dk/forskning/dansk-forskning/organic-rdd-2/protecfruit/>
Applied Insect-Plant Ecology research group:
http://plen.ku.dk/english/research/organismal_biology/applied_entomology/ecoorchard/

Acknowledgements

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