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1 AgricultureIsLife.be; 2 Biodiversity and Landscape Axis; 3 Functional and Evolutionary Entomology axis; 4 Axis of Crop Science in Temperate Regions & Experimental Farm

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Farmland biodiversity is currently under large threat. To counteract the problems, farmers can apply Agri-Environmental Measures. An example is the creation of wildflower strips, that aim to increase biodiversity and to attract 'useful insects' that can deliver ecosystem services, such as pollination and pest control, to crops. But how to create wildflower strips to attract these insects? We test whether the diversity of functional plant traits is the key to success.

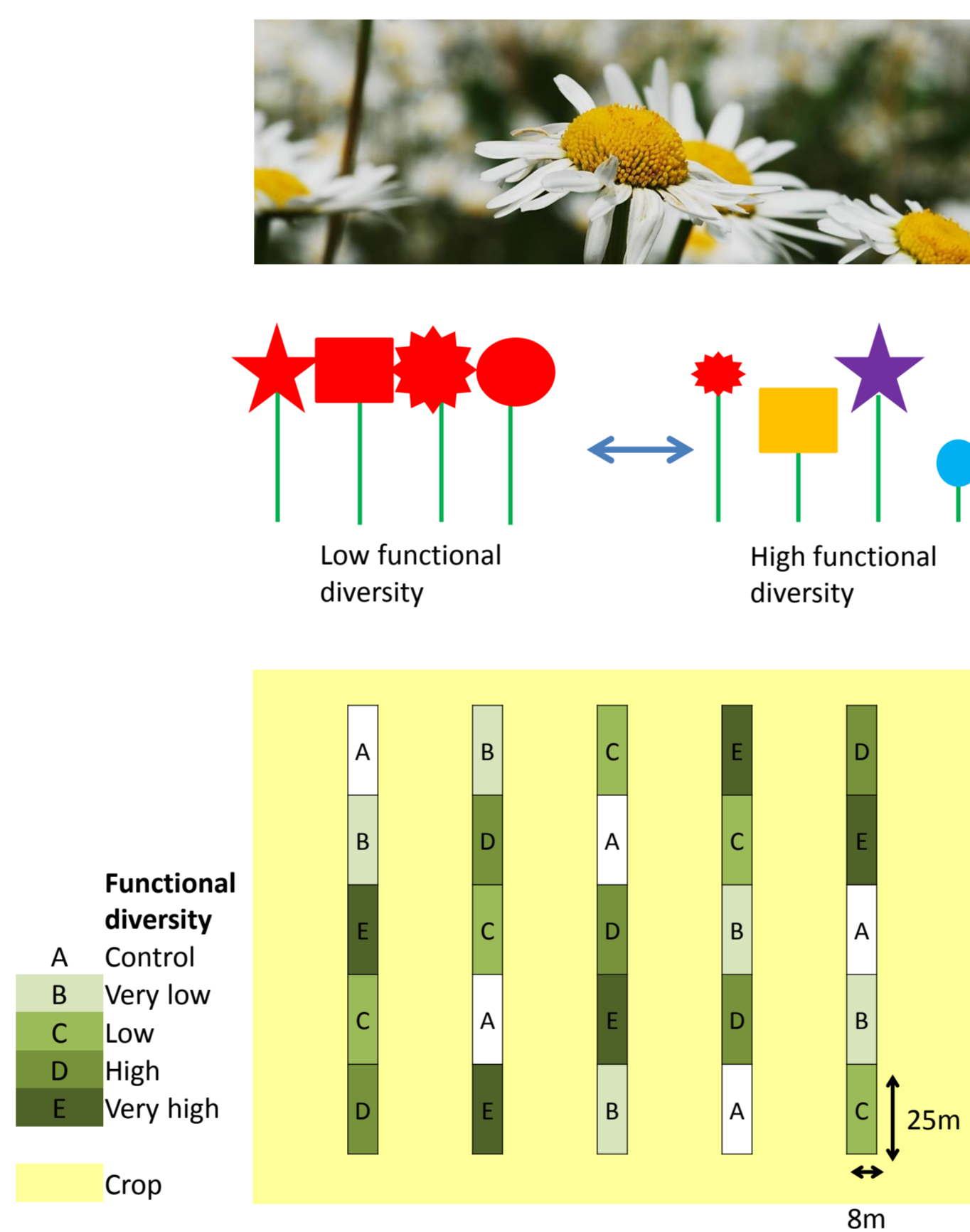
Research questions

- What is the influence of plant functional trait diversity and composition in wildflower strips on pollinators and flower visitation networks?
- What is the influence of plant functional trait diversity and composition in wildflower strips on vegetation structure and carabid, butterfly and grasshopper abundance and diversity?
- How do the functional trait diversity and composition of sown and established vegetation differ and how is this affected by mowing regime?

Experimental setup

Field experiment with a functional diversity gradient

- 20 commonly used plant species for wildflower strips were selected
- 7 functional traits based on flowers such as flower color and flowering duration were obtained from TRY database
- Functional diversity calculation for all possible mixtures of 7 out of 20 species with Rao quadratic entropy index
- Selection of mixtures with lowest and highest functional diversity and 2 in between
- 4 mixtures were sown as wildflower strips in a crop field



Field experiment testing mowing regime

- Same 4 mixtures in small strips
- 3 mowing regimes: early summer, autumn and early summer + autumn



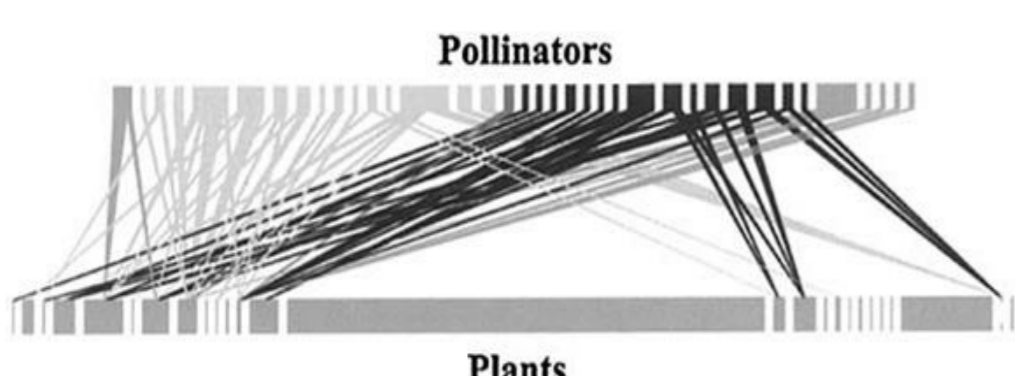
Other wildflower strips

- In Wallonia
- Validation of results found in experimental strips

Sampling protocol

Pollinator monitoring

- Pan traps to study abundance and diversity
- Survey flower visitation networks and analysis of network metrics



Biodiversity monitoring

- Pitfall traps for Carabidae abundance and diversity
- Transect for butterfly, grasshopper and ladybird abundance and diversity



Vegetation monitoring

- Permanent quadrats: vegetation releves
- Vertical structure photographs + measuring plant structure traits

