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Role of the cultivated mosaic and its heterogeneity for biodiversity conservation in farming landscapes

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Role of the cultivated mosaic and its heterogeneity for biodiversity conservation in farming landscapes

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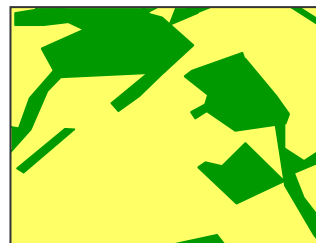
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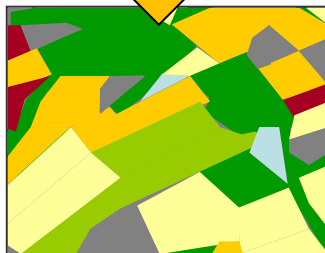
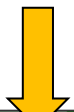


Promotion of natural enemies of crop pests in farming landscapes

- ❑ **Wildlife friendly farming practices**
- ❑ **Semi-natural elements**



Complexity linked to semi-natural elements vs. matrix.



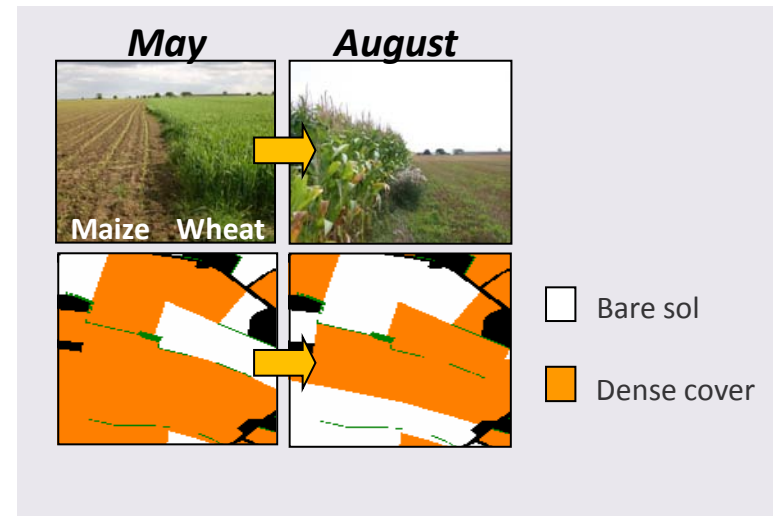
Matrix or heterogeneous mosaic of resources for natural enemies ?



The cultivated mosaic is heterogeneous

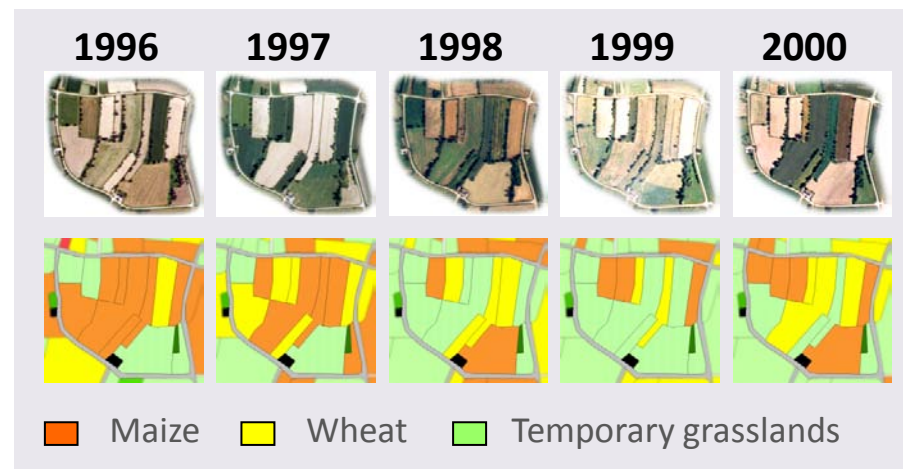
□ Within a year...

- Asynchronous resources (crop cover state, farming practices)
- Fast-changing distribution of resources



□ Over years...

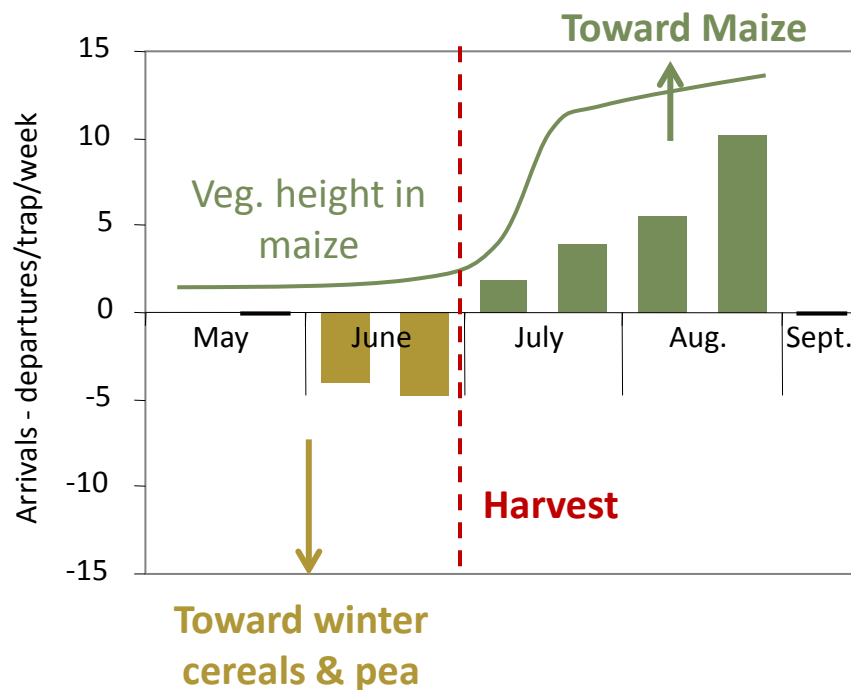
- Changing distribution of resources from one year to another (crop rotation)



Effect of seasonal changes in crop covers on the local dynamics of predatory arthropods



Orientation of carabid movement at crop edges

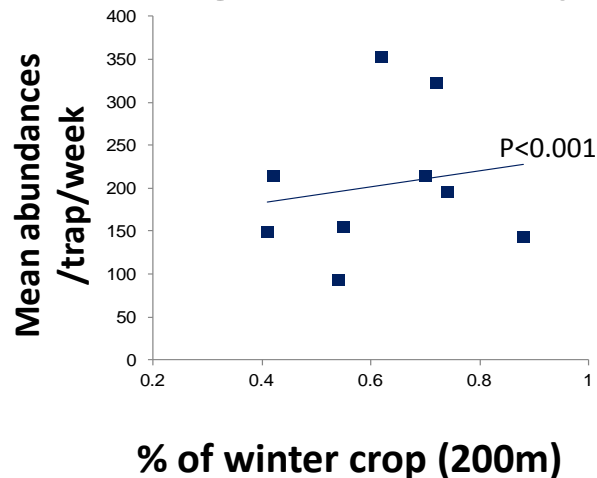


- Frequent movements between crops, from unsuitable to dense covers
→ **complementary role** of spring & winter crops

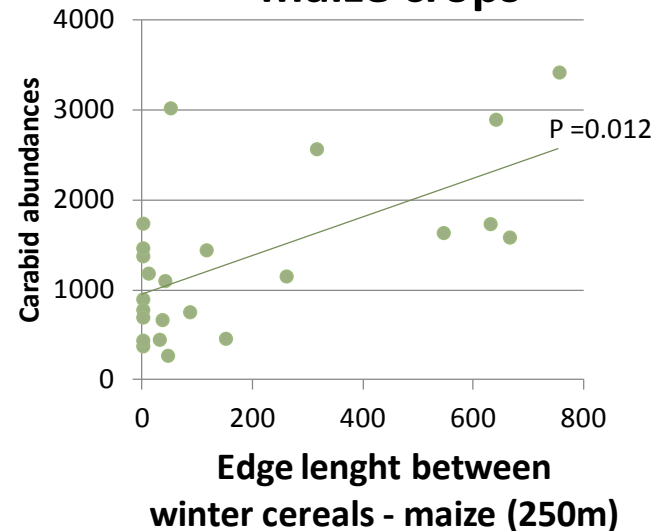
Effect of spatial organisation of complementary crops on predatory arthropods



Carabid abundances in organic wheat crops



Carabid abundances in maize crops



- **Spatially heterogeneous crop pattern** : positive effect on seasonal carabid abundances in crops

Conclusions & perspectives

- ❑ **The heterogeneity of the cultivated mosaic has a potential effect** that should be further explored (crop types, farming practices e.g. organic farming...).
- ❑ **The efficiency of AES** might also vary according to the complexity of the cultivated mosaic .
- ❑ **Interdisciplinary research (agronomy...)** is needed to understand how farmers contribute to this heterogeneity, and whether the design of the cultivated mosaic could be feasible according to their production objectives and constraints.

Thank you

