



# Agricultural policy-induced landscape changes: effects on biodiversity and ecosystem services

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AGRIcultural Policy-induced landscaPe changes: effects on biodiversity and Ecosystem Services (AGRIPOPES) is a European research project consisting of 10 research teams (from Sweden, The Netherlands, Germany, Czech Republic, Estonia, France, Ireland, Poland and Spain) and is part of the European research programme EUROCORES.

## Background

In Europe, agricultural intensification is associated with the implementation of the Common Agricultural Policy 50 years ago. The intensification resulted in the decline of many farmland species and the simplification of the agricultural landscape.

**The main objective of this study is to quantify the effect of agricultural intensification on landscape composition and biodiversity in agroecosystems on a Europe-wide scale.**

The participating countries encompass not only a geographical/climatic gradient, but also a gradient in intensification. These gradients allow a large-scale assessment of the ecological impacts of the agricultural intensification.

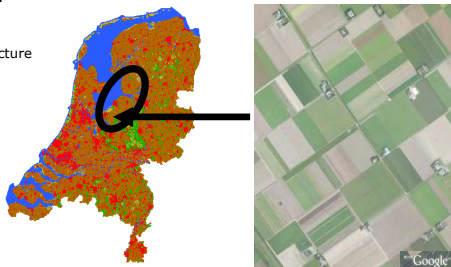


Winter wheat field, Southern Flevoland

## Study area

In each country, 30 arable farms growing (winter) wheat are selected along an intensification gradient. In The Netherlands, we chose 15 organic and 15 conventional farms situated in the Province of Flevoland. Flevoland consists of three polders (land claimed from the sea) of different age. It is a typical open agricultural landscape with arable farming as the main land use.

- Agricultural area
- Water
- Buildings, infrastructure
- Forest
- Nature area



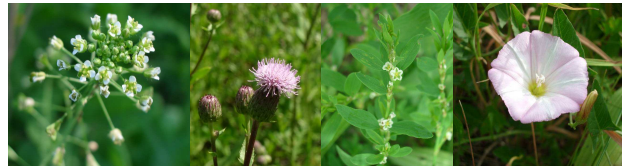
Map of The Netherlands (left), the province of Flevoland (circle), aerial photograph of Southern Flevoland (right)

## Biodiversity

Agricultural intensification, mainly increased fertilizer and pesticide inputs and the abandonment of less fertile areas, resulted in the degradation and/or the loss of habitats of many farmland species. By sampling the diversity of different taxa, we will investigate the effects of agricultural intensification on the food web structure and the biological control potential of arable systems.

## Arable weeds

Number and cover of weed species growing on wheat fields will be sampled on each farm.



Arable weeds: *Capsella bursa-pastoris*; *Cirsium arvense*; *Polygonum aviculare*; *Convolvulus arvensis*;

## Farmland birds

We will examine the effect of land use intensity and landscape composition on farmland birds by mapping foraging and breeding birds in spring as well as in winter.

## Biological control

Besides the diversity of natural enemies, their biological control potential will be estimate.



Natural enemies: Spider; Ground beetle; hover fly; ladybird

This will be done by measuring the predation rate of aphids glued on labels and placed in the wheat fields.



Pea aphid (*Acyrtosiphon pisum*); rearing of aphids on *Vicia faba*; label placed in field (aphids glued at the bottom of the label); slug feeding on aphid

