Biodiversity assessment on landscape and farm level – the LISA approach

– results of the Landscape Infrastructure and Sustainable Agriculture (LISA) study 2014

Dr. Rainer Oppermann
Institute for Agroecology and Biodiversity (IFAB) Mannheim
oppermann@ifab-mannheim.de

Motivations for the LISA study

(1) Continuing decline in agrobiodiversity due to changes in the ecological quality of agricultural habitats

(2) There are large numbers of small scale ecological studies as well as large scale monitoring approaches, but no detailed, comparable data available from across Europe

(3) New policies targeting the ecological quality of farmland (particularly greening) need to be monitored using standardised data over space and over time

The presentation refers to the landscape level – however, the methods are applicable
- on specific regions (e.g. N2000) and
- on farms as well
Aims of the LISA study

To produce…

**Rapid, repeatable and easily obtainable records** of the extent, quality and state of landscape infrastructure, land use and ecological value of farmed landscapes in different EU countries

- Data on the **relationship** between biodiversity and land use
- Good and bad practice **examples** of land use
- Evidence to support a future **common European approach**
- Data to evaluate the **effects** of CAP pillar I greening
**Methods**

- 39 pilot regions in 10 countries
- ~25 plots per region of 25 ha each (857 plots in total)
- 1870 vegetation transects (1528 arable, 342 grassland)
Methods

1. **Plot mapping**
   - landuse
   - landuse intensity scale 1 – 5
   - nature value scale 1 – 5
   - landscape elements and buffer strips
   - ecological sensitivity

2. **Detailed transect data**
   - vegetation cover
   - cover of crops and of weeds
   - vegetation structure
   - flower density and number of flowering species
   - potential key species

3. **Photo documentation**
   - different types of landuse and nature value
   - landscape elements
   - buffer strips
   - vegetation transects
- 3 instructors
- 22 field surveyors
- Centralised data processing
Results - land use intensity in arable land
Results
- arable flower density

Extremely low flower densities in arable land → low or no pollination services in arable land
Results
- key species arable

Fewer than 1 key species on average in all arable plots!
(>3-4 key species = notable biodiversity)
Results – key species in a cross-border comparison
Results - grassland nature value
Results – key species in grassland

The number of key species was greatest at medium land use intensities (but not necessarily the rare species!)
Results - % landscape elements
Results – good and bad examples of landscape elements
Conclusions

- The methods form a rapid approach of measurable data
- Comparable data can be delivered
- Methods and data can be used for a monitoring over the time
- The approach delivers “baseline biodiversity data” – especially in Natura 2000 areas other more specific data on certain species must be added
- “baseline biodiversity situation” often worsens and meaning is often under-estimated – it builds the background for populations of more sensible species in more specific habitats
Institute for Agroecology and Biodiversity (IFAB)
Böcklinstr. 27, D-68163 Mannheim
Dr. Rainer Oppermann, Richard Bleil, Anja Eirich, Julian Lüdemann, Laura Sutcliffe

Thank you for your attention!
oppermann@ifab-mannheim.de