Why are extensive grazing systems disappearing? Understanding socio-economic drivers

Findings from Pays d’Auge (France)

Vilm — 21 Sept. 2010
Soizic JEAN-BAPTISTE - Blandine RAMAIN, EFNCP
How to advance in knowledge?

- **Our aim:** to show the importance of taking socio economic trends into account when characterising HNV farming

  1. *Brief analysis of usual HNV approaches*
  2. *The added value of an « agrarian system » perspective*
  3. *A case study : Pays d’Auge in France*
Usual approaches: mapping in Europe

- HVN farmland
- Biodiversity (species richness and/or of conservation interest)
- Land (and landscape)
- Agro-pastoral habitats
- Species linked with agriculture / pastoralism
At landuse and landscape level

A bit of everything in each FS?

Crops

Intensified permanent grassland

Extensive permanent grassland

⇒ What we need to know: which are the farms crucial to biodiversity, and how to maintain them?

HNV and LNV farming systems?

Crops

Intensified permanent grassland

Extensive permanent grassland

Intensified permanent grassland

Intensified permanent grassland

Extensive permanent grassland

Intensified permanent grassland

Extensive permanent grassland
The need to identify the farming systems

HNV agrarian system

HNV farming systems

Socio economic context (agro industries, public subsidies, farm advisory…)

Work (farmer)

Capital

Land (and landscape)

agro-pastoral habitats

Species linked with agriculture / pastoralism

Biodiversity (species richness and/or of conservation interest)

HVN land
Approach by « agrarian system »

- Agrarian system: a conceptual tool to describe and analyse the situation of a little agricultural region

<table>
<thead>
<tr>
<th>Concept</th>
<th>Agricultural System</th>
<th>Farming System</th>
<th>Cultural and Breeding System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale of analysis</td>
<td>Plot / Herd</td>
<td>Farm</td>
<td>Landscape</td>
</tr>
<tr>
<td>Type of analysis</td>
<td>Agronomical / Ecological</td>
<td>Agro economic</td>
<td>Agro ecological and Socio economic</td>
</tr>
</tbody>
</table>

Dynamics
Pays d’Auge - some HNV features

- Traditionally, an area specialised in extensive dairy production with a large part of:
  - Permanent grasslands
  - Hedges
  - Orchards (apple and cider)

Probably a HNV area?
## Practices contributing to biodiversity

<table>
<thead>
<tr>
<th>At field level</th>
<th>HNV</th>
<th><strong>EXTENSIVE MANAGEMENT</strong></th>
</tr>
</thead>
</table>
| Permanent Grasslands |   | • No chemical inputs  
| | | • Late mowing (july)  
| | | • Low livestock density  
| Grazed orchards | | • Maintenance  
| Arable land | | • No chemical inputs  
| **At landscape level** | HNV |  
| Ponds | | • Maintenance  
| Hedges | | • Maintenance  
| | | • Winter wood cut  
| Landscape pattern | | • Combination of diverse land use  

© DIREN Basse Normandie

*Euphydryas aurinia*
Recent changes in landscape

- Development of crops (maize, cereals),
- Regression of hedges and permanent grasslands
- Intensification on permanent grasslands: higher stocking rates, higher fertilization level.

Proportion of permanent grasslands in UAA

Source: RGA
Changes in practices and landscapes

<table>
<thead>
<tr>
<th>At field level</th>
<th>HNV</th>
<th>LNV : trends …</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent Grasslands</td>
<td>EXTENSIVE MANAGEMENT</td>
<td>INTENSIFICATION</td>
</tr>
<tr>
<td></td>
<td>• No chemical inputs</td>
<td>• Fertilisation</td>
</tr>
<tr>
<td></td>
<td>• Late mowing (july)</td>
<td>• Early mowing (may)</td>
</tr>
<tr>
<td></td>
<td>• Low livestock density</td>
<td>• Conversion into arable land</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ABANDONMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Wood plantation / Scrub</td>
</tr>
<tr>
<td>Grazed orchards</td>
<td>• Maintenance</td>
<td>• Replacement by intensive orchards</td>
</tr>
<tr>
<td>Arable land</td>
<td>• No chemical inputs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>At landscape level</th>
<th>HNV</th>
<th>LNV : trends …</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ponds</td>
<td>• Maintenance</td>
<td>• Filling</td>
</tr>
<tr>
<td>Hedges</td>
<td>• Maintenance</td>
<td>• Removal</td>
</tr>
<tr>
<td></td>
<td>• Winter wood cut</td>
<td></td>
</tr>
<tr>
<td>Landscape pattern</td>
<td>• Combination of diverse land use</td>
<td>• Decrease in the semi natural vegetation</td>
</tr>
</tbody>
</table>
Recent trends – landscape changes

© Xavier Poux

© Soizic Jean-Baptiste

© Soizic Jean

© Soizic Jean-Baptiste
We need to link these practices and the farms

- *If we want to maintain HNV features…*

- *What are the farms managing these lands? Through what kind of farming practices?*

- *What are the dynamics of each type of farm? Under which socio economic drivers?*
A wide range of farming systems

- **HNV non professional farms**
  - 10 ha (+ annual loan of land from third person), 0.5 awu, 0.7 LU/ha
  - Mixed farming: cattle, sheep, horses, apple trees, hedges
  - 56% of the farms, 15% of the UAA

- **Beef / suckler cows systems**
  - 54 ha, 1.15 LU/ha — traditional orchard, hedges — 1.3 awu
  - 10% of the farms, 13% of the UAA

- **Grassland dairy**
  - 40 ha, 1.2 LU/ha — traditional orchard, hedges — 1.5 awu
  - 14% of the farms, 25% of the UAA

- **Maize dairy**
  - 70 ha, 1.6 LU/ha — (hedges, some extensive pastures for heifers), 2 awu
  - 9% of the farms, 20% of the UAA

- **LNV crops professional farms**
  - 100 ha, 2 awu
  - Specialised in crops
  - 2% of the farms, 5% of the UAA

Estimated structure of farms economy

Depending on price levels, access to specific markets (quality products, structure of industries, sectors...)

- non professional
- beef
- grassland dairy
- maize dairy
- crops

€ / Labour unit

output  variable input  CAP payments  fixed cost
Estimated structure of farms economy

Depending on price of fertilisers, energy, farm advisory

<table>
<thead>
<tr>
<th>Output</th>
<th>Variable Input</th>
<th>CAP Payments</th>
<th>Fixed Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>non professional</td>
<td>0</td>
<td>-50000</td>
<td>0</td>
</tr>
<tr>
<td>beef</td>
<td>-50000</td>
<td>-100000</td>
<td>0</td>
</tr>
<tr>
<td>grassland dairy</td>
<td>-100000</td>
<td>-50000</td>
<td>0</td>
</tr>
<tr>
<td>maize dairy</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>crops</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Estimated structure of farms economy

Depending on investments and access to credit

- non professional
- beef
- grassland dairy
- maize dairy
- crops

€ / Labour unit

- output
- variable input
- CAP payments
- fixed cost
Estimated structure of farms economy

CAP payments favour investments which are to be paid back with more production

Net margin/LU

Estimated minimum acceptable NM

€ / Labour unit

-100000 -50000 0 50000 100000 150000 200000

-100000 -50000 0 50000 100000 150000 200000

non professional  beef  grassland dairy  maize dairy  crops

output  variable input  CAP payments  fixed cost
The HNV dimension of Pays d’Auge

= a landscape ecology issue
= a combination of ≠ types of extensive farming systems

Support from CAP

- Crops
- Beef
- Maize dairy
- Grassland dairy
- Non professional

LNV

40,000 €
20,000 €
10,000 €
Findings from Pays d’Auge

The approach allows to advance in:

- Characterising the high nature value of the area
  - Type 2 rather than type 1
  - A landscape ecology issue
- Understanding which farms maintain semi natural vegetation
  - The importance of non professional farms for semi natural vegetation, whom socio economic rationales are very specific
- Analysing the trends and the threats on the HNV farms
  - Evolution of the proportion between farm types
As a conclusion

- The present agricultural dynamics suggest a potential loss of HNV “label” for the area in the future, even if all the impacts of changes in practices are not perceptible yet.

- It seems crucial to take socio-economic dynamics into account in HNV identification, through an agrarian system perspective.
Thank you for your attention!