Interactions between management of local breeds and valorization of products,

Exemples of French cattle breeds

Anne Lauvie
Adeline Derkimba

INRA UR LRDE Corte France
INRA UMR ERRC (INRA, CIRAD, SupAgro) Montpellier France

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A synthesis based on our two PhD thesis

- **Lauvie, A., 2007**
  - codirection E. Verrier, A. Audiot
    - AgroParisTech/INRA, UMR GABI
    - INRA UMR AGIR

- **Lambert-Derkimba, 2007**
  - codirection E. Verrier, F. Casabianca
    - AgroParisTech/INRA, UMR GABI
    - INRA UR LRDE

Data come from our field works made between 2004 and 2007.
Local breeds: what do we talk about?

- Local breeds are breeds linked to a specific territory but there is not a single and shared definition of « local breeds »

- **Definition of local breeds:** in France official definition refers to *a breed in majority linked by its origin, its place and type of livestock farming system to a given territory*

- Local breeds can be either rare breeds or breeds of wider extension

Both types can be valorized

- Conservation programmes
- Breeding programmes (selection)
Why development of local breeds?

To maintain genetic diversity
To preserve breeding local practices and know how
To maintain farmers in harsh conditions areas
Etc.

How to develop local breeds?

Supporting local breeds breeders
Using valorization (and in particular economic valorization)
The valorization through products:
collective actions or individual initiatives

- Various forms of valorization
  - Landscape
  - Leisure
  - Specific livestock farming systems

- Collective actions or individual initiatives
  - Collective actions: PDO, PGI…
    - Examples: Tarentaise and Abondance breeds
  - Individual initiatives: direct selling, Organic farming…
    - Examples: Vosgienne and Bretonne Pie Noire breeds
Questions raised by valorization and aim of the communication

- Valorization raises questions because it **can have an impact** on the genetic management.

- Our aim is to **detail those questions** raised, illustrating with examples of French cattle breeds.

- We will consider:
  - breeds with collective actions for valorization (PDO…)
  - breed with individual initiatives for valorization (Organic…)

Our hypothesis is:
**Whatever the type of valorization, it questions genetic management**
### New points of view

**For the Abondance breed…**

<table>
<thead>
<tr>
<th>Local breeds and valorization</th>
<th>New points of view</th>
<th>Impact on selection criteria</th>
<th>Possible controversies</th>
<th>Conclusion</th>
</tr>
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</tbody>
</table>

#### Collective action

#### Several point of view for the Abondance breed and its future…

- **Milk production**
  - farmers in plain or favourable areas
  - farmers with technicians abilities

- **Production limit**
  - Beaufort and Tome des Bauges PDO: production limit
  - Beaufort PDO: Holstein genes exclusion

- **Size**
  - tall cows in plain areas
  - small cows in mountain areas

- **Rusticity and walking ability**
  - transhumance, summer calving
  - spread pastures

- **Milk quality**
  - on farm processing: product quality
  - PDO dairy farms: price for quality milk

- **Phenotypes**
  - image for PDO
  - breed enthusiasts

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*Pictures: Adeline Derkimba*
For the Bretonne Pie Noire breed

New ways to valorise the breed (Organic farming, direct selling…)
New breeders can be involved in the genetic management of the breed

Bretonne Pie Noire rare breed

New breeders interested in new ways to valorize the breed

Influence on the development of the breed

<table>
<thead>
<tr>
<th>Catégories</th>
<th>Mostly BPN</th>
<th>Dairy</th>
<th>Farm processing</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professionnal breeders</td>
<td></td>
<td>Dairy selling</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Mostly others breeds</td>
<td></td>
<td></td>
<td>meat</td>
<td>37</td>
</tr>
<tr>
<td>Dairy</td>
<td></td>
<td></td>
<td>Farm processing</td>
<td>3</td>
</tr>
<tr>
<td>Dairy selling</td>
<td></td>
<td></td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>meat</td>
<td></td>
<td></td>
<td></td>
<td>33</td>
</tr>
<tr>
<td>« Hobby » breeders</td>
<td></td>
<td></td>
<td></td>
<td>183</td>
</tr>
<tr>
<td>Others (parks, associations etc.)</td>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
</tbody>
</table>

Breeders typology in the breed association in 2005 (from Quéméré, 2006, La Bretonne Pie Noir)

<table>
<thead>
<tr>
<th>year</th>
<th>1976</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of breeders</td>
<td>46</td>
<td>340</td>
</tr>
<tr>
<td>Number of cows</td>
<td>277</td>
<td>977</td>
</tr>
</tbody>
</table>

Population number evolution (from Quéméré, 2006, La Bretonne Pie Noir)

picture: Anne Lauvie
When new point of view can be expressed?
Lessons to be drawn from Abondance breed

Depend of the interactions between the valorization project and the decision board of the breed

- **Official representation**
- **Crossed representations (informal)**
- **Financial support of the breed association by the valorization project**

Depend of the repartition of the breed population within the valorization projects

<table>
<thead>
<tr>
<th>Filière</th>
<th>PDO</th>
<th>Other products</th>
<th>Total (RGA 2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reblochon</td>
<td>Beaufort</td>
<td>Abondance</td>
</tr>
<tr>
<td>Number of cows</td>
<td>14 257</td>
<td>5 286</td>
<td>1 183</td>
</tr>
<tr>
<td>Pourcentage of the breed</td>
<td><strong>26,0%</strong></td>
<td><strong>9,7%</strong></td>
<td><strong>2,1%</strong></td>
</tr>
</tbody>
</table>
Impacts on selection criteria

From the product to the breed

Specific products

- New process
- Specific environment and farming system

Can require

New aptitudes for the breed

- Milk production
- Adaptability to the system

Can have

Impact on the selection

- Dairy characters
- Functional characters

pictures: Adeline Derkimba
Example of the Tarentaise breed

**ISU = synthetic index UPRA**

Hierarchy between the characters (dairy and functionnal)

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Beaufort PDO

- **ABO**: 5100 kg
- **5000 kg**
- **TAR**: 4000 kg

**Tarentaise breed**

Take into account the production limit

**ISU =**

\[0.45 \text{ (dairy characters)} + 0.55 \text{ (functionnal characters)}\]

Tarentaise breed is **the only breed** with a part of INEL minor to 0.5

*picture: INA P-G-AgroParisTech*
Exemple of the Vosgienne breed

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**Conservation programme:**
- Animal population
  - organized in 13 families
- that have to be maintained

**Farms sustainability:**
- Aim to
  - maintain the farmers' incomes

**Individual dynamics**

One family considered having bad production results

A compromise had to be found:
- A single family abandoned but the family system maintained (12 families)

![Image of a Vosgienne breed cow](http://www.agroparistech.fr/svs/genere/especies/bovins/vosgien.htm)
Possible controversies

Several projects for the same breed

- The breed can be involved in several projects

  See above and next the Abondance example

  See also the Vosgienne example

- If the aims of the projects are different, it can lead to controversies

pictures: Adeline Derkimba and http://www.agroparistech.fr/svs/genere/especes/bovins/vosgien.htm
Exemple of the Abondance breed

Abondance PDO/Abondance breed
Increasing the population number

<table>
<thead>
<tr>
<th>% of the breed in the PDO</th>
<th>Abondance PDO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abondance</td>
<td>35%</td>
</tr>
<tr>
<td>Montbéliarde</td>
<td>64%</td>
</tr>
<tr>
<td>Tarentaise</td>
<td>1%</td>
</tr>
</tbody>
</table>

Obligation for the PDO managers:
Abondance breed has to be in majority in this PDO
(because of the PDO name)

Necessity of increasing the population number of the Abondance breed
- Some farmers want a % by farm
- Some farmers want a % for the whole PDO area

Compromise over 15 years:
- it will be for the whole area of the Abondance PDO
- in case of a non respect of the regulation, it will become by farm
Solving the controversies

- Controversies can be solved:
  - *Choosing one among several projects*
  - *Finding a compromise*
  - *Excluding a stakeholder*
  - *Dividing the animal population among the projects*

Our cases studies illustrate that it can depend on the constitution of the decision board of the breed.
If valorization is a good way to develop local breeds…

- there is a wide diversity in products valorization types, from individual to collective dynamics

- and there can be several projects in tensions that influence the dynamics
New tracks for research

- Going further on the study of individual valorization when they are generalized in a given breed

- What about breeds « delocalised » by valorization? (Simmental breed and Laguiole PDO)

- Analysing other dynamics: other species, other kind of valorization