Developing local protein resources in monogastric feeds to promote the agroecological transition
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Developing local protein resources in monogastric feeds to promote the agroecological transition

Claire Escande, Myriam Grillot, Vincent Thénard
Flow

• Context, aims
• Cases studies
• Approach
• Main results
• Some elements to discuss
Why local protein is a challenge?

Global Land use

Economic dependency

Feed/Food competition
Global land use

EU arable land virtually traded:

European agriculture is dependent on the production of other land...

35 millions ha in 2008!
Economic dependency

High level of importation:

Soybeans and soy cake are an important protein-feed for animal production in Europe, in France.

Soybean imports by France (Source: SNIA)
Feed/Food competition

Direct competition

Indirect competition

From Hannah van Zanten, 2016
Agroecological transition is a way to improve sustainability of the LFS (Altieri, 2002; Dumont et al., 2013; Bonaudo et al., 2014)

Feed Self-sufficiency (FSS) can be considered as a driver of agroecological transition (Dumont et al., 2013)

Some farmers combine different resources included natural grassland to increase their farm’s feed self-sufficiency (Thénard et al. 2014, 2016, 2021)
Agroecological challenge

Protein self-sufficiency is on the agenda for the next few years in the EU, in France and in Occitania...

Legumes have benefitted from research projects at different scales. Building on previous projects tackling breeding issues related to biotic/abiotic stresses, food/feed uses and environmental assets of legumes, the on-going H2020 projects are looking at transition paths to sustainable and competitive legume-based production systems and value chains in the EU, as well as breeding strategies and food characteristics.
Agroecological challenge

Many opportunities to discuss works about self-sufficiency in herbivorous systems

And what about granivores?

Developing local protein resources in monogastric feeds
Case study: mixed farming region

Mainly arable crops
+ Residual livestock (granivores)
+ Local knowledge of mixed farming
+ Potential of protein crop production

How to increase protein self-sufficiency?
Current challenges

But

The agroecological transition

complex process

undefined paths

To achieve such changes, it is necessary to involve farmers in co-designing innovations and encouraging their adoption

Participatory approach relevant to analyze SES/STS

Source: Darnhofer et al., 2015
Case study: A participatory approach

How can the protein autonomy of monogastric farms in the Lauragais region be improved?

Organising

Bibliography

Exploratory interviews

Participatory workshops

Analysis/Next steps

Thinking

Drafting alternative sheets

Qualitative results

Qualitative and quantitative results
Main results

Direct sales farms
- 8 « pigs » farmers
- 7 « Poultry » farmers
- 1 « Pigs&Poultry » farmer

Farmers’ practices:
- 10 farms make feed on the farm (FAF) including cereals produced on farm
- 6 farmers supplied protein feed by buying a nitrogen supplement
- 4 farms supplied protein feed by producing the protein-rich raw material themselves (soya or peas)

Some obstacles to protein autonomy expressed during the interviews:
- Need for support or advice on farming techniques (new crops, new diet, etc.).
- Difficulties in substituting soybean meal in rations: it is an ideal nutritional component.
- Few support from cooperatives to small farmers in direct sales
Main results

Workshop 1
Overview and presentation of alternatives to imported soybean meal
- Sharing feeding alternatives
- Thinking collectively towards protein self-sufficiency
- Identifying benefits & disadvantages

Workshop 2
Design of protein self-sufficient systems
- Building farmer-specific perspectives

Participatory workshops
5 farmers
4 advisors

4 farmers
1 advisor
### Main results

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>Peas</td>
<td></td>
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<tr>
<td>Faba bean</td>
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<tr>
<td>Soya bean</td>
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<td>Alfalfa</td>
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<td>Hydroponic fodder</td>
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<td>Sprouted cereals</td>
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<td>Insects</td>
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<td>Local oilcake by pressing</td>
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<tr>
<td>Feed mill units</td>
<td></td>
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<tr>
<td>Toasting</td>
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</tbody>
</table>

**Participatory workshops**
Main results

- Feasible
- Desirable

- Faba bean
- Peas
- Soya bean
- Alfalfa
- HydroFod.
- Insects
- Toasting
- Feed mill unit
- Local oilcake

Participatory workshops
Main results

Feasible

Desirable

It’s a pity!

Too new!

Faba bean

Peas

HydroFod.

Insects

Toasting

Feed mill unit

Soyabean oilcake

Great opportunities!

Alfalfa

Local oilcake

Feed mill unit

Participatory workshops
Identified avenues for action

• Integrating the stakeholders in the sectors in the quest for protein autonomy

• TAP (Transformed Animal Proteins): calling on the French public authorities after the EU has allowed them

• Benefit from aid for protein autonomy (CAP, regional policy, ...)

• Intensify and develop interactions between farmers
Take-home messages

• Alternatives to soy cake exist, they be developed on the basis of technical research and territorial organizations.

• Direct sales farmers are motivated, the next step is to involve the pork and poultry sectors on a regional scale.

• New integrated crops need support and exchange between farmers.

• Protein self-sufficiency is a good thing for the transition to agro-ecology and a way to adapt LFS to climate change.

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Obrigado, Thanks!