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Evaluating innovative scenarios to enhance mixed crop-livestock farms sustainability.

A partnership methodology based on long-term farmers’ strategies

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A mutual objective on mixed-crop livestock

The Coteaux de Gascogne
A French less-favoured area

⇒ Low specialization of agriculture (50% of farms MCLS)

Local actors: Which future for their MCLS farms?

Research: Worldwide regain of interest in MCLS

Crops

Livestock

Mutual objective: Evaluating scenarios including technical innovations that could enhance sustainability of MCLS.
A specific Local Group of Partners

- Knowledge on the area
  - 4 municipalities involved
  - 56 farms surveyed
  - Databases on farmers’ practices
  - Historical data on farms since 1950

- A new partnership working with local actors for our study:
  - 15 farmers within the 56 surveyed
  - their local advisors
  - 2 mayors within the 4 municipalities

⇒ Membership on a voluntary basis

Basic requirements

1. Transparency:
   collective steps definition and evaluation, reports, vote, ...
2. Stability of the group
3. Freedom of expression and respect:
   post-its, gathering opinions, mediation,...
4. Enthusiasm!
⇒ Trust elaboration
STEP 1 - Conceptualisation

- Relevant long-term strategies

STEP 2 - Exploration

- Identification of: technical scenarios

Exploration of the technical scenarios

Process combining collective and individual steps

STEP 3 - Evaluation

Process combining discussions and computer-based simulations

Collective assessment of the simulations

KEY

Local actors:
- Individual
- Collective

Researchers:
- Individual
- Collective

Computer model

Interactions

Oct 2010 - May 2011

June 2011 to June 2012
Step 1a: A retrospective study of farmers’ strategies

- Studying farmers’ long-term strategies as a useful material for future studies
  - Innovations linked to their strategies

- Typology of past farms trajectories from 1950 to 2005
  - 50 farms considered
  - 2 collective meetings
  - 12 individual surveys

Type: Autonomy-led farmers (13 farms)
  “If you want something done right, do it yourself”

Type: Diversified family-farmers (8 farms)
  “Don't put all your eggs in one basket”
Step 1.c : Participatory definition of prospective scenarios

- Whole participatory process with farmers & actors:
  - 3 collective meetings of 3 hours
  - Technical innovations in line with farmers long term strategies to maintain MCLS

A. A « post-its meeting » : 5 post-it / partner

« What is worrying you concerning the future of your farm? »
**Step 1.b : Participatory definition of prospective scenarios**

B. Collective organisation of the post-its :

« Which major uncertainties within the local context? »

C. Vote to select two scenarios (and two real-farms)

« How could we change our practices to adapt to those uncertainties? » ➔ Scenarios of technical innovations

**Type Autonomy-led farmers**

⇒ Scenario : sowing forage legumes intercrops to achieve autonomy for herd feeding

**Type Diversified family-farmers**

⇒ Scenario : adding a finishing unit of heifers to achieve direct sales
STEP 1 - Conceptualisation

a - Relevant long-term strategies

b - Identification of: technical scenarios

STEP 2 - Exploration

Exploration of the technical scenarios

STEP 3 - Evaluation

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Interactions

Oct 2010 - May 2011
June 2011 to June 2012
Step 2: Scenario exploration with the farmer

Focus of Type Autonomy-led farmer - Intercropping

Farm selected: typical MCLS of the area

A farmer deeply involved in the process

- 133 ha - 50% crops & 50% grasslands
- 43 suckler cows – Limousine breed
- 1 Working Unit

• Precision of farmers’ wishes:
  Two types of intercrops to insert in the rotation

• Identification of major constraints:
  • Periods of sowing and harvesting / work organisation
  • Feeding quality and low costs

→ Legumes intercropping: pure or mixed species

S1: Red clover and oat-vetch intercrops / S2: Premium on red clover
Step 2: Scenario exploration with the farmer

- Simulation with the farmer through a simple computer-based tool

- 5 to 6 visits of 3-4 hours to specify the technical scenarios
- Time at the lab to adapt the model and prepare the simulations

**Crop-Livestock Farm Simulator (CLIFS)**

**CalculRation**
Feeding need
per type of animal

**CalculFerti**
Fertilisation need
Per type of crops

**Farmer feedback**
STEP 1 - Conceptualisation

a - Relevant long-term strategies

b - Identification of: technical scenarios

STEP 2 - Exploration

Exploration of the technical scenarios

STEP 3 - Evaluation

Collective assessment of the simulations

KEY

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Interactions

Oct 2010 - May 2011  June 2011 to June 2012
Step 3: Collective evaluation of the results

- Scenario presented by the farmer himself ➔ motivating other farmers
- Discussions on the technical routines and … on systemic thinking !:

New technical scenarios of practices to better integrate crop and livestock at the farm scale?

Systemic thinking - “Everything isn’t always a race”
“The performance would be to know when you are spending too much to produce”.

(Argyris & Schön, 1996)
Strong involvement of local actors

- Interest in local adapted study
- Relevance of real cases
  «For once, it was concrete and corresponded to our ideas »
- New discussions on work organisation

Importance of collective meetings
- Posture of researchers
  «We have been listened et could express our views. »
- Interactions research/local actors
  «It is really interesting to share views with other core works »

- Other professions could take an objective look at the local situation
- For researchers, learning on contexts and realistic innovations
Lessons and limits

- Time, enthusiasm & confidence in the process needed!
  - Many time spent in organisation
  - Transparency as a major rule!
  ➔ Risks were taken «disturbing not to know where we were going»

- Reflexivity of the researchers is essential
  - First seen as an expert…then maybe as a partner?
  - Does the research question really come from the actors?!
  ➔ Specific skills needed...Communication...

- Which level of implication of the partners?
- Adaptations of the group according to steps ...and wishes!
- Technical discussions on local real-life farms!
  ➔ From «out of pure curiosity» to involvement ...

My take-home message: Establishing a dialogue based on trust between all types of actors is not easy neither a sure thing ...

Thank you!