Analysis of animal food chains, a tool for engineers education: procedure, interest, conditions

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### Matter

- We often refer to livestock farming systems (LFS), or to animal food chains (market chains).

- Students need tools and methods to analyse them.

- **Our experience of teaching animal food chains at AgroParisTech**: In the last year of the « Ingenieur Agronome » cursus mostly in the animal production and animal science mention called SIFA (« sciences and engineering for animal food chains »).
Performed issues

- 24: each year since 1990
- Between 10 to 21 students involved each year
- Applied to broad spectrum of animal food chains: eggs, milk, fishes (from fresh or saltwater), meats (poultry, rabbit, pork, mutton, veal, beef)
- From very little ones (e.g. the Basque pork chain) to big ones (e.g. the French pork chain)
Schedule (1)

• **Theoretical course** on food chain analysis: 6 hours

• **Mains concepts** used (From Morvan, 1982)
  - The chain as a managed system
  - Fluxes, agents, functions, final demand
  - Articulation of technical operations
  - Strategy
Schedule  
(2)

- **Field case study**, from Monday to Friday (5 full days), including:
  - Interviews of partners and stakeholders
  - Visits of farms, industrial plants, markets by small groups...
  - Daily discussion and sharing of informations within the whole group
  - Brain-storming on Thursday evening and night (workshop style)
  - Pre-presentations with iterative changes on Friday morning
  - Presentation and debate with stakeholders and partners, on Friday afternoon
ambition revendiquée ou un map nécessaire?
Schedule (3)

• **Deliverables**:  
  - PowerPoint presentation  
  - A short text (20 p.) including the analysis and main proposals

• **Major contents**:  
  - A SWOT analysis of the whole chain and of its major steps  
  - Proposals for actions and improvements
Merits of the procedure (1)

a. For the students

• Learning by doing: concepts related to food chains used in a professional environment
• Using various knowledges and tools, crossing disciplines and methods
• Understanding the complexity from the inner side
• Strengthening the apprenticeship of group working within a very short period of time
• Strong stimulation of creativeness
Merits of the procedure (2)

- Increasing self-confidence, due to the exchanges with stakeholders
  
  b. For teachers and university
  
  - Knowledge of chains, strong relations with professional from these areas
  - Positive image of the school or university in these professional sectors
  
  c. For professionals
  
  - An original point of view from the outside, often acute
Conditions of Success, Risks (1)

a. Professionals partners:
   . renewed each year
   . expecting results from the work
   . confident of the group, and opened to discussion with the students

b. Teachers with:
   . current practice of systemic approaches
   . real knowledge of stakeholders
   . experience in food chain analysis
Conditions of Success, Risks (2)

- C. « Practical issues »
- Depending on the number of students: group division to increase the collected information however to be balanced by a minimal time together (at least 2 days)...
- « Professional » behaviour of the whole group (students and teachers)
- Strong students implication leading to a good group dynamics
- Climatic conditions: difficult to manage...
Thank you for your attention