

A Training Approach in the Field of Livestock Farming Systems and Animal Products Chains: An Initiation to Projects Engineering about the Charolais Beef Production

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Abstract

The text describes a training approach at the Institut National Agronomique, Paris-Grignon (France), part of the cursus leading to the degree of « Ingénieur Agronome ». This sequence has a methodological purpose: to teach the students how to develop a project, in the field of animal production and the related farming systems or food chains. It was done in co-operation with the professional circles, economical organisations and firms of the Charolais beef meat chain. After a one week study tour in the Charolais zone, the students developed their projects by teams of 4 or 5 people, each. The projects were defined in order to answer real questions related to the farming systems or the beef meat chain. This type of pedagogy appears to be very attractive for the students, efficient for the education process and also interesting for the professional partners

The framework of realisation

The pedagogical approach that we are going to describe and analyse in this paper has been applied in 1995, in the second year course of Institut National Agronomique, Paris-Grignon (INA PG). The INA PG is part of the group of the « Grandes Ecoles » (competitive engineering schools, one of the two main systems for higher education in France, the other one being the Universities). The students are mainly recruited by competitive entrance examination after 2-3 years of *preparatory classes* after completion of high school. The studies end with the obtention of the degree of « Ingénieur agronome », 5 years after completion of high school.

Schematically, the degree course includes a core curriculum, mainly during the first year, some optional courses allowing the students to choose a personal education, mostly during the second year, and a last year of specialisation, which is the first year of the French third cycle of higher education (equivalent to a graduate course in the US system). The course that will be described in this paper is an optional one of eight weeks (February 13th to April 7th 1995), part of the second year. It occupies roughly 160 hours in the schedule. The target of this course is an « initiation in the engineering of a project » (INIP for initiation à l'ingénierie de projet, in French), i.e. a methodological education. It can be based on varied fields or themes: 7 INIP were proposed to the students in 1995. Among them, 34 people chose to

participate to the one entitled « Strategies for animal productions and animal products », presented here..

The training project, the pedagogical goals and organisation

The educational project

We want to teach to the students how to construct a project, in the field of animal production systems, and animal products' chains. The educational efficiency of this approach needs the students being involved in real situations and problems of the professional circle, which means to search for partners. It is thus possible to bring the students in the elaboration of applied projects, answering some professional demand (BRETTE et al, 1983).

Pedagogical goals

Because we deal with animal products, nowadays faced with the markets surplus in developed countries, notably in the E.U., a necessary methodological principle is that we must analyse at the same time the production systems and the products chains they are included in, and consider their interrelations (STREET, 1990, LOSSOUARN, 1994). It means that we must use and cross an « horizontal logic » and a « vertical logic », according to SEBILLOTTE (1993).

Then, the goals are the followings:

- to bring the students to be faced with the analysis and the comprehension of complex and managed systems,
- to train them to identify the problems that emerge for these systems, dealing with their working and their evolutions,
- to make them go from the identification of the problems to the proposal of projects, that they will elaborate for finding out some solutions, technically, economically, and socially satisfying.

The last point is the will to put the students in the situation where they have to prove their ability for initiative, autonomy, creativity, and to express their personality. That will also push them to use the knowledge they already have, to search for some new knowledge, to deal with methods, to respect the deadlines, all this being done in a collective approach, working by groups (LOSSOUARN, 1991).

The organisation scheme

This course in 1995 was focused on a federating theme, entitled: « Problems and perspectives of the beef meat production in the Cher Department, and the north part of the Charolais basin ». It was an opportunity for a very efficient partnership with the professional and economical organisations in the region, and along the meat chain: Chamber of Agriculture du Cher, Beef Producers Association, SOCOPA company... In practice, we had an informal agreement with the Chamber of Agriculture which was searching for new ideas, new strategies valuable for the beef meat chain. This professional organisation led the other

mentioned ones and actors to get involved in the operation. The pedagogical scheme is presented in Table 1. It is based on the succession and the joining of two types of teaching situations: one based on the «discovery », and one based on the « project ».

Concerning that, some remarks might be useful:

- the study travel is not at all considered as an illustration of a theoretical lesson, but as a diving in the reality of the beef production and the beef meat chain,
- after the study travel, took place a delicate moment in this educational course: we expected from the students a very active participation in the brain-storming leading to the identification of the present main questions for the future of beef production and chain, and then to the definition of the projects,
- at the end of the course, the presentation of their works in front of a professional audience was the opportunity to assert their self-control and their personality, and to test their works through a non-academic validation.

Types of projects

Seven students' teams have been working, each of them with 4 to 5 people. The list of the seven corresponding themes is presented in Table 2. Among those themes, three of them were case studies, dealing with the evolution of some farms producing beef meat. One was a study about the creation of a co-operative feedlot. Three others concerned some problems in relation with the strategies of companies or operators in the beef meat chain. Each team of students was helped by a teacher, behaving as a facilitator. It developed its project by the combination of several approaches: documentation, interviews of professional persons or specialists in Paris or in the Charolais basin (see table 1), individual working and group brainstorming alternately, modelling...

Results, assessment, perspectives

Applicability of the works

The results of the students' works, after two months, have been very favourably received by the professional partners, who accepted their conclusions for the main part. This is true for the results about the evolutions and the adaptations of the farming systems: extensification, setting up of a son, or change for a new generation of farmers. It was also verified for the project about the feedlot, and those about the strategies in the meat chain. We can notice that the one about « Identification and promotion of the Charolais meat » brought some ideas right in time for contributing to the decision of gathering together the different designations (French « Label Rouge ») existing for the Charolais breed. According to the local Chamber of Agriculture, the realisation of the training course, and the students works, had another significant and interesting consequence: they gave the opportunity for an intense renewal of the professional discussion and thoughts, concerning the evolution of the livestock farming systems and the meat chain in this region.

Assessment for the education

The proposed training scheme, the full involvement in a professional environment, the partnership....led to a very great motivation of the students, and thus a permanently high intensity in the work, always in a very pleasant mood. The students were placed in a situation suitable for learning a lot, about techniques, economics, methodologies, and also suitable for facing the professional circles...in an environment of free relationships, and not forced, which is, finally, a guarantee for efficiency.

In fact, they were apprentices consultants in front of complex realities...This type of training allows, very efficiently, to learn identifying and grading the prevailing questions, converting them into problems to be solved, and then into projects (BAWDEN, 1990). Following those steps, our students were in the position of complete partners, active and imaginative, for the professional discussion. This is why, beyond the training itself, this course brought for the students the opportunity to blossom, by expressing their own natures, and by making their personalities more mature. One can affirm, as regards the « allosteric apprenticeship model » of GIORDAN (1990), that our students were placed in a situation that made them modify deeply their concepts.

Conditions and perspectives

Among the necessary conditions for such a training, we shall quote the followings:

- a confident and active partnership between the College or University, and the professional circles,
- the full involvement of the students in practical problems that the world is actually facing,
- the existence of teachers teams having a good practice of the systemic approaches, having a real knowledge of the professional circles, being able to create good relationships with the students, and to drive some groups.

The professional circles of livestock farming, the operators of the animal products chains, should be aware of the stakes existing in this necessary partnership. Because we have to deal with a crisis in the agricultural development model, and the present politics to limit the production rights, because of the rapid and prestigious development of the molecular biology, and the biotechnologies... we need to create some modernised and attractive trainings, able to draw valuable students to the fields of the production systems and food chains.

References

- Bawden, R.J. (1990) Of agricultural systems and systems agriculture: systems methodologies in agricultural education. In: *Systems theory applied to agriculture and food chain*. Jones, J.G.W. and Street, J.G.W. (ed.) Elsevier Applied Science, 159, 203.
- Brette, C., Lossouarn, J., Coleou, J. (1983) Un moyen au service d'une pédagogie d'acquisition de savoir et de savoir-faire, la réalisation de projets: exemple appliqué aux disciplines agronomiques. In: *Pédagogie, professionnalisation et efficacité de l'enseignement supérieur*. Université de Compiègne, 26-27 mai, 47- 56.

- Giordan, A. (1990) Un environnement pédagogique pour apprendre: le modèle allostérique. Document LDES, Université de Genève, 16 p.
- Lossouarn, J. (1991) Information and documentation: pieces of the vast puzzle of education. *European Journal of Engineering Education*, 16, 3, 211-221
- Lossouarn, J. (1994) Le concept de filière: son utilité du point de vue de la recherche-développement dans le champ des productions animales et des produits animaux. In: *The study of livestock farming systems in a research and development framework*. EAAP Publication n°63, WAGENINGEN PERS, 136-141.
- Sebillotte, M. (1993) Avenir de l'agriculture et futur de l'INRA. INRA, Janvier, 139 p + annexes.
- Street, P.R. (1990) A systems view of commercial supply and marketing links. In: *Systems theory applied to agriculture and food chain*. J.G.W.

Annexes

Table 1: INIP Teaching Plan

<i>Composition</i>	<i>Calendar</i>	<i>Content</i>	<i>Teachnig situations</i>
FULL GROUP	Week 1	Classes ; basic subjects :	DISCOVERY
34 Students	Week 2	- meat production - production systems - beef meat chain - market	
	Week 3	Agricultural show, Paris - 1 day Study trip to Cher region - 4 days - farms - slaughtering, processing and marketing companies - debate with representatives of the profession	DISCOVERY
7 WORKING GROUPS	Week 4	Report of trip Brainstorming - definition of projects making-up of teams	PROJECT
	Week 5	Project elaboration	
	Week 6	(possibility of returning to the studied sites by project team)	
	Week 7		
FULL GROUP	Week 8	Submission of written project essays Handing-back seminar - developing with professionals	PROJECT

Table 2: The working groups

<i>Number of Students</i>	<i>Title of the work</i>
5	<i>A case study : interest of creating a fattening unit for young bulls when Mr CHERRIER's son will join the farm ?</i>
4	<i>A case study : interest and conditions for creating a fattening unit for the feeder cattle born on Mrs MILLEREUX's farm ?</i>
5	<i>A case study : what problems, and what solutions, when the sons will replace their fathers on the GAEC FEDARD farm ?</i>
5	<i>Conception and design of a co-operative feedlot in the Cher Department ; conditions for viability ?</i>
5	<i>A survey in the beef meat channels: what prices and image for the Charolais's meat ?</i>
5	<i>« Niche » vs « mass » beef meat chain : the case of the Cher Department</i>
5	<i>Strategy for identification and promotion of the Charolais's meat</i>