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Linking researchers, advisers and livestock farmers in a multidisciplinary approach to analysing working conditions on farms

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Abstract: Work is an important issue for livestock farmers nowadays and this topic draws attention from researchers as well as from advisers. The French Livestock Institute piloted a three-year partnership project aimed at studying on-farm innovations to improve farmers' working conditions. This project developed a multidisciplinary approach combining economic, sociological and technical perspectives on livestock farmers' work, and involved researchers, advisers and farmers. We chose to involve farmers in the production of data, crossing the factual and descriptive data with their experiences and views, but also asking for their opinion on the results. We also involved actors in six different regions with two goals: to conduct investigations on farms and to enable the appropriation of the method by advisers.

A team composed of researchers and extensionists was in charge of designing and managing the research programme based on on-farm interviews (a total of 55). In the questionnaire the three dimensions mentioned above were addressed through sociological, economical and organizational aspects.

The participants of the team pooled their own knowledge and methods to build a common questionnaire. A test was arranged in some farms with advisers as interviewers and this enabled improvements to be made to the structure of the questionnaire and to the way questions were asked. Training for the interviewers was organized.

Data processing at national and regional level provided several deliverables including a national analysis, six regional analyses, farm monographs, and publications for farmers and advisers. Several local meetings took place to discuss the results with the interviewees (farmers), the interviewers (advisers) and sometimes stakeholders.

The participants of the project team now consider that linking researchers, advisers and farmers in this multidisciplinary approach was very profitable. All of them say they have expanded their vision and understanding of farmers' working situations and argue that this has led them to change their research or advice practices.

Keywords: work organization, productivity, livestock farming, farmers' perceptions of their profession

Introduction

Work has become a major concern regarding the durability of French livestock farms, in a context marked by heavy structural developments (enlargement of structures and workforce collectives, increase in work productivity), developments in the profession (growing complexity of farm and herd management) and social developments (higher aspirations in terms of leisure time and holidays).

Work on livestock farms is a multifaceted topic (Kling-Eveillard et al., 2012), comprising various aspects (the volume of work and its year-round division, and relations between members of the collective, etc). It can be considered either as a resource that one seeks to optimise in a spirit of economic competitiveness, or as an organisation combining various farming and private practices over time - or as an activity that forges the personal and professional identity of the farmer (Dedieu and Servière, 2012).

In order to understand the complexity of farmers' work situations and to help improve them, an approach to their work must necessarily involve combining the various dimensions involved. This approach was carried out within the framework of the French R&D project entitled: "Organisation, work productivity and farmers' perceptions of their profession in innovating farms" (or "Three-dimensional work"), which was designed to combine these three dimensions in a comprehensive approach to farmers' work issues. Before this project, these dimensions had not been taken into account simultaneously in approaches to work on livestock farms, notably because they are embodied by different actors, are based on specific, conceptual frameworks and use different skills.

This project associated researchers (Inra), teacher-researchers (VetAgro Sup, Isara), advisory-body engineers (Institut de l'Élevage, Ifip, Itavi, Fncuma, Interafocg), advisers (Chambres d'Agriculture, Civo) and livestock farmers. We chose to involve the livestock farmers in data production by combining the collection of factual and descriptive data with their experiences and perceptions, and also by noting their reactions to the results obtained. We also largely involved grassroots advisers from six regions in carrying out the surveys, and tested their approval of the method. In France, advisers constitute a key link in the chain of implementing results, from the research stage right through to the livestock farm.

This paper presents the key points of this approach and an appraisal of the project by the different categories of actors who took part.

Presentation of the Cas DAR project

Objectives

The "Three-Dimensional work" project was carried out from early 2011 to late 2013 with three objectives. First of all, in order to develop a comprehensive and multidisciplinary approach to livestock farmers' work, we combined complementary perspectives. We also wanted to describe work situations and innovative and original functionings related to workforce, simplification of herd and land management, buildings and equipment etc. Finally, we wanted to facilitate concertation on work on livestock farms among stakeholders in each region involved in the project (Picardy, Brittany, Pays de la Loire/Deux-Sèvres, Aquitaine, Massif Central and Rhône-Alpes) in order to initiate concerted systems capable of creating and implementing support actions for farmers' work. These stakeholders are either advisory development bodies (Chambres d'Agriculture, the MSA, in charge of farmers' social protection, etc.) or service-providing bodies

for farmers (the CUMA agricultural equipment cooperative, a replacement service or employer groups etc.).

Three groups of actors were involved in the project:

- researchers, teacher-researchers and advisory-body engineers, whom we grouped together under the umbrella term “experts”. These actors coordinated the project, designed the method, analysed the data and carried out scientific dissemination of the results.
- grassroots advisers, referred to hereafter as “interviewers”. These actors were in charge of conducting the on-farm interviews, transcribing them and exploiting the results on a local level among colleagues and farmers via the trade press. Their profiles - and therefore their skills - are varied: livestock adviser, dairy supervisor, business consultant, management centre trainer, teacher, adviser experienced on work advice, etc.
- livestock farmers, who were surveyed, and took part in project-results presentation meetings, and sometimes even in player debates. The farms chosen were very diverse (Inset 1): in size (from 1 to 42 workers), area of production (pigs, poultry, ruminants) and complexity of the system (ranging from the specialised farmer to the farmer with several livestock units, crops and direct sales).

Inset 1 – Description of the sample surveyed

55 livestock farms were surveyed in 6 regions (Picardy, Brittany, Pays de la Loire/Deux-Sèvres, Aquitaine, Massif Central and Rhône-Alpes).

7 livestock sectors were represented, predominantly dairy cattle:

- Dairy cattle (n = 28)
- Suckler cows (n = 5)
- Dairy sheep (n = 1)
- Suckler sheep (n = 2)
- Goats (n = 4)
- Pigs (n = 6)
- Poultry (n= 9)

We made a distinction between:

- mixed-crop farms with over 40 hectares of crops and one or several livestock units (n=22)
- mixed farms with at least two livestock units and less than 40 hectares of crops (n=11)
- specialized farms with just one livestock unit and less than 40 hectares of crops (n=22).

8 farms process and market all or part of their produce.

Of the 55 farms, 20 of them are managed by a sole head of farm, 10 of them by a couple, and 25 of them by associate farmers. 40 of them have recourse to at least one employee and 22 of them to voluntary labour (parents, children etc).

The innovations surveyed (1 or 2 per farm) concern:

- workforce reorganisation (n = 24), such as the shared use of an employee or the outsourcing of food distribution;
- building or equipment modernisation (n = 27), such as the transition to stalls for dairy cattle or the use of a milking robot;
- simplification of herd or surface area management (n = 13), such as simplification of grazing or of the reproduction system;
- system reorientation (n = 12), such as transitioning to direct sales or the grouping of dairy production facilities.

“Building/equipment” and “system reorientation” innovations are found on farms with the highest number of workers. On smaller-sized farms, more focus is put on “management” and “workforce” innovations.

Project execution

The project was carried out in several phases: designing the method, collecting data, treating the data and implementing stakeholders' networks via local meetings, which were also used to support dissemination of the project results.

First of all, a Method group, made up of 18 experts from different disciplines (sociologists, economists and zootechnicians) and from different professions (researchers, teachers and advisers) was constituted, in order to define a joint approach to livestock work. Concepts and knowledge from each discipline were combined in order to produce a single interview guide broaching issues of work productivity, organisation and meaning of the profession.

Next, data collection was organised, via surveys on the farms, in two formats (text and spreadsheet files) and given to the interviewers. In total, 55 interviews were conducted in the six French regions by 24 interviewers, including three experts from the Method group.

Analysis of the data collected on the farms was carried out during the second year of the project. Exchanges between researchers and interviewers regarding the results took the form of regional meetings and a national seminar held in November 2012.

The last year of the project was devoted to disseminating the results and to discussing them among the surveyed farmers and development bodies concerned by the issue of livestock work advice.

Results

The multi-disciplinary approach to studying the three dimensions of work (productivity, organisation, and meaning of the profession) took the form of the development of a survey approach, based on a questionnaire aimed at describing and understanding the innovative strategies of the functioning of work on livestock farms.

In order to understand how the group came to implement a multidisciplinary approach, we first present an analysis of the process of construction and usage of this tool.

We then examine appraisals made by the actors of the three groups involved, and in particular, what they say they have retained from the project and in what way they claim to have changed their usual activity as a result.

The key points of the process

In the survey-tool construction and usage process, we identified five phases, each one of which corresponds to a different time-interval of the project (Mendez et al., 2010). The phases correspond to different moments of the project that acquire meaning in relation to each other and, for each phase, we endeavour to highlight the key points.

Phase 1: Exchanges between researchers and advisers in order to define the content and boundaries of each of the perspectives of the three dimensions – economic, organisational and sociological.

The Method group jointly developed the major stages of the survey approach, before subdividing into three themed sub-groups, each one in charge of developing a questionnaire for the part concerning them.

The “perceptions of the profession” sub-group was given the mission of clarifying the notions of innovation and of innovating farmers - notions at the core of the project. Discussions focused on,

on the one hand, identifying the areas of questioning - socioprofessional path, relationship to professional activity and to work, and the perceptions of the profession - and on the other hand, on the type of information to be collected - facts, opinions and representations, and the articulation between open and closed questions. This discussion prompted researchers and advisers to exchange on their own practices and, in particular, on the advantages of qualitative information (opinions and representations) in understanding farmers' strategies.

For the "work organisation" sub-group, learnings from the "Work Assessment" method (Hostiou et al., 2012) directed debate on the type of information to be gathered in order to understand the key dimensions of work organisation in a simple and pertinent way: work duration and work schedule. The formulation of questions to broach lesser-known dimensions, such as human-resource management or the arduous nature of work, also entailed numerous discussions in order to reach a consensus on the content of the information and its degree of precision.

The "work productivity" chapter was designed with the objective of examining classic criteria used by economists to evaluate the economic performance of farms (in particular by favouring gross operating surplus as an interim balance) according to workforce composition (farmer, employee and voluntary unpaid worker). Consequently, economic results differ according to whether one considers total workforce and/or paid workforce and/or family workforce. A comparison of the results and an analysis of the variations between farms are pertinent when describing and understanding the functioning of the farms.

When the three sub-questionnaires were pooled, each sub-group had to take on board the suggestions of the other sub-groups, gradually envisaging them as an entity. This phase brought to light several difficulties relating to the definition of the boundaries of each perspective, and to the need for overall consistency. The questionnaire could not be created by simply assembling the three sub-parts. During this phase, debate centred on the degree of precision of the information gathered, and on the advantages and disadvantages of a single questionnaire as opposed to a modular questionnaire. The purpose of the project was discussed once again. The issue of the objectives of each of the three perspectives and of their complementarity formed the backdrop to all meetings of the first semester 2011.

Compiling the three perspectives was done very gradually, through numerous exchanges and modifications to the questionnaire, and with a communal desire for co-creation.

The Method group also discussed methods of gathering data and choice of farms. It was decided to carry out the survey in two farm visits, given the length of the questionnaire, and also to allow the results to be interpreted with the farmer. This first phase resulted in a complete initial version of the questionnaire.

Phase 2: Simplifying the questionnaire

It was decided to carry out a "survey-test" as a way of opening up dialogue with the farmers and gathering their points of view on the relevance and feasibility of the survey. Tests were carried out in pairs, associating a researcher and an advisor from the same region. The method was tested partially on two farms (one farm for the "organisation" part, the other farm for the "meaning of the profession" chapter) and subsequently in its entirety on a Brittany cattle farm, over two visits.

The three farmers involved in the tests emphasised the originality of the project and the relevance of combining different perspectives. Their points of view largely helped validate our initial choices and overcome any concerns we had, in particular on the "meaning of the profession" part. These tests enabled the interviewers to pick up on any repetition between the different parts, and

to ascertain the length of the questionnaire. Based on these suggestions, each themed sub-group sought to simplify the questionnaire. A subsequent joint effort by the three sub-groups resulted in a more fluent overall questionnaire. This second phase therefore produced a new version of the questionnaire, which was used for training the interviewers, defining coding methods, writing instructions for carrying out the surveys, and choosing which farms should be surveyed.

Phase 3: Revamping the questionnaire to move away from a juxtaposition of the 3 perspectives

Two two-day training sessions (one for the North France part and the other for the South France part) were organised to present and test the questionnaire with the interviewers. The Method group questioned how the investigators should be trained, in particular for the sociological “perceptions of the profession” chapter. Indeed, advisers are not used to this type of questioning. Role-play was used in order to familiarise the advisers with open questioning aimed at targeting the farmers’ experience. This role-play simulation brought about very enriching exchanges between advisers and researchers. The perceptions of their profession by farmers were perceived as a key component to understanding the choices they made. The role-play brought up the advantages of questioning one’s own representations of “what a farmer actually is” and what it means to “be a good farmer”. The advisers - future interviewers - fully grasped the advantages of a three-dimensional perspective. They readily took on board the sociological perspective, and saw the advantages of connecting the technical, economic and social dimensions in order to understand farmers’ choices.

Then, still during the training period, the test interviews conducted among the farmers also revealed the advantages and complementarity of using qualitative and quantitative data, “the subjective” and “the objective” being used, not in opposition to each other, but to fully grasp the dynamic way they interact.

The advisers brought to light weaknesses in the questionnaire, these being: insufficient explanation of the objectives of each of the parts; its length; areas of repetition; a lack of flow between the different parts; the need to clarify the method of collecting data; and the degree of precision of the information to be gathered. The advisers made suggestions during the sessions. The Method group then carried out the major task of revamping the questionnaire by choosing to divide the questions on the sense of the profession among the different parts. This task enabled the questionnaire’s overall consistency to be reviewed jointly. It also enabled the creation of a tool that integrated the interplay between the three chapters, rather than being limited to a juxtaposition of these three chapters.

Phase 4: Choosing indicators to analyse the data: the value of debate among multiple players

The majority of surveys were carried out over two visits to the farmers due to the length of the questionnaire, each one lasting two to three hours. The advisers entered the data into a database. The Method group worked iteratively in order to develop a framework for analysing the consistency of each farm on the three themes approached, and for analysing the diversity of the innovative systems surveyed. The approach was initially based on the analysis of a sub-sample of six farms. Debates were organised with farmers in three regions in order to specify expectations and to select pertinent indicators for each of the perspectives. Then the organisational strategies were established, following statistical work from multivariate analyses. This fourth phase threw up further questions on the objectives of the analysis, its purpose, how the results should be used and the way they should be exploited. The various debates brought to light the advantages of translating the results for and by the grassroots actors.

Phase 5: Exploiting the results from the meetings and from written feedback by the advisers / drafting the farmer-experience sheets

Following the interviews, the advisers were consulted, during regional meetings, both on their experience of the interviews and on the method. Among the 24 interviewees, 16 of them took part in one of these meetings in 2012. On this occasion, they filled in a questionnaire on the relative ease they experienced in carrying out the survey and on the solutions they used to remedy any difficulties encountered. These exchanges shed light on the aspects of the questionnaire that lacked pertinence or which, on the contrary, warranted further development. They fuelled the assessment carried out within the Method group and contributed to the drafting of a "resource bank" to capitalise on the results of the project.

The investigators then got involved in drafting farmer-experience sheets describing innovative strategies of labour organisation and writing articles aimed at the trade press. The results were then discussed with the farmers who had taken part in the project as well as with grassroots players who were not part of the study. In the course of these debates, carried out in 3 regions, farmers and regional partners were invited to express their needs and expectations regarding farmer support on the theme of work.

Finally, five advisers experienced in work advice for farmers were consulted, via individual interviews, in order to harness their experience and place it in the context of the methodological findings of the project. This work gave rise to the drafting of a short document for future work advisers and for all those wishing to take into account the work of farmers relating to technical or economic support.

Assessment from the actors 'point of view

The opinions of different actors were gathered, in particular on successes and difficulties encountered in the various stages of the project in which they were involved.

a) The "experts"

The "experts" expressed their opinions throughout the project, whilst taking part all the while in defining and implementing the successive stages. They carried out an intermediary internal assessment at the two-third mark of the project, once the surveys had been analysed, and then another assessment at the end of the project. These joint assessments were carried out during project meetings, and centered on the "experts" perceptions of the various stages of work (the positive points and the points needing improvement) and on the direct and indirect results of the project.

The researchers unanimously highlighted as a positive point the combining of the perspectives on livestock work on different levels:

on the level of several geographical scales: on both a national and regional level.

The comparison enhanced the analysis and helped bring to light the notion that innovation must be appreciated within a specific context (time and place).

on the level of several disciplines: economy, zootechnics and sociology

The combined perspectives enabled a better, more global understanding of the various components of work in livestock farming. For example, it was possible to analyse workforce by simul-

taneously exploiting the descriptive elements of organisation and division of labour, the economic consequences of the wage system, and the satisfactions and dissatisfactions of the farmer regarding his choices and the functioning.

on the level of several actors with different positions relative to that of the farmers: researchers, teacher-researchers and advisers

During these exchanges between actors, each actor- on their own level and according to their activity - benefitted from the confrontation with the field and the reality of the farmers' work. In addition, sharing this joint awareness of the livestock farmers' work provided a better understanding of the skills and activity of each player.

All these combinations were facilitated during meetings either among all players or in smaller groups during which the players exchanged on designing the method and training courses, and analysing the data. This information was shared using a communal website. The survey approach that was developed is considered by all to be a real methodological improvement.

The "experts" consider that these combinations have enriched their vision of livestock farmer work and as a result, some of them have modified their professional practice, clearly taking into account dimensions of the work they had not hitherto taken into account.

Difficulties encountered related to the project's framework, which was felt to be restrictive given its limited timeframe, its demanding schedule and the scarce availability of certain players thereby hampering their involvement.

b) The interviewers

In two regions, there were no meetings between interviewers, due to the low number of investigators in one region and a change of job for two investigators in the other region.

In the four meetings that did take place, the investigators' experience and opinions were collected regarding the conditions of the survey so they could be taken into account when analysing the interviews.

The interviewers were also questioned (both individually and jointly) on the relevance for them in conducting the interviews, as well as on what they got out of them personally, in particular in relation to their day-to-day activity.

The interviewers very much appreciated conducting the interviews. Therefore, nine of them gave a grade of 8.3 on average for relevance, on a scale ranging from 0 (not at all relevant) to 10 (very relevant). They highlighted the interest the farmers displayed in the subject, especially given that the questionnaire encouraged them to express themselves and enabled various aspects of work to be approached. Most of them highlighted the novel aspect of the sociological approach, in other words, questioning the farmers qualitatively on the way they represented their profession and their work etc. For the more experienced investigators, however, the approach seemed to be less novel.

The difficulties mentioned related either to the framework of the survey (not enough interviews in order to get to grips with the questionnaire, questionnaire too lengthy, etc), or to its content (difficulties in collecting the economic data, and in quantifying working hours, etc.).

Questioned on what the interviews had contributed to their day-to-day professional activity, certain interviewers, like the researchers, mentioned the advantage of expanding their perspectives on work with new dimensions (*"initiating the link between work organisation and economic suc-*

cess”), in particular by taking better stock of farmers’ attitudes and visions in relation to their farms and work (“*moving towards more psychology and less dogmatism*”).

c) The farmers

In three regions (Pays de la Loire, Rhône-Alpes and the Massif Central), the farmers were invited to the presentation of the results of the surveys during local meetings. Fifteen farmers took part in these meetings.

In all cases, the results were presented in two stages: the national results followed by concrete regional cases. This meant the farmers could put their own individual case into the perspective of very different systems (in terms of the resulting objectives, production directions and work organisation).

From their different experiences, the farmers brought to light common points concerning the taking into account of the issue of work on their farms.

Firstly, in order to progress in terms of work organisation, it appears necessary to the livestock farmers to define the objectives to be reached – both professional and personal - that strike a balance between technical-economic, work organisation and private-life results. They say they differ from other farmers because of the very fact that they reason in terms of personal objectives, not just professional objectives, and place their working conditions at the centre of their choices.

Finally, discussion within the workforce seems essential to them to perpetuate a system in which working conditions are considered a priority: “*we’re not like those who make rapid-fire decisions, we take a lot more time, mulling decisions over, a decision has to run its course. We don’t always agree, fortunately – and incidentally, that’s how we move forward*”.

From the point of view of advice, they consider that formulating objectives could constitute a good entry point for advice on improving work.

Some farmers emphasise the advantages of exchanges, sometimes within the same network, in order to make headway when reflecting on the work of their farm “*the first thing to do is to go out and collect information, never mind from which network. Discussion groups are one way to acquire this information*”. Although the livestock farmers recognise the advantages of exchanging with their peers to progress technically, create social links and open up to other ways of doing things, they also note a rise in the power of individualism and an increasingly difficult joint mobilisation, in particular among younger livestock farmers. They consider the theme of farm work less easy to broach than a technical subject because advisers are generally less familiar with work. In a group situation, it is also more difficult to talk about oneself and one’s way of working than to talk about technical aspects: “*work is more complex, you’re attacking the person*”.

In addition, according to them, the subject of work is still taboo: “*When you go to meetings about work, it means you’ve got nothing else to do, or you’re on holiday*”.

Conclusion and discussion

This study reveals the advantages of a multidisciplinary approach when broaching the subject of farm work because it brings to light results that are relevant - and perceived as such - by the various players (researchers, advisers, and farmers). It also provides for a better understanding of

farmers' work situations by crossing the three dimensions of work (Dedieu and Servi re, 2011): productivity, organisation, and the meaning of the profession.

The sociological approach that analyses what is important to the farmer and what he expects from his work gives meaning to the factual data collected when exploring the two other dimensions: organisation and work productivity. This multidisciplinary approach does not necessarily lie at the heart of the practices of researchers, teachers and advisers (Kling-Eveillard et al., 2012). It indicates a need for providing teachers and advisers with methods and tools so that they can better take farm work into account. Consequently, the resource bank compiled in the framework of this project provides researchers, teachers and advisers with method and questioning materials so that they can broach the issue of work according to the themes that interest them (labour flexibility, workforce etc), by combining the three dimensions. Dissemination of the results and the advantages of a multidisciplinary approach also involve writing articles in trade magazines.

However, the project also highlighted the need to take other dimensions of work into account, which had not been taken into account to date, such as workers' health and the physically and mentally demanding nature of work. Indeed, developments on farms (such as enlargement and intensification etc) are becoming more commonplace, and are creating tensions and increased stress on farmers (Gambino et al., 2012). The link between the evolution of production systems, work and health is a rarely studied area of research. According to a study led by the MSA in 2003, stress and fatigue are the two most commonly cited factors by farm operators as adversely affecting their health. For farmers, sickness at work can be accompanied by feelings of loss of autonomy, linked to the percentage of subsidies in their incomes and to the pressure the sector exerts downstream, but also linked to the lack of recognition among farmers' peers and/or neighbours, and to the inability to generate an income capable of providing a living for a family. This has consequences both on people's health and on malfunctions in farm organisation.

The study revealed the importance of interactions between the different players at each stage of the process (Lardon et al., 2010). Between researchers from different disciplines and advisers from different horizons, these interactions enabled the co-construction of tools for approaching farm work but also broadened these various players' field of vision on farm work. There were fewer interactions with farmers: they only intervened in the survey phase and in the discussion on the presentation of the results. It would have been interesting to integrate the farmers earlier on in the process, involving them in creating the combined approach method of work. This would undoubtedly have rendered the tools more pertinent and efficient. Developing even more collective approaches for supporting work (Lusson, 2010) that mobilise the learnings from this study remains a possibility.

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