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Farming models and professional identities

Return to input-consuming agriculture: the development of autonomy in question

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Abstract: *In a societal context increasingly questioning productivist agriculture and consumption of inputs, the agroecological transition is struggling to unfold in France. The self-sufficient and autonomous farmers of the CIVAM (Center for Initiatives and Development of the Rural Environment) are part of this agro-ecological minority. Very rare farmers in this network, however, choose to return to an inputs consuming and heteronomous agriculture: these returns question us in terms of developmental theories and can be rich in lessons in terms of support. This study is based on an analysis of the life stories of 15 French dairy cattle breeders, that is 6 farms, who changed their way of doing things towards an economy of inputs and then returned to the mobilization of inputs. On the basis of this study, we confirm that the transitions to self-sufficient and autonomous farming systems are real professional transitions: for the farmers, they require to review their ways of doing but also of thinking, the object on which they work on a daily basis, as well as their professional standards. Without these profound changes, farmers can't get satisfied with their work according to self-sufficient practices: this discomfort then leads them to gradually return to practices consuming inputs and to think the development of their work activity by mobilizing more and more technologies. These technologies confine them to forms of dependence on many upstream actors in the agricultural sector. Supporting farmers towards self-sufficient practices is very effective within the CIVAM network. Supporting the empowerment of autonomous thinking among farmers is more difficult. Different paths emerge to support this emancipation: they present varying levels of operationality. Indeed, the emancipation of autonomy is an issue which goes beyond the agricultural profession alone and which concerns society more generally.*

Keywords: *professional transition, self-sufficient and autonomous agriculture, autonomy, work*

Introduction: professional transition is an expensive process for farmers

In a societal context increasingly questioning productivist agriculture and consumption of inputs, the agroecological transition, strongly supported by Minister S Le Foll, in France, seems to impose itself as an injunction. However, it is only used on a minority of farms. Farmers making the choice of self-sufficient and autonomous production systems within CIVAM networks (Center for Initiatives and Valorization of the Rural Environment) are part of this minority. These farmers demonstrate the practical, economic feasibility of self-sufficient and autonomous farming situations (Coquil *et al.*, 2018; Dieulot *et al.*, 2016; Veysset *et al.*, 2015). They also show the environmental and social virtues of these systems. These self-sufficient and autonomous systems develop very little in France, in Europe and more generally in the industrialized countries. According to several authors, this weak development refers in particular to considerations relating to the work of farmers in these self-sufficient and autonomous systems. In fact, in these systems, work is very different from work in input-consuming systems. Coquil *et al.* (2017), Chizallet *et al.* (2016), Chantre et Cardona (2014) and Lamine *et al.* (2009) have analyzed these evolutions towards systems which consume fewer inputs, characterizing them as transitions during which new ways of doing things, new practices are implemented, requiring different kinds of learning for farmers.

Coquil *et al.* (2017) characterize the transitions from a heterogeneous input-consuming system to a self-sufficient and autonomous system as a change of professional world. The professional world conceptualize the subject at work highlighting a stable and coherent organization between the object on

which he works, his ways of doing things, his ways of thinking and what he cares about (Béguin, 2004). The professional world doesn't exist explicitly for the worker: he lives it daily. The professional transition sets this organization in motion. Initiating this change of professional world (Béguin, 2004) is costly for those who experience it because the professional world is very stable and consistent. The emergence of an inconsistency within the professional world is expressed in terms of discomfort for the subject: a dissonance between what he does, what he thinks, what makes sense for him and what he works. This dissonance must be solved to allow a sustainable activity for the worker. Professional transition is therefore a rare and significant process for the worker. The farmers who have made a professional transition from an agriculture consuming inputs to a self-sufficient and autonomous agriculture are building a new professional world putting in coherence a work mobilizing few inputs with professional standards (to achieve a good rotating pasture, to have cows that adapt to dietary variations…) that they build with their peers in networks of self-sufficient farmers. However, very few farmers attest very questionable professional trajectories: while they had set up self-sufficient agricultural practices, they backtracked and set up a production system mobilizing inputs. Do these farmers experience 2 professional transitions during their career? What are the explanations for this backtracking in terms of work?
We hypothesize that the analysis of these returns to inputs mobilization can give us elements of reflection on the transitions to self-sufficient and autonomous systems and on the support of these transitions.

Materials and methods: surveys of voluntary farmers

This study was conducted in 2018 and 2019 as part of the CASDAR project ("Agricultural and rural development" special allocation account) TRANSAE (Work Transformation and Transition to AgroEcology). In this chapter we describe the methods to mobilize farmers in this study, the farms and farmers who participated, and the methods to collect and analyze interviews.

Difficult recruitment of 15 farmers on 6 farms

We looked for professional trajectories of heteronomous and input using farmers having, at some point in their career, implemented more self-sufficient farming practices in their farm. Referent farmers of the TRANSAE project, all members of the CIVAM network, and CIVAM animators, involved in the project, contributed to the search for farmers to follow. They identified farmers who participated in the dynamics of peer-to-peer exchange groups at some point in their careers and then retreated from these dynamics. This identification was difficult revealing the rarity of such professional trajectories.
Eight identified farms attested a period of implementation of more self-sufficient practices at some point in their life, and a return to higher consumption of inputs thereafter.
15 farmers from 6 mixed crop-dairy cattle farms were mobilized in this study. In 2019, between 1 and 3 partners and between 1 and 4 full-time workers are active on those farms. They farm between 59 and 183 ha of useful agricultural area and the dairy herds count between 46 and 110 dairy cows with productivity ranging from 8,000 to 9,500 liters of milk per cow per year (see Figure 1). One of these farms processes and sells its dairy products directly, another has a suckler farm in addition to dairy farming and 3 farms out of 6 cultivate sales crops (cereals and vegetables for industry). For the assets of these 6 farms, participation in peer groups of CIVAMs led, at a minimum, to a temporary evolution of agricultural practices towards more self-sufficiency.
The farmers from the 2 other targeted farms did not wish to return to a painful past *(i)* because it was regretted for the work group of one of the 2 farms, *(ii)* because it was difficult to evoke for the work group of the other farm.

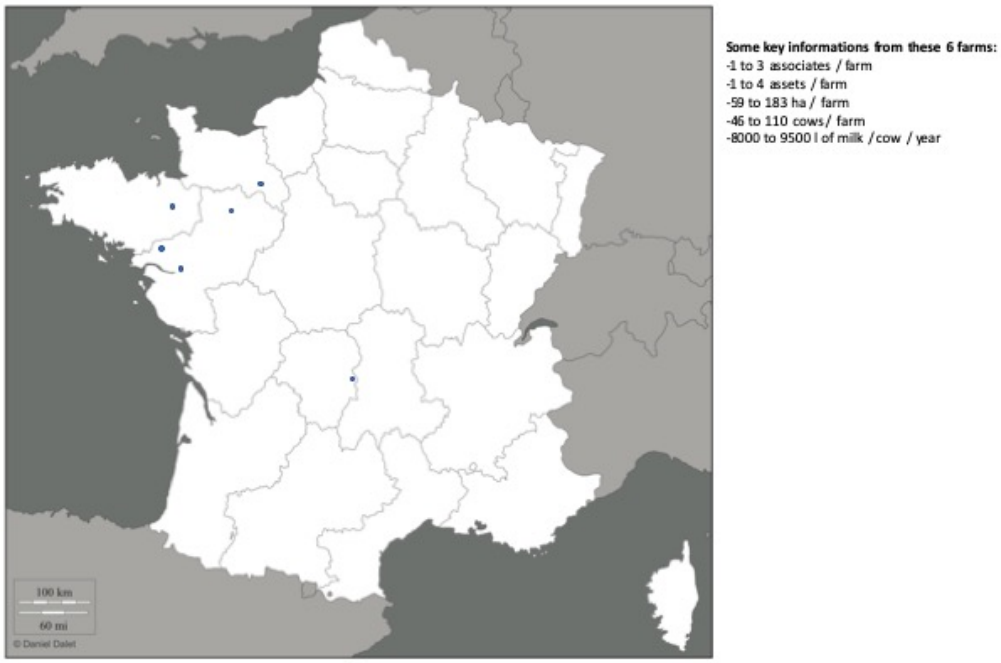

Figure 1. Geographic distribution of the farms mobilized for this study.

A collection via interviews, temporal analyzes of the datas:

During this study, we analyze the professional transformations that the workers of these 6 farms have experienced during their career by mobilizing the theoretical framework of the development of professional worlds (Coquil *et al.*, 2017). Thus, we collected datas according to 2 interviews with all the workers involved in the work of the 6 farms, and even with former workers for two of the studied farms. The interviews were conducted using a combination of comprehensive (Kaufmann, 2003) and elicitation methods (Vermersch, 2010). Farmers were invited:

- to describe the evolutions of their work within their farm during their career by making round trips before / after / during the more self-sufficient period.
- to elicit how they worked during the self-sufficient period
- to elicit the significant moments they experienced in peer exchange groups during the self-sufficient period.
- to elicit the resources that they mobilized during the self-sufficient period and that they mobilize differently or that they no longer mobilize since they returned to inputs consumption.

Two temporal analysis were carried on interviews:

- a description of changes in the farm structure and its working group according to a chronological timeline inspired by the trajectories of agricultural holdings (Lusson *et al.*, 2014, Dedieu and Ingrand, 2010). Significant events and resources, major changes in the work group and structural changes build this timeline.
- an analysis of changes in the professional worlds inspired by the formalization of professional world development (Coquil *et al.*, 2017) (Figure 2). This approach traces the changes in the professional world of the farmers surveyed: what is the object of their work? what are the

practical (actions, knowledge mobilized), axiological (professional standards, values, etc.) backgrounds over time?

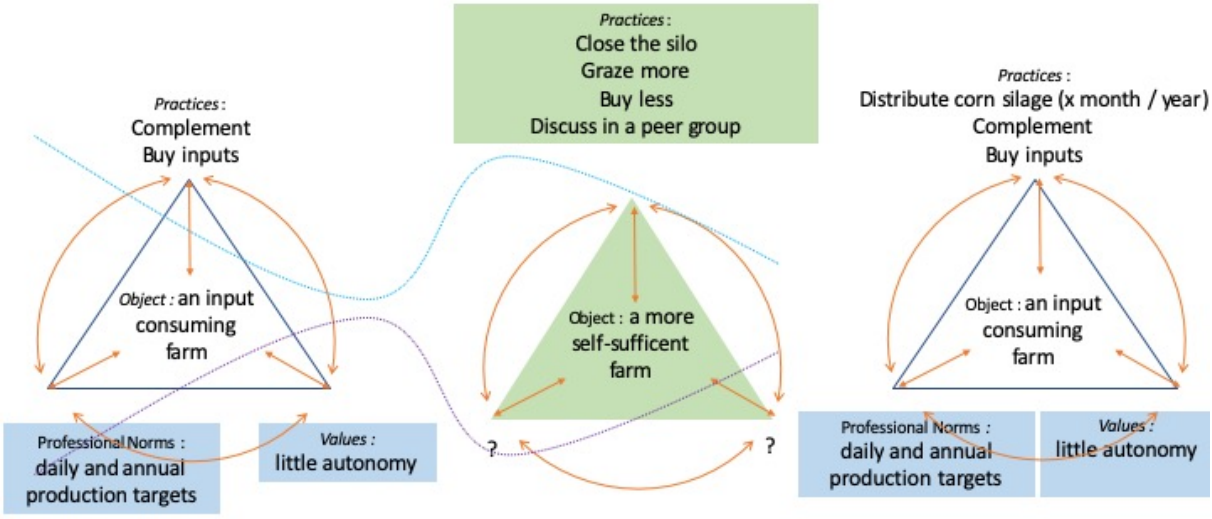

Figure 2. Simplified and *a priori* representation of the evolution of the professional worlds of the farmers surveyed.

Results: missed professional transitions

In main cases, these returns to input consuming and heteronomous situations refer to missed professional transitions. Farmers then experienced difficulties in implementing self-sufficient farming: the return to input consuming farming is then an attempt to reduce these tensions. Support for autonomous thinking based on posture seems limited.

Without a change of thinking, self-sufficiency is profitable but difficult to sustain

On the 6 farms, and therefore 15 farmers studied, only 1 couple, at the head of a farm, experienced 2 professional transitions during their career. For the other 13 farmers, self-sufficient practices were temporary: they did not engage a professional transition.

The double professional transition takes place in a couple. Settled on a dairy cow system, based on corn silage and grazed grass feeding, the couple made a transition to a self-sufficient and autonomous system. The farmer actively participated in peer exchange groups in his local CIVAM, increased his area of grass, worked his management of the rotating pasture and planted hedges. The couple accepted daily and yearly variations of the dairy production on pasture. Farmers from CIVAM were then a professional reinsurance circle. Then, the couple gradually increased the proportion of milk transformed into cheeses: processing and marketing became central occupations. The professional world of his wife was gradually structured around the production and marketing of cheeses. For the couple, an efficient production of quality cheese, using raw milk, involved the transformation of a full milk processing tank: this milk processing tank had to be filled by only one milking (a condition to process raw milk in good conditions for the farmers). The quantity of milk required per milking then becomed central in the management of the herd and of the farm: the stability of the composition of the milk (small difference between fat and protein rates) also became an important factor for processing which encouraged

shortening the closure period of the corn silo. The wife trained in organic farming. The husband also tried training with a negative *a priori*: his CIVAM peer group and the society in general, seemed to drive him to organic farming. Feeling deprived of freedom to act, he refused to convert the farm to organic agriculture and strengthened the professional world of production / processing and direct sales: he focused on stable quality and quantity of milk. His socio-professional environment evolved turning to his sales network and his neighboring farmers for mutual aid (corn silage).
The other 13 farmers did not experience a professional transition during their careers. The implementation of self-sufficient agricultural practices was a temporary evolution without succeeding in questioning ways of thinking, without changing the object of farmers' work. There are obviously nuances in the professional trajectories of the workers of these 5 farms. Thus, the period of implementation of more self-sufficient practices and participation in peer exchange groups corresponded for these farmers to a period of:

- awareness that farming profitability required cost control,
- need to set up a more remunerative agricultural system,
- desire to progress on grazing practices on pastures longer than 18 months because short crop rotations were loosing productivity,
- settle in a very self-sufficient farm led by a work group,
- practicing highly productive and self-sufficient systems enabled by good agronomic potential of the farm.

Motivated by different reasons, all farmers reported good economic health of the farm during the self-sufficient period. During this period, farmers participated in the local peer groups of CIVAM. Exchanges made them progress in the management of grass and dairy cows in a grassland system: rotating pasture was a central subject.

Although profitable, this self-sufficient period did not allow a professional transition for these 13 farmers. The implementation of self-sufficient practices was then based on *(i)* an increase proportion of grazed grass in the dairy cows diet, *(ii)* a reduction in the distributed silage fodder. These changes in practices led to other changes: *(i)* a reduction in the quantity of distributed concentrates (less need for protein complement), *(ii)* a reduction in the use of fertilizers (because pastures containing legumes are self-fertile) and sometimes even *(iii)* a reduction in the renewal of equipment which was less used. These practices generated strong tensions within the professional world of the majority of these farmers during their implementation. Thus, a couple forced to relocate their farm was unable to implement the self-sufficient and productive system per cow (which they called the "Pochon system", referencing to his designer André Pochon) that they implemented on their previous farm: unable to question their productivity standards, they had to abandon self-sufficient practices. Several workers show frustration with *(i)* the performances of their animals or their crops which they considered too weak *(ii)* their structure, which they considered not modern enough, during the self-sufficient period: inability to review their professional standards of their "ideal farm" caused them discomfort. A farmer attest his difficulties to decide by himself on his farm on the basis of exchanges in the peer group: he summarized his participation to the peer group in "having tips and tricks to set up the pasture (…) size of the paddocks (…) location of the drinkers (…) ". Several of the farmers interviewed believed that peer-to-peer exchange groups were primarily places to acquire new technical knowledge. These peer groups were also indicative of dissension of professional standards, dissension of values, causing discomfort for these farmers: these farmers did not live well with critical discourse towards the practices of input-

consuming farmers occasionally appearing among their CIVAM peers. They were not seeking to assert themselves outside of the dominant professional standards,

Returns to heteronomy to reduce work tensions? The emergence of new tensions…

For the 13 workers (5 farms) who have not experienced professional transitions, the return to input consuming and heteronomous agriculture is coupled with a policy of strong investments (ex: milking robot, building stables, enlargement of the farm area ...). The investment process is frequently motivated by a gain in working comfort "once the over workload period will be finished and the new equipment will be functional". In order to cover these strong investments, the farmers on their farms increase the volumes produced by *(i)* an increase in the productivity of land and animals through the mobilization of inputs, *(ii)* an increase in the size of the herd and cultivated areas requiring a further increase in investments (buildings, etc.) and *(iii)* an increase in their workload. Investments, increased productivity and increased size are the 3 tools for the development of these input consuming and heteronomous professional worlds. It is often complex to define the cause and effect relationships that farmers achieve between these tools: invest to produce more? produce more to invest? Invest to earn a farm size that is respectable to the profession? This logic of heteronomous development is motivated by two main reasons: the inability to shift professional standards and an attraction for the "promises of technological modernity".

The inability to distance farmers from productivist professional standards leads to defining the “good farmer” as a good producer of raw materials: this standard is mainly translated by the “capacity to produce a lot per animal and per unit of area »; it is also translated in a herd size and a land area respectable from the point of view of the profession. These professional standards, defined by the farmer and his peers, have been consolidated and locked by a socio-technical system which is also locked (Stassart *et al.*, 2008). Thus, the “beautiful parcel of wheat", the "beautiful cow" respond to characteristics of high productivity and conformities: one of the farmers tells us "for me, a cow must produce at least 24 liters of milk per day… ", another tells us of the need to meet the“ 13 milk quality criterias which define the price paid by the dairy industry”. Productivity and compliance aim to meet the format and composition requirements of agriculture and the food industry. The non-questioning of these professional standards leads the majority of farmers to carry out their work by exceeding the criteria of productivity (ex: animal competition ...) and conformity (ex: rating of meat carcasses ...) and to develop room for maneuver elsewhere in their work: the marginal adaptation of the production system in order to maximize CAP (Common Agricultural Policy) subsidies is an example of development ... Professional standards are also very present in the definition of herd size and area: the critical size to exist professionally in the eyes of its peers is at stake. One of the farmers surveyed sets an objective dairy herd of 100 dairy cows and gradually crystallizes it on his farm through the negotiation of production volumes with his dairy industry, then the construction of a dairy cow stable according to this objective size...

We name the second reason "the promises of technological modernity". The reduction in input use and the increase of the proportion of grazed grass have enabled these farmers to improve the economic performance of their farm in less than a year. The return to agricultural practices that consume inputs and mobilize capital in order to invest are based on hypotheses of future gains in the medium and long term: gains in working comfort, but also economic gains. We talk about promises: from the engagement in these logics, farmers accept difficult years in terms of work (heavy workload linked to constructions, resumption of land, integration of additional animals) and also in economical and financial terms (high debt). They nurture the hope *(i)* of greater material comfort when the additional work wil be absorbed and *(ii)* of a return to profit when these investments will be reimbursed. Farmers on 4 farms respond to this logic by investing

in new mechanization but also in livestock and milking buildings (milking parlor, robotic milking) and increasing the volumes produced by increasing the surface area, herds and use of inputs.

By working again according to productivist professional standards, and by mobilizing technologies in the service of the reduction of arduousness, these farmers find a certain coherence within a professional world mobilizing inputs and strongly dependent on external advice and expertise (heteronomous). However, during the interview, discomfort in the work was expressed by the 15 farmers in the study. They all attest a much too heavy working time, compared to the more self-sufficient and autonomous period they experienced. They evoke a cognitive and physical burden that is difficult to hold in the medium term. The farmers of 4 farms witness a reduction in economic performance and very strong financial pressure which may be problematic in the medium term. Many farmers find it difficult to deal with the pressure of the neighborhood (non-agricultural neighbors and alternative farmers) concerning some of their agricultural practices deemed unacceptable (pesticides treatment, human / animal relationship, etc.) or deemed out of step with the possibility of doing otherwise (organic systems …). Tensions about the future are emerging for certain farmers, due *(i)* to the discrepancy between the promises of modernity and its disappointing results, but also *(ii)* to the strength of a conclusive experience on certain aspects during the implementation of self-sufficient practices in the past.

Support focused on self-sufficient techniques, learning autonomy based on posture

Based on the stories of these 15 farmers, the implementation of self-sufficient practices is well established and effective within the CIVAM peer groups. However, support for the development of autonomous thinking is questioned. Within CIVAM autonomous thinking essentially refers to 2 dimensions: *(i)* a critical capacity for technologies, knowledge and skills that seem to impose themselves on us and structure our ways of doing and thinking (Illich, 1973) and *(ii)* a critical capacity of the institutions which seem to impose themselves on us and dictate our organizations (Castoriadis, 1975). These 2 dimensions are worked in groups *via* the posture of support and exchanges. The dynamics of peers groups tries to encourage the questioning of farmers, the establishment of a dynamic of research and real experiences to share: sharing experiences benefits to the members of the group and to their progressive involvement in the orientations of the group.
The farmers of 4 farms participated in peer groups in order to benefit from new prescriptions, new advices in order to change their ways of practicing: thus, the peer group was a prescriber allowing them to choose the advice to be tested on their farm without arousing a desire for shared research with peers. When the group's advices began to bear fruit, they moved away from it: this distance was sometimes favored by group dynamics that put them under tension, such as the debates on professional standards to which they did not adhere. This arises 2 central questions: is collaborative research between peers essential for developing autonomous thinking? If so, how do we get new, thrifty farmers out of an attitude of seeking advice and recipes and put them in a perspective of collaborative research?
The farmers of one of the farms have deviated from the dynamics of the CIVAM collective due to a questioning of the governance of the CIVAM group in which they participated: they then raise the question of the political autonomy of the groups when their life is part delegated to animators. Does the animator's point of view not influence the group's orientations? The question of the mandates of animators and farmers in defining the orientations of the groups is central to the definition of political autonomy.
The workers of two of the farms have moved away from the CIVAM peer groups due to a progressive deviation of their concerns and those of the groups. This gap has widened sharply due to the dynamics of

conversion to organic farming of good numbers of farmers within the group. This questions the relevance of groups over the long term and the methods of maintaining the shared interest within peer groups.

Discussion : the development of the autonomous thought in question

The professional stories of these 15 farmers attest that transitions to self-sufficient agriculture can't be restricted to a change of agricultural practices. While changing their practices, farmers might be able to rebuilt a coherent professional world: professional standards and working object have to be questionned and to evolve in order to give sens to the daily work, and in order to stabilize a new professional world. If that coherence is not rebuilt, farmer will have to deal with discomfort every day. These results support the work formalizing transitions of farmers toward a self-sufficient agriculture as a development of the professional world (Coquil *et al.*, 2017).

Supporting the professional transitions of farmers should not neglect the axiological dimensions (standards, values) of work. But, beyond the posture, how to support the emancipation of an autonomous thought? This question is addressed in the communication by Coquil *et al.*, (submitted) on the specific case of farmers in difficulty from three lines of thought on the concept of autonomy: self-determination and otherness, referring to the need for confidence in oneself and in others to develop an autonomous thought, the critical capacity of the knowledge and tools which surrounds us, and the critical capacity and the contribution to the organizations which directly influence our lives.

The obstacles to the development of autonomous thinking in the population of farmers mobilizing inputs and turnkey advice (heteronomous) refer to 3 types of difficulties: *(i)* the difficulty in taking part in an experiential research process, *(ii)* the difficulty in taking part in a collective organization which goes beyond their own farm and therefore their own considerations: what is valid in these groups are their considerations potentially balanced by those of peers, *(iii)* the difficulty in breaking free from dominant professional standards (productivity, farm sizes, uniform visuals, etc.). These difficulties open 3 fields of questioning and work to progress in supporting the emancipation of autonomy.
The setting up of an experiential research process with the farmer refers to autonomous thinking according to Illich (1973): the challenges of understanding or even mastering the knowledge mobilized in the work activity by the farmer is central. The mobilization of external technologies leads to an import of encapsulated knowledge (Compagnone *et al.*, 2018) requiring: *(i)* either a development of farmers' skills to be in control, as is the case with mechanical skills (ex : farmer's workshop) or computer and robotics skills (ex: CentipedeRTK network), *(ii)* either a delegation of the production of knowledge and experiences to others and therefore a form of heteronomy (ex: the milking robot and all metrics that it imports on the farm). The accompaniment of this autonomy passes, in part, by the awakening of a curiosity and a desire for understanding, or for mastering, its resources with the farmer. The accompaniment of this autonomy also goes through the recognition of the constructive activity, that is to say the activity of producing one's own experiences, as an activity that is part of the work of a farmer. Thus, the time to participate in peer exchange groups is a working time.
Participation in discussion groups and contribution to its orientation refer to the autonomous thought of Castoriadis (1975): the challenges of collaboration and cooperation are central. How can we assert and test the adage "alone we go faster, with others we go further"? These challenges refer to a collective responsibility at the societal level which invites a society based on responsibility, subsidiarity: these

principles and values allow individuals to gain freedom to act alone and in relation to others. Across the agricultural profession, agricultural education certainly has a fundamental role to play in cultivating these. The difficulty in emancipating themselves from the dominant professional standards is a final issue which refers, *(i)* on a person scale, to self-confidence (Erickson, 1972, Winnicott, 1969) but also to cognitive conflict (Astolfi *et al.,* 2008), and *(ii)* at the level of the profession and of the society, to the methods of construction and interlocks of these standards. According to psychologists (Erickson, 1972, Winnicott, 1969), autonomy does not refer to a form of self-determination: it is defined in our relationship to others. Thus, self-confidence and confidence in the others are a cornerstone. This self-confidence and the reassurance provided by belonging to a group of peers are presented as fundamental in the implementation of alternative forms of farming (Hellec and Blouet, 2011, Lamine, 2012). This self-confidence is all the more decisive than the feeling of transgression of "ways of doing well" in agriculture is important for the individual. When this feeling of transgression becomes too important, the process of professional development can be impossible; opening to other ways of doing and defining a “well done job” is impossible: we speak of cognitive conflict (Astolfi *et al.*, 2008). So, a work on the confidence of the individual is important. The process of cognitive conflict also invites us to consider another field of work: making the field of possibilities more accessible on the praxical (practices, concepts and knowledge of action) and also axiological dimensions (professional standards, values). In other words, how can we manage a more equivalent coexistence of ways of doing and thinking farmers’ work in the agricultural profession? This refers to the socio-technical lock within the agricultural profession: the recognition or even the professional existence of farmers are reduced to indicators of productivity and farm size. Attempts to shift these standards are emerging, by creating new indicators in order to open and develop the criteria for professional recognition: the competition of flowering meadows (de Sainte-Marie *et al.*, 2012) attempts to introduce the preservation of biodiversity as a criterion for professional recognition : it enhance the establishment of late mowing; efficiency indicators highlight the ability of self-sufficient systems to better value natural resources by producing more per unit of means mobilized (Dieulot *et al.*, 2016); indicators of resilience and robustness also appear (Ollion, 2015)… Attempts to shift these standards also appear by favoring other production functions of farmers, around common goods: they become producers of biodiversity, clean water, healthy soil, purified air... Remuneration through payments for ecosystem services is an example.

Conclusion

The transitions to self-sufficient and autonomous systems are real professional transitions requiring, for the farmers, to review their ways of doing but also of thinking, the objects on which they work, as well as their professional standards. Without these profound changes, farmers find it difficult to be satisfied with work according to self-sufficient practices: this discomfort then leads them to gradually return to practices consuming inputs and to think the development of their work activity by mobilizing more and more technologies confining them to forms of dependence on many upstream actors in the agricultural sector. This work highlights the effectiveness of supporting farmers towards self-sufficient practices and the difficulties of supporting the emancipation of autonomous thinking: difficulties to take part in an experiential research process, difficulties to take part to a collective organization which goes beyond personal considerations and difficulies to break free from the dominant professional standards (productivity, size of farms, homogeneous visuals, etc.). Different paths emerge with varying levels of operationality: *(i)* an extension of what agricultural work is : production, but also construction of one's own knowledge and experience, management of common goods (water, biodiversity ….), *(ii)* the impetus

for initiatives based on sharing and cooperation in the agricultural world, including in education, *(iii)* the enrichment of assessing indicators making it possible to shift the ways of " do well in agriculture ". An autonomous thought allowing a new relationship with the world (human and non-human) might be necessary: it meens an autonomous thought focused on the unfolding and the continuity of life, without consideration for progress and development. The march seems high in terms of transformations of work.

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