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Switching to organic farming and to conservation agriculture in the Limagne plain (France). An analysis of the modes of access to resources mobilized during changes in practices.

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1. Introduction

Supporting farmers in the implementation of so-called "ecological" practices is necessarily a collective undertaking. After meeting the challenges of food self-sufficiency for the country and modernization of the agricultural production system, farmers have found themselves at the heart of multiple injunctions and demands from society since the 1990s, relayed by the agricultural advisory system that is supposed to influence most of their decision-making. Whether it concerns their crop choices, their technical choices, the definition of their objectives and market opportunities, the socio-economic context in which the farmers operate determines their strategy and sometimes leaves them with only a limited degree of autonomy and independence. Assessing how farmers change their practices towards more ecology therefore requires understanding to what extent farmers' interactions with other actors - cooperatives, support organizations, suppliers, buyers, but also colleagues, customers, friends or family - influence their decision-making and impact their degree of autonomy. This document summarizes the approach and results of a survey conducted from March to September 2019 on the **analysis of the modalities of access to resources mobilized during changes in practices** with 31 farmers - 22 in organic farming (OF) and 9 in conservation agriculture (CA) - located in the Limagne plain within the Puy-de-Dôme Nuts3 region. This work has given rise to a more detailed written communication to be published (Polge and Pagès, 2020).

2. Analytic Framework

Individual trajectory analysis

The literature on the trajectories and mechanisms at work during changes in farming practices (Lamine and Bellon, 2009; Sutherland et al., 2012) suggests that these changes are step-by-step processes combining the adoption of various techniques and continuous adaptation to the political, social and economic contexts. Analyzing individual trajectories thus enables to understand these processes by identifying the phases of the trajectories and the events that characterize them (Figure 1).

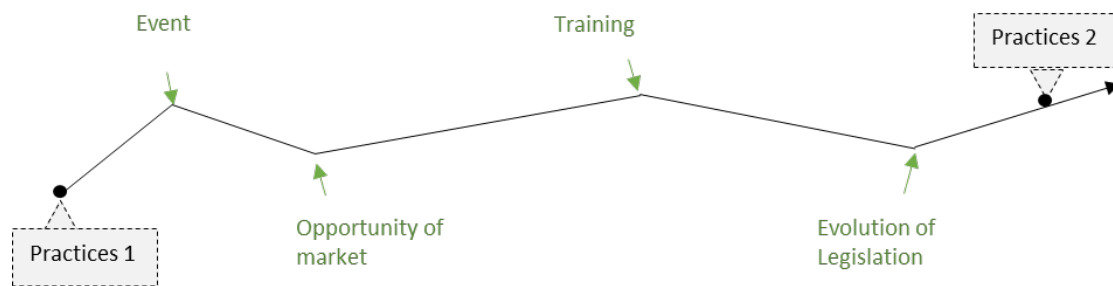


Figure 1: Characterization of a farmer's trajectory

Resources and mode of access

Some necessary resources are required for farmers in order to enable them to engage changes in their practices. This assumption is inspired by the work on socio-economic networks conducted by Grossetti et al. (2011), who explore the processes at work during the creation of a business. When an entrepreneur seeks to start a business, he/she seeks to gather certain key resources: offices, associates, skills, computers, customers, etc. Similarly, for a change to occur on the farm, the farmer needs to gather the necessary resources: skills and knowledge, technical references, psychological support, market opportunities, new equipment, new types of inputs, etc. Taking into account the information collected during the preliminary interviews with the farmers, we decided to limit ourselves to the study of three key resources: technical references (farm visit or informal discussions linked to practices such as long rotations, hoeing, no-till, etc.), skills/knowledge (theoretical technical knowledge often linked to training courses) and market opportunities for change. For both entrepreneurs and farmers, these resources can be accessed through different modes of access thanks to people and/or institutions (Figure 2). We distinguished "interpersonal" relationships and those emanating from "formal arrangements". Sometimes, farmers access the resource autonomously, a mode of access we have called "by oneself".

We conducted 31 interviews with farmers in order to assess, from their point of view, the role of their supporting socio-economic networks. Our approach was to identify, through their professional story, the phases of change in practices, the key resources mobilized and the actors who enabled their access to these resources.

Interpersonal relationships	Peers (colleagues, neighbors...)
	Other-agricultural world
	Other-non-agricultural world
Formal arrangement	Downstream actors
	Upstream actors
	Farmers' group - agricultural association
	Chamber of Agriculture
	Training Center
	Farmers' Union
	Accountant
	Research Institute
	By oneself

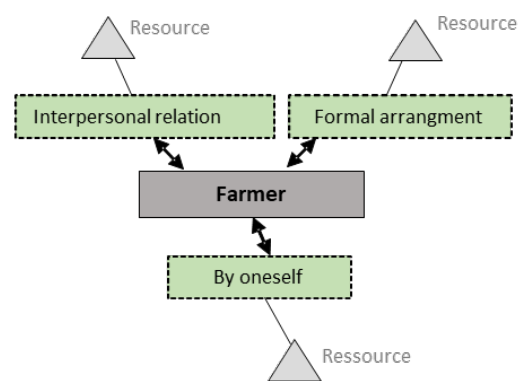


Figure 2: Identification of the mode of access to resources

3. Results

The results presented in this paper focus on the identification of typical phases and trajectories, and on the support systems for changes in practices. We distinguish organic farming (OF) and conservation agriculture (CA).

Identification of typical phases

Through the analysis of all the interviews, we were able to identify 5 typical phases associated with the farmers' trajectories (Figure 3). The identified phases were generally associated with an access to one or several key resources.

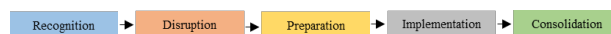
Name of the phase	Description	Associated Resource(s)
Disruption	The farmer is in dead-end, he/she is experiencing a fracture with his/her way of producing. An event or the gradual evolution of the context pushes him/her to lead the change.	No associated objective resource
Recognition	The farmer takes his/her "first steps" towards the envisaged production system. This is a phase of discovery and information gathering.	Technical overviews, technical references, administrative information, identification keys
Preparation	The farmer has decided to launch the change. This is a planning phase. He/she seeks to gather the missing resources to implement the change.	Initial skills/knowledge, opportunities for change
Implementation	The farmer is in the operational implementation of the change. He/she tries to adopt his/her new practices.	Technical skills
Consolidation	The farmer adopted his/her practices. He/she now seeks to improve or develop them through individual or collective experimentation.	Technical references and skills

FIGURE 3: Typical phases associated with the farmers' trajectories

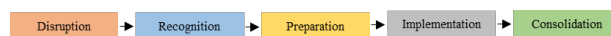
Identification of typical trajectories

Based on the typical phases, we were able to identify 5 sequences corresponding to distinct types of trajectories.

- **"Accumulation"**: The farmer multiplies the factors that drive him/her to question his/her way of producing. He/she is generally surrounded by peers who have already changed their practices.



- **"Sudden reaction"**: The farmer experiences a strong event that drives him/her to change his/her practices.



- **"Without disruption"**: The farmer does not experience a fracture phase. This is the case for farmers who have changed their practices thanks to an opportunity.



- **"One foot already in"**: The farmer had already changed his/her practices several years ago (through a land management contract for example). The main change (here, the switch to OF) is made after a breakthrough event but remains in line with past development on the farm. This type of trajectory is often associated with mixed crop-livestock farmers who have modified their practices in the past towards better management of fertilization and meadows.



- **CA**: This is the typical trajectory of farmers who have implemented CA practices. The discovery/recognition of CA principles plays a triggering role in launching the change, followed by continuous learning and implementation of changes.



Analyze the mechanisms for supporting changes in practices

Switching to OF or to CA are two very different processes. Today, the transition to OF is based on precise specifications and is experienced by farmers as a profound change in their operations. Moreover, OF is linked to a well identified economic market which is known and valued by the general public. CA is more limited to agricultural production. It brings together multiple practices without being linked to an official set of specifications that could be known by consumers. As they respond to different technical and economic issues and interests, we felt it was necessary to compare the two support networks associated with these practices. This leads us to quantify the modes of access (all resources combined) according to the phases of the farmers' trajectories and to the agricultural models (Figure 4).

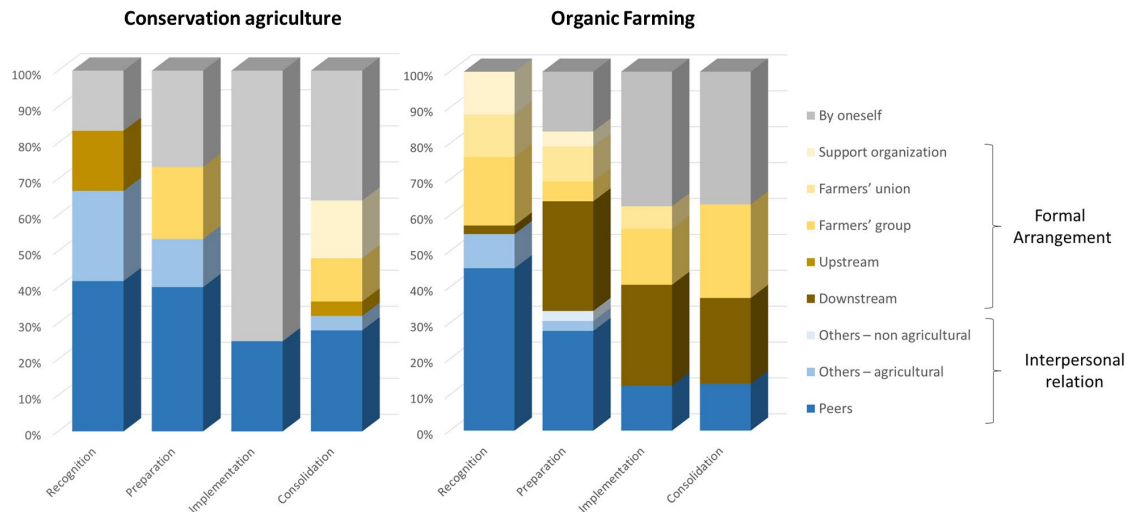


Figure 4: Modes of access to resources mobilized during each phase experienced by farmers who switch to conservation agriculture (left panel) or to organic farming (right panel)

For both types of agriculture, interpersonal relationships are more mobilized during the phases prior to the implementation of ecological practices. A first comparison highlights the low importance of formal mechanisms mobilized to access the resources necessary for the adoption of ecological practices in CA.

In CA, farmers find themselves isolated when implementing new practices and do not rely to downstream actors since this type of agriculture has no distinguishing signs that can be identified by the consumer. Prior to the implementation of CA practices, most farmers mobilize their personal relationships, particularly with other farmers, to assess the relevance of the practices. Some others first mobilize upstream actors before seeking information among farmers' groups.

In OF, farmers are not isolated before the implementation of practices. They rely mainly on their personal networks, particularly during the recognition phase. However depending on the phases, formal arrangements play important roles: downstream actors during preparation, implementation and consolidation phases; farmers' groups during recognition, implementation and consolidation phases.

4. Discussion

Our results identified certain trends within the farmers' trajectories

- Farmers who switched to OF were generally much more surrounded by formal mechanisms than farmers in CA. There is a clear presence of downstream actors for OF. The private and cooperative sectors that have an OF chain have shown a significant capacity to support it so far.
- For OF farmers, our results underline the important support associated with the farmers' groups animated by the local organic farming association. This support could be more pronounced at the time of preparation.
- For CA farmers, our results underline a high degree of autonomy and a clear absence of downstream actors. The support organisations (Chamber of Agriculture and cooperative sectors) are still showing little interest in the implementation of such practices and could strengthen their support for these practices.
- For both CA and OF, the role of peers is crucial in the diffusion of new practices. It is therefore important to encourage these informal interactions, which can be promoted initially by the formation of inclusive farmers' groups.

5. Perspectives

Beyond the results, which would certainly need to be fleshed out with more data, we underline the originality of the analytic framework associating characterization of farmers' trajectories and identification of the modes of access to resources. This framework, that needs to be improved, suggests interesting elements on the relational and organisational drivers of the ecological transition.

This approach could be useful for organizations that support farmers. Having a better understanding on how, thanks to who and at what phase farmers access the needed resources for their ecological transition could improve the support activities. Support could then be adapted according to the phase of the transition and oriented to ease the access to resources including linking farmers and actors who are able to deliver key resources.

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