

## Analysis of a sample of strategies for sustainable development in arable crops

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### 1 Introduction

Facing today the limits of the current agricultural model resulting from past trends, many actors are reconsidering their practices. Redesigning agricultural production towards more sustainable cropping systems is increasingly considered, however the effective change at a large scale is still a challenge.

For this transition, storage organizations (such as farmers' cooperatives and trading organisations) have a key role to play. Indeed they mobilize numerous farmers and their central position within the agri-food chain makes it possible to drive new interactions between producers and customers. Several of them have already initiated approaches by developing specific mechanisms, accounting for the diversity of local situations and structures.

To better understand their possible role and to identify best practices towards greater sustainability, Terres Inovia and INRA carried out a qualitative study (1) in France to address the following question: how do traders and cooperatives take up the issue of sustainability and how can they help farmers adapt their field crop production methods?

### 2 Materials and Methods

Following a preliminary literature analysis and 16 semi-open interviews, the methodology was based on face to face interviews of 13 coordinators of different strategies, carried out by nine storage organisations, two associations, an industry actor and a local authority. The criteria for characterizing sustainable development (SD) approaches were defined by complementing some criteria used in a published study (2). The interviews were conducted (under confidentiality) with the support of an interview guide based on the standard analysis grid which was adapted according to the specific approach considered: either "strategic and proactive" or "tactical and reactive". The reports and transcripts of the interviews enabled to describe the main features of each approach.

The public outputs of this study result from a transversal analysis of all the cases to (i) analyse the types of processes and instruments which are mobilised, and (ii) identify criteria for success – via the footprint of the approach – to progress towards more sustainable crop production, such as the levers used, the added value they provide, the fact that the approach is more or less demanding, its type of organization and its driving effect (estimated with the number of farmers involved in the approach).

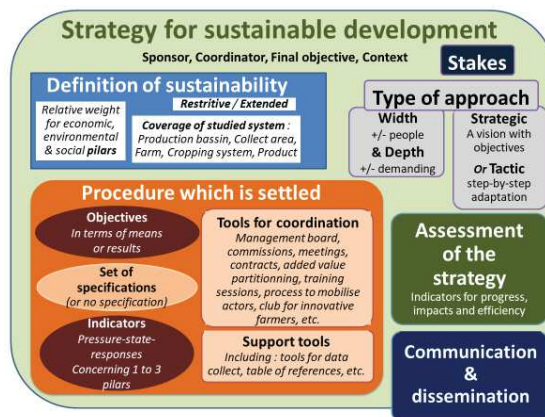
### 3 Results

#### 3.1. The components

The study provides a characterization of SD approaches for stakeholders in field crop production (Figure 1). Several reading filters enable to understand the functioning of the approaches and their definition of sustainability: the history of the commitment to such an approach (sponsor), the challenges faced by the actors (stakes), the types of tools used (coordination and support instruments, management and measurement tools, public instruments), the types of levers and markets targeted and the difficulties encountered.

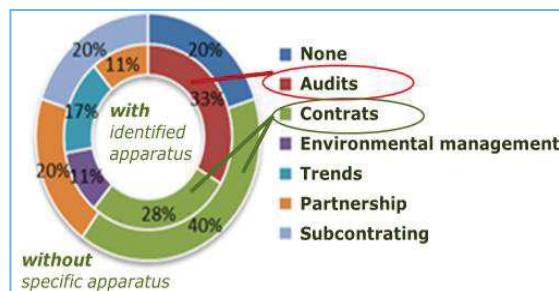
The results show a heterogeneity in the way to apply a SD approach among the surveyed organisations, which combine the use of coordination and/or support tools, from different existing instruments (regulatory, market...) and/or the development of their own plans. Thus, the approaches take on the concept of sustainability through several dimensions which are weighted according to each actor (or individual). They value the productions according to the challenges faced, in some cases by considering environmental benefits as an opportunity for differentiation.

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**Figure 1.** Components to characterize a sustainable development strategy hold by agricultural actors in order to target more sustainable agriculture. A. Schneider, M.-B. Magrini, E. Montrone.

Within the coordination instruments (Figure 2), the use of audits, mentioned in one third of the approaches with specific identified mechanisms, underlines the importance of certification in these cases: the audit allows both a reference to a recognised reference (international standards or national environmental value reference framework) and a tool for exchange and coordination among the stakeholders in the process. In addition, contracts are widely used (especially in tactical approaches) to ensure the mutual commitment of the various stakeholders (price, volume and visibility).



**Figure 2.** The coordination instruments used, when there is an identified mechanism to implement the SD approach (inner circle) or not (outer circle).

### 3.2. The quantitative and qualitative footprint of the approach

To understand the key levers for the success of the SD approach, it is necessary to measure how the coordinator assesses its effect on the way the other actors conduct their activities. One also seeks to evaluate the driving effect of the approach and the degree of progress towards sustainability it generates.

First of all, the study shows the absence of correlation between the level of requirement of the approach and the number of farmers involved, unlike a published study (2). This depends above all on the status of the coordinator, its scope of action and its willingness either to get as many people as possible being involved or to specifically target a specific innovative group.

Second, several criteria were analysed to understand the links between the characteristics of the approach and what makes it more or less successful. Redesigning of crop systems is more often associated to the more demanding SD approaches (with objectives in terms of results) while practice adjustments are more often linked to approaches with objectives in terms of means. Several levers considered or already implemented appear in order to bring added value to the production activity targeted by the approach: differentiation (frequency of 32% among the levers mentioned, concerns 9 out of 13 approaches), adjustment of practices (21% frequency), change of practices (18%), security (11%), communication (11%), complementarity between plant and animal productions (7%). In terms of key elements that should encourage farmers to get involved, the first two elements quoted spontaneously were: financial assistance (additional premium to the market price or contract price) (35%) and recognition (21%). A major bottleneck, both in terms of costs and difficulties, is the difficulty to convince producers and all actors to be fully involved in the SD strategy and to demonstrate the value of such change in the medium term (expressed by 9 out of 13 coordinators).