

Organic farmers' reality to manage functional agrobiodiversity in European organic apple orchards

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Abstract

According to its principles and standards, organic farming particularly rely on natural processes and functional agro-biodiversity (FAB) to benefit from essential ecosystem services. However, these processes are mostly complex, hardly visible and site-specific, thereby making it difficult to assess and manage on-farm. A European survey has been carried out among organic farmers and emphasizes the variability among countries with a diversity of techniques targeting different functional groups according to farming contexts and farmers' expectations. The different criteria used by farmers to evaluate FAB-techniques efficiency and implementation potential clearly illustrate the difficulty to assess the agroecosystem as a whole.

Keywords: Functional (Agro-) biodiversity, biological control, networking, apple production, organic orchards, farmer survey

Introduction

Functional agro-biodiversity (FAB) is considered as a promising way to provide sustainable services to perennial systems such as organic apple orchards (Simon *et al.*, 2010). However, most of the agronomic techniques developed to favor it (FAB-Techniques) are highly site-specific, both regarding ecological and socio-technical farm contexts. A European survey has been performed by 9 country partners of the project EcoOrchard with the aim to describe farmers' expectations and management practices towards FAB and identify innovative FAB-techniques that are both efficient and easy-to-implement for wider dissemination perspectives.

Material and Methods

The structured interviews have been conducted, either by phone or face-to-face, with advisors (n=53) and then mainly organic farmers (n=118). Results presented here concern farmers' surveys. The farmer's sample was built to include both highly and little experienced farmers, skeptical and more convinced ones towards FAB. The sample covers a variety of farming contexts to describe as much bottlenecks for FAB-techniques adoption or implementation as possible.

Results and Discussion

The implemented FAB-techniques differ according to growers' personal knowledge and experiences. A total of 34 techniques have been described and can be divided into 3 categories: long-term ecological infrastructures, dynamic agricultural practices adaptable from a season to another (e.g.: to adapt interrow mowing) and deeper system redesign requiring strong interactions with the production system (e.g.: crop diversification).

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The more implemented techniques clearly differ among countries making the notion of « innovation » and « originality » very relative. Furthermore, the pros and cons analysis reveals that farmers' expectations and fears stretch beyond pest regulation to integrate other considerations: agronomical other effects (e.g. easier grass cover management vs competition with fruit trees), economy and environment (e.g. energy saving vs production reduction) and working environment (e.g. landscape quality vs drudgery). Furthermore, farmers assessment are mainly qualitative and depend on their own objectives. In fact, they express difficulties to rank them individually according to a single criteria when techniques combination, long-term and multi-criterai should prevail (Table 1). This point is emphasized by the lack of correct and easy to use monitoring/evaluation techniques available to farmers.

Table 1: Functional Agro-Biodiversity techniques as ranked by farmers (n=118).

Rank	Most efficient	Easiest to implement	Most innovative
1	No answer (n=51)	No answer (n=30)	No answer (n=47)
2	Flower strips (n=13)	To adapt interrow mowing (n=27)	Flower strips (n=12)
3	Hedgerows (n=12)	Bird houses (n=13)	Insect shelter (n=11)
4	To reduce pesticide (n=12)	Hedgerows (n=12)	Animal introduction (n=11)
5	To adapt interrow mowing (n=7)	Flower strips (n=8)	To adapt interrow mowing (n=6)

Perspective for the oncoming workshop

Given this diversity of techniques, which criteria should be used to select the ones to communicate on? Which information are required and/or missing? Farmers expertise on each technique will therefore be completed with the one from Ecofruit's participants and then with the literature to enrich the EBIO-Network website (see Herz et al., poster).

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References

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