EIP-AGRI Focus Group
Mixed farming systems:
livestock/cash crops

MINI PAPER 4: Adding value to agricultural products from mixed farming.
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Introduction

The focus of this Minipaper is on the potential gains of Mixed Farming System (MFS) through the development of regional and/or local product differentiation and branding as a strategy for marketing and for maintenance or reintroduction of MFS procedures to European farms.

Communication with consumers and farmers should clarify that locally resourced, low (or zero) input farms, and mixed farms do exist and that the driver behind MFS is a real and functional integration between livestock and crop cultivation. Describing the environmental, economic and social benefits of MFS to the farmer, customer and society is a key element to achieve higher acceptancy towards MFS products. In this, the incorporation of novel quality specifications to mixed farming products and the improvement of existing labels in serving MFS can contribute to the attractiveness of MFS products in particular.

At the same time, farmers need to be encouraged to maintain or re-establish MFS by giving solid examples of successful business stories and other marketing benefits arising from MFS practices. A dual strategy comprising increased farmer revenues through development of added value products, and agri-environmental policies targeting the delivery of ecosystem services (public goods) to society can encourage the adoption or maintenance of MFS. The actual biological, economic, etc. benefits of MFS to farmers are considered in other Minipapers. Young and starting farmers could be a specific target group to be encouraged towards MFS.
1. Gains of Inputs Use, Locality and Origin Combined with Communication
   
a. State of play

Knowing the origin of the product and the production system, for example the use of inputs, could be of interest for the citizens/consumers. Many consumers are likely to look at low prices and the fact that the products are easy-to-use. However, the origin of the product (or group of products) and the way they are produced is increasingly relevant for certain segments of consumers, and this constitutes an opportunity for producers to add value to MFS production.

Self-sufficiency of Mixed Farming System

Mixed systems at the farm scale are less dependent of external inputs and can contribute to farmers being more autonomous and in control of their businesses. In CanTogether project it was shown that according to FADN data, fully specialised or partially mixed farms produce higher levels of output through greater use of external inputs and ultimately make more profit than MFS. Nevertheless, in fully or semi-integrated mixed farms ("true" mixed farms) productivity is lower because of greater demand for labor but crude measures of environmental performance (e.g. crop diversity) are better. A change in structures of agri-environmental subsidies ("greening" of the Basic Payment Scheme) in future may offset the dominance of specialization and scale economy, and better support self-sufficiency schemes of MFS. (Moakes et al. 2015.) To achieve this, indicators to show the level of self-sufficiency in MFS are needed.

Short local marketing chains

In a recent study, consumers (n=50) where asked to reveal the reasons to join local marketing groups (REKO rings) in Finland. The most positive feature was that farmers will gain a fair price for their product, followed by openness of the production system as in REKO rings farmers are obligated to tell customers about their management systems (Figure 1). Consumers claim that leaving the supermarket (or other retailer) out of the picture will eventually be an economic solution to themselves, too. Thus, locality and short marketing chains mean that a) more of the final value goes to the farmer, and b) the money stays in local circulation.

Farmers or bakery producers (n=23) said that selling in REKO ring is profitable. Especially small batches of products or seasonal products are easy and safe to sell in REKO rings. However, farmers found some regulatory issues as obstacles to expand their selling in REKO rings; especially this was a concern with raw milk and some meat products. Farmers may see social aspects of REKO rings more positive than customers, and in contrast consumers see the environmental effects greater than farmers (Figure 2).

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**Figure 1.** The negative (-2=very negative; -1=negative), neutral (0) or positive (1=positive; 2= very positive) significance of economic aspects for consumers to join local marketing groups in Finland.

**Figure 2.** The negative (-2=very negative; -1=negative), neutral (0) or positive (1=positive; 2= very positive) significance of different features for farmers and other producers to join local marketing groups in Finland.
Farmers could enhance the attractiveness of their products by having a higher trust in environmental benefits of their own farming system, by describing it understandably and by depicting the effect of their production strategy to the economics of the local society. Arguments for biological and environmental superiority and/or local circulation of MFS manners could work well in this. (Mäkiniemi et al., 2016.)

Quality and origin schemes and local sourcing
In France, there are numerous quality and origin schemes for livestock territory products like terroir cheese. Some made evolved their specifications (contract document) to guarantee feed transparency and local sourcing.

*La Dauphinoise* is a cooperative that support the creation of a local non-GM soya chain for feed. It relies on an innovative technological process: crushing the soya cake (a partnership with a crushing factory) for cake and oil, logistics (organization of exchanges via collect) and an organisational innovation with contracts (in order to prevent volatility of soya price) between specialised livestock farms and specialised arable crop farms motivated to diversify their rotations with protein crops (to benefit nitrogen input), and a local branding.

The quality and origin schemes (AOP) *Chaource* made evolved their specifications (contract document) to guarantee feed transparency and local sourcing. They moved towards more autonomy at farm level and local origin of imported fodder. This questioning of the specifications has led to the emergence of a local chain of sainfoin and innovative practices such as granulation/pelletizing of sainfoin. The origin of the project comes from a need to renew alfalfa dehydration infrastructure in Champagne region, together with a need to diversify sources of protein among farmers.

Sainfoin is a good diversification plant but hay harvest is delicate, dehydration is effective to keep the tannins in the leaves. The use of sainfoin pellets for animal feed has a nutritional role and positive impact on animal health. Cropping must be made on a large scale to provide consistent batches, harvesting and processing are quite technical phases to manage. *Sainfoin*, a cooperative was set up to structure the sector, and manage a multi-stakeholders project. Currently 500 hectares of sainfoin are located in chalky Champagne.

In both of these cases of local branding, we can note both environmental and economic benefits.

One possibility to show the origin and specific features of MFS products is through denomination labels, which could require tracking of origin of the raw material and usually involves traditional production procedures. For example, BonlatteOppio Farm in Italy operates with another dairy farm similar to Oppio (Il Castello dairy farm) and keeps a cheese factory running that turns milk into Parmigiano-Reggiano PDO (Protected Designation of Origin). The farm is importing feed concentrates from neighbouring crop farms, which is quite original for the area. They have around 1 cow per hectare, which is enough to achieve self-sufficiency in fodder but not in concentrates. From the territorial point of view, integration is improved through the exchanges of crops with other farms in the area to favour local self-sufficiency. Existing quality denominations based on origin and tradition could enhance the communication with consumers if additional information on mixed production procedures and their advantages was included.

Communication and education of consumers on the specific advantages on combining crops and livestock
Nowadays, there are many brands and labels in the market. This is confusing for consumers and makes branding less effective. There is a need for truthful and effective communication of the differences between MFS and specialized farming systems, and the benefits of MFS to consumers and society. People need to understand “what is behind” MFS, the specificities of the production system and the marketing chain. Finding ways to exchange information and improve mutual understanding between farmers and consumers is central.

Animals as “sales representatives”
In Finland, MFS farmers have had success in communicating and educating consumers through a web site ([www.avoinmaaseutu.fi](http://www.avoinmaaseutu.fi)). The customers come and buy products face-to-face through short-chain
marketing rings or from their retail vans/buses, and farmers promise to inform them openly about their farm and production system, either personally visiting the farm or via social media. Some customers can even take part in the actual farming: animals are raised on the farm as usual, but they are sold to customer during the first months of the life of the animal and the “owner” is allowed to come and see the animal and the farm or to read about its life in the social media.

Both of these methods include the possibility of visiting the farm. During visits, especially on Open Doors Days, the customers (especially those with children) are drawn to the farm via their “stars”, i.e. the animals. The way of drawing customers to visit the farm could also be e.g. horseback riding, farm “zoo” with a diversity of animals or simply just the possibility to see grazing animals. A drawback is that the possibility of spreading of diseases must be prevented more carefully than normal and the farm environment must be kept extra safe and tidy.

Footprint measures – a way to make numbers speak

There is a group of customers who are interested in the environmental footprints of food and other products they use. Water, carbon dioxide and other footprints have been created for this reason. At present, many models can incorporate the effect of the type of soil, type of animal housing and the use of manure instead of high amount of mineral fertilizers, which could be the key differences between MFS and specialized cultivation/animal husbandry systems. Specific indicators should be developed to better evaluate the benefits of MFS and explain it to society at large and consumers in particular, e.g. nutrient cycling balances, EMERGY analyses (analysis of the origin and renewability of the energy embodied in products), ecological footprints etc. could help to communicate on the sustainability of MFS in comparison to specialised systems.

For example, in 2008 in Finland, an oat meal brand Elovena was the first to release a consumer package with CO₂ and water footprint labels on it. After this release footprint labels have become more common. The work to create software applications with a uniform basis for calculating different footprints is ongoing.

However, when calculating the environmental impact of food production, the positive outcomes (ecosystem services) should also be considered. However, they are difficult to quantify and therefore are normally not considered in policy design, or communicated to consumers and citizens. For example Mediterranean extensive mixed sheep-cereal systems, can be incorporated into the calculation of the carbon footprint of lamb meat. By doing this, the widely known relationship between higher intensity of production and lower carbon footprint is dramatically reversed, with mixed sheep-crop farming systems having lower carbon footprint than the industrial or zero-grazing system (Ripoll-Bosch et al., 2013).

Further, studies have shown that important ecosystems services (nonmarket goods such as agricultural landscape, biodiversity conservation, or provision of quality products linked to the territory) provided by mixed sheep-crops systems, often located in high nature value farmland areas, have a very large socio-cultural and economic value for society. Despite the fact that these values are often ignored by policy, the willingness to pay of society for the provision of these ES clearly exceeds the current level of economic support by the CAP (Bernués et al., 2014). In this study, the prevention of forest fires (=50% of total willingness to pay) was valued by the population as a key ecosystem service delivered by mountain MFS, followed by the production of specific quality products linked to the territory (=20%), biodiversity (=20%) and cultural landscapes (=10%). The authors conclude that there is a large underestimation of the socio-cultural and economic values of ecosystem services of MFS, and defend the need of a fair compensation to farmers for their delivery.

a. Innovation process and fail factors

Problems to address

1. The need for self-explaining indicators for the self-sufficiency in MFS.
2. Communicational challenges in outlining the factors and benefits of MFS to customers/citizens.
3. The integration of multiple footprints/ ecosystem services in assessment of environmental impacts may be difficult. Can we extrapolate results across regions/farming systems?
4. The cost of making product-specific footprints available for MFS farmers may be high.
Possibilities to address

1. Positive adaptive capacity (resilience) of farmers to face uncertain market and environmental constraints. If the farm is less dependent on external inputs, it is not so affected by market volatility.
2. More regular farm income along time (avoidance of risks). Maybe productivity of MFS is lower, but production should be more constant in the medium or long term.
3. Exploration of possibilities to minimize the regulatory issues (licensing, certificates etc.) on small or medium sized mixed farms (vs. big operators) or to use nomination labelling more intensively.
4. Contribution of more local circulation of money to rural development and vitality.
5. Optimization of labor due to more regular demand between seasons.

b. Overview of research - missing implementation - missing testing - missing research

Education of and communication with consumers is key to capitalize the gains of MFS. Tools to achieve this would contain initiatives to raise consumer awareness on the benefits of MFS. Some new or existing indicators or labels may be used, but they have to be clear and understandable. The challenge is how to widespread all the best practices all over Europe. In this, regional and national modifications are needed. As farmers and consumers are losing a “common language”, first-hand live experiences of MFS in practise should be added into the marketing toolbox.

There is a need for research on marketing and labelling strategies for MFS products aimed at raising consumers’ and farmers’ awareness on the benefits of MFS. It should combine already existing added-value chains and labels to the specificities of MFS, analyse the “multifunctional food basket” or “bundle of services” provided by MFS and develop communication strategies to communicate and reattract people around MFS.

Any effort to make MFS attractive to consumers is a worthy only if farmers themselves see MFS as an attractive alternative, or as a solution to the demands of more sustainable way of agricultural production. Mixed farming could be more interesting to farmers, if the benefits of MFS to risk management of farms and cooperatives would be clear. Thus, the effect of MFS to resilience (the level of external inputs use, market price fluctuations) should be quantified. A number of indicators such as the efficiency of resource use (input/output), the cost of inputs and the rate of diversification could be used for measuring cooperation and self-sufficiency. The same indicators could serve as tools in certifying the acts made to meet some new agricultural subsidy policies that could be specifically addressed to MFS farms.

Another positive effect of MFS is its contribution to the local economy: local economy improvement, regional sustainability, and capacity to address societal challenges such as mitigation. Some of the indicators to reveal the power of MFS are rather easy to measure, such as annual working time or drawing income, which can be compared to national averages. Others, such as standards of living, the “quality of life”, are more subjective and might be evaluated through personal perspectives using surveys. Nevertheless, these indicators could be used in promoting MFS to farmers and in local or regional development projects.

c. Recommendations/ ideas for operational groups - recommendations to dissemination of results and solutions - recommendations for how to ensure a broader take up

Multifunctional Food Basket

An increasing proportion of consumers hold “ethical” concerns about how food is produced and the way agrifood chains operate. Among the “extrinsic” quality attributes of agricultural products (those that depend on the system of production), the environmental footprint is key. The increasing distance between producers and consumers and the accumulation of power by few big operators along the chain are often perceived negatively by citizen groups. MFS is multifunctional; apart from producing food products, it can also produce nonmarket goods such as cultural landscapes, conservation of biodiversity, or carbon sequestration through better soil management.
The Operational Group on “Multifunctional Food Baskets” explores the possibilities of consumer-led development, marketing and integration in innovative food chains for groups of products coming from MFS, either at the farm or the territory levels.

Tools to depict the effect of MFS would include existing and possible labels (for origin, production system, footprints, optimization of energy use or nutrient cycles). Labels that identify, qualify and promote the use of locally or domestically (in contrast to imported) produced feed could be introduced.

**Mixed Farming Stars (New Farmers)**

Starting farmers usually want to consider new manners for running their (family) farm. They may have high expectation towards the societal acceptancy of their choice of work or entrepreneurship. MFS could be manifested as an alternative with higher sustainability, independency and “in-my-own-hands” business opportunities. The Operational Group on “Mixed Farming Stars” develops succession planning that aims to empower new farmers to identify their own drivers towards MFS and to overcome barriers that inhibit them from adopting MFS practices on their future farm.

- New marketing possibilities through societal acceptancy, chain transparency and labelling.
- Optimization of labor: the unavailability of workers in seasonal crop farming may be an obstacle that MFS could partially solve through the possibility of optimizing labor timing annually.
- Underpinning of factors that can improve the resilience (environmental, economic) on the farm.
- Broadening of “know-how” and skills: avoidance risks of situations where certain individuals are highly specialized in farm tasks and cannot be “replaced” by other workers.

### 2. Epilogue

The prominent pressure for traceability and openness about the procedures of agricultural production and its effects to the environment and local economy can be turned into a competitive advantage, if the production system is widely acceptable and can be understandably described to the consumers and community. This might be the case on mixed farms, especially on those which operate on low or zero input or are locally resource depending on their input purchases.

In this Minipaper, we have discussed about adding value to agricultural products coming from mixed farms and about gains of communication in respect of inputs use, locality and origin. We discussed that actual branding of Mixed Farming System may not be the solution, but that communication and education of consumers on the advantages of mixed farming system and its capability to deliver ecosystem services may boost the acceptancy and market of mixed farming products.

First step is to identify mixed farmers, and to encourage them to open their eyes to see the uniqueness of their production system. Then, some marketing measures are quite easily put to use: the actual farm environment including animals can be used to attract customers or the labelling about the origin of the product; inputs use might be instantly used in marketing. Other marketing measures, like footprint labelling, need refinement and calculations and might be too expensive to small farms. The possibilities of social media, QR code tagging in product packages or flyers and personalized customer contacting may act as inexpensive tools in communicating about the benefits of mixed farming system in neotraditional agricultural production.

### 3. List of relevant research projects

- CanTogether (7th Framework Programme)

### 4. References


Mäkiniemiet al. 2016 (manuscript). Conceptualizing the motives to join and act in short chain food marketing groups (REKO rings) in Finland.

The European Innovation Partnership (EIP) ‘Agricultural Productivity and Sustainability’ (EIP-AGRI) is one of five EIPs launched by the European Commission in a bid to promote rapid modernisation by stepping up innovation efforts.

The EIP-AGRI aims to catalyse the innovation process in the agricultural and forestry sectors by bringing research and practice closer together – in research and innovation projects as well as through the EIP-AGRI network.

EIPs aim to streamline, simplify and better coordinate existing instruments and initiatives and complement them with actions where necessary. Two specific funding sources are particularly important for the EIP-AGRI:

- the EU Research and Innovation framework, Horizon 2020,
- the EU Rural Development Policy.

An EIP AGRI Focus Group is one of several different building blocks of the EIP-AGRI network, which is funded under the EU Rural Development policy. Working on a narrowly defined issue, Focus Groups temporarily bring together around 20 experts (such as farmers, advisors, researchers, up- and downstream businesses and NGOs) to map and develop solutions within their field.

The concrete objectives of a Focus Group are:

- to take stock of the state of art of practice and research in its field, listing problems and opportunities;
- to identify needs from practice and propose directions for further research;
- to propose priorities for innovative actions by suggesting potential projects for Operational Groups working under Rural Development or other project formats to test solutions and opportunities, including ways to disseminate the practical knowledge gathered.

Results are normally published in a report within 12-18 months of the launch of a given Focus Group.

Experts are selected based on an open call for interest. Each expert is appointed based on his or her personal knowledge and experience in the particular field and therefore does not represent an organisation or a Member State.

*More details on EIP-AGRI Focus Group aims and process are given in its charter on: http://ec.europa.eu/agriculture/eip/focus-groups/charter_en.pdf