



Theme 4 Governance of soil fertility/soil nutrients



How to improve the uptake of sustainable nutrient management practices in Catalonia?

PECURUL-BOTINES, M.^{1,*}; SIMO-JOSA, I.²; ORTIZ-GAMA, C.²

¹ Forest Science and Technology Centre of Catalonia; ² Ministry of Climate Action, Food and Rural Agenda; *Corresponding author mireia.pecurul@ctfc.cat

INTRODUCTION

EU member states have implemented agri-environmental schemes (EAS), investment grants for environmental technologies, and private actors have established environmental certification and labelling schemes targeting these services. However, many initiatives are arguably not cost-effective in boosting environmental and climate service provision, may be skewed in terms of distributional impacts, increase risks to farmers, or involve excessive transaction costs. EFFECT project will develop and pilot a theoretically well founded and empirically well-adapted package of new contractual frameworks. One of the study cases is in Catalonia (Spain).

Catalonia is one of the EU regions with a highest livestock unit in Europe. Moreover, within Catalonia 1/3 of N from manure is generated in only 3 out of 41 counties. This land is privately owned by farmers. The fact that 2/3 of the territory is forests (which is land where you cannot apply manure) makes critical the good use and management of fertilizers. This trend is not changing. The environmental challenge here is how to reduce the N content in groundwater. The object of study is the “Sustainable Fertilisation Management agro-environmental scheme (2014-20)” which was part of the measures taken under EU Rural Development Program PAC (Pillar2). This scheme won't be renewed in the next EU Rural Development Program PAC due to its low uptake. Thus, this case study analyse the explanatory factors for such a low uptake. Based on this analysis and building up upon a theory of change we identified three different but interrelated pathways to increase the uptake in future agro-environmental schemes (AES).

RESULTS

Results from farmers survey & expert interviews:

Type	Feature	Trend
Farmer	Age	The middle and young age range participate more than older (more than 50 year)
Farmer	Criteria for fertilization	Own criteria less likely to participate.
Farmer	Environmental attitudes	Stronger environmental attitudes and values, more likely to participate
Farm	Size / Productivity	The larger and less productive more like to participate than smaller and very productive
Farmer	Risk perception	If the perception is that production is at risk (less fertilization) less likely to participate If the perception is that risk for monitoring/control increases – less likely to participate
Social Capital	Existence of extension services and labour unions as promoters of the scheme	The attendance to extension services and training increases the likelihood to participate
Institutional	Path dependency	If the EAS is continuation of previous RDP, more likely to participate
Scheme design	Flexibility	The more flexible (length) and more adjusted to current practices adapted to the context, the more likely for farmers to participate

New capabilities for existing successful knowledge transfer technicians needed. Key messages that should be communicated:

- Fertilization optimization increases economic efficiency (reduce input costs for save harvesting). It's about savings.
- Beyond economic efficiency, fertilization optimization reduces costs and the collective gain of a healthy environment.

CONCLUSIONS

Some common messages obtained from the different approaches are: An existing risk perception and not profits of the AES aware farmers to apply it. The EAS should be more flexible. Exists the need of communication and technical support that it should be included in the AES. Educational training should be included as a requirement.

METHODOLOGY

The Department Climate Action, Food and Rural Agenda (DACC) established the contracts with farmers as a part of a global agreement (DUN) regulated under the Rural Development Program (RDP) 2014-20, funded under the European Agricultural Fund for Rural Development (EAFRD). In particular, this contract compensated the costs of analytical measurements and procedures to optimize fertilizer application. Different actions had different compensations to cover the costs of the analytics:

MANDATORY action: Initial and final soil analysis (A)

COMPLEMENTARY actions:

- Soil nitrate analysis (B1)
- Livestock manure analysis (B2)
- Use of automatic measuring equipment nutrient content (B3)
- Using efficient application distributors (B4)

There relevant scheme features that describe this AES are as follows:

FEATURES	AES under Study
Flexibility	Pluri-annual contract (5 years) Farmer's cannot choose the practice
Type of payment	Fix rate per hectare
Level of Communication	Action based: Diagnosis BUT disconnected from action as practice Transference is included Communication deficient
Sanctions	No sanction BUT increases perception of control risk
Monitoring	Through the oil diagnosis
Scope	Individual
Participation	Complex multi-level governance

There are no intermediaries, however in many cases technicians working in cooperatives or consultancies deal with the administrative work associated to AES under the global agreement (DUN) are subcontracted to. Approaches carried out in this study:

- *The farmer survey*: targeted towards farmers during the second half of 2020 (n = 52*).
* Only 30% of these 52 respondents are (or had previously been) enrolled in AES.
- *Expert interviews* (n=8) targeted towards policy advisors and other stakeholders who had the experience of AES and rural development processes
- *Workshop* with stakeholders of policy makers, education and technical stuff (n = 20).

Workshop results:

Incentives: Changing the design features of the AES to ease their uptake

Focussing in few practices. The scheme should be as flexible as possible. Focusing on input payment but with bonuses rewarding efficiency and continuity. The scope still is individual, but a bonus can be considered for collective action. The current system (DUN) reduce bureaucracy for new AES.

Environmental education: Changing values and environmental attitudes specially for future farmers as new incomers

Improvement of trainers' training about legislation and current subsidies schemes. Experimental pilots needed to understand good fertilization practices and to change environmental awareness derived from what they have experienced at home. To promote Network of groups of entrepreneurs that focus more on agricultural practices than in applying fertilizers. To work on the environmental cost of producing and applying these residue waste beyond the economic savings to enhance the sense of community and their contribution to society's wellbeing.

Capacity building: Changing how technical knowledge is transferred and how farmers are mobilized

Use of existing Tools/channels to promote this knowledge transfer and farmer mobilization. Existing rich network of agrarian organizations need to be more supportive on the farmers' behavioural transition.

