

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

PECURUL-BOTINES, M\*; SIMO-JOSA, I; ORTIZ-GAMA, C.

\*Corresponding author [mireia.pecurul@ctfc.cat](mailto:mireia.pecurul@ctfc.cat) / [iolanda.simo@gencat.cat](mailto:iolanda.simo@gencat.cat) / [carlos.ortiz@gencat.cat](mailto:carlos.ortiz@gencat.cat)



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.

## Environmental challenge and agricultural policy context

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.

To address this challenge, in the past decade relevant policy instruments have been implemented, as follows:

- Current legislation:** Decree 153/2019 of 3 July, implemented as a **reinforced** Action Program in Catalonia, which regulates storage conditions, periods and fertilization dose, machinery. Also in Non Vulnerable Areas to Nitrates.
  - Experimental research and innovation** (through projects and demonstration sites)
  - Knowledge transfer through:**
    - the creation of an Office of Fertilization and Manure Management (2016)
    - the Catalan transfer Program: 33 conferences related to fertilization (year 2021)
2. **Funding/contracts** implemented through EU Rural Development Program PAC (Pillar2)

## What factors influence the uptake of this scheme?

### Methodology:

*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

### Results 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

## What needs to change in order to increase desired IMPACT?

All the above-mentioned factors influencing uptake can be clustered (A, B, C) in three different treatments:

- Incentives**, changing the design features of the AES to ease their uptake (A)  
 (A): Working on features as *Flexibility, type of payment, monitoring, scope, size/productivity*
- Environmental education**, leading to change in values specially for future farmers (B)  
 (B): Working on features as *age and environmental attitudes*;
- Capacity building**, leading to change in communication and how farmers are mobilized (C).  
 (C): Working on features as *fertilization criteria, risk perception, social capital and communication*

### Methodology:

One stakeholder workshop (n=21) was held in March building up a theory of change to investigate how to address changes in attitudes, awareness, practices and communication through these 3 treatments.

## How is the current AES designed?

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 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.

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

Feature	AES under study
<i>Flexibility</i>	<i>Pluri-annual contract (5 years)</i> <i>Farmer's cannot choose the practice</i>
<i>Type of payment</i>	<i>Fix rate per hectare</i> <i>Action based: Diagnosis BUT</i> <i>Disconnected from action as practice</i>
<i>Level of Communication</i>	<i>Transference is included</i> <i>Communication deficient</i>
<i>Sanctions</i>	<i>No sanctions BUT increases perception of control risk</i>
<i>Monitoring</i>	<i>Through the soil diagnosis</i>
<i>Scope</i>	<i>Individual</i>
<i>Participation (1)</i>	<i>Complex multi-level governance</i>

### (1) PARTICIPATION - HOW FARMERS CAN INFLUENCE POLICY PROCESS?

- *Farmers are represented in this policy process through their labour unions mainly.*
- *These representative actors were consulted during a broad participatory process*
- *Communication is done through an institutionalized channel (agricultural sector table)*
- *Working groups are consulted to take into account contextual particularities*
- *Their roles (responsibilities and field of action) are well defined*
- *If the EAS is continuation of previous RDP more likely to be sustained and defended.*

