European Network for Rural Development

ENRD Thematic Group on Resource Efficiency

4th Thematic Group Meeting

Event Summary |
3-5 May 2017

About the Thematic Group

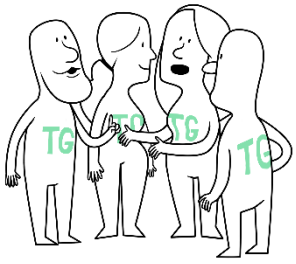
The fourth meeting of the ENRD Thematic Group (TG) on Resource Efficient Rural Economy was held in Bologna, Emilia-Romagna, Italy, and was co-organised by the ENRD, the Council for Research in Agriculture and Analysis of Agricultural Economy (CREA) and the Italian National Rural Network.

Emerging findings from the Thematic Group's work on resource efficiency were presented and discussed and the group had the opportunity to visit two projects focussed on the resource efficient use of soil and water in Emilia-Romagna.

Participants were able to start preparing recommendations for improving Rural Development Programme (RDP) design and implementation for resource efficiency. These were worked up further and presented at the ENRD Seminar held in Brussels on 13 June.

Understanding resource efficiency across the EU

Findings from resource efficiency case studies



The six EU case studies[1] undertaken as part of the TG's work represent a range of regions and bio-geographical contexts in the EU, examining issues relating to water shortages in Southern and Mediterranean areas (Greece and Emilia-Romagna, Italy), soil quality (Hungary), erosion (Flanders, Belgium) and water pollution in the Baltic sea area (Finland).

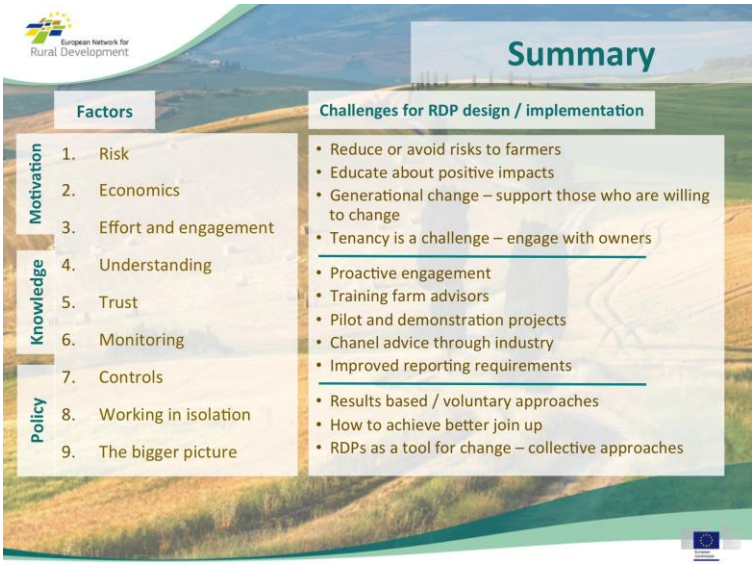
A range of common factors were found to be challenging to the resource efficient use and management of soils and water in practice within RDPs. These have been grouped into the 3 major "gaps" identified previously by the TG (motivation, knowledge and policy gaps). See figure 1.

The case studies found that farmers **tended to avoid risk** and that this influenced their willingness to engage with new approaches. Issues identified included:

- how resource efficiency practices fit with existing farm practices;
- impact on farm income;
- fear of penalties if new practices are not correctly implemented.

[1] Greece, Hungary, Emilia-Romagna (Italy), Lower Saxony (Germany), Flanders (Belgium) and (Finland)

Figure 1: Factors limiting the uptake of resource efficiency actions for soil and water



Motivation and knowledge gaps

Motivating farmers to change their management practices is a challenge if they cannot see a clear economic advantage, or do not fully understand the impact (positive and negative) this could have on their farm business. This is particularly the case where structural changes in the way farming systems operate are required to achieve the outcomes required (e.g. closer interaction between crop and livestock production or changes in crop types in different areas) or where changes may lead to an initial drop in yields in the first couple of years of implementation before increasing.

This highlights the importance of providing a balanced picture to farmers of the impacts of engaging with new approaches, demonstrating where action to improve resource efficiency can have positive and tangible impacts on the farm business in the short, medium and longer term alongside demonstrating where policy can help support the necessary changes. For example, in the field trip to the Ruozzi demonstration farm, one of the motivating factors for trialling a limited / zero tillage approach was to reduce fuel costs for machinery.

However, the case studies showed that farmer responses varied both by age (generally younger farmers are more willing to make changes as a result of more recent agricultural training), farm size (larger farms having more potential to take risks on small parts of their farm) or crop value (more valuable crops carry a potentially larger impact on income if yields/output is reduced).

Policy gaps

The **policy** issues identified as influencing uptake of resource efficiency measures, included:

- the extent to which the RDP measures are able to influence the changes in farming systems given that these are primarily market driven;
- that often very demanding set of rules when implementing action on the ground; and
- the time required to make the necessary changes and realise the results, which may mean that the impact of changes made may not be visible within an RDP programming period.

For example, while there are some ways of quickly improving resource efficiency on farms, such as implementing more efficient water management systems, some practices require long periods to have an impact, such as conservation agriculture and improvements in soil carbon, or changes in groundwater levels. This can be an issue in demonstrating that the activities funded have had the desired effect.

Field visits

The Ruozzi demonstration farm is one of the twenty demonstration farms taking part in the LIFE project HelpSoil. It has switched part of its production to conservation agriculture.

The Ruozzi farm extends over 20ha, 16 of which are used for agriculture and animal breeding. The project HelpSoil (2013 – 2017) aims to contribute to resource efficient use of natural resources by testing the effects of conservation agricultural practices on soil quality and climate change resilience. Since autumn 2013 the farm has converted a proportion of its overall land to conservation agriculture moving to no tillage agriculture, injection of slurry into soil and the use of cover crops.

Fabrizio Ruozzi presented the *Ruozzi farm and its activity*.

Cristina Menta from the University of Parma presented *'Biological indicators of soil quality'* in the case of the Emilia-Romagna region.

Carla Scotti from I.TER introduced the role and activities of the Operational Group on Soil Management in Emilia-Romagna region.

The field visit and discussions highlighted the following points:

- A much larger concentration of carbon was sequestered in the soil where conservation agriculture was applied (5,837 kg CO2e / ha) compared to conventional practices (1,336 kg CO2e / ha). The conversion to conservation agriculture resulted in lower yields for the first 2 - 3 years, but after that yields increased beyond those achieved via conventional agriculture. This experience led the Ruozzi farm to apply conservation agriculture practices to the whole farm and continue this practice beyond the commitment of the LIFE project.
- Changing to conservation agriculture was not without its challenges. A change in mindset was required and they experienced a steep learning curve to make suitable machinery purchase choices and hire personnel sufficiently skilled to use the machinery. Advisors were required with sufficient expertise to provide suggestions on the most suitable farming practices depending on the type of soil and location on the farm. The prevalence of no-tillage practices in the region made this easier.
- The importance of disseminating good practice was highlighted, as well as the role of Operational Groups to share good practice amongst farms, both in terms of techniques to be used as well as explaining the economic and environmental benefits;
- The farm stressed the value of EAFRD funding during the transition phase from traditional to conservation agriculture, which helped balance the income losses from lower yields during the first few years. However, the long-term commitments required by certain RDP measures (such as the agri-environment-climate measure) were also identified as a potential barrier to its use.

Paolo Mantovi from CRPA introduced the *results of the ReQpro project*.

Aronne Ruffini from the Central Emilia Reclamation consortium presented the *'Water management systems for irrigation'* in place in the Emilia-Romagna region.

Adriano Battilani from AMBI introduced *'The role and activities of the EIP on water management in Emilia-Romagna'*.

The Mancasale wastewater treatment plant:

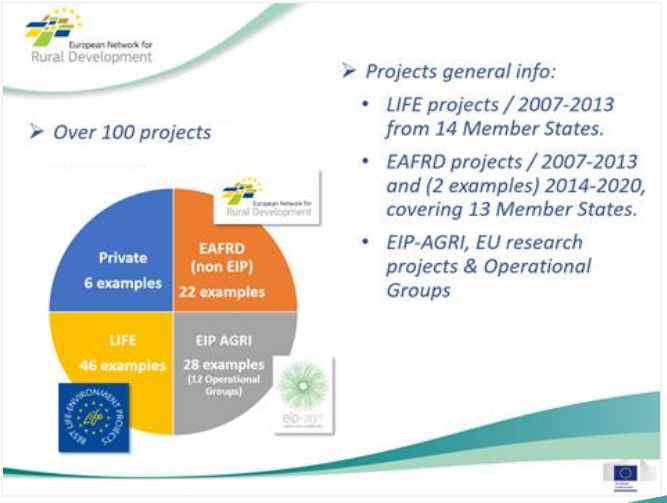
The plant provides a concrete example of how to enable a more efficient use of water resources, achieving both environmental and economic benefits for use on farms and in the wider rural economy.

The wastewater treatment plant is located in Mancasale and is the largest plant of its kind within the Emilia-Romagna region. The plant treats wastewater (both from farms and domestic sources) to be used for irrigation on about 2,000 ha of agricultural land located in nearby areas. Since 2015, it has been part of the LIFE project ReQpro (2013 – 2017), which aims to contribute to the protection of water resources through replacing surface and groundwater resources for irrigation with those from treated wastewater.

Alongside the benefits for water resources, increased energy savings have been achieved from treating wastewater for irrigation (estimated in the range between €2.4 and €4.8 million per year), compared to pumping surface water from the nearby Po river. The use of treated wastewater for irrigation for farmers was incentivised via a reduced price (€0.26 / m3). Another reason farmers gave for using this type of water is its continuous, on-demand availability, even in periods of low rainfall and drought, when other water sources would be restricted.

Analysis of good practice examples

Over 100 project examples from 20 Member States have been identified and analysed as part of the TG. These provide useful insights into success factors or bottlenecks to promoting resource efficiency. The projects have been obtained from three different resources including the LIFE programme, ENRD and EIP-AGRI. They include EU funded, as well as privately funded projects, the later provided by TG members.



The type of activities covered included:

- valorising and managing wastes;
- reducing the environmental impact of nutrient use;
- constructing or modernising infrastructure;
- adapting to the Water Framework Directive (WFD);
- managing aquifers and preserving fragile ecosystems.

The findings that emerge from these examples reinforce those found in the case studies and are set out below.

Looking at what motivates farmers to engage, **farmers are more comfortable with solutions that are familiar.** There can be a nervousness about being the first to innovate and therefore a preference to adopt practices that have proved to be effective locally, do not require additional manpower and can be implemented immediately.

Some management tools, such as irrigation simulation applications, can be very **technically complex** which can put farmers off using them, unless accompanied with training.

In several cases, despite some projects producing interesting and innovative results, the potential for wider application was limited by **legislative barriers and costs or new and under-developed technology**. In addition, costs of implementation at farm level acted in some instances as a limiting factor.

Project examples highlighted the need to **increase awareness among farmers and policy makers** about the limitations and advantages linked to resource efficiency. The projects also suggested that there is a need to promote awareness about the resource efficiency agenda to society as a whole.

A **lack of knowledge and misconceptions concerning the methods** can also impede uptake. Techniques promoting resource efficiency are not applied in agriculture, mainly due to lack of knowledge about how to apply them in practice and the assumption that they will reduce production and return low economic benefits.

The link between land use practices and their environmental effects is not sufficiently explored and communicated to farmers. This affects stakeholders' motivation and their ability to engage in the planning and implementation of the relevant RDP measures.

From a policy perspective, there is a need for **improved monitoring, assessment and dissemination** of resource efficiency results. The time required to monitor changes on the ground can exceed the official period for monitoring projects, particularly when the impact takes significant time to be achieved.

The examples reviewed indicated that the current **legislation** is sufficiently flexible, but the rules associated with farm-level implementation could benefit from simplification.

The private sector also has an important role to play and could support implementing solutions alongside public authorities.

Engaging stakeholders is also important – a significant role was identified for project managers and knowledge brokers, who are called upon to facilitate the uptake of resource-efficient techniques in agriculture and provide administrative assistance at the local level.

Emerging recommendations for improving RDP design and delivery

Based on the information gathered in the case studies and the good practice examples, the following key findings and recommendations were highlighted by TG members:

RDP measure commitment period: The changes in farming practices required to make farms more resource-efficient can entail new and innovative methods, restructuring towards more mixed farming systems or simply adopting new practices. Even where these approaches are supported under the RDP, the *length of the commitment period* can present a barrier for farmers, particularly when it is unclear how the adoption of these new approaches will affect the farm businesses.

Farmers fear that they will be locked into commitments, with no flexibility to adapt practices as new effects become apparent. On the other hand, a 5-7-year commitment period provides a stable income stream and allows time for environmental actions to have an impact. Having a better understanding of the impacts of past practices on resource efficiency is important to inform future RDP measure design and implementation. Recommendations include:

- Practices and approaches supported through RDPs, particularly through the agri-environment-climate measure, should focus on land management actions where the potential impacts on farm businesses are understood and can be clearly communicated.
- Measures supporting innovative or new approaches may require more flexible rules to enable farmers to alter their practices, in liaison with an adviser, if those carried out lead to unforeseen detrimental impacts on the environment or their farm business.
- The TG work also suggested that consideration should be given to whether the calculation of payment rates might include an element linked to the potential risk to farm businesses of adopting new approaches.

Tailoring and targeting of measures: The effects of RDPs can become very diffuse if measures are not sufficiently targeted and tailored to the needs and priorities of the local area. In some cases, there are a large variety of measures available to farmers that address different priorities and needs within the RDP area, sometimes making the choice of measures confusing. By focusing the measures towards more specific issues could help farmers pick and choose the most appropriate actions to address the issues faced. Potential recommendations include:

- Thematic and geographic targeting: Specific thematic priorities within an RDP area should be identified (such as soil erosion) and then measures tailored to contribute to these priorities.
- Greater use of the cooperation measure should be considered to engage 'groups' of farmers within geographically defined areas.

Knowledge, advice and training: The value and need to increase knowledge exchange and training has been a central theme throughout the TG's work. Resource efficiency considerations could become more central in farmers' decision making if farmers were more aware of the benefits and importance of being more resource efficient with soils and

water and the impacts of doing so on their farm business (positive or negative). This would also assist those implementing RDPs in providing better advice to farmers. Potential recommendations include:

- RDPs should include better educational/advisory packages associated with particular measures or actions, which convey the environmental and economic benefits to the farm business as well as any potential risks, and be tailored to the priorities and needs of the areas targeted by RDPs.
- The ratio of scheme/farm advisors to farmers should increase. The role of private advisors and channelling advice through private companies, such as machinery suppliers, farm contractors who provide the management on multiple farms, even though they are not the owners or tenants, seed and fertiliser producers should be considered.
- Ensure that scheme advisors undertake continuous professional development (CPD) each year to make sure they are up to speed on new techniques, approaches, measures and priorities.
- Targeted educational packages could be developed aimed at farm contractors who manage multiple farms, but do not farm themselves, as they may not have access to such training through the RDP as they are neither farm owners or tenants. This could include training on new equipment and technologies as well as the importance of moving towards more resource-efficient approaches.

Supporting young farmers: The TG has found that the motivation and willingness to adopt more resource-efficient practices is generally higher among younger farmers, particularly those who have had more up-to-date training and education. With the average age of farmers in the EU increasing, generational renewal provides an important opportunity to change the way land is managed and promote more resource-efficient and climate friendly practices. However, in many countries, young farmers and new entrants still face difficulties in entering the sector and purchasing farms/land.

Potential recommendations include:

- Support and advice could be better targeted towards young farmers and new entrants. This could include specific education packages aimed at resource efficiency benefits (see **Knowledge, advice and training** above).
- EIP Operational Groups should aim to specifically target young farmers and innovators when addressing resource efficiency of soils and water.
- Support for young farmers to establish changes in farm businesses or operations could be granted in the form of long-term support packages, such as loans or one-off investments to make structural changes.

Indicators, monitoring and reporting: the importance of measuring the results from applying resource-efficient practices was highlighted. However, to do so requires reliable indicators and recognising the issues of measuring impacts that can take many years to become apparent. There is potential for moving to more results-oriented approaches, but the identification of reliable indicators becomes even more essential for such schemes.

Next steps

The fourth meeting was the last of this Thematic Group. The final steps of the TG's work are:

- Elaborating recommendations for improving RDP implementation based on the evidence already collected and analysed and discussed between TG members.
- Participating in the ENRD seminar 'Opportunities and future perspectives for Resource Efficiency in Rural Areas', in Brussels on 13 June 2017. During the seminar examples from the TG's work was showcased and the emerging conclusions and recommendations were discussed.
- Development of short **factsheets** on:
  - The overall conclusions and recommendations of the TG
  - The findings of the case studies;
  - Good practice examples.

The outcomes of the TG will be made available on the ENRD website. An EAFRD Projects Brochure and an edition of the EU Rural Review will also be produced, based on the work of the TG.