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WP3 Synthesis Report with supra-regional summaries





PLAID PEER-TO-PEER LEARNING: ACCESSING INNOVATION THROUGH DEMONSTRATION

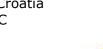


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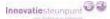
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EXECUTIVE SUMMARY

Introduction

The H2020 PLAID project, in collaboration with AgriDemo-F2F has produced an inventory of on-farm demonstration across Europe. As part of this process, consortium members and sub-contractors identified the trends in on-farm demonstration in the EU 28, Norway, Serbia, and Switzerland. This document summariszes the findings from across Europe, focusing particularly on distinctions between three 'supra-regions':

- Northern Europe: Belgium, Denmark, Finland, France, Germany, Ireland, the Netherlands, Norway, Sweden, Switzerland, and the UK
- Eastern Europe: Croatia, Serbia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia
- Southern Europe: Austria, Bulgaria, Cyprus, Greece, Italy, Malta, Portugal, Slovenia, Spain

Findings in this report are based on reports on demonstration farming in each country and three 'supra-regional' workshops, held in Venice, Italy; Krakow, Poland; and Leuven, Belgium in February and Amarch 2018. The country reports were based on inventory entries and observations by consortium members and sub-contractors during the process of enrolling farmers and organisations involved in demonstration into the inventory database. It is important to note that although over 1200 entries were in the inventory at the time of reporting, we do not see these as representative of all on-farm demonstration in Europe. However, the inventory and associated reports represent the first substantive dataset on demonstration on European farms, are useful for identifying themes and distinctions between countries and regions.

Consortium members and sub-contractors noted a degree of reluctance amongst farmers and organisations to enter their data into the new inventory. We anticipate that this will change once the utility of the map is more publicly evident, and the data entry process streamlined. Enrolling farmers and organisations in the inventory is ongoing.

Demonstration Topics

The main topics of demonstrations in all of the countries are related to improving production (i.e. animal husbandry and croprelated issues). There is more focus on technical innovation relating to individual aspects of farming than on whole-farm approaches. One reason for this is that technical aspects are easier to demonstrate in a physical setting (e.g. outdoors or agricultural sheds). Within regions, the most common topics demonstrated typically reflected the dominant farming types in in those areas (e.g. arable cropping topics were most frequently demonstrated in areas where arable cropping is most dominant).

Topics with an environmental focus occur through Europe but appear to be more common in Northern Europe than elsewhere. From a sustainability perspective, demonstrations typically identify the economic utility of environmental actions to convince



farmers of the feasibility of these actions; and although a social learning environment and the development of social capital underpins demonstration, social aspects of sustainability are not usually the primary focus of demonstration activities.

Demonstrations are more likely to occur on organic than conventional farms. These demonstrations are also more likely to be based on whole-farm systems (consistent with organic farming ethos). Organic demonstrations tend to differ from the conventional ones: they are often farmer-led, more oriented towards community values and the impact on the whole community; they are also more extension-oriented, with a clear purpose to promote the techniques amongst other farmers.

Topics like farm succession are not usually the subject of demonstration. Neither are broader farm business management topics, nor aspects of production where logistics prevent demonstration (e.g. risk of spreading livestock disease).

In general, different types of demonstration organisers have different priority topics. Farmer-led demonstrations tend to focus on production systems, while organisation or company-led demonstrations focus on specific techniques, and input and research-led demonstrations focus more on resilience and sustainability issues. However, all three types of organiser are known to engage across all these topic areas.

Input suppliers (e.g. machinery dealers, fertiliser or seed providers) throughout the 20th and 21st centuries have utilised on-farm demonstration as a means of promoting their products. New demonstration topics also continue to appear. For example, topics relating to the food chain, such as purchasing or collection of specific produce (e.g. new crops or varieties).

History of on-farm demonstration

The roots of farming demonstration in Europe extend back at least 250 years, to a pioneering farmer and model farmer in Switzerland in 1763. Professional exchange and model farms continued to emerge through the 19th century in the British Isles, France, Germany, Belgium, the Netherlands, Austria, Italy, Latvia, Estonia, and the Czech Republic. These demonstrations were primarily led by large-scale farmers and farming organisations. In Lithuania, Slovakia, Croatia, and Hungary research stations started demonstrations in the 19th or the beginning of the 20th century. Demonstration emerged in Scandinavia in the first half of the 20th century; this was supported primarily through research institutions.

Modern understanding of farm demonstrations and how they are put into practice, has evolved throughout the 20th century. In many cases, demonstrations have developed in parallel with the formal agricultural education. This is particularly true of postsocialist countries, where the period of collectiviszation had a great influence on demonstration activities, which were primarily organiszed by state-funded research stations.



In the latter half of the 20th century, the emergence of big commercial farms and market entrance of big supplying companies for seeds, machinery, fertiliszers and pesticides had a significant influence on the demonstration landscape. This effect was realiszed later for post-socialist countries (i.e. post 1990), but was particularly significant, often involving cross border activities (i.e. companies from Western Europe organiszing demonstrations in Eastern Europe in to promote their products). Portugal, Spain and Slovenia also have a relatively short history of on-farm demonstration, reporting their first organiszed demonstration activities in the late 1970s and early 1980s.

For many countries, the 1990s became a turning point regarding the implementation of demonstration activities. In Bulgaria, like in many countries of Eastern Europe, the main reason was structural economic and political change, especially the reorganisation of land and the restoration of private property rights. In Italy, Greece and Slovenia a significant decline of demonstration activities has occurred in recent decades, due mostly to limited public support. By contrast, Austria has seen an increase in demonstration in recent years. In Portugal, meanwhile, technical support for agricultural development became a function of many co-operatives and farmers' associations, with a high degree of fragmentation and dispersion; the exception being the existence of networks or some form of articulation and coordination between them in specific topics.

A common point reported by many countries is that on-farm demonstration gained new dynamism with the emergence of organic farming, from the 1940s in Western Europe and the 1990s in Eastern Europe.

Demonstration Provision

There are a wide range of demonstration providers currently working in Europe: public, private and charitably funded agricultural advisors, research institutes, higher education institutions, commercial companies, farmer organisations and farmers themselves. It is common for several of these actors to work together to put on a demonstration in Northern Europe, but in <u>S</u>-southern Europe demonstrations are more commonly led by a single organisation.

The primary organisers of demonstrations vary by country. In general, advisory services play an important role in the organiszation of demonstrations in Northern and Eastern Europe. In countries without a strong advisory system (including much of Southern Europe), this role is often taken by research institutes. Demonstration provided by research institutions is incentivized (in part) by the requirement to demonstrate impact to funding providers, such as the European Commission and other providers at the national and regional-levels.

Where available, advisory services <u>are the key initiators form the</u> <u>'glue'</u> that brings together multiple types of actors to put on a demonstration activity. However, there remains considerable fragmentation in demonstration provision, particularly in larger countries (i.e. there are no overarching networks that integrate



the demonstrations available). The role of commercial companies (i.e. companies undertaking demonstration with the purpose of selling their products) is increasing.

In all countries farmers play an important role in demonstrations, acting as event hosts. To establish a demonstration activity, organisers must collaborate with the farmer on whose farm the demonstration is being held. Farmer-led demonstration is much more common in some European countries (e.g. Belgium, England (UK), Finland, Germany, Norway, and Sweden, Romania, the Czech Republic) than others.

A standard set of approaches to demonstration is used, including different combinations of: presentations and discussions, demonstrations of products and/or processes, farm tours and field walks, field trials, provision of printed literature, etc. At an individual demonstration level, events vary by location, size, temporal access, target audience, approach to implementation and demonstration topic.

Funding for demonstrations is mostly linked to demonstration providers, who in turn receive their funding from a variety of sources (e.g. government, farmer levies, supply chain companies, charitable giving to NGOs, private capital). We see striking differences between countries in terms of who is funding demonstration. For example, in Croatia, Hungary and Poland selffunding is most common, whereas public or research funding is much more common in Latvia. Advisory services often play an important organisational role in on-farm demonstrations, but are not commonly involved in terms of providing funding.

Organic farming represents a special case for on-farm demonstration, as organic farmers are more likely to lead demonstration activities than conventional farmers. On-farm demonstrations are also more likely to occur on organic farms, relative toas a the percentage of organic farms within the agriculture sector overall.

Access to Demonstration

Demographics (gender, age, education) and other practical considerations (proximity, prevalence) were explored in terms of access to on-farm demonstration. Clear gender distinctions between on-farm demonstration participants have been found across Europe. In Northern and Southern Europe, events are typically male-dominated, whereas gender representation is more balanced in Eastern Europe.

The topic being demonstrated has been found to influence gender balance, whereby demonstrations on technology and machinery are particularly dominated by men. Women are more likely to represent higher numbers at demonstrations that focus on farm diversification, processing of farm produce or direct marketing. It is important to note that farming as a profession is maledominated, therefore greater numbers of men attending demonstrations is to be expected. However, greater gender balance is evident in those organiszing on-farm demonstration,



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as both men and women are commonly employed as staff in farming and advisory organisations.

Farm demonstrations across Europe are also most commonly attended by participants over the age of 40. However, it appears from the supra-regional workshop discussions that although farmers attending demonstration events are not, by definition, 'young farmers' (under 40), they tend to be somewhat younger than the average age of farmers across Europe. In Romania, however, more than half of attendees can be defined as young farmers.

Educational background also impacts on demonstration participation: more highly educated farmers are more likely to attend demonstration events.

There are also differences within and between countries, in terms of the prevalence of on-farm demonstrations. At a national level, this reflects the levels and sources of funding available; advisory service provision; the historical context of demonstration; the number, power and credibility of farming organisations, advisors and researchers; and the logistics of providing demonstration (e.g. reflecting geography).

Regional differences typically reflect the density of farming (i.e. regions with higher numbers of active, commercial farms are more likely to have on-farm demonstration activities). These regions tend to be centrally-located, more highly populated and well serviced by demonstration providers (particularly advisory services, but also private companies, research institutions and NGOs). Demonstrations are less common in areas that are more remote (e.g. Northern Scandinavia), areas that have primarily small-scale farms, or and areas that have issues relating to access (e.g. islands).

Workshop participants reported considerable fragmentation in terms of the provision and delivery of on-farm demonstrations in countries across Europe. This reflects the wide range of providers and topics and weak histories of farmer collaboration. Fragmentation is particularly notable in countries without strong national-level advisory services.

Observations and Policy Considerations

There are a wide range of on-farm demonstrations occurring across Europe. They bring a range of stakeholders together in the context of collaborative relationships and opportunities for interaction and exchange on a range of topics. Though context is important, basic principles and practices appear to be relatively consistent across Europe.

Analysis of the inventory data, country reports and workshop recommendations yield the following <u>key</u> messages for policymakers:

1. Demonstration events are well-accepted by farmers, advisors, researchers and agricultural industry members as valuable opportunities for knowledge exchange and



learning about innovations. Farmers also value demonstration events as occasions to share experiences and to establish and strengthen social relationships.

- 2. The prevalence of on-farm demonstration directly relates to the availability of publicly-funded agricultural advisory services. Demonstration activities are declining in most Southern European countries, mainly due to the reduced funding and to the reduction or disappearance of public advisory services. Making demonstration part of AKIS (Agricultural Knowledge and Innovation Systems) plans in the new CAP program could help address this gap.
- 3. There is a clear demand for more organised and long-term on-farm demonstration, especially where agriculture is regionally based (Italy and France), where farmer networks are generally weak (much of Eastern Europe), and at the EU scale. Agricultural advisors are often the key stakeholders that bring together multiple actors to put on a demonstration event.
- 4. Organisers of on-farm demonstration (e.g. public, private and charitably-funded advisors, farmers, researchers) would benefit from opportunities to network across regions and countries in Europe.
- 5. Increased farmer involvement in leading demonstration activities could be achieved by making funding directly available to them for this purpose. Farmer-led demonstration should be supported not only in terms of funding but also in terms of methods and training.
- 6. Highly-educated farmers are more likely to participate in demonstrations. Agricultural education thus appears to lead to a culture of 'lifelong learning' and innovativeness amongst farmers.
- New strategies for on-farm demonstration activities to reach currently under-represented groups, such as young farmers, women, farmers in remote regions, and farmers involved in highly specialiszed production, should be considered.
- 8. There are opportunities to increase the quality of on-farm demonstration, through promoting best practice and establishing guidelines for evaluation of success. For example, organic farming could be used as a "best practice example" in terms of high levels of farmer-led demonstration, and demonstration of whole farm approaches.
- 9. Improving access to on-farm demonstration could be achieved through identification of demonstration as desirable outputs from EIP Agri research projects, Thematic Networks and Operational Groups. Integrating the Multi-Actor Approach (whereby farmers, industry stakeholders, advisors and researchers are incentivised to work together



to address specific problems) at national level would increase the quality of demonstration activities.

- 10. New digital tools and social media can help in notification of demonstration events and dissemination of key outputs, in additional to facilitating contact and continued exchange after the events. Opportune use of technologies and new digital platforms (e.g. the PLAID 'Virtual Farm') is important to supplement access to innovation but should not replace face to face interactions.
- 11. Although peer-to-peer learning and knowledge exchange is powerful and important, there is still a need for traditional, linear knowledge transfer in some circumstances.



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1. INTRODUCTION

The H2020 PLAID project, in collaboration with H2020 AgriDemo-F2F has produced an inventory of on-farm demonstration across Europe. This involved designing a database and collecting data from demonstration organisers (farmers and organisations). This database will form an on-line map, which is open for farmers and organisers to enter their own data on an ongoing basis. The inventory comprises farm demonstrators in the EU 28, Norway, Switzerland, and Serbia. It is being operationalized for use in the H2020 NEFERTITI project, which is organizing 10 thematic networks of demonstration farms across Europe.

This document summarizes the findings from across Europe, focusing particularly on distinctions between three supra-regions:

- Northern Europe: Belgium, Denmark, Finland, France, Germany, Ireland, the Netherlands, Norway, Sweden, Switzerland, and the UK
- Eastern Europe: Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Serbia and Slovakia.
- Southern Europe: Austria, Bulgaria, Cyprus, Greece, Italy, Malta, Portugal, Slovenia, and Spain

Consortium members and sub-contractors from each of these countries each compiled a national report, organiszed under the headings in this present report (topics and purposes of demonstration, history of demonstration, actors driving demonstration, access issues, and emergent types of demonstration). These reports were discussed with National Stakeholder Partnership Geroups. The country teams also prepared posters¹, which they presented at supra-regional workshops held in Venice, Italy in February 2018; Krakow, Poland in March 2018; and Leuven, Belgium in March 2018. At these three meetings, consortium members, sub-contractors, representatives of the International Advisory Board, and National Stakeholder Partnership Geroups compared the findings from the different countries and identified key messages for European policymakers. They specifically addressed the following questions:

- What are the most common topics and purposes of demonstration?
- Who are the major providers and organisers of on-farm demonstrations?
- How common is it for farmers to lead demonstrations?
- Are there particular regions where there are more demonstrations than others?
- What is the balance of demonstration participants and organisers in terms of age and gender?
- What are the major differences between countries and what are the reasons for such differences?



¹ Posters can be accessed at: https://www.plaidh2020.eu/meetings

The meetings also included a demonstration of the PLAID Virtual Farm, presentation of key messages from preceding supraregional <u>workshopmeetings</u>, and closed by looking to the future and the next steps for PLAID, AgriDemo-F2F and NEFERTITI. Workshop reports were included in the Supra-Regional Reports compiled for the three supra-regions. These reports can be found in Appendices A to C. <u>The Executive Summary from this report</u> has been translated into four languages and made available through the PLAID web-site[LS1]:

1.1 NUMBER OF DEMONSTRATIONS

During the initial stages of the project, over 1,200 entries were collected: 406 from organisations or institutions and 769 from farmers.

Country	Farmer Entries	Organisation Entries		
Austria	6	6		
Belgium	23	11		
Bulgaria	75	0		
Croatia	15	0		
Cyprus	0	2		
Czech Republic	17	13		
Denmark	3	10		
Estonia	23	13		
Finland	23	7		
France	45	29		
Germany	60	12		
Greece	0	7		
Hungary	38	6		
Ireland	57	20		
Italy	1	31		
Latvia	8	3		
Lithuania	21	9		
Malta	2	3		
Netherlands	27	33		
Norway	4	8		
Poland	101	68		
Portugal	1	10		
Romania	34	6		
Serbia	2	4		
Slovakia	15	21		
Slovenia	8	7		
Spain	34	27		
Sweden	48	0		
Switzerland	0	22		
United Kingdom	78	18		
Total	769	406		

Table 1: Initial entries in the FarmDemo Inventory



Inventory participants estimated that over 680,000 farmers participated in their demonstrations in a typical year. On-farm demonstration is thus a popular and well-accepted activity within Europe's Agricultural Knowledge and Innovation Systems (AKIS).

The initial inventory data collection involved <u>an</u> extensive <u>list of</u> <u>questions, in order to increase understanding of contemporary</u> <u>demonstration approaches-questioning</u>. In compilation of the inventory, consortium members and sub-contractors noted a degree of reluctance amongst farmers and organisations to enter their data<u></u>, which may be partly due to the length of the questionnaire and/or the novelty of the inventory. A shorter version of the questionnaire has since been produced and will accompany the on-line searchable map to solicit additional entries to the inventory. For the purposes of this report, the findings based on the initial inventory data are presented as indicative, rather than representative. Observations made by national teams during collection of the inventory data enabled identification of trends, which may not have been easily recognised from the inventory data alone.

1.2 MAJOR DEMONSTRATION TOPICS

From the perspective of topic selection, increasing farm profitability through improved technical proficiency of agricultural production appears to be the primary rationale. This is evident in the focus of demonstrations on crop and livestock production, where demonstrations addressing aspects of productivity and efficiency are most common. This is also suggested in the focus on machinery and technology-focused topics (although more novel topics, such as robotics, have less demonstration than expected).

In the Northern supra-region, there is an inclination towards topics relevant to animal husbandry, followed by crop-related topics and then topics with an environmental focus. The Southern supra-region similarly included a wide range of productionrelated topics, including animal husbandry, arable crops, horticulture and fruit, olive production, and viticulture. Surprisingly, the theme of water and irrigation management was not common (raised only in Greece and Malta). Crop production was most common amongst Eastern European countries, but animal husbandry, machinery demonstrations and soil fertility management were well-addressed. –Production topics generally reflect the most common commodities produced in the respective regions.

Environmental topics were also addressed across Europe, but most commonly in Northern Europe, where measures relating to climate change mitigation and adaptation, and biodiversity and nature management were specifically addressed. Low input/impact farming is also a key topic demonstrated in Belgium, Germany, and the Netherlands, and pollinators were specifically identified in the Swedish and UK contexts. Other more specific environmentally-focussed topics identified included: eco-village



living, Green Care, ground and surface water protection, sustainable fertilisation, smart farming, and peatland conservation. In Southern Europe, this type of sustainability issue was typically addressed at the same time as productionoriented innovations, to increase farmer interest.

Some countries highlight the importance of environmental aspects in the context of certain topic areas; for example, in Norway, greater emphasis is placed on the environment in the context of crop production demonstrations, whereas the key focus in animal husbandry relates more to aspects of animal health. Similarly, in France, more than half of demonstrations in crop production take an environmental focus, whereas in animal husbandry demonstrations environmental consideration is mainly concerning biodiversity and climate change, through grazing optimisation and feed autonomy. On-farm energy production was identified as a key sustainability category in Finland, alongside attention to energy efficiency and environmental aspects of crop production and extensive grazing.

During the Northern supra-regional meeting, some debate occurred on the balance of conventional vs organic demonstrations; it appears that there are more organic agriculture events, but greater numbers of participants at conventional agriculture events. It was noted as a possibility that climate change may be an underpinning theme in demonstrations on other topics. There was also some sense that energy production is an emerging topic of focus.

It appears that demonstration events were quite sector specific, which may account for some the topic 'gaps' and less common topics identified. Farm management more broadly, public goods, community farms and urban farming, succession and new entrants to farming, links to consumers, and other cross-cutting topics, such as agri-forestry were among the anticipated topic areas that were perceived to be under-represented² missing. Logistical issues relating to disease risk also appears to preclude demonstrations relating to intensive farming of pigs and poultry. However, it was noted that farmers are more likely to attend demonstrations on topics that address current urgent problems (e.g. disease outbreak, drought). It also appears that there is considerably more focus on single topics, rather than whole farm approaches. This is particularly true in Southern and Eastern Europe. Whole farm approaches were more common in Northern Europe. Single technologies and topics were particularly common in production-based demonstrations, whereas whole farm approaches were more common for environmental demonstrations.

Events are commonly attended to network and share and gather information on the relevant topics. These are not social events, *per se*, but have a social component. It is widely assumed by organisers that demonstration activities are useful for building



² There are a number of entries in each of these categories in the inventory. However, they appear as part of substantial lists of activities, rather than the primary focus topics.

social sustainability into farming communities, but social sustainability topics appear to come up on few occasions. In France, social foci are identified, including work organisation and employment issues; and in Finland, improving social capital is a consideration in the context one unique project that also seeks to improve energy and nutrient self-sufficiency. As such, building and maintaining social networks between farmers is a useful outcome of demonstration, but is not the primary purpose.

Overall, a vast variability of purposes for holding demonstrations were observed. By far the most common purposes identified relate to education and knowledge transfer and exchange (e.g. information sharing, educational and training opportunities, transfer of innovation from research entities to the field, showing and dissemination of practices).



2. HISTORY OF DEMONSTRATION

This section discusses the roots of farm demonstrations in Europe, including introduction of the concept, and evolution of implementation and practice in modern times. Evidence from the reports is <u>necessarily</u> somewhat piecemeal, based on <u>the availability of historical</u> records available through contemporary advisory services and research institutions.

2.1 EARLY DEMONSTRATIONS

The earliest example of 'on-farm demonstration' was identified in Switzerland. Starting in 1763, Hans Jakob Gujer (known as the 'Philosophical Farmer') held meetings and discussion groups on his model farm in Zurich with local organisations and farmers to demonstrate successful methods to them. The influence of this pioneering farmer was significant and far-reaching in the context of agriculture and structural change across the region and reportedly caused a stir throughout Europe.

This approach of farmer-led demonstration developed in several European countries throughout the 19th century. In Latvia, there are records of a demonstration field in 1838, demonstrating 119 different potato varieties. In Czech Republic we see demonstration activities mentioned in the 19th century, organised by the agricultural economic societies. German farmers similarly undertook demonstration through their agricultural associations, as did UK farmers. These associations were formed in the mid to late 19th century.

Research institutes and the state also became involved in demonstration in the second half of the 19th century, to increase agricultural productivity and improve educational levels of rural populations. In Italy on-farm demonstrations were promoted by the National Ministry for Agriculture together with the Education Ministry. In Lithuania, Slovakia, Croatia, and Hungary research stations started demonstrations in the 19th or the beginning of the 20th century. In the Netherlands, the first on-farm demonstration was established at the end of the 19th century to demonstrate the use of fertiliser, whereby sharing such expertise was undertaken help poor farmers to earn more money and alleviate poverty. In Scotland (UK), three agricultural colleges were established at this time to bridge the gap between farmers and growing scientific knowledge on agricultural issues. In Belgium, politicians, scientists, and other notable stakeholders agreed that change in agriculture should start with the farmer; investment was made into education and advisory services using a demonstrative approach and philosophy of 'first see, then do'. The first specific demonstration farm in Estonia was also established in the late 19th century.

In terms of format, demonstrations could occur on exemplary commercial farms or on model farms specifically oriented to



farmer education. In Ireland, demonstration also began to take place in the form of open days, such as annual show events, which included both livestock and machinery.

France identified the first instance of private companies carrying out demonstrations, on modern farms and at agricultural fairs. This practice began at the end of the 19th century.

2.2 DEMONSTRATION IN THE 20th CENTURY

In the Scandinavian countries, demonstration did not begin to emerge until the 20th Century. In both Sweden and Finland, agricultural demonstrations developed on farms held by educational institutions and universities, whereas in Norway, research rings ('forsøksringer', first established in 1937) provided opportunities for farmers to test out new approaches (e.g. plant propagation and soil analysis) on their own farms. These rings are currently represented by the Norwegian Farming Advisory Service (NLR), which provides a coordinating link between research, agriculture, and advisory services; this includes local field trials conducted by members, which are the most common form of demonstration activity in Norway.

In Finland, the tradition of demonstration farms being associated with universities and teaching organisations remains and sixteen demonstration farms in Sweden are still active. A key non-profit organisation initiated by farmers (Odling I Balans) has also developed in Sweden since the 1990s to support modern demonstration programmes aimed at environmentally-friendly production on conventional farms. Seventeen pilot farms located around the country are used as test farms and demonstration farms in different contexts, which attract a variety of stakeholders (farmers, consumers, researchers, politicians). In Denmark, early demonstration was also established in the mid-20th Century, focussing on improved productivity through agricultural advice. These structures continue to form the basis of modern demonstration activities are primarily associated with agricultural extension services, which provide organisational leadership and support for farm experience groups (which meet regularly throughout the year at each other's farms for the purpose of <u>learning and knowledge</u> exchange).

In post-socialist countries there are three distinct periods in the 20th century: before, during (1940-1990) and after the Soviet regime. <u>Prior toBefore</u> the Soviet period, education and research institutes were the main organisers of knowledge transfer in agriculture. During the Soviet time, the focus was on collectivisation of farming and promoting methods of intensive agriculture from the Soviet Union. Demonstration activities did not start in Romania until the Soviet period. In Poland every region had their own demonstration farms as instrument to disseminate knowledge and new practices to farmers. After 1990, demonstration events were once again organised by advisory services and research.



2.3 CONTEMPORARY DEMONSTRATION

In many cases, evolution in the leadership of demonstration events appears to be increasingly favouring coordinating or collaborative structures, whereby different actors fulfil different mutually-supportive roles. For example, In Ireland, where demonstration activities traditionally happened on research farms, there is now a greater tendency towards events being hosted on 'ordinary farms' with the support of industry partners such as Teagasc (e.g. BETTER Farm Beef Programme). Another example, in France, illustrates a partnership approach that has existed since the 1950s, whereby farmers and farmers unions worked together to create specialised technical institutes and set up experimental schemes, where they also work with engineers. This type of collaborative structure still exists and is the base of demonstration activities. In Poland, French research organisations run demonstrations on research locations, often in cooperation with public advisors.

Privatisation of agricultural advisory services has had a considerable impact on demonstration in some countries. For example, The Netherlands has undergone significant professionalisation in the sector and moved from non-agrarian entities, such as the church, to highly organised agricultural cooperatives and other networks defined by topic or sector (e.g. sugar, horticulture, pigs, seeds, pesticides) involving highly educated farmers and links to the education sector. The focus in Belgium is also very specialised, with key involvement from farmers organisations, government institutes, and commercial companies.

In some instances, clear leadership has been demonstrated by particular actors. For example, in Germany, networks representing biodynamic agriculture are said to have paved the way for demonstration networks to emerge in the conventional agricultural sector. Farmer-to-farmer working groups are a relatively recent development in Switzerland, which have quickly and successfully become established since the beginning of the 21st century with the support of individual consultants, who brought the concept from Southern Germany.

International suppliers of seeds, fertilisers, crop protection products and machinery have become increasingly important for on-farm demonstration, often crossing national borders into Eastern European countries in the post-socialist period to organise demonstration activities. In some EU countries demonstration activities or demonstration farms (Hungary and Slovakia) have also become a topic in national Rural Development Plans.



3. ACTORS DRIVING DEMONSTRATION

3.1 MAJOR DEMONSTRATION PROVIDERS

A wide range of actors have been identified across Europe as providers of farm demonstrations. Table 2 provides an overview of the types of demonstration providers entered in the inventory, highlighting the main providers in each country and others that are involved to a lesser extent. The overview in Table 2 reveals substantial differences between countries, ranging from individual farmers as the main type of organiser, to extension services or research institutes as the main organiser.

Country	Individual farmers	Public bodies	Extension/ advisory services	Farmers organisations	Cooperative/ Networks	Private companies	Academic/ research institutions	NGOs
Austria	X	Х	X			х	X	х
Belgium		Х		Х	Х		X	
Bulgaria	Х	Х	X	х		X	X	х
Croatia	Х		Х	х		х	х	
C. Rep.	Х		х	Х			х	х
Cyprus		<u>X</u>						
Denmark			X	X		х	х	
Estonia	Х					Х	х	
Finland	X	X	х		х		х	х
France	х		Х		х	х	Х	х
Germany	Х		Х	X				
Greece						х	Х	х
Hungary	Х		х				х	х
Ireland	х		Х	х		х	х	
Italy		X	х	Х		Х	X	
Latvia			Х	х		х	х	х
Lithuania	Х		х	Х		х	х	
Malta		Х		х	X			
Netherlands ¹	х		х		X	х	х	
Norway ²	Х		Х	X			Х	
Poland	Х		X	Х		х	х	х
Portugal	х	Х		х	х		Х	
Romania	Х		х	Х			х	х
Serbia	X			<u>X</u>			<u>X</u>	
Slovakia	Х			Х		х		х
Slovenia		Х	х	х		Х	х	X
Spain	Х	Х	х			Х	х	х
Sweden	х		Х			х		
Switzerland	х		Х	Х	Х	х	X	х
United Kingdom	x	Х	х	х	x	х	х	x

Table 2: Demonstration providers across European countries

Key

X – main providers

x – other providers

¹ Note that the church continues to be involved in farm demonstration in the Netherlands

² Norwegian analysis is based on expert knowledge (as survey results suggesting farmers are the main providers are not believed to be representative). Data in the table are otherwise derived from the inventory, which is indicative rather than representative.

Table 2 also illustrates the significance of a wide range of stakeholders in the provision of farm demonstration, including major involvement in certain country contexts (often rooted in the history of demonstration in that country) and the important supporting role played by community, science and industry. In Northern Europe, public and private sector organisations frequently work together and with farmers to demonstrate. In Southern and Eastern Europe, demonstrations are more commonly organised by a single organisation working with farmers.

The importance of farmers' role in demonstrations is illustrated in Table 2 - either as a main provider or contributor in some other supporting way, such as their role as demonstrators. In most of the countries they are the most important factor. Another important trend illustrated in the table is the role played by agricultural extension and advisory services - mostly in conjunction with individual farmers. Advisory services are important for demonstration in most countries; the exceptions are countries where very limited publicly-funded advisory services are available (particularly Southern Europe e.g. Portugal, Greece, and Slovakia, but also the Czech Republic). This was confirmed at the supra-regional meetings, where it was agreed that provision of on-farm demonstration reflects the more general AKIS arrangements in the countries. Agricultural advisory services are important for bringing together multiple actors to jointly organise on-farm demonstration.

In most countries, research institutes are also involved in demonstration to some degree, organising demonstration activities as a follow-up to research. Research institutes are particularly important in countries where there are limited advisory services available. Commercial companies also are initiators and organisers of demonstration activities, particularly dominant in Eastern Europe. Across Europe, they co-fund or sponsor large demonstration events and put on single demonstration activities for product promotion. In Eastern Europe, they contract farmers to undertake demonstration. Commercial companies focused on product sales are recognised in the research, but largely excluded from the inventory (which focuses on demonstrations intended for public good). Food chain driven topics appear as a new form of demonstration (e.g. commodity purchasers set up demonstrations on how to produce the commodities they intend to buy, for example wheat varieties or new crops).

Within on-farm demonstration there appears to be a standard set of options available to (and used by) providers in terms of location, size, temporal access, target audience, approach to implementation, and demonstration topic (discussed previously).

- Demonstrations may be held on commercial farms, research farms, other provider-specific locations, or show grounds;
- Demonstrations can take the form of large-scale public events or small group or membership events;
- Demonstrations may be accessible all-year-round (e.g. experimental stations), annually (e.g. agricultural shows), at



other regular intervals (e.g. demonstration-network series), or one-off events (e.g. demonstrating a new product or piece of machinery);

- Target audiences range from the general-public, to children and schools, local communities, and membership-only; and
- Events may take the form of field visits/walks, product demonstrations, discussion groups, on-farm trials, activity demonstrations, etc.

Selections from these options are ultimately determined by the provider's rationale for demonstration. In most of the countries there are some large demonstration events, <u>which tend to</u> <u>besome of the</u> annually or bi-annually organised. Most of these large events have many participants and sponsors₇ from the whole value chain.

3.2 FARMER-LED VS DEMOS LED BY OTHER ACTORS

Different conventions prevail in different countries, but it appears to be common for farmers and organisations to form a complimentary team, to provide substance, facilitation, and credibility to proceedings. Context also determines the initiating party; in some countries farmers would rarely initiate demonstrations, but in others this would be common practice. Topic is also a determining factor.

Farmer-led demonstrations are common in Belgium, England (UK), Finland, Germany, Norway, and Sweden. However, collaborative teams of farmers and organisations (incorporating a range of institutional partners) are the most widespread practice across the Northern supra-region. In this instance the balance of leadership may be determined by factors including: the organisational set-up (who is providing and funding the event), the demonstration topic, farmers' personalities, and the size of the demonstration event. For example, it has been suggested that farmers are often more comfortable leading smaller groups for field visits, tours, or demonstrations on their own farm. In the countries where farmer-led demonstrations are more common, it is also more common for the farmer to take a leading role in the context of collaborative teams.

In other countries in Northern Europe, collaborative teams are characterised by more organisational leadership (Denmark, France, Ireland, Netherlands, UK (except England)). In these cases, the farmer's role may be to provide the location for demonstrations to take place, and may contribute practical knowledge, skills, and experience, which will complement and support the leading organisation. This organisation (or group of organisations) in turn will provide strategic management, facilitation, moderation and organisational skills. These two main actor types may also be complemented by actors bringing technical or scientific skills (e.g. suppliers, research and education), depending on the provider or topic of the demonstration.



Farmer-led demonstrations are uncommon in most of the Eastern European countries. For most of the demonstrations on commercial farms other parties take the lead, often research or advisory services. The exceptions are Romania and the Czech Republic, where the primary organiser of demonstrations is an individual farmer, and advisory services hardly play a role. In these cases, the focus of farmer-led demonstrations is mostly on typical/single aspects of the farm.

In the majority of Southern supra-region countries, it is uncommon for individual farmers to organise and lead demonstrations. The most usual form of farmers' involvement is in the organisation of demonstration event is collaboration with different public and research entities and supply chain companies, making their farms available to conduct research and demonstrations. Their role seems to be more complementary than leading. The most active farmers' participation was detected in Austria and Spain, where they participate in demo activities not only as organisers, but also as funders.

It appears that farmers in the organic sector are more willing to share their overall approach and management practices and have higher levels of engagement. Often they do not act as individual farmers, but as associations and operational groups (formal or informal). The ethos of the organic sector is aiming at sustainability with a stronger focus on area-based approaches, public health and rural development.

In general, demonstrations organised by farmers differ from those organised by other actor types, in terms of scale (usually smaller participant numbers). They are also more practiceoriented (more field visits) and focused on single techniques, while demonstrations lead by organisations or research institutions tend to follow a whole-farm approach and cover bigger groups of actors.

3.3 FUNDERS OF DEMONSTRATION

Funding for on-farm demonstrations largely reflects the financing and funding structures of the demonstration provider(s) (e.g. farmers may use private finances or apply for grant support), which may come with it some influence on decision-making regarding topic, location, etc. It is not clear whether decisions are driven by funding, or if funding is sought retrospectively to support existing plans, though it is likely to be a combination of the two.

There are substantial differences between countries and supraregions. Major public funders include:



- Subsidies from Rural Development Plans (CAP Pillar $2^{\frac{3}{2}}$).
- Demonstrations as project activity from European Commission or nationally funded research projects (e.g. H2020, Interreg)
- National subsidies for specific demonstration farms (e.g. Hungary, Slovakia);

Public funding is a vital resource for delivering on-farm demonstration across Europe. In the Southern supra-region, demonstrations are predominately funded by public institutions or organisations through research and innovation projects, financed by the EU. The supplementary role in funding demonstrations belongs to commercial supply chain companies, to different extent in different countries.

Other funders include NGOs, which are particularly important for funding demonstration on environmental sustainability topics like biodiversity and landscape management.

In kind contribution from participants in demonstration events, particularly farmers, is important. Substantial self-funding of demonstration was reported by Austria and Spain, where up to 50% of on-farm demonstrations are funded by farmers themselves. Self-financing was identified as important in Norway and England. Cooperatives and farming organisations play a significant role in collecting resources from their members for training and demonstration activities.

Supply chain businesses and other private companies were also found to have a role in Ireland, the Netherlands and Switzerland, as well as most of Eastern Europe, whereby events provided a sponsorship opportunity and/or platform for promoting products or services. These companies are less important in regions with strong agricultural advisory services.

In the Netherlands, the church and cooperatives were uniquely identified as sources of funding, reflecting the historical and continuing role of community and social networks in Dutch demonstration provision. Farmers organisations and research institutions were also identified as funding sources in the Netherlands and Ireland.



³ Funding for demonstration is specifically identified in RDP measure 1.2. However, this was not specifically identified as an important source of funding by national teams.

4. ACCESS ISSUES

4.1 REGIONAL VARIATIONS

National-level differences between countries reflects: the levels and sources of funding available; advisory service provision; the historical context of demonstration; the number, power and credibility of farming organisations, advisors and researchers; and the logistics of providing demonstration (e.g. reflecting geography). Demonstration activities in the different regions are mainly related to the dominant agricultural sectors in the region.

In general, concentration of events tends to reflect concentration of agricultural activity: demonstration is more common in regions where there are larger, more profitable farms. -These regions tend to be centrally located, more highly populated, and wellserviced by the relevant organisations (particularly advisory services, but also private companies, research institutions and NGOs). Central areas are afforded more options - including cross-border visits. The impact of political and cultural legacies (e.g. Germany and Switzerland) also has an impact on demonstration locations, through the location of key organisations involved (e.g. research organisations are more likelv to organise demonstrations proximal to their headquarters). Private companies play an important role in sectors and regions where they have substantial big commercial interests.

Demonstrations are less common in areas that are more remote (e.g. Northern Scandinavia) or have issues relating to access (e.g. islands). Exceptions include Austria, where the presence of agricultural chambers or provincial governments are involved in agricultural education in each region, which means that demonstration is more evenly distributed. The same is true of Malta, where owing to the small size of the country, demonstrations are easily accessible. Ireland also demonstrated a wide spatial distribution of on-farm demonstration.

Workshop participants reported considerable fragmentation in delivery of on-farm demonstrations (i.e. lack of collaboration between relevant stakeholders, sporadic availability). This reflects the wide range of providers and topics, and weak histories of farmer collaboration. Fragmentation is particularly notable in countries without strong national level advisory services.

Some countries described where farm demonstration participants had come from, which suggested that willingness to travel (and therefore geographical reach of farm demonstrations) is relatively high. For example, it was suggested that while demonstrations in Sweden are concentrated in the south, farmers from the north are accustomed to travelling so would not necessarily see that as a problem. In Norway, most participants reportedly come from either the locality or region, but in Denmark, around half of participants attended from outside the region (and a small number from elsewhere in the EU). There was



some suggestion in the reports that specialist producers appear to be more likely to travel further to attend events. Livestockfocussed demonstrations appear to be fewer due to opportunities to view livestock production innovations at other events and shows, which provide opportunities to interact and learn.

4.2 GENDER

Overall, farm demonstrations in Northern and Southern Europe are male-dominated, whereas there is much more equal gender representation in Eastern European demonstrations (with the exceptions of Poland and Slovakia). However, relatively even gender distribution was <u>also</u> reported in Norway and Portugal. In France and Germany women appear to be represented in greater numbers about half of the time (i.e. about half the time women and men attend in relatively even numbers).

Topic has an important impact on gendered attendance. In general, men tend to dominate at demonstrations focusing on machinery and technology, whereas higher representation of women is found at demonstrations addressing on-farm processing, alternative agricultural production (including organic), environmental issues and horticulture. For example, in Sweden, fewer women attended events discussing arable or technical issues, whereas greater female representation was found at demonstrations focussing on environmental issues. In Belgium, there is a higher female presence for topics such as organic or alternative farming and fruit production.

In Norway, women were less likely to attend farmer-led demonstrations than ones led by organisations $_{L_{7}}^{+}$ which was identified as a key area of investigation to be pursued in the country's case studies. In the Netherlands, where women were found to be under-represented in the context of conventional farming demonstrations, they were found to be a significant driving force behind demonstrations of new economic activities (e.g. farm diversification).

Slow changes to the gender balance appear to be happening through processes of succession. However, discussions were had in relation to how reflective demonstration events are of the sector, and regarding difficulties in assessing the data in terms of these types of characteristics. Supra-regional workshop participants also argued that attendance at events largely reflected the gendered nature of the sector: men outnumber women on farms in Europe. No active constraints for including of women into demonstration events were reported, but more subtle actions may be in place (e.g. event invitations addressed to the 'primary farmer' rather than the farming household, lack of childcare facilities).

The organisation of on-farm demonstrations was more balanced in terms of the organisers, owing to the egalitarian hiring practices of many agricultural advisory services, research institutions and NGOs.



4.3 AGE AND EDUCATION POSITION

In all EU countries, the majority of farmers are over 50 years of age. It is therefore to be expected that demonstration participants would show similar characteristics. Most demonstrations in the inventory reported a wide age-range amongst attendees; most demonstrations are directed to all ages. It was observed that although they are not 'young', attendees tend to be somewhat younger than the average age of farmers. Younger farmers tend to be more interested in innovation in the field of agriculture and tend to be better educated; for them, on-farm demonstration activities are a well-accepted <u>opportunity to accessform to get</u> information about agricultural topics. Topic is also linked to younger farmer attendance, particularly organic and alternative farming and fruit production.

Little or no information is available relating to participants' positions in farming businesses <u>(e.g. as successors, employees)</u>.

It was initially noted at the southern Supra-regional meeting, and supported at the others, that more highly educated farmers are more likely to participate in demonstration events. It was speculated that attending agricultural university or college set the foundation for a culture of `lifelong learning', where attendance at demonstrations (and other educational activities) became commonplace.



6.5. KEY MESSAGES

Findings in this report are based on inventory results and observations provided by consortium members and subcontractors in the EU 28, Norway, Serbia, and Switzerland and discussions at three 'supra-regional workshops', held in and Venice, Italy, Krakow, Poland, and Leuven, Belgium, in February/March 2018. These meetings included discussion of the 'key messages for policy makers', which are integrated here with findings from the inventory data collection and national reports:

It is important to note that although over 1,200 entries were in the inventory at the time of reporting, we do not see these as representative of all on farm demonstration in Europe. However, the inventory and associated reports represent the first substantive dataset on demonstration on European farms and are useful for identifying themes and distinctions between countries and regions.

Our analysis yields the following messages for policymakers:

- 1. Demonstration events are well-accepted by farmers, advisors, researchers and agricultural industry members as valuable opportunities for knowledge exchange and learning about innovations. Farmers also value demonstration events as occasions to share experiences and to establish and strengthen social relationships.
- 2. The prevalence of on-farm demonstration directly relates to the availability of publicly-funded agricultural advisory services. Demonstration activities are declining in most Southern European countries, mainly due to the reduced funding and to the reduction or disappearance of public advisory services. Making demonstration part of AKIS (Agricultural Knowledge and Innovation Systems) plans in the new CAP program could help address this gap.
- 3. There is a clear demand for more organised and long-term on-farm demonstration, especially where agriculture is regionally based (Italy and France), where farmer networks are generally weak (much of Eastern Europe), and at the EU scale. Agricultural advisors are often the key stakeholders that bring together multiple actors to put on a demonstration event.
- 4. Organisers of on-farm demonstration (e.g. public, private and charitably-funded advisors, farmers, researchers) would benefit from opportunities to network across regions and countries in Europe.
- 5. Increased farmer involvement in leading demonstration activities could be achieved by making funding directly available to them for this purpose. Farmer-led demonstration should be supported not only in terms of funding but also in terms of methods and training.



- 6. Highly-educated farmers are more likely to participate in demonstrations. Agricultural education thus appears to lead to a culture of 'lifelong learning' and innovativeness amongst farmers.
- New strategies for on-farm demonstration activities to reach currently under-represented groups, such as young farmers, women, farmers in remote regions, and farmers involved in highly specialiszed production, should be considered.
- 8. There are opportunities to increase the quality of on-farm demonstration, through promoting best practice and establishing guidelines for evaluation of success. For example, organic farming could be used as a "best practice example" in terms of high levels of farmer-led demonstration, and demonstration of whole farm approaches.
- 9. Improving access to on-farm demonstration could be achieved through identification of demonstration as desirable outputs from EIP Agri research projects, Thematic Networks and Operational Groups. Integrating the Multi-Actor Approach (whereby farmers, industry stakeholders, advisors and researchers are incentivised to work together to address specific problems) at national level would increase the quality of demonstration activities.
- 10. New digital tools and social media can help in notification of demonstration events and dissemination of key outputs, in additional to facilitating contact and continued exchange after the events. Opportune use of technologies and new digital platforms (e.g. the PLAID 'Virtual Farm') is important to supplement access to innovation but should not replace face to face interactions.
- 11. Although peer-to-peer learning and knowledge exchange is powerful and important, there is still a need for traditional, linear knowledge transfer in some circumstances.



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