

Month 30 2019
Deliverable 2.2

REVISED CONCEPTUAL FRAMEWORK AND TYPOLOGY

WP2: Practice-based conceptual framework and
typology development



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



This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 727388

PLAID PARTNERS



ADVISORY SERVICE
Advisory Service
Croatia ASC



ARVALIS Institut
du Végétal



Association de
Coordination
Technique Agricole
ACTA



Centre for Rural Research
Centre for Rural
Research



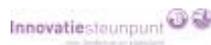
Chambers of
Agriculture



Delphy



European Forum
for Agricultural and
Rural Advisory
Services EUFRAS



Innovatiesteunpunt
ISP



Institut de
l'Elevage - Idele



Instituto Navarro
De Tecnologias E
Infraestructuras
Agrolimentarias



Linking
Environment And
Farming LEAF



National
Agricultural
Advisory Service



Nodibinajums
Baltic Studies
Centre BSC



Research Institute
of Organic
Agriculture (FiBL)



Stichting
Wageningen
Research



The James Hutton
Institute



VINIDEA



PLAID

DOCUMENT SUMMARY

Deliverable Title: Revised conceptual framework and typology

Version: 2

Deliverable Lead: Boelie Elzen (WUR)

Related Work package: WP3, WP4, WP5

Author(s): Boelie Elzen, Rob J.F. Burton

Contributor(s): Talis Tisenkopf, Anda Ādamsone-Fiskoviča, Mikelis Grivins

Reviewer(s): Lee-Ann Sutherland

Communication level: P

Grant Agreement Number: 727388

Project name: PLAID

Start date of Project: January 2017

Duration: 30 Months

Project coordinator: The James Hutton Institute

ABSTRACT

This report presents a revision of the Conceptual Framework (CF) from the PLAID project (Peer to Peer Learning: Accessing Innovation through Demonstration). The initial CF was used to specify the methodologies for making a pan-European inventory of on-farm demonstrations and to carry out 24 in-depth case studies in 12 European countries. Analysis of this data demonstrated that the initial distinction between public and privately oriented demonstrations, and between farmer and organizationally led demonstrations was less evident in practice than expected. The typology was refined in relation to the sustainability dimensions of demonstration: economic, environmental, social and human/cultural.



PLAID

TABLE OF CONTENTS

- 1 INTRODUCTION 6
- 2 REVISING THE PLAID CONCEPTUAL FRAMEWORK..... 7
- 3 THE PLAID TYPOLOGY & MAIN DEMONSTRATION DIMENSIONS 9
 - 3.1 KEY DIMENSIONS OF DEMONSTRATIONS 9
 - 3.2 LESSONS FROM THE CASE STUDY ANALYSIS 10
 - 3.3 CLUSTER ANALYSIS OF DEMONSTRATIONS 10
 - 3.3.1 Measuring the sustainability dimension: 10
 - 3.3.2 Measuring the institutional dimension: 11
 - 3.3.3 Factor analysis..... 11
 - 3.3.4 Cluster analysis..... 11
 - 3.3.5 Result – a typology for sustainable farmer-led demonstration? 12
 - 3.4 DISCUSSION 14
 - 3.4.1 Demonstration objectives 14
 - 3.4.2 Gender 15
 - 3.4.3 Production types 15
 - 3.4.4 Country distribution..... 15
 - 3.5 CONCLUSION..... 15
- 4 SUCCESS FACTORS RELATED TO DEMONSTRATION OBJECTIVES 17
 - 4.1 THE INITIAL PLAID CF: IDENTIFYING SUCCESS FACTORS..... 17
 - 4.2 STARTING POINTS FOR THE REVISION 17
 - 4.3 THE OBJECTIVES OF A DEMONSTRATION 18
 - 4.3.1 Demo objective aspect 1: Why – The motivation for a demonstration 18
 - 4.3.2 Demo objective aspect 2: What – The topics of a demonstration 19
 - 4.3.3 Demo objective aspect 3: Who – The visitors of a demonstration 19
 - 4.3.4 Demo objective aspect 4: Goals – What should visitors take home 20
 - 4.4 MONITORING AND EVALUATION 21
- 5 CONTRIBUTING TO SUSTAINABLE AGRICULTURE: ANALYSING DEMONSTRATIONS IN CONTEXT 23
 - 5.1 THE INITIAL PLAID CF: TAKING SUSTAINABILITY IN THE BROAD SENSE 23
 - 5.2 THE CONTEXT OF DEMONSTRATIONS 23
 - 5.2.1 The context of demonstrations..... 23
 - 5.2.2 The context and needs of visitor-farmers 25



6	INFLUENCING A FARMER’S BEHAVIOUR: KNOWLEDGE TRANSFER AT A DEMONSTRATION	26
6.1	THE INITIAL PLAID CF: INFLUENCING FARMERS’ BEHAVIOUR.....	26
6.2	FORMS OF KNOWLEDGE AND KNOWLEDGE USE.....	27
7	STIMULATING DEMONSTRATION IMPACT	29
7.1	THE INITIAL PLAID CF: ANCHORING AND SCALING..	29
7.2	STIMULATING DEMONSTRATION OUTPUT	29
7.3	STIMULATING FURTHER LEARNING AND NETWORKING	30
7.3.1	Stimulating after-demonstration peer-to-peer interaction	30
7.3.2	Enrolling advisors.....	31
8	CONCLUSION: THE ROLE OF DEMONSTRATIONS.....	32



PLAID

1 INTRODUCTION

This report presents a revision of the Conceptual Framework (CF) from the PLAID project (Peer to Peer Learning: Accessing Innovation through Demonstration) that is funded under the EU Horizon 2020 Framework Programme. PLAID has been designed to map and analyse on-farm demonstrations with the aim *“to increase the innovativeness and sustainability of European agriculture by enabling a wider range of farmers and farm employees to access high quality peer-to-peer learning opportunities on commercial farms”*.

At the beginning of the PLAID project, the initial CF was developed.¹ The starting point was the analysis of demonstrations that was described in the Grant Agreement. A further literature study led to specifying the various approaches and theories that would enable a detailed analysis of the working of demonstrations in the project. The CF was subsequently used to specify the methodologies for making a pan-European inventory of on-farm demonstrations and to carry out 24 in-depth case studies in 12 European countries. The subsequent analysis of this inventory and the 24 case studies showed the usefulness of the initial Conceptual Framework but also necessitated a partial revision and refinement of the CF. This was already foreseen in the Grant Agreement as a specific task with a planned deliverable. This report concerns this Deliverable 2.2: “Revision of the PLAID Conceptual Framework”.

¹ Burton, R. et al. (2017). *PLAID: A Practice-Based Conceptual Framework and Typology*. D2.1 from the Horizon 2020 PLAID project. <https://www.plaid-h2020.eu/>

2 REVISING THE PLAID CONCEPTUAL FRAMEWORK

In the initial set-up of the PLAID project, as described in the Grant Agreement, the specified approach was to use the initial Conceptual Framework as the basis for the methodology for the empirical work. However, a complication emerged when it appeared that, under the same call that PLAID was granted, a second project was granted by the name of AgriDemo-F2F. This created the risk that both projects would develop different sets of recommendations on demonstrations which would be very confusing for the practice community.

The projects therefore collaborated, seeking to develop a single set of recommendations under the joint name of 'FarmDemo'. However, the AgriDemo-F2F project had a logic of its own and had developed a conceptual approach that differed in various respects from the PLAID approach (albeit with significant commonalities). To address this and identify a common ground early on for the two projects, a shared 'general approach' was developed by the name of 'FarmDemo Project Narrative'. This narrative identified the key aspects of a demonstration that both projects would take as a starting point to eventually allow developing joint final recommendations. This project narrative distinguishes the following aspects of demonstrations:

1. **Set up:** preparation, organisation, financing of the demonstration, etc.;
2. **Demonstration event:** everything (except learning; cf. next point) that happens at the actual demonstration (e.g. types & numbers of visitors, accessibility, setting, group sizes in different elements of the meeting, programme, unplanned things);
3. **Learning:** what and how participants take in and process information at the actual demonstration, as well as before and after the demonstration; it addresses both the process (incl. mediation techniques) and the content of the demonstration (the demonstrated topics);
4. **Anchoring:** application of knowledge/practices by demonstration visitors, adoption of innovation;
5. **Scaling:** wider use of demonstrated novelties by the larger farming community, diffusion of innovation;
6. **Demonstration context:** describes the agricultural subsystem that the demonstration is part of, i.e. the key actors, technology and practices, sustainability challenges, etc.

Building on this common ground, each project would carry out its own set of case studies on the basis of its own case study methodology.

Thus, in PLAID, the initial CF and the FarmDemo Project Narrative were jointly used to guide the development of the case study methodology. The initial CF specified a number of key features and key processes in demonstration (e.g. on learning and (stimulating) behavioural change) and provided an assessment of important success factors. Combined with the aspects from the Project Narrative listed above these were used to specify the PLAID case study methodology for the 24 case studies. It also formed the basis for the specification of a reporting template for these case studies to ensure that it would be possible to carry out an integrated assessment across these cases.

Following this case study work, a cross-cutting analysis was carried out to identify good practices for successful demonstrations across Europe.² This analysis also led to the conclusion that several parts of the initial CF needed partial revision or had to be further

² Elzen, B., Wijnands, F. and Adamson-Fiskovica, A. (2019). *Good Practices for Successful Demonstrations: Findings from 24 European case studies*. D5.2 from the Horizon 2020 PLAID project. <https://www.plaid-h2020.eu/>

specified. These revisions are described below and concern the following demonstration aspects: Demonstration Typologies (Ch.3), Success Factors of Demonstrations (Ch.4), Contribution to Sustainable Agriculture (Ch.5), Influencing a Farmer's Behaviour (Ch.6) and Stimulating Demonstration Impact (Ch.7).

3 THE PLAID TYPOLOGY & MAIN DEMONSTRATION DIMENSIONS

3.1 KEY DIMENSIONS OF DEMONSTRATIONS

Typologies can provide a simple illustration of the structure within farming communities and practices. To understand the types of demonstration activity PLAID began by developing an “a priori” typology where researchers use their knowledge to create a theoretically informed division. Using a “matrix approach” (Meert et al., 2005) we selected two important dimensions of demonstration based on the initial H2020 call, namely:

- (a) **Sustainability:** Whether the demonstration is only to meet commercial objectives and benefit private organisations (private goods) or promote public goods (e.g. environmental improvement, community development).
- (b) **Institutional setting:** Whether the demonstration activities are administered from the bottom up (i.e. by farmers) or top down (i.e. by the government).

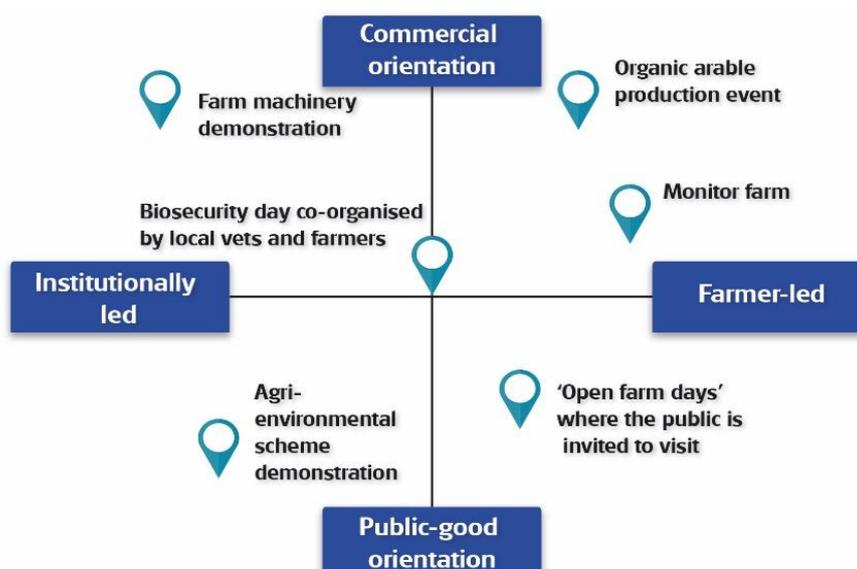
The sustainability dimension was selected to identify the extent to which the demonstration farming addressed narrow single goals (generally exclusively commercial) or broader goals (economic, social, environmental, cultural) that may lead to more sustainable agriculture.

The institutional dimension emphasises the extent to which the demonstration is organised “peer-to-peer” or institutionally managed – a key concept in PLAID. A basic classification from the literature can be drawn around three commonly referred to groups.

1. **Institutionally governed demonstration activities:** established by a research centre, special interest group (e.g. conservation charities), agribusiness or agricultural educational organisation. The key criteria for this demonstration type is that the goals and objectives are often determined by those involved in the industry, not the farming community itself.
2. **Farmer-led demonstration activities:** established by farmers or groups of farmers to meet their needs. Examples of these ‘farmer-led’ demonstrations are ‘monitor farms’, established in New Zealand and subsequently adopted in Europe. A group of farmers agree to meet at established intervals to propose and assess innovations for adoption on-farm. Decisions on which innovation to investigate are made by the group.
3. **Informal demonstration activities:** local farmers identified as ‘good farmers’ are observed informally by others in the community. The observation of farms by neighbours is known to be an important way of transferring knowledge within the farming communities. These farms are difficult for outsiders to identify, but they are crucial for influencing change.

The result of the application of this matrix approach led to the development of an initial PLAID demonstration typology on which, we supposed, different demonstration activities could be located (see figure 1).

Figure 1: Initial PLAID demonstration typology



3.2 LESSONS FROM THE CASE STUDY ANALYSIS

However, locating our case study farms on this matrix proved to be rather problematic for two main reasons:

- First, several demonstrations were institutionally led or farmer led but most demonstrations appear to be organized by a team of organisers consisting of a mixture of farmers and farmers organisations or other institutions.
- Second, many demonstrations addressed a variety of demonstration aspects, some commercial, some public good oriented.

3.3 CLUSTER ANALYSIS OF DEMONSTRATIONS

In order to address these issues while retaining the original axes, we employed a clustering procedure to the database of demonstration activities created for the georeferenced inventory.

3.3.1 Measuring the sustainability dimension:

To measure aspects of sustainability items from the online database the following question was used: "What are the 5 most important reasons why you (the farmer) first decided/agreed to host these demonstration activities on your farm?" For analysis, the 17 options were classified into four types of "capital" representing how the demonstrations were aimed at building different aspects of agriculture. The measure used for each capital type was simply the number of times the items were mentioned in responses. An additional question included was whether the demonstrators focused on single farm practices or a whole farm approach ("multiple practices linked to the overall farm management") – in order to assess whether the demonstrators were taking a broad or narrow view on farm management practices. This was under the premise that whole farm approaches offer a more sustainable option.

Table 1: Classification of responses into social, economic, environmental and human capital.

Social Capital	1	10	Strengthen the farming community
		11	Social recognition
		15	Assist farm families
		14	Networking
Economic Capital	2	1	Innovation development
		2	Technology promotion/Product sales
		3	Monetary/Financial
		4	Competitiveness/Productivity
		17	Local economic development
Environmental Capital	3	7	Nature conservation
		8	Improved environmental conditions
		16	Regulatory compliance/Policy implementation
Human/cultural Capital	4	12	Knowledge creation
		9	Innovation uptake
		6	Information gathering/sharing
		13	Research implementation
		5	Educational and training opportunities

3.3.2 Measuring the institutional dimension:

Three variables were used to measure the institutional dimension

1. Was the demonstration event organised by your organisation or an external one? (5 point scale)
2. Number of demonstrations that involved non-farm based primary organisers
3. Number of demonstrations that involved farm based primary organisers

3.3.3 Factor analysis

The first stage in the analysis of data via cluster analysis is to conduct a factor analysis. For the PLAID typology we used SPSS 25 to conduct an unrotated Principal Components Analysis (PCA). In terms of the suitability of the data for factor analysis the KMO test suggested it was marginally suitable (a measure of .472 – with .500 generally regarded as an acceptable level). The Bartlett's Test (Chi-square = 829, d.f. = 28, p. < .000) suggested the data met the sphericity criteria for analysis.

3.3.4 Cluster analysis

Cluster analysis is a technique for grouping cases (such as demonstrations) on the basis of similarity. Factor variables from the PCA were used to conduct the cluster analysis rather than the raw data in order to ensure the constructs were evenly weighted. Ward's method was chosen as the clustering algorithm. Having identified 7 potential clusters, the validity of the clusters was examined by conducting tests on external variables (not used in the clustering procedure) that should theoretically be related to the clusters (Ketchen & Shook, 1996). This showed that the relationship between the clusters and the external variables was significant 76% of the time.

3.3.5 Result – a typology for sustainable farmer-led demonstration?

Figure 1 displays the farm types as detected in the analysis. This illustrates how the clustering process was able to address the issues raised from the case study analysis. Clusters were organised by farmers, external organisations, and in some cases both. Similarly, clusters addressed different sustainability goals - rather than it being determined strictly on a public good or commercial basis. The key strength of this particular typology is that it can assist in understanding the relationship between demonstration farming, direct farmer involvement, and the aspects of sustainability being addressed in the demonstration.

Table 2: Farm demonstration typology

Cluster description	Organisations	Farmer organised?	Social	Cultural	Economic	Environmental	Whole farm
Cluster 1. Professional commercial livestock extension	247	No			High	Low	
Cluster 2. Farmer-led commercial development.	171	Yes		Low	High		
Cluster 3. Environmentally sustainable horticulture/orcharding.	157	Both				High	
Cluster 4. Farmer-led community development.	147	Yes (strongly)	High				High
Cluster 5. Research-based innovation extension.	135	No	Low	High			
Cluster 6. Externally-funded community development.	143	No	High		Low	Low	
Cluster 7. Small informal crop demonstrations.	137	Both		Low	Low		Low

The farm types were further elaborated by exploring the relationships between the clusters and additional information gathered in the database.

Cluster 1. Professional commercial livestock extension.

Cluster 1 consisted of externally organised demonstrations, often funded by advisory/extension services, that primarily sought to develop the profitability of agriculture and had a minimal focus on promoting environmental measures. Events for this cluster are held on research farms rather than commercial farms and are generally based around livestock rather than field crops. They attract an audience with a relatively high proportion of participants working directly with agriculture (livestock), however, they attract relatively low numbers of female attendees.

Cluster 2. Farmer-led commercial development.

As with Cluster 1, organisations in Cluster 2 are focused predominantly on the development of farm profitability. However, unlike Cluster 1 this cluster is driven by the farming community itself. Activities tend to be self-funded, farmer-led, and held on ordinary commercial farms – while their reliance on individual contacts as a means of promoting events suggests they are well embedded within farming communities. Their lack of engagement with a network and low levels of formal promotion suggests demonstrations operate largely independently.

Cluster 3. Environmentally sustainable horticulture / orcharding.

Cluster 3 has a relatively high proportion of female attendees and a focus on environmental capital. Organisations in this cluster were likely to take a broad sustainability approach, with motivations covering multiple sustainability pillars (social, economic and environmental)³. Demonstrations tend to focus on horticulture and orcharding and the number of non-farmer attendees is relatively high.

Cluster 4. Farmer-led community development.

As with cluster 2, cluster 4 showed a strong tendency towards farmer organisation, commercial farm activities, and self-funding, but this time focused on the development of

³ Note that this is in part attributable to the fact that, unlike the other clusters, this group shows higher levels of engagement with environmental capital.

social capital and the use of a whole farm approach. Demonstration activities tend to be based on animal husbandry or are general demonstrations (not on any specific crop or animal). The fact that this category has a relatively low proportion of farming related visitors combined with the focus on social capital suggests these demonstrations have a community development function. High numbers of demonstration events, high levels of attendees, and membership of large networks suggests this is an important type of demonstration activity. The proportion of female visitors is relatively high.

Cluster 5. Research-based innovation extension.

Cluster 5 organisations are predominantly externally organised, and likely to be funded by external organisations such as public funding, research institutes or supply chain organisations. The focus here is on the development of human capital, i.e. the creation of new knowledge, innovation uptake, information gathering, research implementation, and education and training. Large numbers of attendees, wide use of promotional approaches, and many demonstration types suggest that, as with Cluster 1, Cluster 5 has a strong focus on formal extension. However, the key differences are that in this case the focus is on extending research, education and innovation, rather than directly on the potential commercial outcomes. Attendance is predominantly male.

Cluster 6. Externally-funded community development.

Cluster 6 comprises highly networked and externally funded organisations focused on the development of rural communities. It is difficult to define this category in part because a high proportion of organisations within it suggested they were funded by “other” organisations – perhaps reflecting a weakness in the closed format categories in the questionnaire. The relatively high number of attendees per demonstration, high use of remote promotion techniques (mailing, website, twitter, leaflets) and low level of promotion through individual contacts suggest an extension objective.

Cluster 7. Small informal crop demonstrations.

Cluster 7 is typified by lower outcomes than other clusters with the only case where the cluster shows a higher tendency than other clusters is in the likelihood of the demonstration involving field crops – matched by a very low likelihood of the demonstration activities involving livestock. The fact that there is a low level of emphasis on the whole farm approach and a low number of sustainability features suggests these are very targeted infrequent cropping demonstrations – and consequently show low numbers of demonstration events, attendees, and small networks.

The distribution of demonstration types across Europe is illustrated in table 3.

Table 3: Distribution of demonstration types over surveyed countries. Marked figures are only for countries with more than 20 respondents.

* indicates 20% to 40% of the farms for this country fall into this cluster,
** indicates 40%+ of the farms fall into this cluster.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Total
United Kingdom	25*	6	17	9	12	27*	0	96
Czech Republic	4	5	6*	5	2	3	4	29
Serbia	1	2	1	1	0	1	0	6
Austria	0	1	2	3	2	2	0	10
Ireland	38**	0	5	2	14	16*	1	76
Latvia	4	1	2	0	3	1	0	11
Bulgaria	24*	10	6	6	12	6	10	74
Slovakia	7*	8*	2	2	4	2	8*	33
Norway	1	1	1	5	1	2	1	12
Italy	7	7	7	1	6	3	1	32
Germany	4	4	6	35**	5	9	8	71
Belgium	3	5	8*	7*	8*	1	0	32
Malta	0	0	1	2	1	0	1	5
Romania	5	4	4	11*	4	6	6	40
France	24*	5	17*	2	13	9	4	74
Finland	2	10*	6*	6*	2	2	2	30
Netherlands	6	4	3	2	10	15*	19*	59
Poland	34*	55*	32*	5	13	6	22	167
Sweden	1	4	4	7	0	1	31**	48
Spain	14*	16*	7	11	1	7	4	60
Hungary	7	4	9*	7	3	4	4	38
Croatia	7	1	1	1	4	1	0	15
Portugal	3	0	0	0	4	0	3	10
Denmark	3	1	0	1	2	4	2	13
Slovenia	3	3	4	2	2	1	0	15
Lithuania	10*	8*	3	4	1	1	2	29
Estonia	5*	5*	0	9*	0	1	3	23
Switzerland	3	1	0	1	4	10**	1	20
Greece	1	0	3	0	2	1	0	7
Cyprus	1	0	0	0	0	1	0	2
Total	66	69	79	79	127	75	79	1137

3.4 DISCUSSION

The analysis of the inventory data identified a number of issues concerning demonstration agriculture in Europe.

3.4.1 Demonstration objectives

More demonstration activities are focused around profitability objectives (37%) than generating other forms of capital, and these can be separated into those that are led by research centres seeking to extend their experimental work (Professional commercial livestock extension – Cluster 1) and demonstrations that originate from the farmers themselves and are held on ordinary commercial farms (Farmer-led commercial development – Cluster 2). Clusters 3 and 4 (Environmentally sustainable horticulture / orcharding and Farmer-led community development) address higher numbers of sustainability pillars, i.e. their objectives are not focused on a single aspect of sustainability (e.g. farm profitability in Clusters 1 and 2). These demonstration types also have the highest attendance of people not working directly in agriculture (e.g. policy-makers, consumers, the public, etc.).

3.4.2 Gender

These two clusters (Clusters 3 and 4) also show relatively high numbers of female attendees. The focus of these demonstration types on a range of non-economic objectives suggests there is a gender division in the types of demonstrations that are attended by male and female participants. It may also reflect a greater focus by women on sustainability. Most of the other demonstration types showed low numbers of women attending. However, an interesting exception is the farmer-led commercial development which, while not favouring female attendees, was not as male dominated as the other clusters. Given that the demonstration types most attended by women were largely farmer organised (Clusters 2, 3 and 4), this raises a question concerning whether non-farmer organised demonstration is showing a gender bias (either in the way the event is organised or the topics covered).

3.4.3 Production types

Interestingly, some of the groups were predominantly related to particular forms of production in particular livestock (Cluster 1), horticulture / orcharding (Cluster 3) and crop demonstrations (Cluster 4) – despite the fact that production type was not one of the variables used as an input to the cluster analysis. This suggests that demonstration types are, or can be, related to specific productions and also the possibility of exploring the use of these types of demonstration to other production types in order to promote aspects such as greater sustainability or inclusion of more women.

3.4.4 Country distribution

Some interesting patterns emerged from the country analysis (Table 3). 64% of Demonstration activities in Sweden, for example, were small informal crop demonstrations, while almost 50% of demonstration activities recorded for Germany were farmer-led community development – self-funded demonstrations with a focus on the development of social capital and a relatively high proportion of non-farmers attending. Ireland's focus on externally driven demonstration – professional commercial livestock extension (50%) and externally funded community development (21%) suggests a lack of direct farmer involvement in demonstration activities (possibly through an effective state-run system). Finally, at least half of the demonstration activities in Lithuania (62%), Poland (53%) and Spain (50%) are focused on economic objectives, falling into the professional commercial livestock extension and farmer-led commercial development categories.

3.5 CONCLUSION

The typology presented here illustrates one way of clustering demonstration types in Europe and, through developing these clusters, enables us to explore how demonstration types are related to factors such as gender, sustainability focus, and production types. This analysis is limited to the data from the demonstration inventory – which itself was limited in terms of the extent to which issues could be explored (by virtue of the need to keep the survey short). An obvious omission, for example, is whether organic agriculture was represented in particular demonstration types.

An important issue to consider is that this is not the only way to group the data. The application of different clustering techniques (or use of different variables) would have led to different clusters being detected (i.e. there is no single definitive division of demonstration farming types). Analysis of the case studies, in fact, identified a number of other dimensions that could be equally, if not, more informative if used for typologising demonstrations.

These dimensions are:

- Sector focus: limited topic / specific subsector (e.g. potato, cheese production) versus 'broad' topic (integrated farm management);
- Topic focus: narrow (e.g. soil management) vs. wide variety of demo topics (crop varieties, machinery, organisation of work, farming management);
- 'Readiness level' of novelty (technical + organisational);
- Low 'threshold' novelties (cheap; easy to implement), high 'threshold' novelties (expensive; difficult to implement);
- Variety in targeted audience (farmers (+advisors); types of farmer ('innovator', 'average'); policy-makers; value-chain actors; citizens;
- 'Forms of demonstration / mediation'. Here we can distinguish between 'explicit' (the organized mediation at the demonstration) and 'implicit' (e.g. visitors talking to each other) learning;
- Once-off demos vs. 'several per year' or 'multi-year' demo programme.

4 SUCCESS FACTORS RELATED TO DEMONSTRATION OBJECTIVES

4.1 THE INITIAL PLAID CF: IDENTIFYING SUCCESS FACTORS

The initial PLAID CF, Ch.4, indicated that measuring success of a demonstration activity largely depends on two aspects, which are quite crucial in defining the criteria for the success of a demonstration:

- The dimension of the demonstration activity that one wants to assess (= success **in what**; e.g. in terms of organisational aspects of the demonstration event or in terms of facilitated changes in farmers' knowledge, behaviour, practices, social and economic resources, etc.);
- The perspective chosen to assess the success (= success **in who's view**; i.e. organiser, funder, demonstrator, participant, or wider community).

Furthermore, the CF indicated that to assess the success of a demonstration activity (performance measurement) along various impact domains one should also take account of the related differentiation between immediate / direct and longer-term / broader effects featuring the following differences:

- Outputs – results achieved immediately after implementing a demonstration activity (e.g., the number of trained farmers);
- Outcomes – later (medium-term) changes that have occurred as a result of a demonstration activity (e.g., application of the gained knowledge by farmers on their own farms);
- Impacts – broader (long-term) changes affecting direct beneficiaries of a demonstration activity or a wider community / institutions / environment that become evident several years after the activity has taken place (e.g., increased annual productivity levels of local farms).

4.2 STARTING POINTS FOR THE REVISION

As indicated above in Chapter 2, the initial CF was used together with the "FarmDemo Project Narrative" (developed jointly with the AgriDemo-F2F project) to guide the development of the PLAID case study methodology. This was used to carry out 24 case studies in 12 PLAID partner countries to assess the success of demonstrations in various agricultural sectors. Based on the initial conceptual framework and its application in the case studies, we can specify the following 'starting points' in assessing the success of a demonstration:

- The success of a demonstration can be assessed from various different angles and in relation to various specific aspects of a demonstration. It is therefore important to specify a 'yardstick' to measure the success. This yardstick is provided by the **objectives** of a demonstration. These objectives should specify what the demonstration seeks to achieve and the degree of success then indicates to what extent these objectives have actually been achieved.
- A method is needed to collect data on how a demonstration actually 'works' (monitoring), as well as a method for evaluating the findings from this monitoring *vis-à-vis* the objectives of the demonstration. These two activities combined are usually referred to as 'monitoring and evaluation' (**M&E**).
- Demonstration should not only be seen as an activity in itself but as part of a more encompassing process to make agriculture more sustainable.

We will address the first two points in this section and will get back to the final point in Chapter 5.

4.3 THE OBJECTIVES OF A DEMONSTRATION

The objectives of a demonstration should specify what a demonstration seeks to achieve. Subsequently, all activities of the demonstration should be organised such that they will contribute towards achieving these objectives. This includes the identification of the demonstration topics, reaching out to the main target groups, describing all activities that will be carried out at the demo event, the set-up of M&E, etc.

What we found in our case studies, however, is that in preparing a demonstration most organisers immediately start discussing the topics and the activities at a demonstration, without paying explicit attention to the objectives, to what they want to achieve with the demonstration. For that reason, this revision of the CF will also identify the various aspects that should be addressed in the demonstration objectives.

To give guidance to the organisation of a demonstration, the objectives need to cover the following aspects:

- Why: the motive(s) for the demonstration;
- What: the topic of demonstration;
- Who: the targeted visitors of the demonstration;
- Goals: what do the organisers want to achieve; what should visitors take home from the demonstration.

These four aspects are briefly elaborated below.

4.3.1 Demo objective aspect 1: Why – The motivation for a demonstration

The 'why' aspect specifies the motivation or need for the demonstration. The following two general reasons can lead to holding a demonstration, which is often inspired by a combination of these two:

- A **problem or a challenge** in agriculture, either 'internal' to farming (farming sustainability needs, e.g. plant health, labour) or societal/political (societal sustainability needs);
- A **new opportunity** (e.g. emerging from research, from business, from pioneer-farmers).

A demonstration has the largest impact when a new opportunity provides a solution to a problem or a challenge that is encountered by the visiting farmers. In assessing the success of a demonstration it is therefore important to look at the role that both these motivations play.

4.3.2 Demo objective aspect 2: What – The topics of a demonstration

The 'what' aspect specifies the object that is demonstrated, e.g. farming equipment, farming practice, crop varieties, etc. Our case studies illustrate that there can be an enormous variety of innovations demonstrated.⁴ Two important aspects are:

- The range of innovations that are demonstrated (e.g. a narrow focus on machines for undersowing catch crops in maize versus a broad range of demonstrated topics at an organic cattle day);
- The 'readiness' of various innovations (how easy is it to buy and/or apply).

Our cases indicate that organisers can be guided by two different models to demonstrate these innovations:

- The **open market** model: the organisers do not target specific farmer groups with what they will demonstrate. A diverse range of things is displayed, and a variety of visitors look around to see whether there is something in it for them;
- The **targeted visitor and topic** model: the organisers target a specific farmer group with a limited number of specific innovations that are demonstrated.

Smaller demonstrations tend to be more targeted and often follow the second model while broad demonstrations with many topics often follow the open market model. In the latter case, however, some parts of the demonstration may also be more targeted.

The 'readiness' of the innovation(s) is important in defining who the targeted visitors should be. For innovations with a high degree of readiness, the target group can be the 'average' farmer. However, if an innovation has a low degree of readiness, only 'innovative' farmers are likely to consider using it. Yet, in such a case the demonstration could also target the average farmer to raise awareness of the innovation which may make them more prepared to apply it in the longer term.

To be able to assess the success of a demonstration it is important that the objectives indicate the readiness of the various aspects that they will demonstrate and distinguish between various user groups that they seek to address with these.

4.3.3 Demo objective aspect 3: Who – The visitors of a demonstration

Based on the 'why' and 'what' aspects discussed above, the next key aspect of the objectives are the targeted visitors. This can be a specific subset of the farming community and/or other actors from the agro-food chain. One distinction may be related to the sectoral profile of what is demonstrated, for instance:

- Farmers in a specific subsector (e.g. dairy farmers, potato growers, fruit growers);
- Organic and/or integrated farmers.

Another distinction is related to the general type of attitude of farmers towards innovation, which connects to the 'readiness level' of what is demonstrated as discussed above:

- 'Reluctant adopter' farmer (when the topic of the demo has a high level of 'readiness');
- Innovative farmers (for topics with a low level of 'readiness');

⁴ Elzen, B., Wijnands, F. and Adamson-Fiskovica, A. (2019). *Good Practices for Successful Demonstrations: Findings from 24 European case studies*. Annex 1. D5.2 from the Horizon 2020 PLAID project. <https://www.plaid-h2020.eu/>

Other audiences may include:

- Farming advisors (they are important as potential 'multipliers' of the demonstration outputs);
- Farming press (can also act as 'multipliers');
- Stakeholders from the agro-food value chain;
- Policy makers (to make them aware of potential policy barriers or stimuli);
- General public (to improve connections between farmers and the rest of society).

The objectives need to indicate which specific groups are targeted as that will determine which information channels should be used to reach these audiences. One indicator of success of the demonstration will then be how many of these audiences actually visit the demo.

4.3.4 Demo objective aspect 4: Goals – What should visitors take home

We make a distinction between short-term and longer-term goals. The **short-term goals** refer to what the visitors of a demonstration take home (= demonstration 'output'; cf. section 4.1). **Longer-term goals** can refer to what the visitors do after the demonstration with what they have learned. Concerning the latter, the initial CF made a distinction between outcomes and impact (cf. section 4.1) but the limitations in carrying out the case studies did not allow us to go into sufficient depth to distinguish the two. We therefore will take them together below under the single term '**impact**' to indicate what happens after a demonstration.

At a demonstration, visitors can gain various types of knowledge. In D5.2⁵, the following four types were distinguished: **know-why** (awareness, motivation); **know-what** (the demonstration topic); **know-how** (applying the demo topic); and **know-who** (the demonstrators and farmer-colleagues met at the demonstration).

Concerning **short-term goals**, what different farmers take home will depend upon the type of farmer and the demonstrated object. For instance, for a 'reluctant adopter', a 'very advanced' innovation will only lead to increased awareness while an innovative farmer may be motivated to actually apply it back home.

Organisers of a demonstration may also set **longer-term goals** on stimulating what demonstration visitors do with their new knowledge after the demonstration and thus seek to increase the impact of the demonstration. Such longer-term goals may include:

- **Empower farmers** in terms of motivation, knowledge and/or skills by providing them with further information after the demonstration;
- Motivate farmers to **inform themselves** further on specific aspects;
- Motivate farmers to further **consider changes** by offering platforms for exchange, e.g. via social media or face-to-face meetings;
- Motivate farmers to **change** specific farming **practices**;
- **Empower farming advisors** (in terms of motivation and knowledge) so that they can 'multiply' the demonstration output and raise its impact;

⁵ Elzen, B., Wijnands, F. and Adamsone-Fiskovica, A. (2019). *Good Practices for Successful Demonstrations: Findings from 24 European case studies*. Section 4.7. D5.2 from the Horizon 2020 PLAID project. <https://www.plaid-h2020.eu/>

- Stimulate all of the above by **informing the farming press** on a variety of 'inspiring' new developments.

The above shows that the four aspects of the demonstration are closely linked and partially define each other. The topic, for instance, defines who the targeted audience should be. Thus, the four aspects of a demonstration need to be closely tuned. But once they are clearly set, they provide a coherent description of what the organisers seek to achieve which allows using their use after the demonstration to assess which aspects were more and which were less successful.

The demonstration objectives provide the main guidance for setting up a successful demonstration. They form the basis for the various organisational aspects of the actual demonstration event, including:

- Access: making the demonstration attractive and accessible for various visitor groups;
- Where: choosing the host farmer and location of the demonstration;
- When: setting the time of year and the duration of the demonstration;
- How: elaborating the programme of the demonstration, i.e. all demonstration activities and how they are to be carried out.

4.4 MONITORING AND EVALUATION

To assess the success of a demonstration, it is key to evaluate afterwards how it actually worked out. Our cases show that organisers typically do evaluate a past demonstration, but they tend to do that somewhat intuitively, based on their own impressions of what happened at the demonstration. PLAID partners collected more structured data on the demonstrations that they then studied and shared with the demonstration organisers. Most of the organisers found this feedback very useful which is a clear indication of the value of such M&E activities.

In our case studies, PLAID partners collected a lot of information on demonstrations, including feedback from demonstration visitors via questionnaires and focus groups. The topics addressed included what visitors liked the most or the least, which other things they wanted to be informed on, etc. For this form of monitoring a simple and effective **monitoring tool** was developed, viz. a brief questionnaire for demonstration participants. The main questions were derived from the key aspects of the demonstration objective.

After the demonstration, PLAID partners evaluated the monitoring findings with the organisers. Although many demo organisers had not explicitly formulated objectives beforehand, in most cases this helped them to obtain a more nuanced picture of the success of their demonstration. The topics addressed at these evaluations included:

- To obtain better knowledge of the profile of visitors (e.g. numbers, age, gender, farming profile);
- To get a better feel for **what motivates visiting farmers** and what they need:
 - ◆ What do they find interesting (motivation);
 - ◆ Barriers they face for implementation ('know-what' and 'know-how' needs);
- To better plan and shape **follow-up activities**;
- To improve the next version of a demonstration;
- Collect **contact details** of visiting farmers to be able to continue interaction with them which may help to increase the impact of the demonstration.

In the project, a deliberate choice was made to make the questionnaire a rather simple monitoring tool rather than an extensive one. This was to create a low threshold for demo

organisers to use it themselves. The form only takes a few minutes to fill in which is also recommendable because, at the end of the demo, many visitors like to go home and not spend much time answering questions. One of the project recommendations, however, is that demo organisers may also attempt to 'professionalise' M&E by engaging a research organisation or agricultural college. The latter has the additional advantage that it would provide a learning experience for students carrying out the M&E, which could be an additional objective of a demonstration.

Monitoring and evaluation is important to add reflexivity to the process of organising a demonstration and clearly helps the organisers to learn in a more structured way on how to best do this. Our cases show that this can have substantial benefits for the organisers while collecting and processing this information only takes little time. It is therefore not only a way to measure success of a demo but it can also be used as a means of improving its success.

5 CONTRIBUTING TO SUSTAINABLE AGRICULTURE: ANALYSING DEMONSTRATIONS IN CONTEXT

5.1 THE INITIAL PLAID CF: TAKING SUSTAINABILITY IN THE BROAD SENSE

In the PLAID approach, demonstrations are analysed in the context of making European agriculture more sustainable. The initial CF discussed that there are many ways to define the term 'sustainability' and that it is used by scholars and practitioners in various ways. In PLAID, we use the term sustainability in the broad sense, i.e. to indicate social, environmental and economic factors, often referred to as the 3 pillars of sustainability: people, planet & profit (3P model).

In PLAID we set out to gather information on sustainability by asking for the motivation for hosting demonstrations on a farm. When asked about the motivations for organising demonstrations, the following reasons ranked the highest, reflecting the three pillars of sustainability:

- Strengthen the farming community (Social pillar)
- Assist farm families (Social pillar)
- Improved environmental conditions (Environmental pillar)
- Nature conservation (Environmental pillar)
- Local economic development (Economic pillar)
- Monetary/Financial (Economic pillar)
- Competitiveness/Productivity (Economic pillar)

5.2 THE CONTEXT OF DEMONSTRATIONS

To be able to assess the contribution of a demonstration to making agriculture more sustainable, we need to analyse the wider context within which demonstrations take place. From this perspective, there are many factors that influence farmers decisions to change their practices and become more sustainable. This context should therefore be taken into account by setting up a demonstration but it also defines what visiting farmers need, as will be discussed in the next two sections.

5.2.1 The context of demonstrations

Demonstrations take place in a broader context in which the overall ambition is to stimulate innovation processes that contribute to making agriculture more sustainable. The two key terms in this are 'sustainable agriculture' and 'innovation'. Concerning sustainable agriculture, it was discussed above that the initial CF already indicated that in PLAID this is given the broad meaning of addressing the three main pillars: people, planet and profit. The term 'innovation' needs some further explanation in the context of demonstrations.

'**Innovation**' is usually taken to refer to something new in an absolute sense, i.e. never done before. In demonstrations, however, the key aspect of 'newness' is that it is new to the visiting farmer. It may even refer to century-old practices or crop varieties and there are many examples of re-introducing these to present-day agriculture, often after adapting

them a bit. This is sometimes called 'retro-innovation'.⁶ As a result, for a demonstration a topic by definition is also an innovation, *i.e.* new to a significant share of the visiting farmers. For this reason, the revised CF will use the terms 'demonstration topic' and 'innovation' interchangeably.

Based on our broad interpretation of sustainability, there are various pressures on farmers to innovate. Some of these are internal to the agro-food system while others come from society at large, triggered by various 'side effects' of farming systems on the wider environment. Examples of the former may be decreasing soil health due to monocultures, increased plant or animal diseases due to intensification, loss of farmer income related to globalisation of food and fodder markets, loss of production markets, etc. Examples of societal (and political) pressure may stem from concern over CO₂ emissions, pollution of surface waters from nutrients or herbicides, health problems of residents near large animal production facilities, animal welfare problems, etc.

Thus, farmers are under a variety of pressures for change but at the same time are limited in what they can change because they are embedded in a larger agro-food system. As a result, changes at the farm level may create misfits with the system that may lead to loss of production, fewer opportunities to sell crops, loss of income, etc.

While farmers are under a variety of pressures to innovate, they cannot do this on their own. They require assistance from others to provide them with knowledge on how to do so. They are thus embedded in a system that is usually referred to as the 'Agricultural Knowledge and Innovation System' (AKIS). AKIS is defined as "the collection of agricultural information providers, the flows of information between them, and the institutions regulating these relations."⁷ Alternative acronyms AKS and AIS are sometimes used to refer to variations of this definition. Among the AKIS actors are farmers, farming advisors, researchers, businesses or other organisations that develop innovations, government agencies.

Some AKIS factors work at a pan-European level (e.g. the EU Common Agricultural Policy) while other factors may work only at the national level or may even be specific to the level of the individual farmer, e.g. the specific advisors that a farmer consults. For the latter, the term μ -AKIS (micro-AKIS)⁸ is used. This includes the innovation factors that are relevant for an individual farmer, *i.e.* the sources of inspiration and information for a farmer, the factors that influence a farmer's decision-making.

A demonstration is intended to motivate and inform each visiting farmer and thus operates at the level of this μ -AKIS. This implies that the demonstration should attempt to make a connection between what is demonstrated and the motivations and attitudes of the visiting farmers. Since this will vary across the range of visitors, demonstrations will need to account for this which can be done in various ways:

- By offering a range of demonstration activities that may appeal to different subgroups of farmers;
- By interacting with farmers at the demonstration to better connect the information that is provided with what farmers need;
- By offering information that is relevant at a higher AKIS level and that is relevant for a range of farmers, for example, relevant market or political developments.

⁶ Loucanova, E., Parobek, J. and Kalamarova, M. (2015). Retro-Innovation and Corporate Social Responsibility. *Studia Universitatis 'Vasile Goldis' Arad. Economics Series*, Vol 25, Issue 4. DOI: 10.1515/sues-2015-0023

⁷ Sutherland, L.-A. et al. (2018). *AgriLink's Multi-Level Conceptual Framework*. Research report from the H2020 AgriLink project. <https://www.agrilink2020.eu/our-work/conceptual-framework/>

⁸ *Ibid.*

This implies that a demonstration should not only address the direct farming issues related to the demonstrated innovation but it should also address the **farming context** of the individual farmer as well as relevant aspects of the wider context in which a farmer operates.

Yet, a demonstration does seek to affect the behaviour of the individual visiting farmer. Let us take a closer look at what this may imply for organising a demonstration.

5.2.2 The context and needs of visitor-farmers

The way a farmer who visits a demonstration experiences her/his own situation may vary widely. Some important elements of a visitor's farming situation will include:

- a technical and practical setting in which s/he works: the available mechanisation and (technical) routines used to run the farm;
- specific farming challenges (e.g. income, soil quality, pests);
- economic performance of the farm (which also determines possibilities to invest in innovation);
- network relations with downstream and upstream commercial parties and with advisors;
- social context, including the farmer's family and neighbouring farmers.

Concerning her/his μ -AKIS, a farmer directly experiences:

- the sources regularly used to obtain knowledge and know-how on new methods and innovations;
- the type and level of support that is regularly used (e.g. various types of advisors);
- public and policy pressure for change;
- direct instruments to affect a farmer's behaviour, e.g. subsidies or penalties.

As a result of all this, a farmer will always face various challenges and may consider change of several farming aspects. Reversely, this may also lead to 'lock-in', i.e. that the farmer is not willing or able to change certain aspects. As a result, when the farmer visits a demonstration, s/he will not be completely open-minded but will have certain expectations on what s/he may take home from it that might be of use. The farmer may already have gathered information on the aspects that are demonstrated and will have certain ideas on the relevance for his/her own situation. Certainly, the visiting farmer will have an interest in the topics that are announced (otherwise s/he would not go) but his/her motivation may be rather different from what motivates the organisers of the demonstration. The way a demonstration is organised then becomes crucial to make a connection between the two and this will largely determine the success of a demonstration in affecting what a farmer does with the knowledge gained.

6 INFLUENCING A FARMER'S BEHAVIOUR: KNOWLEDGE TRANSFER AT A DEMONSTRATION

6.1 THE INITIAL PLAID CF: INFLUENCING FARMERS' BEHAVIOUR

The initial CF discussed several approaches to understanding how farmers may change their behaviour. Based on the Theory of Planned Behaviour (TPB) – the theory social psychologists believe can best explain the relationship between attitudes and behaviour – the CF identifies the factors in table 2 as being of key relevance.

Table 4: Details of the terms used in the TPB (source: PLAID CF; D5.2)

Behaviour	The behaviour e.g. <i>Buy a new tractor</i>	
Intention	The level of motivation to preform the behaviour	
Attitude towards the behaviour	Belief	Beliefs about the outcome of a specific behaviour <i>e.g. a new tractor will increase my profitability</i>
	Outcome evaluation	Evaluation of whether the outcome of the behavioural belief is good or bad. <i>e.g. it is good to increase my profitability</i>
Subjective Norm	Normative beliefs	Beliefs about what "significant others" believe about the behaviour <i>e.g. My best friend thinks it is a good thing to buy a new tractor</i>
	Motivation to comply	Motivation to act in the way significant others think you should act <i>e.g. I don't really care what my friend says</i>
Perceived behavioural control	Control beliefs	Beliefs about factors that control the outcome <i>e.g. It depends on whether I can afford one</i>
	Perceived power	Ability to overcome control beliefs <i>e.g. I can afford a new tractor</i>

The key value of the TPB for demonstration activities is that it suggests a number of factors need to be in place to promote behavioural change by visiting farmers:

- Targeting specific behavioural change at demonstrations is more likely to lead to success than targeting general behavioural change. Hence, demonstration activities need to be targeted at specific beliefs about specific actions.
- The perceived views of others can have a significant influence on behaviour and, as such, working at the community level (rather than isolated individuals) may provide benefits – i.e. the higher the level of community engagement with the demonstration activity, the more likely change occurs. This underlines the importance of P2P learning that takes place at demonstrations.
- Promoting confidence in the farmer's ability to achieve positive outcomes by addressing potential constraints is also likely to aid the success of interventions.
- Finally, while it is important to transfer knowledge (i.e. increase knowledge or introduce new beliefs) it is also important to focus on beliefs about the desirability or ability of the new knowledge. For example, educating farmers about how to farm organically is unlikely to achieve change if they do not evaluate the outputs of organic farming positively.

While the TPB explains the link between attitude change and behavioural change it does not focus on the question of how the attitude change can be induced – the primary concern of agricultural demonstration activities. The Elaboration-likelihood model (one of the key persuasion theories) suggests that the persuasiveness of an argument is dependent on the strength of the argument and whether the recipient of the message can be encouraged to engage in “central route processing” – i.e. to think deeply about the message. A number of recommendations can be derived from this:

- Messages should be made that directly address the goals of the individuals involved as this information is likely to be more closely scrutinised and acted upon than information that is general or peripheral.
- Providing balanced arguments is key to promoting central route processing.
- The credibility of the speakers is also seen to be critical to the engagement of the recipients with appropriate education, occupation and experience all being important for the message to be considered.
- Establishing a bond of trust between the speaker and the audience is another key to persuasion and may be based on institutional trust (i.e. the person represents a trusted organisation) or personality-based trust (i.e. the person comes across as trustworthy).

Other factors are also important to consider in promoting behavioural change at demonstration events.

First, the message recipients must be made aware of the issue. **Awareness** is a necessary step, but it only leads to change if the next step is also taken, i.e. that the farmer’s attitude or motivation is influenced to make the awareness ‘stick’.

Second, effective ways of **changing attitudes** need to be established. At a demonstration, visitor-farmers will exchange opinions between them (P2P) and with other professional groups (F2E; farmer to expert). At the demonstration, these exchanges take place while the farmer is directly immersed in her/his professional community. The P2P and F2E exchanges that take place can then be considered as a professional dialogue on the merits, drawbacks, usefulness, feasibility, etc. of the demonstrated object. These exchanges are partly structured by the demonstration set-up, partly they are unstructured and informal between various individuals or smaller groups. These dialogues will help visiting farmers to better determine their own position towards the demonstration topic and provide them with better arguments pro and contra in relation to their own situation.

Third, knowledge levels need to be increased. Concerning the **knowledge** that a farmer obtains at a demonstration, we can distinguish two general types, namely factual knowledge and skills. Factual knowledge (or ‘know-what’) may relate to a range of issues in connection with an innovation. This is relatively easy to convey. Skill (or ‘know-how’) concerns what the farmer needs to do to apply the innovation. For ‘simple’ innovations this is also easy to convey but for more systemic innovations this is much more difficult. From our cases it appeared that this does not always get the attention needed at demonstrations.

If a demonstration is well organised, it not only transfers knowledge to the visitor-farmers but it also helps the farmer to process this into “what does it mean for me”. Thus, the ‘objective’ information becomes ‘subjectified’ knowledge, which includes the specific relevance for the visitor’s own situation. Eventually, after becoming aware, developing an attitude, and having gathered the relevant knowledge, a farmer may **change behaviour**.

6.2 FORMS OF KNOWLEDGE AND KNOWLEDGE USE

The direct output of a demonstration is that a farmer will come home with new knowledge on various aspects that have been demonstrated. Importantly, this is not only ‘objective’

knowledge but knowledge that a farmer has assessed on its merits for her/his own situation. Some aspects of the demonstration may have been completely new to some farmers and they will have a raised awareness on these. On others, they may have a better idea of the pros and cons which may either have lowered or increased their motivation to try and use this on their own farm. They will have a better idea of whether it is desirable, feasible, affordable, etc. As a result, a farmer may come home enriched in terms of:

- **Know-why** (raising awareness, providing motivation/inspiration for change): visitors become aware that there are specific problems or challenges and/or that new options are available and may be needed in the future and become motivated to use these in their own situation;
- **Know-what** (related to the demonstration topics): visitors are informed on specific novelties (new practices, materials, varieties, machinery, etc.);
- **Know-how** (related to applying the demo topic): visitors can connect the new information to their own practice and are able to assess possibilities to implement it on their own farm;
- **Know-who** (related to demonstrators and farmer-colleagues): Visitor farmers meet various people that can provide them with information, farming supplies and/or assistance to help them to make their farm more sustainable.

Yet, this does not imply that the farmer will change her/his behaviour as there are probably also various remaining unknowns and uncertainties and the farmer can use the new knowledge in various ways. In governance literature, three types of knowledge utilisation are distinguished that are also of relevance for demonstrations. These types are **instrumental** use (used directly as it is, if needed with some modifications), **conceptual** use (idea has been understood, causal relations, why something works, how it works etc., knowledge that can be used also in other situations), and **legitimative** use (to legitimise opinions and earlier actions).

Each of these may play a role in what different farmers do after a demonstration. Legitimative use may imply that a farmer has become more convinced that what s/he already did is right, and s/he may not change anything. Conceptual use may imply that a farmer understands better why certain things are as they are, or that a new approach might be interesting, but leave it for further consideration later. Instrumental use may imply that a farmer is motivated to change things in the near term, possibly after a process of further exploration and/or waiting until it fits her/his investment cycle.

Thus, demonstrations can be of use to different types of farmers in a variety of ways and the way a demonstration is set-up should reflect that.

7 STIMULATING DEMONSTRATION IMPACT

7.1 THE INITIAL PLAID CF: ANCHORING AND SCALING

The initial CF framework distinguished two processes for the wider use of innovations that have been demonstrated, viz. via the adoption by farmers that visited the demo (referred to as 'anchoring' and via the wider use by the wider farming community, *i.e.* those who did not attend the demonstration (referred to as 'scaling').

Furthermore, the initial CF distinguished two situations for the demonstrated innovation, viz. (1) the innovation is not or hardly used in farming practice and (2) the innovation is already used by a subset of farmers in farming practice. In both cases, the objective of the demonstration is to inform and encourage the visiting farmers to consider using the innovation in their own practice but this would target different types of farmers. An innovation that is already used to some extent could target the 'reluctant adopter' farmers, *i.e.* farmers that will only adopt an innovation when it is sufficiently proven by others. In the case of 'unproven' innovations, these farmers will consider this too risky but a group of 'innovative' farmers, that is characterised by a willingness to experiment and take risks, will be interested.

7.2 STIMULATING DEMONSTRATION OUTPUT

In doing the case studies it appeared that the distinction between anchoring and scaling was too advanced and would require a research effort that could not be realised within the time constraints of the project. We therefore decided to take them together into one category on the 'uptake' of demonstrated innovations in the same way that we took together the 'outcome' and 'impact' of demonstrations under the single term 'impact' as was discussed in section 4.3.4.

Following the discussion on changing farmer's behaviour in the previous chapter, it may take quite some time before the impact of a demonstration becomes visible and this impact is also affected by many other things than the demonstration. A farmer may decide to first collect information on certain aspects by using a variety of different sources, including articles in the farming press (broad variety of agricultural journals and magazines, newsletters, etc.), browsing the internet (news-sites, farmers' organisations, businesses) or social media. Furthermore, a farmer may get information from various specialists and farming advisors ('impartial' advisors or related to specific business). Finally, to help make up her/his mind, a farmer is likely to interact with various 'significant others', for instance, with farmer-colleagues (additional P2P exchange), at farmer study groups or working groups, or with her/his household members. These processes are beyond the control of the organisers of a demonstration.

Yet, there are various things the organisers of a demonstration can do to stimulate and 'smoothen' the processes that take place after a demonstration. This can be achieved by building further on a strong point of demonstrations over written information or one-way communication channels, notably that farmers can actually see and feel the demonstrated object and see the result of specific prior activities. Furthermore, there is the opportunity to directly interact with peers and other relevant parties on what is demonstrated which can have a strong motivational effect on the visitors.

Our cases showed that demonstrators can do several things to make the lessons a farmer has learned 'stick' and motivate her/him to continue a further exploration after a demo, including:

- Provide written materials on what is demonstrated that farmers can take home (leaflets, brochures). This may include presentations, descriptions, weblinks for further information, contacts for further assistance (e.g. advisors);
- Create space at the demonstration for networking and follow-on contacts with advisors, businesses, farmer colleagues, etc.;
- Provide opportunity for visitors (and non-visitors) to ask for further information after the demonstration and offer a (web-based) discussion platform;
- Liaise with farming advisors to provide adequate support after the demonstration;
- Invite and adequately inform the farming press.

The analytical relevance is that it may be complicated, if not impossible to establish the direct impact that a demonstration has on changing the farming system. Yet, it is possible to assess how the unique features of demonstrations give an impetus to the overall innovation process. Thus, demonstrations can stimulate that the potential impacts are realised by using the following mechanisms:

- Empowering farmers (with motivation, knowledge, skills);
- Inspiring farmers to inform themselves further;
- Inspiring farmers to change specific farming practices;
- Multiplying demonstration outputs to raise their impact, e.g. via advisors, farming press, follow-up activities.

7.3 STIMULATING FURTHER LEARNING AND NETWORKING

An interesting finding in almost all of our case studies was that many visitors indicated that the possibility for networking was a key driver for them to attend demonstrations. It is evident that interaction with colleagues and others is of large interest to them during the demonstration but the discussion above suggests this may even be of larger importance to what happens after the demonstration, i.e. to raise the impact of a demonstration. Farmers do not change their behaviour easily by implementing an innovation and often interact with various others before making a decision to do so. Demonstration organisers can stimulate this type of after-demonstration interaction in various ways.

7.3.1 Stimulating after-demonstration peer-to-peer interaction

Our cases show a number of impact pathways where demonstrated approaches can be shared with those who did not attend the event. The first is the farmer-to-farmer communication whereby farmers are able to see what their friends, neighbours or 'innovative farmers' are doing on their farm, including changes they have made that are based on what they learned at a demonstration. Likewise, hearing the opinions and experiences from other farmers either in a formal setting (such as a discussion group or meeting) or an informal setting is also likely to influence the uptake of a demonstrated approach.

Our cases show that organisers of demonstrations can stimulate this form of peer exchange by organising or contributing to the following:

- Use the demonstration **visitor survey** as a source to identify farmers' needs;
- Place **posts on their website** addressing these needs with opportunity for farmers to react;
- **Create P2P groups** to discuss these needs in relation to the demonstrated topics. This can either be in the form of face-to-face meetings (workshops, study groups) or virtual platforms (WhatsApp group; other virtual media platforms);

- **Inform visitors** via e-mail (provided organisers have collected contact details and received a consent to using those) or newsletters that **new information** has become available.

7.3.2 Enrolling advisors

Advisors can play an important role as 'multipliers' of a demonstration, i.e. to help spread the key messages from a demonstration to a wider group of farmers. Depending on the farmer they are talking to, they can act as an awareness raiser, motivator, or information provider. They can also act as a 'network broker' by building links between farmers who applied the innovation and the ones who are interested, thus facilitating or fostering the P2P process.

This special role of advisors makes it useful to **give them special attention** at the demonstration (e.g. a brief session especially for advisors). Next to that, they can also be given a specific role in the after-demonstration activities since they have a broad overview of how various types of farmers respond to the innovations. They can be asked to bring this in in various ways, e.g. on the demonstrator's website, via social media, at face-to-face meetings, etc.

Furthermore, demonstrators can stimulate the advisor-farmer interaction to already commence at the demonstration, e.g. by organising an '**advisor fair**' during which farmers can ask questions to advisors which may be followed-up by further exchange later. This would also form an interesting networking opportunity for advisors as a way to come into contact with farmers that they would not meet otherwise.

8 CONCLUSION: THE ROLE OF DEMONSTRATIONS

In summary, on-farm change provides an important route towards sustainability, but this is part of a broader process in which many actors and factors play a role, many of which are beyond the control of farmers. Yet, with an of appropriate assessment of options for change and appropriate assistance, there are many things that farmers can do.

To help them do so, demonstrations can play an important role. They can help farmers to become aware of certain issues, to become motivated to change their practices and to gain 'useful knowledge' on various options for change and use this to take better informed decisions on where to go with their own farm.

The term 'useful knowledge' is key here. Information that a farmer receives (at demonstrations or via other channels) is usually of a kind that it cannot be directly applied, and it needs to be 'tuned to the needs of the farmer' by placing it in the context of the farmer's own practice. To achieve this, demonstrations can play a key role if they do not only provide 'abstract' information but if they also seek to make that information 'tangible' for the visiting farmers. This can be done in two ways:

- By not only using verbal means to transfer information but by also using means that allow using all senses: seeing, tasting, smelling, touching;
- By interacting with visiting farmers to make a closer connection between supply (the information provided and demonstrated) and demand (what farmers need for their own practice).

This brings us to formulating a general objective for demonstrations: ***"To present, discuss and demonstrate innovations in farming practices, materials and equipment in a way that helps farmers to make better informed decisions about innovation on their farm."***



PLAID