



## **Shared Innovation Space for Sustainable Productivity of Grasslands in Europe**

Project Acronym: Inno4Grass

Project Number: 727368

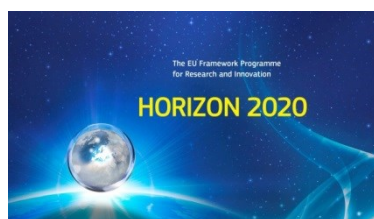
### Deliverable No. 3.1

Inventory of innovation brokering systems in Europe that are active on grassland or have the potential to be active on grassland

Responsible partner: PULS

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First submission date: December 2017; second submission date: November 2018



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727368

## Content

Introduction.....	3
Description of the brokering systems .....	3
Belgium.....	4
France .....	5
Germany.....	6
Ireland .....	7
Italy.....	8
Poland.....	9
Sweden.....	10
the Netherlands.....	12
Analysis of questionnaires focusing on innovation brokering systems related to grasslands in Europe ..	13
Development of questionnaire .....	13
Results .....	13
Conclusions.....	16
References.....	17

## Introduction

In the innovation brokering systems a specialised type of innovation intermediary called 'innovation broker' plays the crucial role (Klerkx & Leeuwis, 2009). He or she pursues a brokering role on innovation as core function, and does this from a more neutral and impartial 'honest broker' position (Klerkx et al., 2009). This principle is important in all fields of food economy, among others for grassland-based systems. An innovation broker is focused neither on the organisation nor the implementation of innovations, but on enabling other organisations to innovate (Winch & Courtney, 2007). They are thus mainly 'facilitators of innovation' who do not contribute with substantive knowledge or technology (such as research organisations), or make a strong policy driven contribution (such as government), but principally enhance the interaction between those actors. This connects to the 'knowledge broker' function that is envisioned as a new role for extension, but as innovation comprises more than knowledge exchange, 'knowledge broker' is too limited as a concept. The different innovation brokering roles can be summarised in three processes:

- Demand articulation: articulating innovation needs and visions and corresponding demands in terms of technology, knowledge, funding and policy, achieved through problem diagnosis and foresight exercises;
- Network composition: facilitation of linkages amongst relevant actors, i.e. scanning, scoping, filtering and matchmaking of possible cooperation partners (Howells, 2006).
- Innovation process management: enhancing alignment in heterogeneous networks constituted by actors with different institutional reference frames related to norms, values, incentives and reward systems. This requires continuous 'interface management' in which there is a 'translation' amongst the different actor domains described as 'boundary work' (Kristjanson et al., 2009). Furthermore, it includes a host of facilitation tasks that ensure that networks are sustained and become productive, e.g. through the building of trust, establishing working procedures, fostering learning, managing conflicts and managing intellectual property (Leeuwis, 2004).

Innovation brokers can manage the steps to be taken and initiate the corresponding network partners that are necessary to bring an innovation to the market. To create a flow of innovation, innovation brokers are pivotal. Innovation brokering systems in grassland management can play a key role in getting worthwhile projects off the ground by bringing people together within region, country and the whole EU.

This report analyses in countries across Europe the innovation brokering systems that are active on grassland or have the potential to be active on grassland, to better understand how they can be a lever to better disseminate innovative practices and systems.

## Description of the brokering systems

Brokering systems in the different countries of Europe proved difficult to identify. The work started with a scan of available literature on brokering systems. This did not provide insight in individual brokering systems in the different parts of Europe since i) brokering systems often did not identify themselves as brokering systems, and, even if they did, ii) necessary information on

set-up and characteristics of brokering systems was usually not available. Therefore, as a next step to gather the necessary information, the network of the partner organizations of Inno4Grass was used to obtain specific information on individual brokering systems. To collect information, a questionnaire was developed on characteristics of the different brokering systems and their barriers and benefits. The network of Inno4Grass delivered useful information on brokering systems. Since the partner countries of Inno4Grass are spread over Europe from North to South and from East to West, insight into the different brokering systems could be provided for different parts of Europe.

In European countries the innovation brokering systems are organized in different ways. They are mostly broader organised in agriculture or part of the broader national innovation development strategy. The innovation brokering systems within the eight countries (Belgium, France, Germany, Ireland, Italy, Poland, Sweden and the Netherlands) involved in the Inno4Grass project are described here.

## Belgium

Innovation brokering system in Wallonia was funded by the EAFRD. The activities are realized in different ways:

- The Support Unit of Walloon Rural Development Network (RwDR) establishes connections between rural entrepreneurs, specially farmers, and researchers through 6 workshops taking place in 2016, 2017 and 2018. A final seminar will take place in the first half of 2018 with the ambition to involve European partners.
- The Agency for Enterprise and Innovation (AEI) proposes to support the growth of Walloon companies, innovation and in particular open innovation as well as the development of new economic activities.
- DiversiFerm aims to offer its support to those wishing to develop products from the agriculture of Wallonia. It is a structure of technical and technological assistance and supervision.
- Fourrages Mieux ASBL is a non-profit organization active in the advice and valorization of agricultural techniques linked mainly to grasslands. The organization brings together the different actors from Wallonia involved in valorization and research at grassland and forage level.

In Flanders there are several important innovation brokering systems active:

- ILVO (Instituut voor landbouw-, visserij- en voedingsonderzoek) stands for multidisciplinary, independent research and specialized service provision in all fields related to agriculture, fisheries and food in Flanders. Sustainable grassland and forage crop production just as forage intake and quality for dairy cows and beef cattle are key issues for ILVO.
- Landbouwcentrum voor Voedergewassen (LCV) works for the Coordination Center for Information and Guidance for sustainable Fertilization. In Antwerp, LCV organizes water quality groups and the individual support of farmers in the application of fertilization rules.

- INAGRO is knowledge partner of agricultural and horticultural businesses in the areas of innovation and sustainability. INAGRO's advisers take the new know-how to the agricultural and horticultural businesses and guide the businesses in how to implement these insights, all of which is supported with professional communication tools.

The key issue concerning brokering systems for grassland innovation in Belgium is the underfunding of the agricultural valorisation in general. Another issue is the gap between research programs and farmers' needs. The team of advisers is too small to disseminate the innovations on a large level throughout the country. They do not have the man-power to follow-up new implementations of innovations in each interested individual farm. Moreover, farmers are not always open to innovations that are too different from the dominant discourse on intensification they got in the last 50 years. There are not enough efforts on the build-up of a regional network of innovative farms that could be used as demonstration farms.

The main concern regarding innovation implementation is convincing farmers that another way is possible and that it is profitable. Farmers lack information on the real potential and economic interest of grasslands. Another concern is the lack of man-power. This results in an underfunding of the agricultural valorisation in general. In addition, the budget is disseminated through too much actors, which are individually too small to make a big difference.

## France

In France the innovation brokering system is organized in the form of economic and environmental interest groups (EEIGs). This is a grouping of farmers who have come together to generate a collective dynamic with aims that are both economic and environmental. The initiative for this comes from the farmers themselves and the process unfolds at the local level.

Dedicated to grassland is "RMT Prairies Demain". It has the objective to:

- be a forum of exchange, a pole of expertise and skills on the theme of valorization of the productive grasslands. It will be a creative place of knowledge and references.
- promote a pooling of approaches and cross-views between actors and users of the grasslands by bringing together a diversity of skills, profiles and professions.
- develop collaborations between regional, national and international partner organizations.

The RMT members are mainly researchers, teachers, advisors and project managers from technical institutes.

The key issue concerning brokering systems for development of grassland innovation in France is limitation of funds granted. They are in competition with other sectors of agriculture.

Dissemination is one of the main concerns as innovation implementation is usually restricted to a small core of shareholders. Innovation implementation depends also on economics and ability to manage the risk. When the innovation doesn't come from them, the farmers need to be sure it will have no major impact on their revenue, lands, animals, etc. The innovation implementers (for example advisors) must deploy a lot of energy and different ways to demonstrate the efficiency of the innovation.

## Germany

Innovation brokering systems in Germany are part of activities of many associations, working groups, competition, media, etc. Some examples are indicated below:

- Landberatung (rural extension services) <http://www.landberatung.de/> – Landberatung in Lower Saxony was established in 1923 as a farmers’ association to provide information via field trials, demonstration plots etc. It soon changed its focus to independent advisory services. “Beratungsringe” work on a regional level and have therefore a good knowledge about regional conditions and issues. The advisors work closely together with the farmers and other advisors (from other regions) and can thus spread innovations and adapt them according to the requirements in their respective regions. In 1992, it changed from an association to an Ltd to facilitate economic activities. The chamber of agriculture assists and fosters continuous education of the advisors, for example considering current research activities and results or legal requirements.
- Erzeugergemeinschaften/Genossenschaften (producers’ associations, cooperatives) – Many farmers are member of different producers’ associations, which are together with their other function an excellent tool to exchange ideas and innovations directly between the farmers. Many farmers’ associations especially support farmers to implement top-down innovations, such as GMO-free feeding of dairy cows, for example. The Lower Saxony association for dairy business is an association of all other associations in dairy business including production, processing, trading and consumption. They also present the high standard of professional education of farmers and a problem oriented efficient extension service for milk production and thus foster innovation for sustainable dairy production on farm level.
- Arbeitsgemeinschaft Futterkonservierung (AG FUKO; Workgroup for fodder conservation) – The workgroup fodder conservation is an association, which disseminates current information concerning fodder production among its members and therefore spreads innovative ideas of individual members within the association.
- Silage competition for high quality grass (it exists also for maize silage) – This competition is organized by the chamber of agriculture of Lower Saxony by the department for grassland and fodder production. If farmers have their silage analyzed by the LUFÄ (agricultural analysis and research institution) they can state on the contract form that they want to participate in the “silage-competition”. The silage quality is assessed according to different quality criteria. The farmers with the best silage-quality present their methods and ways in silage conservation in the course of a yearly information event for grassland, which is organized by the chamber of agriculture of Lower Saxony.
- Nachhaltigkeits Preis Landesvereinigung Milchwirtschaft – Award for sustainable dairy production – presented by the Lower Saxony association for dairy business.
- App – The chamber of agriculture for example offers an app for free, which currently focuses on information about agricultural markets and prizes, but which already shows the potential to contribute to innovation dissemination. The app for example offers already calculation tools for greening requirements and helps to get in contact with the right advisor for specific questions.

- Land und Forst – In Lower Saxony, there is a weekly agricultural newspaper, which does not only inform on current agricultural issues, but also presents individual, innovative farmers and their innovations. The same goes for other cattle management newspapers, for example like “Elite”.

The main key issues concerning brokering systems for grassland innovation are personal contact, stable, open, long-term relationship and independent information. Farmers cooperate often developing new ideas if “top down innovations” are necessary due to changed social or legal requirements.

The important key concerns regarding innovation implementation in Germany are the following:

- Economic constraints for individual advisory service organizations hinder open discussion and complicate the communication. Thus, sometimes advisors hesitate to share information with other advisors, working for other advisory companies.
- Sometimes advisory services or projects are only funded for a limited period. In this case it is difficult to establish the personal relationship which is often necessary to cooperate successfully with the farmers.
- Many farmers in the dairy sector are burdened with a high workload managing their daily work. Especially if they face difficult site specific conditions on their farm. Thus, those who would need innovations to improve their situation often don't have the time to try something new or to visit information events.
- “Good” innovative farmers are sometimes overloaded by inquiries for interviews, lectures in the course of information events and visits on their farm.
- Sometimes short-term economic strain hinders investments necessary for modification even though those modifications could lead to a long-term improvement.
- Uncertainties concerning future regulations and legal requirements sometimes discourage the implementation of innovations, especially if investment was necessary. Many farmers hesitate to invest, because they fear that amortization –of new technologies for example- is not possible before regulations change anew.
- Sometimes requirements are difficult to combine (for example reduction of gaseous nitrogen losses in stables versus animal welfare grazing) which makes farmers insecure into which direction they could develop.

## Ireland

Innovation brokering systems in Ireland are based on Teagasc KT (Knowledge Transfer department) activities. Within The KT network of Teagasc there are 200 Business technology advisors. These advisors are assisted by Enterprise Specialists on the Dairy, Beef, Sheep and Tillage areas. A key aspect of technology transfer in Ireland is the use of ‘discussion groups’. There are >400 dairy discussion groups and >350 beef discussion groups. The creation of such discussion groups has been assisted by Government funding. The group is delivered at local level, so a number of farmers will come together to set up the group, which is facilitated by the KT advisor. Each group has to meet at least on 6 occasions across the year. Teagasc is also a research organization and has a number of research farms. On these farms open days take place. These

are brokering days, where the farmers interact with researchers and advisors, to deliver best practice on animal husbandry, genetics, grassland management, animal health.

Teagasc has 32 Beef farms on a Better farm program. These farms act as technical efficient farms for the rest of the industry and best practice is demonstrated on the farms for the rest of the industry to follow. This initiative is supported by the Beef processors and the farming press. On the sheep program there are 11 Sheep better farms and on the dairy side, there are a number of dairy joint programs with the dairy Co-ops (Lakeland, Glanbia, Kerry, Dairygold, Aurivo, Arrabawn and Carbery). A key aspect of Teagasc KT service is the provision of grassland management software (Pasturebase Ireland). Pasturebase Ireland is a grassland decision support system for Irish farmers to use. Once farmers use this frequently a detailed profile of the grass potential of the farm can be built. Further to this, Teagasc also offers a farm profit software package (Profit Monitor), this can track farm profit for the farm, once all the necessary input costs and outputs are populated in the system. This is vitally important now in the industry with the volatility in beef and dairy prices. All efficient livestock farmers use the profit monitor to track the profitability of their business. Each five years Teagasc set out technical roadmaps for each of the ruminant enterprises. The technical success of the KT service is very much dependent on the delivery of each five years target. A key aspect of the KT service is to ensure that the end user (the farmer) is increasing the farm technical efficiency, farm sustainability and profitability. Teagasc has the advantage of having research, knowledge transfer and education together in one organization, this makes the message much more coherent.

## Italy

Brokering systems at national level are not active/available. Some specific figures (e.g. facilitator agents) are foreseen in the Regional Development Plans and funded in the framework of Operational Groups establishment. Innovation brokering systems are better organized on regional level. A good example is South Tyrol. Partners of the South Tyrolean Farmers 'Association involved in grassland innovation are Laimburg Research Centre, the Free University of Bolzano, EURAC, IDM and the BRING. With over 20.000 members, the South Tyrolean Farmers' Association (Südtiroler Bauernbund) is the most well-represented and numerous trade association in South Tyrol. Covering 160 locations across 116 municipalities, the SBB is tightly linked with local communities. The aims of the South Tyrolean Farmers' Association are:

- to cement and strengthen farming from an economic, social, cultural and political point of view,
- to promote the education and training of its members as well as the awareness of farming,
- to care for local arable land,
- to consult and support members and their families by answering or solving their questions and problems.

In addition to these services, the Association has created an innovation helpdesk for farmers with innovative ideas. Part of the offer are workshops and seminars to promote the farmers' creativity and innovation force. Furthermore, the innovation helpdesk supports and handles different projects, partly also in the area of innovation related to grassland.



For the South Tyrolean Farmers' Association, grassland innovation was not much focused on in the past, so only few experience in this ambit is available. Nevertheless, the key issues for brokering systems are how to spread innovations and how to bring innovation to the "end-users", the farmers. The South Tyrolean Farmers' Association primarily functions as a communicator of innovation, but does not work directly on innovation implementation concerning grassland. To overcome the obstacle of the final implementation of an innovation, much effort has to be put into the dissemination, sensitization and information.

In general, in Italy there are many key concerns regarding innovation implementation. Some of them are given in the table:

Concerns	Obstacles to overcome
Extension services are not efficient in transmitting updated information related to the innovation	<ul style="list-style-type: none"> <li>- reduction of bureaucracy</li> <li>- increased training of technicians</li> <li>- increased qualification of farmers</li> </ul>
Poor linkage between research and extension services and farmers	<ul style="list-style-type: none"> <li>- promote on-farm field experiments</li> <li>- promote field days in research experimental fields</li> <li>- promote training programs where researchers are invited to offer courses to technicians and to farmers</li> <li>- promote discussion groups via social media</li> </ul>
Poor linkage between research/extension services and policy makers	<ul style="list-style-type: none"> <li>- implement bottom-up approach (e.g. consultation of politicians with other stakeholders through periodical meetings)</li> <li>- promote focus-groups</li> </ul>
Strengthen the collaboration among actors in the same productive chain	<ul style="list-style-type: none"> <li>- promote focus-groups</li> </ul>
Re-modulate public subsidies from direct sustain to farmer's income to innovation implementation	
Sustain and fund 'real' innovation	<ul style="list-style-type: none"> <li>- measure impacts in the medium and long period on sustainability of innovation</li> </ul>

## Poland

The innovation brokering system in Poland has an open character and its participators can be everyone interested in agricultural development. The aim of the system is very wide and it includes the sectors of agriculture, food production, and forestry. The brokers were established in the main national agricultural advisor network. The broker network has a central coordinating team at the Center of Agricultural Advisory in Brwinów near Warsaw, and individual agents localized in each Province (voivodeship). The broker's task is to: identify and localize potential partners in their province, help by creating operating groups and formal documents, help with organizing funding, monitoring established groups. Brokers in Poland were established and their

list was published in March 2017. They are working in the whole sector of agriculture, to this day there is no information available about operation groups established or planned for the grassland sector.

The network for innovation development 'Sieć na rzecz innowacji w rolnictwie i na obszarach wiejskich' (short name: SIR) is established at the national level and administrated by the Centre of Agricultural Advisory in Brwinów. The network is not related to grasslands only, but refers to all innovations in general. There are no brokering systems related to grasslands only.

A list of innovations implemented (including grasslands) should be created and available via a dedicated website to all people interested in. More attention should be paid on direct implementation of certain innovation (i.e. face to face meetings on farms in which advisors, farmers and representatives of industry participate). Cooperation between research centers and extension services is poor in Poland. Scientists work should better meet the needs of practice – this is what farmers usually say.

The SIR brokering network is just starting and we can define them in a few months. There can be some concerns about establishing operating groups on grasslands because the brokers can be interested mainly in the bigger sectors of Polish agriculture. But that can be overcome by a grassland initiative of interested factors:

- The innovators take care of property rights first and reservation of intellectual property by establishing patents. They must be sure that their rights are fully protected.
- Seed industry as well as other private actors in the production chain expect sometimes benefits for sharing the results of their work.
- Farmers are not too open for cooperation with researchers. They are afraid that they will have to spend a lot of time on extra work. So, there is a need to adapt farmers and researchers to new kinds of cooperation.

Taking the above into account, innovation implementation should be supported by the state, universities, extension services and dedicated programs that include expectations and needs of all actors. Agricultural universities should stimulate cooperation with farmers and advisors. Unfortunately, the system of promoting/putting up Polish researchers doesn't foster innovation implementation. The results of scientists work are usually published in English. Large group of Polish advisors don't know foreign languages. Articles should be translated into Polish and published in journals that are well-known by farmers and advisors. Short video clips presenting certain innovation would be very useful and appreciated by farmers as well as advisors. Extension services, agricultural chambers and universities should prepare the list of demonstration farms with key words and a short description of the innovation implemented. Contact data to these households/cooperatives should be made public, e.g. via the website of the Centre of Agricultural Advisory – common discussion with the policy makers, scientists, advisors and farmers is probably required.

## Sweden

The innovation brokering system in Sweden is organized within 'Europeiska innovationspartnerskapet för ett hållbart och produktivt jordbruk (EIP-Agri)'. The call was launched in August 2015. Unfortunately, there was a long log phase in the beginning due to

database problems and developments at the Swedish Board of Agriculture, and the first project was officially approved in 2017. The system is now on track with the following statistics;

- approximately 220 applications (Aug. 2017) for setting-up funding, approx. 160 approved.
- approximately 105 applications for project support, approximately 45 approved by the selection committee.
- 18 projects officially approved.
- the innovation support group has been in contact with approximately 350 potential applicants.

In Sweden the managing authority is the Swedish Agricultural Board, where the Swedish Rural Network is inserted. There is a coordinator who works with promotion, marketing, networking and programming. In addition, the Swedish brokering system has an innovation support group consisting of another three persons with different competences who work part time (support service and brokering). There are attempts to enthusiasm presumptive innovators by presentations, flyers etc. at many different meetings. The website is fed with more and more information and people are calling to discuss their ideas, search for appropriate partners for the specific project or to get administrative help. The Swedish Board of Agriculture is best suited to answer the last issue.

Innovations are disseminated by national forage conferences and seminars arranged by the Swedish Grassland Society, the Swedish University of Agricultural Sciences and different advisory services. The innovation brokers will support also the dissemination, e.g. by the website at the Swedish Rural Network (<http://www.landsbygdsnätverket.se/vadarlandsbygdsnätverket/verksamhetsomraden/eipagri/godkandainnovationsprojekt.4.5bcea70915b1752a20f978c0.html>) and EIP Agri's Service Point.

Innovations related to grassland are funded often as a combination between all four alternatives to some degree. The EIP-Agri in Sweden has a two-step model: 1. Setting up funding (lump sum) and/or 2. Funding of an operational group ( $\leq 100\%$  of costs).

Grassland innovations often need a trans-disciplinary approach. That means that they should be supported by several competences. The brokering system gives a good possibility for funding innovative ideas, since heterogeneous innovation groups are supported. EIP-Agri fits very well in the grassland context.

There also some key concerns regarding innovation implementation in Sweden. The heavy administration connected to public funding could frighten potential applicants. For example, they have to present a very detailed budget in the application. There are several challenges about this step in the procedure talking about innovations. It can be stupid to ask for several bids expose your secrets about the intended innovation to more than one company. It is not easy to forecast the coming costs when you work with innovations. Another challenge is about Intellectual Property Rights. One of the crucial points with the whole EIP-Agri system is to close the gap between academy and industry. Another is to stimulate communication between different kinds of innovators nationally and internationally. There is a sharp edge to balance giving some information about the innovation but no details. For details it should be possible to directly contact the innovator.

There is a start-up phase to introduce the national and international websites that shortly describe the decided projects, and by time hopefully also with results.

## the Netherlands

The innovation brokering system has first been organized within Netwerken in de Veehouderij 2010-2014 (programme of so-called Networks in animal husbandry, where practice and science partners meet to discuss, study and analyze certain themes; <http://www.verantwoordeveehouderij.nl/nl/nl/Home/netwerken.htm>). The innovation brokering is also realized within Operational Groups (started 2016, similar set-up to Netwerken in de Veehouderij). There are a number of examples in different provinces of the Netherlands:

- Vruchtbare Kringloop – working on a fertile mineral cycle. Experiences and knowledge are shared in study and field meetings. On the individual farms, farmers use the knowledge to improve their own mineral efficiency. Contractors, pig farmers and arable farmers are also involved in the project.
- Bedreven Bedrijven Drenthe – working on a fertile mineral cycle. Gathering and sharing information through excursions, seminars, company visits and analyses of cycles.
- MelkveeAcademie (Dairy Academy) – working in groups of farmers, where farmers learn from farmers. The agricultural industry is involved, but the real learning is from experienced farmers to their interested and curious colleagues.
- Courage 2025 – dairy organisation that brings futuristic innovations in practice (like floating farm and Grassa – getting more out of grass trough bioraffinage).
- Het Nieuwe Veehouden / MIJN Duurzaamheid (The new Livestock farming / My sustainability) – project with special attention for the reasons why innovations are not successfully implemented in practice and methods to overcome these barriers.

There are many key issues concerning brokering systems for grassland innovation in the Netherlands:

- Money to be invested by farmers. In Netwerken in de Veehouderij, farmers needed to invest their time, but not cash money. In many regulations to apply for Operational Groups it is needed to invest cash money as well, which is a real barrier.
- Translation of research information into practical and understandable information on farmers level.
- There are several projects that help farmers within the project period, but when the project ends there is no longer a service that helps farmers with new questions on this subject.
- There are a lot of specialists on grassland, and maybe we just need a generalist to make it all practical for a farmer again. Changes in grassland can change your whole management as a farmer. Who can help you with that?

The main key concerns regarding innovation implementation are:

- To convince farmers that the innovation will lead to benefits (either economic or in another way). Good show case examples have to be presented (widely, in press, in open days, etc.). To do so, money for these activities needs to be available. You cannot expect a particular farmer to invest for these activities him or herself.

- Not enough connection/link of research information and the problems that farmers experience.
- Hardly any exchange of information between projects.
- Hardly any exchange of information between projects and practice.
- A large group of farmers is not convinced at all that there is a need for change. They have a complex management system and as long as nothing really goes wrong, they prefer not to change.
- To make a change you need the whole chain to be intrinsic motivated, i.e. from government employees, advisors, researchers, etc., to farmers.
- Research tends to communicate only when everything is 100% clear. This slows the progress. We can act quicker when we start to learn by doing and allow ourselves to make mistakes.
- There is legislation that prevents the implementation of innovations. This can occur in marketing concepts, with environmental rules, with rules considering the surroundings, etc.
- The whole financial sector is based on 'financing based on experience'. This means that when you cannot show financial results, you are not getting a loan. And showing results is difficult when you are asking money for an innovation.
- Resistance from farmers, especially in those cases where innovations are linked to legislation.
- Prejudices and pressure from other farmers can be a reason for not trying something new.

## **Analysis of questionnaires focusing on innovation brokering systems related to grasslands in Europe**

### **Development of questionnaire**

To collect information about innovation brokering systems related to grasslands in the eight European countries involved in the project, a questionnaire was developed on characteristics of the different brokering systems and their barriers and benefits. Via the partners of Inno4Grass, experts representing science and practice institutions were asked for their opinion on type and development phase of innovation brokering systems, sources, beneficiaries, supporters, dissemination forms and founding of innovations related to grasslands, etc. The questionnaire was composed of open-ended as well as close-ended questions. For getting quantitative data in some aspects multiple choice questions were used. The questionnaire responses were transferred into a spreadsheet and data were calculated for the European context.

### **Results**

Based on the results obtained from questionnaires, it turned out that in most of the analysed countries the innovation brokering systems were already established (80%). Only some regions are in preparation (for example Sardinia). Some specific figures (e.g. facilitator agents) are foreseen in the regional development plans and/or just started in the framework of operational groups.

In some regions, the innovation brokering systems are exclusively dedicated to grassland-based farming in the form of public non-profit organisations, like Fourrages Mieux ASBL in Wallonia and RMT Prairies Demain in France. However, the innovation brokering systems are mostly broader organised in agriculture (71% of all responses about type of innovation brokering systems) and part of AKIS – Agricultural Knowledge and Information System which links people and organisations to promote mutual learning, to generate, share, and utilise agriculture-related technology, knowledge, and information (Knierim & Prager, 2015).

Universities and research institutes play the most important role as sources of innovations related to grasslands across Europe (Figure 1). It is worth noting that also industry, advisory service and the farmers themselves provide many new ideas in grassland-based farming.

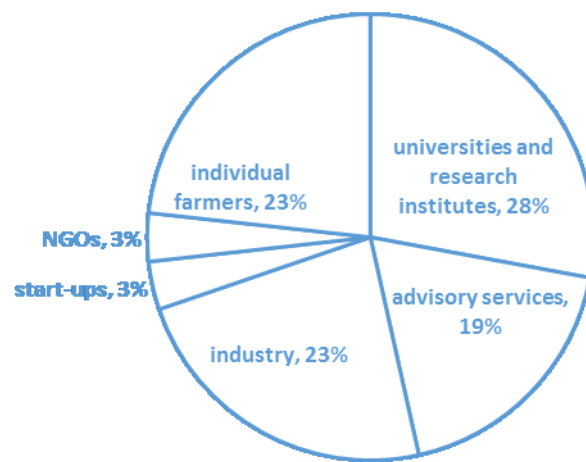


Figure 1. Sources of innovations related to grasslands

The results of the survey show that farmers are the main beneficiaries of innovations related to grasslands (33% of all responses) (Figure 2). They are followed by the advisors, industry, local governments and society.

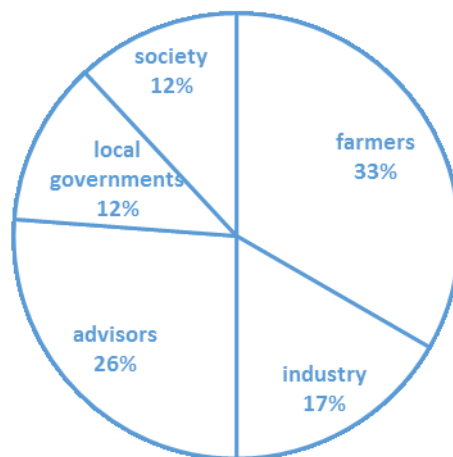


Figure 2. Beneficiaries of innovations related to grasslands

Implementation of grassland innovations is supported mainly by advisory services, universities and research institutes and industry (Figure 3).

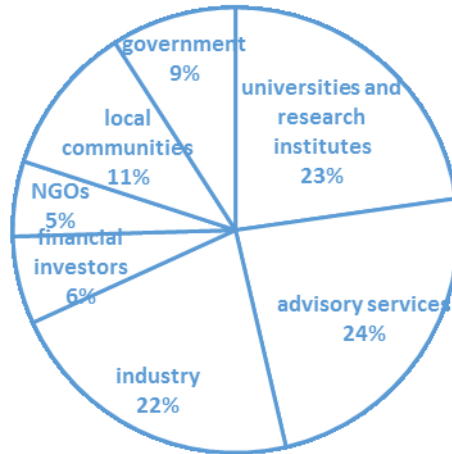


Figure 3. Supporters of implementation innovation related to grasslands

There are many dissemination forms of innovations related to grassland, especially conferences and seminars, media, meet-ups, dedicated programs and direct implementations on farms (Figure 4).

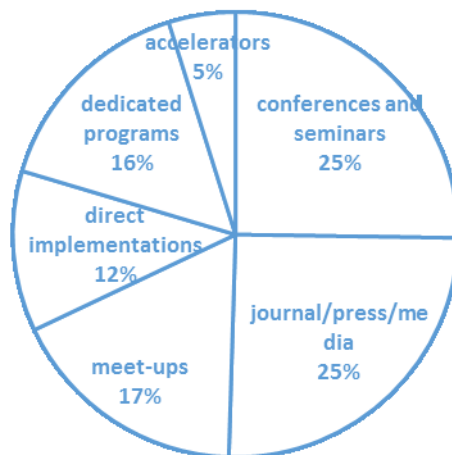


Figure 4. Dissemination forms of innovations related to grasslands

The analysis revealed that the grassland innovation brokering systems are characterized by a mix of public and private funding (Figure 5). Both public organizations and private enterprises provide advisory services, and agricultural education may have mixed financing or are completely private.

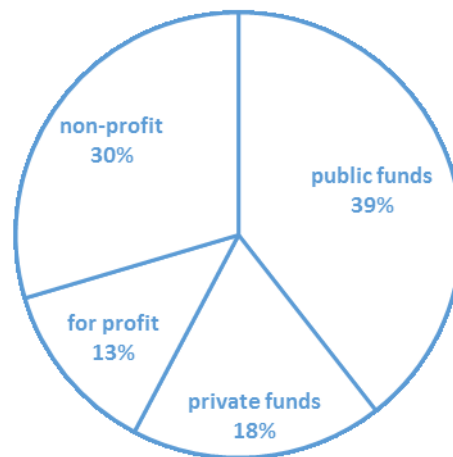


Figure 5. Founding of innovations related to grassland

According to the responses, the impact of innovations related to grassland is mainly measured using specific metrics and thresholds in terms of economic impact (46%), followed by environmental impact (29%), social issues (12%) or is not measured (13%) (Figure 6).

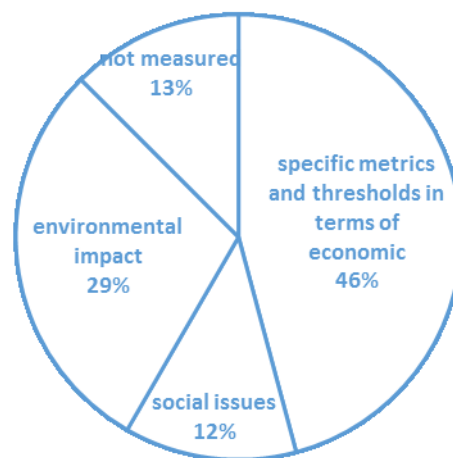


Figure 6. Measurement of the impact of innovations related to grassland

## Conclusions

The currently available innovation brokering systems related to grasslands are in different development phases in EU countries. They are based on EIP principles, but are organized in particular countries in different ways. They are valuable and should be an important part of building an European innovation space for grassland-based farming. Grassland innovations often need a trans-disciplinary approach. That means that they should be supported by several competences. The brokering system gives a good possibility for funding innovative ideas, since



heterogeneous innovation groups are supported. The agricultural European Innovation Partnership (EIP-AGRI) fits well in the grassland context.

The main key issue concerning brokering systems for grassland innovation is ensuring that all farmers are reached with the information. Concerning the key concerns regarding innovation implementation, there is no measurable way of establishing how innovation is implemented. This is a major concern when trying to see which technology has the largest effect.

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