# Achieving best-fit in Norway: Challenges for advisory services to offer relevant advice to various types of farmers

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## Abstract

As in other countries, the agricultural knowledge and innovation system (AKIS) in Norway has transformed from a public sector dominated towards a market driven system. This also affects the advisory system within the AKIS. In this ongoing transformation, various types of farmers have various support needs: a full-time farmer using the latest precision agriculture technology may have different needs than a part-time farmer using production methods that are more traditional. A theoretical typology for farmer information searching behaviour based on Jansen et al. (2010) is applied in this paper. The aim of this paper is to present and discuss challenges for advisory service to serve various types of farmers when they search for and acquire advices for their farm business, in light of the discussion on 'best-fit'. The research question of this paper is how they achieve this best-fit and what arrangements emerge. The empirical basis for this paper is workshops and interviews with stakeholders in the Norwegian AKIS, and interviews with progressive farmers. Findings indicate that there are emerging configurations serving the different types of farmers, i.e. private advisors serve different clients in different ways, which could be considered 'sub-systems' within the overall advisory system. The theoretical implications for thinking on best-fit and AKIS are that 'best-fit' systems dynamically emerge and have particular configurations within a country setting, to make advisory service organization more suited to meet challenges related to various types of farmers.

**Keywords:** Advisory service, transformation, subsystem, types of farmers, Norway

## 1. Introduction

In the past decades, many countries have undergone changes in their farm advisory system such as decentralization and privatization, leading to more commercialized farm advisory services (Garforth et al., 2003; Klerkx et al., 2006; Labarthe & Laurent, 2013). While it has been reported that this has led to greater client satisfaction, also concerns have been raised as regards the access of farmers to farm advice and the breadth and depth of topics addressed by farm advisory systems (Klerkx & Proctor, 2013; Labarthe & Laurent, 2013). As the commercialization of farm advisory services raises challenges related to uneven distribution of farm advice , it may be essential for commercial advisory services to be complemented with other service providers that reach different types of farmers due to the diversity of farming structure and systems (Prager et al., 2016). There is also a need to pay attention to topics which may not have a high private interest but may be more of public good character, e.g. environmental and rural development issues (Klerkx & Jansen, 2010; Vrain & Lovett, 2016). The latter may be challenging if there is no clear orchestration of provisioning of advice on public good related issues (Klerkx & Jansen, 2010; Prager et al., 2016).

As all countries are different in terms of how their agricultural systems and value chains are composed, their governance structures, and their political ambitions for agriculture and rural areas, it has been argued that there is no 'one-size-fits-all' farm advisory system, but that each country should achieve 'best-fit', i.e. "advisory services that 'best fit' the specific conditions and development priorities of their country" (Birner et al., 2009) (p 343). However, achieving such best fit is challenging (Kilelu et al., 2014), and advisory services must develop and adjust their own organization, methods and

practice to meet the different needs farmers are facing, and connect to different styles and goals of farming (Aguilar-Gallegos et al., 2015; Kilelu et al., 2014; Vanclay et al., 2006). The aim of this paper is to present and discuss challenges for advisory service providers to serve various types of farmers when they search for and acquire advice for their farm business, in light of the discussion on 'best-fit'. The overall research question of this paper is how advisory service achieve this best-fit and what arrangements emerge, with three sub-questions:

RQ1) What different advisory service providers and advisory arrangements exist in Norway?

RQ2) What relationships exist between different kinds of farmers and advisory service providers?

RQ3) How does the Norwegian advisory system respond to challenges in dealing with this diversity and achieving best-fit?

In this paper, we first give a conceptual framing before an empirical description from the Norwegian situation on advisory service. In the discussion and conclusion, we point to the main challenges for advisory service to meet the farmer needs and some of the solutions they seem to adapt.

## 2. Conceptual framework

### 2.1 Diversity in provisioning of farm advisory services

Farm advisory services are defined in this paper "as the entire set of organizations that will enable the farmers to co-produce farm-level solutions by establishing service relationships with advisers so as to produce knowledge and enhance skills". Farm advisory services assist farmers in a broad range of issues, for example technical, financial, business management, ethical (animal welfare), and regulatory issues, which are often interconnected and thus require complementary or joint efforts between several advisors (Klerkx & Jansen, 2010; Phillipson et al., 2016; Proctor et al., 2012). The farm advisory system is a part of the broader Agricultural Knowledge and Innovation System (AKIS) (EU SCAR 2013).

We follow Prager et al who make a distinction between 'private' as the status of an organization, and 'commercial' referring to activities carried out by the organization (e.g. offering advisory services for a fee) (Prager et al., 2016: 330). That farm advisory services are provided by private organizations does not mean they are necessarily commercial, as government often continues to pay for 'public good' advice (Klerkx & Jansen, 2010). Commercial advisory service may be both coupled with selling or purchasing agricultural commodities but involving dedicated staff for advisory services (called 'embedded advisors' by Klerkx and Jansen, 2010), but may also be provided by advisors who only provide advice (called 'independent advisors' by Klerkx and Jansen, 2010). Overall, besides advisors, farmers use different sources of information and support, such as media and peers, which often rank above advisors as most used sources (Gielen et al., 2003; Solano et al., 2003).

The literature has indicated some risk moving to purely commercial services. Public good issues, such as environmental advice may not have a pro-active demand and may not be addressed adequately in commercial contacts. Some types of advice for which there is a small demand may no longer be developed and offered or some groups of farmers will not be able to afford services; especially in case of 'embedded advice' there may be a bias in advice to support sales of goods. There may be a disconnect between research and those that provide advisory services resulting in advisory services not incorporating the latest scientific insights so there may be fragmentation in the overall AKIS (Ingram, 2008; Klerkx & Jansen, 2010; Prager et al, 2016; Klerkx & Proctor, 2013; Labarthe & Laurent, 2013).

### 2.2 Relationships between different types of farmers and advisors

Farmers are of course not a homogenous entity, and this is relevant and important for advisory services to consider in configuration of their supply (Aguilar-Gallegos et al., 2015; Jansen et al., 2010; Kilelu et al., 2014). There are well-known categories as regards technology and practice adoption of farmers denoting them as innovators, early and late adopters, and laggards (Rogers, 1995) and this

has implications for pro-active advice seeking (e.g. innovators and early adopters tend to be more pro-active). However, these categories often do not fully capture the various ways farmers can engage with advice and information and these tends to be normatively applied to favor one way of producing over another (Gilles et al., 2013). Various variables and causes, such as farm size, asset status, education, influence the farmers' variation of demand for advisory service (Labarthe & Laurent, 2013; Prager et al., 2016). As Ingram (2008) argues based on her study of promotion of "best management practices", farmers can be more proactive or reactive in their relationship with advisor, and the relationship can either be steered by advisor, farmer, or can be more equal. As (Jansen et al., 2010) argue, farmers may have several valid reasons for actively seeking advice or not. They distinguish between four types: pro-activists, do-it-yourselfers, wait-and-see-ers, and reclusive traditionalists. Based on Jansen et al. (2010) in this paper we define an analytical typology with the following types:

- The Pro-activists that are seeking advice actively from advisors
- The Do-it-yourselfers that go their own way to develop the farming, for example doing experiments or searching alternative sources of information
- The Wait-and-see-ers that are seeking advices but in lesser degree implement this into farming or at a slower pace
- The Reclusive traditionalists that does what they have always has done or think they know best themselves.

This typology does not necessarily cover all types of farmers but can contribute to insights in how advisory service providers adjust their approaches and methods to the diversity of farmers.

## 3. Methods

The empirical basis for this paper is ten interviews with farmers in 2014, observation at two workshops in 2015, five interviews with stakeholders in the Norwegian AKIS in 2015, and observation at two training workshops for advisory service in 2016. We have also made use of documents and webpages from advisory services describing services they offer. The latter is especially important to get an overview of the Norwegian providers.

Ten farmers from the region of Trøndelag in Norway were interviewed through a semi-structured guide with questions on: what kind of advisory service they make use of, how they make use of the advisory service, how satisfied with the service they are, what service they are missing, how it can be improved, how they pay for the service, and how they keep themselves updated in farming. The ten farmers were sampled from a list of farmers made by advisory service staff and public authorities that know the agriculture in the region well. The sampling was done by researcher to achieve a variation of geography and production. Three women and eight men were interviewed. Their age was between about 30 and 55. Two interviews were done in person and the rest by phone. Interviews were tape-recorded and notes taken during and after the interviews. Details of this study were reported in Norwegian (Stræte, 2014). Not all of the issues in the interview is relevant for this paper but parts are, as questions mentioned above. These ten farmers are not representative for farmers or types of farmers neither in Norway or in the region. They are probably above the average in farm activity and in discussion in farmers organizations. Ideally, a larger number of farmers with an even larger diversity should have been interviewed but limited resources made that impossible. That is a limitation of the study, and hence participation in workshops were carried out to complement this data and enable triangulation.

The two workshops were organized to address questions related to competence development for farmers and challenges for advisory service. They were organized with a few keynote speakers, work in groups and plenary discussions. From these workshops researcher could identify what issues both representatives from farmers and advisory service raised, observing what questions and challenges they were emphasizing. Data from these workshops were notes taken under and after the activity.

Finally, interviews with five stakeholders from different advisory service organizations were carried out. All organizations are farmer cooperatives. The researchers sampled these stakeholders. These interviews were open but related to what kind of service they offer, their experience from their service, if and how they evaluate, what are the challenges, and what are their strategies.

## 4. Findings

In the following we will present results relevant for the three main topics as articulated via the research questions: the structure of the Norwegian advisory system, how farmers seek advice, and farmers' relationships to advisory services.

### 4.1 The Norwegian AKIS and advisory system in transformation

The Agricultural Knowledge and Innovation System (AKIS) in Norway has transformed from a governmental driven strategy with farming and public goods in focus towards a commercialized business with farmers in focus. From the late 1980s, the agriculture sector in Norway, as in many other countries, shifted to more market orientation with less subsidizing and an increasing focus on competitiveness. This radical transformation the last 30 years also affects the advisory system within the AKIS, for example by a smaller budget for publicly funded advisory services at the county and municipal levels.

A number of key challenges and tensions emerged in this radical transition, such as:

- In governance: Less governmental support and responsibility for advisory services, while there is still a political objective to develop agriculture.
- In competencies: Both for farmers and advisors there are challenges to follow up and implement new knowledge and technology. In addition, advisory services are changing working methods from recipe-based problem solving and decision making towards guiding and coaching-based methods.
- In organization: Advisory services need to develop market oriented business models. Earlier, from being free services, now farmers more often have to pay, and advice organization to focus on earnings. Such changes also increased the competition among advisory services.

At present the advisory systems consists of:

- Advisors in the input supply industry, often in cooperatives such as *Felleskjøpet Agri* (concentrate, fertilizer, machines and equipment) but also a long row of machinery suppliers and others. This service is given from organisations that sell to farmers, and in some cases buy.
- Advisors in food industry, often in cooperatives such as *TINE* (dairy) and *Nortura* (meat). This service is given from organizations that buy produce from farmers. Especially in the meat sector there are several competitors that in various degree also provide advices for farmers.
- Advisors in independent organizations such as the cooperative Norwegian Agricultural Extension Service (NAES)(*Norsk landbruksrådgiving*) but also independent private consultants.
- Advisors related to services like accounting, banks, insurance, breeding organizations, ICT, farmer unions etc. These services are given or sold in addition to other service offered.
- Advisory service provided by governmental and public bodies especially at local and county level.

The agricultural business cooperatives (*TINE, Nortura, Felleskjøpet*) and the cooperative NAES have altogether a comprehensive package of different advisory services. These are tools both for production tasks and financial management, purpose of planning of strategy and management of farm activity as well as for agronomical operations on the farm. The advisory services are also involved in a range of educational and training actions for farmers, solely or in cooperation with high schools and universities. Table 1 below summarizes the activities of the main advisory service providers and advisory arrangements in Norway.

***Table 1: Main private providers of advisory services in Norway.***

| Name provider | Main target audience | Position of advisors | Type of advises | Tools used | Type of client served, tentative | Way of payment |
|---|---|---|---|---|---|---|
| *TINE* | Dairy farmers | Embedded but in specific department | Dairy farming, feeding, animal health, milk quality, economy, strategy | One to one, experience groups, meetings for members, packages of advisory for specific issues, web | All types but top teams esp. the Pro-active and obligatory meetings to include also Reclusive traditionalists | Combination: One meeting free for members, payment per hour, or advisory package |
| *Nortura* | Meat producers (cattle, sheep and goat, hog, and poultry) | Embedded | Meat production, animal health, economy, buildings | One to one, meetings for members, introducing packages | All types but esp. the Pro-active in hog | Normally free[1] for members and potential members but payment for specific deliveries (plan of management etc) |
| *Felleskjøpet* | Farmers in general | Embedded | Concentrates, fertilizer, buildings machinery and equipment | One to one, meetings for members, introducing packages | All types | Normally free for members and potential customers |
| NAES | Plant producers | Independent | Plant production, soil, organic, economy, strategy, buildings, machinery, landscape, HES | One to one, field show, groups, packages of advisory on specific issues | On to one esp. for the Pro-active in vegetable production. Coordinators mixed with research esp. the Pro-active. | Combination: Annually member fee, payment per hour or advisory package. About 20 percent of revenue for NAES comes from governmental grants. |

[1] 'Free' implies no direct payment, but the cost is covered in the price of the milk sold or other inputs purchased.

Advisory services in these four cooperatives mentioned in table 1 cooperate now and then, i.e. cooperation between private and public sector, often driven by private sector (advisory service included) with a majority of funding from public sector. Examples are 'Green Research' (*Grønn forskning*), that is a regional programme for Mid-Norway. Green Research has among others, established meeting arenas for advisory service, research and farmers; 'Competence boost for agriculture in Trøndelag' (*Kompetanseløft trøndersk landbruk*) organises 'training camps' for advisory services across organisations; RULL in the county of Oppland, is a partnership between farmers' organisations, the county and the county governor, focussing on farmer learning.

### 4.2 Farmers seeking advice and up-to-date information

There are several sources farmer use to access information and to build their competence (Stræte, 2014). Magazines and newspapers are most important sources, with other farmers nearby and internet coming next. Then comes advisors from Norwegian Agricultural Extension Service followed by advisors in other Norwegian agricultural cooperatives. Nevertheless, they do not always get the support they need. From a representative survey among farmers in Norway, only 29 per cent answered that they as farmers managed to get the required support or find the knowledge they wanted (Stræte, 2014). As argued, the ongoing transformation in agriculture, has led to various types of farmers with various support needs: A well-informed pro-active farmer has different needs than a wait-and-see-er farmer using methods that are more traditional.

Supported by the typology of farmers presented above, based on Jansen et al (2010), below we give examples of relationships between the various farmer types and advisory service, and how, or if, the farmers seek information from advisory service. These results are based on interviews with farmers and stakeholders, added with issues discussed at the workshops.

*The Pro-activists:* These type of farmers makes explicit request to advisory service. They are often specific in their demands to advisory service. When they invest in new technology (like AMS) a stronger relation may be developed through specific packages of advisory services. As one farmer said: "I am conscious about 'picking' the right advisors". From the perspective of advisory service providers this is the ' ideal farmer' that needs to be served well, otherwise they may lose her or him to other companies. These farmers are open to and are actively seeking external information. However, some advisors (and farmers) experience it can be difficult for advisors to meet these farmers' level of competence.

*The Do-it-yourselfers*: These types of farmers seldom have a strong relation to advisory service. They even may be in conflict, i.e. confronting the 'official advices' that are regarded as 'the truth', or they "shop" advice from different sources, including alternative sources as opposed to the conventional ones (i.e. their regular advisor) as in general they distrust external information. As one farmer said: "…. It is hard to make plans for farm management, to give economic advice and so on – they <advisors> do not at all keep updated. I feel I have better control myself by doing simple calculations." Advisors have mixed views on this type of farmer. On the one hand, these farmers can cause trouble with alternative and often challenging knowledge. On the other hand, they have respect and see a potential to learn more themselves, as it can be an important correction. However, a main challenge is to establish constructive relationships.

*The Wait-and-see-ers:* These types of farmers can be regarded as the average farmer. They often participate in meetings and other activities organized by the advisory services, and they follow the regular advisory scheme from the advisory service, like annual meetings, doing analyses of fodder, make a fertilizer plan etc. However, they are not swift in implementing new knowledge, as they in general are more closed to external information. Some may need to be challenged to make progress. Advisory service organized group activities may be also be used as an arena for social meeting with colleagues. From the perspective of advisors, these farmers seldom cause 'trouble' for advisory service but there are some specific challenges for advisors. First, some of these farmers need now and then to be challenged by advisors in their farm management if there is a need for improvement or

investment. For advisors it requires specific skill to do this in a balanced way as the farmers have various motivation and ambitions for their farm.

*The Reclusive traditionalists*: There is in general no active relation between these farmers and advisory service providers. These farmers seldom take contact with advisory service providers. They generally farm their own way, as they used to do, or they are busy with other activities that make farm development and seeking information less relevant. Advisory service providers indicate it is difficult to get contact and develop a relationship with these type of farmers. For some advisors this is worrying, given public goals for the agricultural sector. They regard it as their societal mission to include all farmers in their advisory service.

Despite differences related to the different types of farmers, there are also similarities. The need for advice varies among farmers but among those interviewed were several specialized producers that expressed a need for top quality expertise. Both pro-activists and wait-and-seers, stated that advisors should be more assertive and give farmers stronger challenges. This requires that advisors have both professional skills and personal qualities to handle such issues. Further, some asked for a 'road map' to reach a peak level for their specific type if production, which is typical for farmers that are strong involved in their business. Generic advice is not sufficient. The margins are so small that they need a detailed and scheduled follow-up plan. Some farmers expressed that such services seem to be missing today.

However, advisors indicated it is not possible for individual advisors to have expertise in everything. There is therefore a trade-off among the advisors to find a balance between specialization and universality. This bears a risk: the discussions clearly suggests that if farmers do not have access to specialized knowledge, they go abroad to search expertise, which is typical for the Do-it-yourselfer and is also done by Pro-activists. Pro-activists may move towards Do-it-yourselfer if they do not achieve what they want, or 'shop' knowledge where it is available, domestic or abroad. Seen from the advisory position this can be perceived as a failure when not being able to respond to demand, but it could also be regarded as an opportunity to assist and facilitate that the farmers achieve such expertise for example abroad.

As presented, results from the study indicate there are challenges for advisory service to meet demand from various types of farmers. In next section we will present how new configurations emerge to improve mismatches.

### 4.3 Emergence of 'best-fit' configurations in advisory system

Advisory service organizations are aware of their challenges to respond adequately to the demands from various farmers. Here we present four examples on what different demand-supply configurations emerged in light of dealing with demands from different types of farmers.

a) Top team with expertise on feeding. TINE has organized a national team of experts on feeding in dairy farming, who should help the other advisors when needed acting as a resource pool for the advisory service. They also contribute directly on farms with specific problems. This team has direct link to ongoing research to be up-to-date.
b) Coordinators between advisory and research. NAES has coordinators who are employed both in the advisory service organization and a research institute (NIBIO). The purpose is to coordinate communication and activities between the two main actors in specific topics.
c) Training on cooperation. The project 'Competence boost for agriculture in Trøndelag' (*Kompetanseløft trøndersk landbruk*) organised 'training camps' for advisory services across organisations. The participating advisors were trained in working together in meetings with farmers. The purpose was to achieve a more holistic perspective on the farm.
d) Obligatory meetings between advisor and farmer. TINE provides dairy farmers with a 'key-advisor' as the main contact between the farmer and the advisory service of TINE. Included is

an annually obligatory meeting between the farmer and the advisor. At this meeting they go through all aspects of the dairy farm, including a farm inspection. The cost for this advisory service is included in the membership of the cooperative TINE. An important argument to keep this obligatory meeting is to be sure farmers are able to cope with TINE requirements on issues such as milk quality and animal welfare and this is important to safeguard the reputation of the dairy cooperative.

In table 2 the relationships between types of farmers, challenges for advisory service in relation to farmer types (as described above), and how this is met by configurations that aim to support 'best-fit'.

***Table 2: Farmer types and examples of 'best-fit' configurations.***

| **Farmer type** | **Examples of challenges for advisory service** | **Examples of new configurations** |
|---|---|---|
| The Pro-activists | How to bring in right expertise to meet the specific demand of knowledge? | A) Top-teams of expertise sharing among advisors (*TINE*)<br>B) Coordinators with shared employment in advisory service organization and in research institute (*NAES*) |
| The Do-it-yourselfers | How to develop trust in relations to farmers? | No example identified |
| The Wait-and-see-ers | How to challenge farmers, due to various motivations in farming for farmers? | C) Specific training projects for cooperation between advisory service organisations |
| The Reclusive traditionalists | How to get in contact with the farmer? | D) Obligatory annual meeting between advisor and farmer (*TINE*) |

Table 2 lists identified examples of challenges for which advisory service organizations have made efforts to meet demands of specific types of farmers. However, the new configurations are not exclusive to the target types. The study has not identified examples of configurations that are specific for challenges related to The Do-it-yourselfers. However, the advisors are much aware of this type of farmer and try to improve their skills for giving service in these cases as well, but without a specific arrangement to support in that.

### 4.4 Public goals as a factor of targeting various farmer types

As indicated in section 2, in pluralistic privatized advisory systems addressing public goods can be complicated, and this is why advisory service organizations in Norway are concerned about serving most types of farmers. The Norwegian model of cooperation in the agricultural sector involves shared goals between government, farmer unions and cooperatives. Farms must deliver on policy goals like producing for the domestic market, contributions to rural settlements, environmental goals (Forbord et al., 2014). To do so they are served by support instruments like subsidies, import restrictions and market regulation. All these conditions are regarded as needed to maintain Norwegian agriculture. Also advisory service organizations are aware of this and therefore have interest in 'taking care of' all types of farmers enable the agricultural sector to deliver public goods. One way to maintain the interest of public goods is to subsidize private advisory services (i.e. public funding and proivate delivery). In the Norwegian case, only NAES receive subsidies as a basic funding mainly for the regional and local units of the organization. This way of governance can be argued to balance the governmental objectives to stimulate access to advisory service in all regions, with a strategy to be a market oriented advisory service provider.

## 5. Discussion and conclusion: Towards subsystems in pluralistic advisory systems?

Advisory service and AKIS in Norway have been transformed from a public service to a highly privatized system. This study shows that advisory services in Norway are concerned about who they are serving, and how they can be able to serve most of the various types of farmers. A typology of farmers based on Jansen et al (2010) was applied to explore the relation between types of farmers and advisory services: The Pro-activists, the Do-it-yourselfers, the Wait-and-see-ers, the Reclusive traditionalists. The results confirm the existence of several farmer-advisor relationships, dependent both on the position and information seeking style of the farmer, and the capability of the farmer, resembling earlier findings of Ingram (2008). Sometimes a good demand-supply match occurs, but in case this does not happen arrangements are put in place to mitigate these weaknesses of the system, i.e. installing advisory systems capacity building which has been described earlier by Klerkx and Proctor (2013).

Beyond confirming that findings from earlier work on farmer-advisor interactions in pluralistic systems are also found in the Norwegian case, there is an important emergent finding on the emergence of specific configurations of farmers and advisors in the Norwegian advisory system (following earlier ideas from Proctor et al., 2012; Phillipson et al., 2016) in view of farmer's dynamic demands (cf. Kilelu et al., 2014). However, rather than being only configurations at the farm level as these authors find, these configurations might be considered 'subsystems' of the advisory service system aimed at achieving 'best-fit' for a particular type of farmer. Based on the results in this study we have identified three types of subsystems.

- *A 'Holistic' subsystem*: This is an inter-organisational system of service supply with cross-over relations between advisory organisations, to provide a more holistic perspective on farming and the service needed to support it. Participating advisory organisations both cooperate and compete. When agreements are made and cooperative routines established, farmers are offered a better advisory service. These systems make it easier for farmers to get access to the 'right' advice. Related to the various farmer types this system may be most helpful for farmers that are not seeking advices pro-actively. That means Wait-and-seers are the target group for this subsystem.
- *An 'Elitist' subsystem*: This subsystems is organized as top teams of expertise are established to overcome the expertise/generalist-challenge in advisory service organisations. Generalists have first line contact with farmers and when needed they can bring in expertise from top teams, which can be sourced intra-organizationally or cross-organisationally. This subsystem will be most relevant for farmer types like Pro-activists and Do-it-yourselfers.
- *A 'Public Goods' subsystem:* Systems of private and public cooperation in regions can be found to work on issues that for example require a long term perspective (like education, learning, competence) and are difficult to turn into a commercial service (like succession and recruitment, or environmental issues), so when there are difficulties in terms of willingness-to-pay or ability-to-pay. This subsystem seems to substitute former public advisory service provisioning and counteract market imperfections such as skewed access to advice which is an issue in many privatized systems (cf. Labarthe & Laurent, 2013; Prager et al., 2016). This is a subsystem that serves various types of farmers. 'Green Research', 'Competence boost for agriculture in Trøndelag', and RULL mentioned above are all examples of this type of subsystem.

Beyond confirming diversity in farmer information demand and different kinds of advisory service supply to meet heterogeneous demands, the main theoretical implication of our study is that more attention should be paid to 'subsystems' within advisory systems. As opposed to seeing an advisory system as a national and homogenous system which might have 'best-fit' within a given country setting (Birner et al., 2009) , 'best-fit' systems dynamically emerge and have particular configurations within a country setting in view of types of information seeking of farmers and public goals of the system. As our results show, and this has an important implication for policy, as some of these

subsystems are formed mainly because of private action to better serve clients (e.g. the elitist subsystem) and some are connected to public concerns (e.g. farmer exclusion and environmental issues in the public goods subsystem). Hence policy makers should monitor the emergence of these subsystems and in some of them become active participants, in line with ideas of the public sector as 'regulator' of private and commercial advisory systems (cf. Klerkx et al., 2006). Since our findings should be considered tentative, there is a need for more in depth study on a) the constructed typologies of farmer information seeking and the related advisory service demand-supply match for each type, and b) the advisory subsystems, to better explore how they operate and study how stable or dynamic they are, so whether they are permanent subsystems of more temporary configurations.

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