



Prospects for Farmers' Support:  
Advisory Services in European AKIS

**AKIS and advisory services in Denmark  
Report for the AKIS inventory (WP3) of the PRO AKIS project**

**April 2014**

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**KNOWLEDGE CENTRE FOR AGRICULTURE**

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 311994

Please reference this report as follows:

Madsen-Østerbye J. (2014): AKIS and advisory services in Denmark. Report for the AKIS inventory (WP3) of the PRO AKIS project. Online resource: [www.proakis.eu/publicationsandevents/pubs](http://www.proakis.eu/publicationsandevents/pubs)

## Executive Summary

The main aim of the report is to provide a comprehensive description of the Agricultural Knowledge and Information System (AKIS) in Denmark with a particular focus on agricultural advisory services. The description includes history, policy, funding, advisory methods and a section on how the Farm Advisory System (FAS) was implemented.

This report represents an output of the PRO AKIS project (Prospects for Farmers' Support: Advisory Services in the European Agricultural Knowledge and Information Systems'). It is one of 27 country reports that were produced in 2013 by project partners and subcontractors for compiling an inventory of Agricultural Knowledge and Information Systems. AKIS describe the exchange of knowledge and supporting services between many diverse actors from the first, second or third sector in rural areas. AKIS provide farmers with relevant knowledge and networks around innovations in agriculture. Findings from the 27 country reports were presented at three regional workshops across Europe in February and March 2014, discussed with stakeholders and experts, and feedback integrated in the reports.

Denmark covers a total area of 42,959 km<sup>2</sup> corresponding to 4,295,900 hectares of which 2,625,915 are utilised agriculture area (UAA) corresponding to 61.1% (2013). In 2009 the number of holdings within the FADN field of observation receiving direct payment was 32,511. 6.6% of the agricultural holdings are within organic farming = 2,670 farmers growing totally 153,416 hectares (2011) or 0.06% of the Danish UAA. The average Danish farmer is 55 years old (2011), and even though the average is unchanged since 2007, the distribution has changed. In 2007 43.7% of the farmers were older than 55 years, and 26.9% were younger than 45 years. These numbers dropped to 41.6% and 18.1% respectively by 2011. Especially the number of young farmers is declining, which is a concern for the future of agriculture in Denmark.

The supply of advisory services in Denmark mainly happens within the farmer based, owned and controlled advisory system known as the Danish Agricultural Advisory Service (DAAS). The Knowledge Centre for Agriculture is part of DAAS, but acts as the national research and knowledge facilitator. The DAAS-cooperation dominates the market for advisory services. Alongside the DAAS-cooperation or the DAAS-system the other main sources of advisory services are provided by private independent companies – all small in size – and input suppliers companies. Public universities and research units do not provide day-to-day advisory services to the individual farmer. Some companies within the food processing industry are involved in advising the farmers when making contracts with them. This happens within specific sectors such as potato growing. It is also significant that private independent advisers have a large role within limited specific sectors e.g. potato growing where the private advisers have a much higher market share compared to the large advisory services' areas of cattle, pigs and crops.

Denmark has overall a well-functioning AKIS with strong links between universities, public ministries and agencies, agricultural knowledge centres, agricultural colleges and vocational schools, advisory companies, and farmers and vice versa. Furthermore the Danish AKIS and advisory system are responsive towards the needs of the farmers and the demands and wishes from the political system and the public.

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## List of Acronyms

<b>Acronym</b>	<b>Explanation</b>
AKIS	Agricultural Knowledge and Information/ Innovation Systems
AWU	Average working unit
CAP2020	The Common Agricultural Policy (CAP) till 2020
DAAS	Danish Agricultural Advisory Service
DIAS	The Danish Institute of Agricultural Sciences
DKK	Danish kroner
DTU	The Technical University of Denmark
EEC	European Economic Community
FADN	The Farm Accountancy Data Network
FAO	Food And Agricultural Organization of the United Nations
FAS	Farm Advisory System
GAEC	The good agricultural and environmental conditions
GDP	Gross Domestic Product
GTS	Authorised Technological Service Institute
KCA	The Knowledge Centre for Agriculture
LIFE	The Royal Veterinary and Agricultural University
L&F	Danish Agriculture and Food Council
NGO	Non-Government Organisation
PRC	Danish Pig Research Centre
PROAKIS	Prospects for Farmers' Support: Advisory Services in European AKIS
SME	Small and medium sized enterprises
SMR	Statutory Management Requirements
UAA	Utilised agriculture area
USD	United States Dollars
VFL	Videncenter for Landbrug (KCA)

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## 1. Main structural characteristics of agricultural sector of the country

In 2012, the Danish population was 5.6 million, with 2.4% of the civilian work force employed within the agricultural sector = 52,300 people. This is a decrease of 0.1% compared to 2009. The GDP per capita in Denmark is €42,600 (2010), and the contribution of the agricultural sector was 1.18%.

Denmark covers a total area of 42,959 km<sup>2</sup> corresponding to 4,295,900 hectares of which 2,625,915 are utilised agriculture area (UAA) corresponding to 61.1% (2013).

Denmark has 39,930 agricultural holdings (2012), which is a decrease of 1.8% from 2011 and of 50% since 1990. During this 12-year period, the average size of a holding has increased from 35 ha to 66 ha. The major decrease was among farms under 5 ha. The only farm sizes not subject to decrease are the large farms above 200 ha and the farms sized 5-10 ha. This indicates the general development – reducing the middle sized commercial farms and increasing the “large industrial” farms and the part-time farmers having their main jobs and main incomes in other sectors of the economy.

In 2009 the number of holdings within the FADN field of observation receiving direct payments was 32,511.

6.6% of the agricultural holdings are within organic farming = 2,670 farmers growing totally 153,416 hectares (2011) or 0.06% of the Danish UAA. The total organic farming area has been steadily increasing since the introduction of organic farming in the 1980s.

The average Danish farmer is 55 years old (2011), and even though the average is unchanged since 2007, the distribution has changed. In 2007 43.7% of the farmers were older than 55 years, and 26.9% were younger than 45 years. These numbers dropped to 41.6% and 18.1% respectively by 2011. Especially the number of young farmers is declining, which is a concern for the future of agriculture in Denmark. Most of the development for younger farmers can be explained with the difficulties to get access to venture capital after the international and national economic crises after 2008.

52,300 people are employed fulltime within the Danish agricultural sector which is a reduction of 35% since 2000. The farm labour force has 30,000 average working units (AWU) from family members, and 20,800 AWU from non-family members (2010). The agricultural labour input is 54,000 AWU (2011).

The agricultural output was €10,240,000,000 in 2011, which is 2.7% of the EU-27 output. The total crop production of the same year was 8,795,500 tonnes, of which almost 57% was common wheat for animal feed. The production yield was 5.9 tonnes per hectare. Vegetable production was 216,000 tonnes, of which carrot production accounts for 50%.

In 2013 there were 13.85 million livestock units – approximately 1.6 million cattle and 12.25 million pigs. The number of cows has reduced by 25% since 2000, but has been stable within the last 5 years. The number of pigs has increased by 6.5 % since 2000. Total production of major products in 2011 was 0.15 million tons of beef meat; 4.88 million tons of milk;

1.1 million tonnes of butter and 276,000 tonnes of cheese; 8.79 million tons of grain; 2.01 million tons of pork meat, 0.22 million tons of poultry and 15 million mink furs.

In Denmark 103.21 kg fertiliser are used per hectare of arable land (2009). Pesticide use was 1.4kg active substance per hectare when last measured in 2000. In 2011 active substances per hectare per treatment for herbicides was 0.8 kg, for fungicides 0.32 kg and for insecticides 0.04 kg. Denmark emitted 72,000 tonnes of Ammonia (NH<sub>3</sub>) in 2010. That is a 20-year reduction of 36.7%. The gross nitrogen balance fell from 217 kg N per ha agricultural land in 2001 to 203 kg in 2008.

## **2. Characteristics of AKIS**

### **2.1 AKIS description**

#### **MINISTERIES**

At the government level the main official institutions of the Danish AKIS system are the Ministry of Food, Agriculture and Fisheries, the Ministry of Science, Innovation and Higher Education and the Ministry of the Environment who set out the general framework and research strategies which have a profound impact on the direction of the knowledge and information system for Danish farmers.

The Ministry of Food, Agriculture and Fisheries is designed to provide the framework for a development and growth orientated food producing sector, responsible stewardship of natural resources and food safety, consumers' choice and healthy eating habits. The Ministry is responsible for policy development and implementation of the CAP and its administration and departments provide advice on legal matters.

The Ministry of Science, Innovation and Higher Education established in 2011 decides and finances the Danish research areas and research priorities within agriculture, biotechnology and life science.

The Ministry of the Environment is in charge of administrative and research tasks in the area of environmental protection and planning including agricultural construction and minimisation of impacts of farming on the environment and nature. The Ministry of the Environment is responsible for advising and regulating agricultural production in order to minimise pollution.

#### **UNIVERSITIES**

The two main universities with agricultural related research and education are the Aarhus University and the University of Copenhagen who with the university reform in 2007 integrated former independent sector research and education institutions. The Danish Institute of Agricultural Sciences (DIAS) was transferred to the Aarhus University and is now part of the Faculty of Agricultural Sciences. The Royal Veterinary and Agricultural University was integrated into the Faculty of Science (LIFE) at the University of Copenhagen. The Technical University of Denmark (DTU) carries out the food and agricultural research at the National Food Institute. The last two universities with agricultural and spatial planning activities are the University of Southern Denmark and Aalborg University.

#### **AGRICULTURAL COLLEGES**

There are 10 agricultural colleges organised as boarding schools. These traditional agricultural educational institutions are today mostly placed in Jutland. Previously they were scattered all over Denmark. They teach modern farmers and offer special courses in farm management and economics. In addition to the 10 traditional agricultural colleges, 8 vocational schools are also offering agricultural educations.

#### **KNOWLEDGE CENTRES**

The Knowledge Centre for Agriculture (KCA)

The Knowledge Centre for Agriculture is the main Danish knowledge centre for agriculture in Denmark with expertise within all areas of agricultural activities and issues. The staff translates the newest national and international research results into new knowledge for all Danish farm advisers and farmers; participates in innovative projects and develops new advisory and implementation of methods and practices.

#### Danish Pig Research Centre (PRC)

Alongside the Knowledge Centre for Agriculture is the Danish Pig Research Centre. The Danish Pig Research Centre operates like the Knowledge Centre for Agriculture within the area of pig production. It operates independently of the Knowledge Centre for Agriculture.

#### GTS-institute

As other business sectors the agricultural sector in Denmark has a GTS-institute called AgroTech. GTS-institute stands for Authorised Technological Service Institute. All GTS-institutes are non-profit organisations who have the task of supporting the creation of more innovative and competitive Danish companies. AgroTech delivers research-based consultancy and technological services for the farm and the agro-business industry.

### **ADVISORY SERVICE CENTRES**

The 30 existing independent local agricultural advisory centres form together with the Knowledge Centre for Agriculture the Danish Agricultural Advisory Service (DAAS) employing approximately 3,000 people.

Patriotisk Selskab is, likewise, a farmer owned advisory service traditionally servicing the large estate landowners.

Veterinarian services and advising is performed by the farmer owned “LVK – Landbrugets Veterinære Konsulenttjeneste” and by a large number of individual and private veterinarian companies.

The horticulture sector is served by HortiAdvice Scandinavia which is a Danish – Dutch joint venture.

### **PRIVATE ADVISORY COMPANIES**

A small number of small private advisory companies, with typically between 1 to 8 employees/owners, offer advisory services. Most of them have specialised in one or a few advisory subjects.

### **UPSTREAM INDUSTRIES**

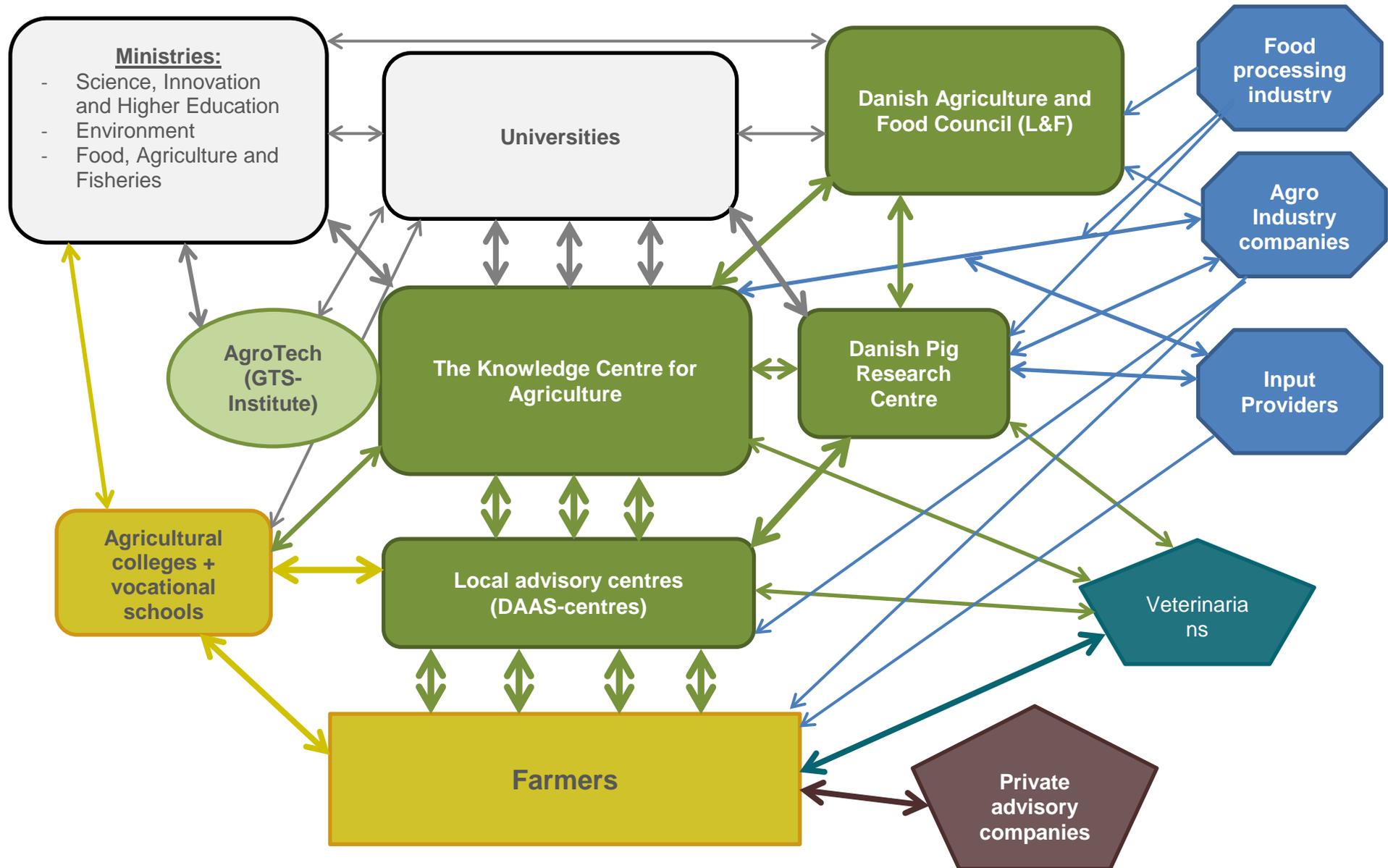
Suppliers for agriculture also often provide some form of advisory services as an integrated part of their supplies to the farmers. Among the major ones are farmer owned companies within feedstuff, nutrients and seeds.

### **Danish Agriculture and Food Council**

The Danish Agriculture and Food Council is the nongovernmental organisation of Danish farmers and food industry including agro business, trade and farmers’ associations.

The organisation was formed in 2009 through a merger of all Danish farmers' associations, existing farmers' nongovernmental organisations and agro and food business.

## 2.2 AKIS diagram – The Danish AKIS



### 3. History of the advisory system

The Danish advisory system today is the result of a long term and gradual development – however, with a crucial shift in agricultural production when Danish agriculture changed from plant production to animal production as the basis of Danish agricultural production and exports. It has been shaped and transformed by changes in economic, social and political periods and events in Danish history and by the changes in the possibilities for export products.

The Danish advisory system has its roots in events in the late 18th century and changes in the Danish agriculture up to the 1870s. With the political events and decisions in 1788 the farmers changed from being tenants farmers to independent farmers including smallholders. Changes in agriculture, culture in methods, the invention, introduction and use of new technology and methods accompanied this development and increased with setting the Danish tenant farmers free from adscription. Some of the landowners took part in and were even frontrunners in this project. The culture in the countryside followed and developed into a certain Danish version of cultural cohesion among Danish farmers. Later on the same happened among the smallholders. One dominant feature of this culture, which has lasted until today, is a strong sense of unity and the readiness to help and assist your fellow farmer with advice and guidance. It is a constitutive element of the culture among Danish farmers to share knowledge and cooperate about innovation.

The Danish farmers and later on smallholders formed local farmers' and smallholders' associations all across the country as part of this development. In the beginning these new farmer associations were led by the large landowners as they were the ones locally with the resources and the highest level of knowledge.

In the 1860s and 1870s most of Denmark was covered by local farmer associations and most farmers had joined these associations and began to take control of them **vis-à-vis** the local landowners. The farmer associations began to form a structure towards a national organisation in the 1880s. The smallholders first succeeded with this around 1900.

Around 1915-20 the political institutional setting representing Danish farmers and smallholders was established and the institutional organisation of farmer and smallholder owned cooperatives was in place. Danish agriculture was thus thoroughly organised in the period up to the First World War. This institutional setting regarding the associations and the various farmer political nongovernmental organisations would last without many changes until the turn of the millennium.

From the 1870s to the 1890s Danish agriculture changed from plant production with production of grain to the European market to animal production with butter and pork as the primary products. The traditional grain production was ousted by cheap grain import from Russia and overseas (U.S.A. Canada, Australia, South America) and Danish agriculture was hit by a severe crisis. This crisis was overcome by the great rearrangement of Danish agriculture to animal production which since then has formed the basic characteristics of Danish agriculture with a huge export of dairy and pork related products, even though other products such as seeds and mink skins today contribute to the successful Danish agricultural export.

The forming of farmer and smallholder associations was followed by the creation of the cooperative associations within agricultural production which was an integrated part of the solution of the Danish agricultural crisis. This happened extremely fast. Within 10 years from 1880 to 1890 Denmark was covered with dairy cooperatives and later on with cooperative pig factories. The formation of farmer associations and the shift from grain production to animal production were leading factors in accelerating the introduction and need of agricultural advisory services. Even though the knowledge level among farmers steadily increased due to the establishment and existence of agricultural schools and the special Danish enlightenment of *folk high schools* all across the country from the 1850s and onwards the local farmers associations began to invite and to hire agricultural advisory consultants which rapidly increased from the year 1900. The consultants were employed by the local farmer associations. The number of advisers grew steadily into the first half of the 20th century. The attempt of the Danish Ministry of Agriculture to take control of all advisers at the beginning of the 20th century was rejected by the farmers because they anticipated that state control would prevail over desired agricultural consultation. As most other aspects of living and production in the countryside came in the hands of the farmers so did the ownership and control with agricultural advisory services.

Most advisory services are still today provided by and through farmer owned agricultural advisory companies. 30 of these farmer-owned advisory companies make up the national cooperation called Danish Agricultural Advisory Services. The 30 DAAS-centres, which are independent of one another, still cooperate today and are dominating the market for advisory services in Denmark. Independent private adviser companies exist, but they are all small in size, typically 1-3 owners/employees, sometimes 5-7. Even the two identified private advisory company found outside the DAAS system are organised and run by the same model as the DAAS-system where the individual farmer is both customer and owner of the company.

For the last thirty years the DAAS-system has maintained its dominance in the Danish advisory system. However, the significance of private independent advisers has increased somewhat, but not much. The number of DAAS-centres has decreased from around 65 at the turn of the millennium to 30 in the year 2013. But the number of advisers has remained rather constant over the last thirty years. The constituent tendency in the demand of agricultural advisers in Denmark has followed the economic fluctuation in the agricultural sector rather than a diminishing demand due to the structural development within the sector towards still larger farm holdings. When the level of investments has grown or fallen so has the demand for advisers.

With the decreasing number of farmers, the number of agricultural schools has decreased significantly within the last twenty years. Only 10 traditional agricultural schools are left today. Due to a fall in pupils in the 2000s many agricultural schools have closed down or have found a solution of survival by becoming a subdivision of a vocational school. But mergers and closing down of small educational institutions have been a general trend across the country for the last 20-30 years so this development has not only affected the agricultural schools. The process with still fewer agricultural schools, and the trend that these primary and secondary agricultural educations through new legislation and administrative procedures have increasingly become similar to other ordinary secondary education, has meant that the traditional farmer control of secondary agricultural education and training is slipping out of their hands. Within the last few years the numbers of pupils attending the agricultural schools have been rather stable.

## 4. The Agricultural Advisory Service(s)

### 4.1 Overview of all service suppliers

The supply of advisory services in Denmark mainly happens within the farmer based, owned and controlled advisory system known as the Danish Agricultural Advisory Service (DAAS). The Knowledge Centre for Agriculture is part of DAAS, but acts as the national research and knowledge facilitator. The DAAS-cooperation dominates the market for advisory services. Alongside the DAAS-cooperation or the DAAS-system the other main sources of advisory services are provided by private independent companies - all small in size - and input suppliers companies. Public universities and research units do not provide day-to-day advisory services to the individual farmer. Some companies within the food processing industry are involved in advising the farmers when making contracts with them. This happens within specific sectors such as potato growing. It is also significant that private independent advisers have a large role within limited specific sectors e.g. potato growing where the private advisers have a much higher market share compared to the large advisory services' areas of cattle, pigs and crops.

#### The DAAS-cooperation

The DAAS-cooperation consists of 30 advisory centres and they have approximately 3000 employees. These do *not* form and is *not* to be seen as forming one unified structure with an overall centralised management where each centre forms a subdivision of DAAS. Each centre is independent of one another *but* on the other hand they are all members of DAAS. The director of each DAAS centre is a member of the DAAS Board of Directors. The DAAS board regularly meets and discusses the situation and needs of the advisers, of the farmers and the agricultural sector. The reason why having competing advisory companies at the same table is that they all share some common knowledge and information needs and the historical traditions for cooperation in the farmer controlled agricultural sector.

Each DAAS centre is owned by one or several (the trend) farmers' local associations. Traditionally there were many more local farmers' associations and each of them had their own society or association of advisers attached to them. In the last 30-40-50 years these local societies/associations have been separated from – but still owned by – the local farmers' associations and developed into more distinct business-like advisory centres increasingly looking like private business companies.

This development has been intensified over the last 20-30 years, where the structural development within Danish agriculture and in the countryside has reduced the number of farmers' associations and the number of DAAS-centres, too. Like many local farmers' associations, also DAAS-centres have merged into bigger DAAS-centres - now often regional in their market perspective and with geographical local offices. The competition among the centres has increased both because the DAAS-centres have become more “company-like” (as every other company in every other market) and as the informal rule of local monopoly/exclusivity has been under pressure (“previously you did not offer services within another DAAS-centre's area”). The competition among the centres is more severe than ever.

The different DAAS-centres differ a lot in size. The largest – after being merged with another in August 2013 – now covers 15% of the market of advisory services. The smallest DAAS-centres with a size of 4-10 advisers are primarily found on the fringe parts of Denmark; they have a stronger local identity.

Another aspect of the structural development within Danish agriculture which has affected the DAAS-centres is that advisory fields covering animals and special limited fields for advisory service such as stable design have been separated into individual specialised advisory centres. This trend first happened within pig production in the 1970s and 1980s. The latest merger - September 2013 - meant the creation of a pig advisory centre covering half the pig production in Denmark, equivalent to a production of 10 million pigs. This trend is also happening within the cattle advisory services, where 4 DAAS-centres in the southern part of Denmark (covering Southern Jutland and parts of Funen) have formed one advisory centre offering cattle advisory services.

The DAAS-cooperation market shares within the different advisory fields are estimated to be the following:

Economic advisory service:	90-95 %
Crop Production:	90-95 %
Cattle advisory services:	80-90 %
Pig advisory services:	60-70 %

The reason why the much lower market shares with regard to advisory services related to cattle and pig production is due to the presence of private independent advisers but mainly to the presence of advisory services provided by veterinarians partly due to requirements stipulated in law. But the DAAS-centres employ veterinarians themselves among their staff and/or work closely with the (independent) veterinarians used by the farmers. Traditionally there is a good cooperation with the veterinarians. Furthermore it is a constituent feature of the Danish advisory system that the different advisers, though they are competitors, work with one another based on the needs of the farmer. The trend among veterinarians working with the animal production of Danish agriculture is that over the last 20-30-40 years the traditional one-man veterinarian enterprise has merged with others into larger businesses, typically with 5-10 veterinarians. This has not been a slow or hasty trend but a steady trend. In this way Denmark has an extensive veterinary preparedness of control regime covering the agricultural sector.

The DAAS-centres cover and offer full supply of advisory services in relation to organic farming. The cultivated organic area in Denmark has continued to grow since the 1980s and organic farming and attendant advisory services are these days perceived fully in line with other farming and advisory areas.

#### The Knowledge Centre for Agriculture (KCA)

The Knowledge Centre for Agriculture works as the connecting link between university research and education and the Danish day-to-day system of advisory services. In this sense The Knowledge Centre for Agriculture acts as the first layer of two, where the second layer is the DAAS-Centres. This model is known as the Danish two-layer model for development and

delivery of advisory services. The Knowledge Centre for Agriculture acts as a research and knowledge facilitator in such a way that the Knowledge Centre for Agriculture adapts knowledge from national and international scientific research and knowledge sources. This is the core task of the Knowledge Centre for Agriculture. Earlier on - especially during the 1950s and 1960s and as a result of the impact from the USA through the Marshall Plan - most agricultural knowledge offered to the farmers had the character of knowledge transfer as in the concept of extension services, but services have since then developed further in the direction of advice, mentoring, sparring and development of the farmers' own knowledge and abilities to be a farmer and manager of his holding. The activities of the Knowledge Centre for Agriculture cover all the major fields of advisory services, including organic farming which has its own department. Besides research and being a knowledge facilitator on behalf of Danish agriculture the Knowledge Centre for Agriculture is in charge of running several databases and responsible of delivering reports and analyses of the state and situation of Danish agriculture on a regular basis.

Development of advisory services as such - i.e. how to conduct, build and form agricultural advisory services - has never been a part of the programmes at the universities or other public governed institutions or been in focus in governmental policies. This has always been left to the agricultural sector respectively the agricultural colleges but mainly to the Knowledge Centre for Agriculture and its predecessors. Today it is situated as a subdivision of the department of Business Finance & Management. Training and courses in being an adviser and how to advice are offered alongside the other products and services from the Knowledge Centre for Agriculture. These products - as all other services within the Danish advisory system - are offered on the basis of the demand of the advisers and on the needs of the farmers.

#### Danish Pig Research Centre (PRC)

Alongside The Knowledge Centre for Agriculture is the Danish Pig Research Centre. The reason why the Danish Pig Research Centre is not part of the Knowledge Centre for Agriculture is to be found in historical reasons and different structure in terms of ownership and control between The Knowledge Centre for Agriculture vis-à-vis the Danish Pig Research Centre. In short The Knowledge Centre for Agriculture is owned by the farmers where the Danish Pig Research Centre is owned both by the pig farmers and by the former federation of Danish Pig Producers and Slaughterhouses, now part of Danish Agriculture and Food Council.

The Danish Pig Research Centre conducts extensive research and knowledge production including a comprehensive work with breeding. The Centre transfers knowledge, assists in developing advice and also provides specific advisory services both to Danish pig advisers and pig farmers.

#### Upstream industries / input suppliers

Input suppliers supply advice on the products they sell. This seems to be inevitable as an integrated natural part of their business. In Denmark upstream industries provide advice as an integrated part of their business. Concerning the companies dealing with farm supplies, where farmer based and owned companies today in Denmark almost have a monopoly, reactions from them to the posted questionnaire showed that those who replied do not see their sale and extensive contact with the individual farmer as advisory services. Their perception of advisory

services is that advisory services are provided by people specifically called advisers and hired by the farmer, private or DAAS-adviser.

Upstream companies supplying pesticides have only a few people placed physically in Denmark, and it is estimated that they are not, or only a little, involved in providing advisory services.

#### Private independent advisers

The study only revealed two large private advisory companies. Patriotisk Selskab, which similar to the DAAS-centres is farmer owned but has its roots in being owned and traditionally providing advisory service to the large estate landowners. Patriotisk Selskab who offers advisory services within all areas is invited occasionally and takes part in some meetings with the DAAS-centres. Patriotisk Selskab has about 70 employees. The second one to be found was LVK – Landbrugets Veterinære Konsulentteneste. It, too, is owned and controlled by its customers = the farmers. LVK offers veterinarians advisory services. LVK has about 40 employees.

The horticulture sector is served by HortiAdvice Scandinavia which is owned by the Knowledge Centre for Agriculture and the Dutch DLV Plant. In addition to this company, an unknown number of private advisers within the field of horticulture exist that are also owned and controlled by the farmers.

Apart from the DAAS-system, Patriotisk Selskab and LVK, a number (estimated to be around 8-15 on the basis of the internet research) of independent companies exists - typically 4-8 employees offering a variety of advisory services. Besides the small companies, a number of enterprises of 1-3 owners/employees exist, who typically have specialised in one advisory service offering advisory services either in relation to cattle, pig, plant, organic farming, bookkeeping or business management. There is no national public list of all Danish advisers and advisory companies.

Regarding stable building/ construction of agricultural buildings there is a wide range of private companies and advice is certainly a part of the relation with these companies. But some of the DAAS-centres have formed 2 advisory centres specialised in advice related to the construction of agricultural production buildings. Some of the other DAAS-centres offer independent advisory services regarding agricultural production/stable buildings within their organisation.

#### NGOs

One NGO has been identified offering agricultural advisory services. This organisation is Økologisk Landsforening (in English: The National Organic Association) and they have among their activities a department (with 12 consultants), which offers a large variety of advisory services all related to organic farming, but still within a rather limited scale.

## **4.2 Public policy, funding schemes and financing mechanisms**

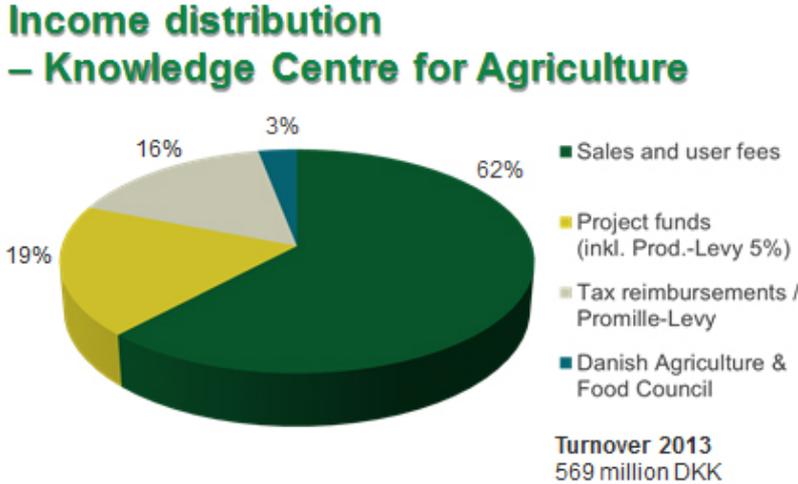
From 1852 the government started paying for advisory services to farmers. This support ended in 2004, but already in the late 1980s and at the beginning of the 1990s much of the support was stopped. So today no public policies exist in Denmark for the funding of agricultural advisory services.

The Knowledge Centre for Agriculture's services and advice are primarily financed by user fees.

The income distribution for the Knowledge Centre of Agriculture in 2012 was as follows:

62% of the income was made up by sale and user fees of actual services; 19% of the income of financing of the activities at the Knowledge Centre stemmed various innovation and development funds; 16% of the income had their origin from the levy funds and the last 3% stemmed from the Danish farmers’ organisation, Danish Agriculture & Food Council.

In 2012 the total turnover for the Knowledge Centre was approximately 569 million Danish kroner equivalent to 76 million Euros.



**Figure 1: Income distribution 2013 for the Knowledge Centre for Agriculture**

Source: The Knowledge Centre for Agriculture

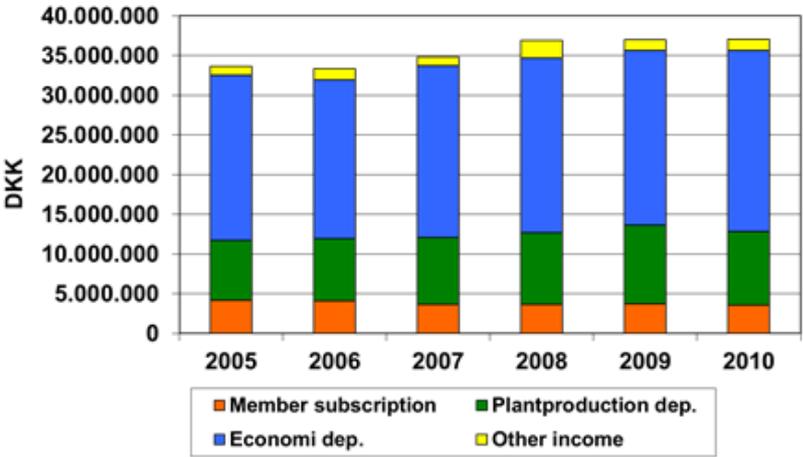
The main sources of financing for the entire Danish Agricultural Advisory System (DAAS) are generated as payment for services from farmer clients to the local advisory centres and from services provided by the Knowledge Center for Agriculture to the local advisory centres.

In relation to specific projects that aim at creating new knowledge, research as well as more applied development, KCA applies for funds from different foundations, national and EU related funds. Of these, the agricultural sector’s own funds are extremely important. They consist of production levies which the sector collects and administrates as well as taxes on chemicals (pesticides and fertilisers) which the government collects and of which a part is returned to the funds for agricultural development purposes. This means that the agricultural sector has a substantive amount of funds in research and development programmes, which is administered by the sector itself. Often research and development programmes are co-financed by public funds and the sector’s own funds in collaboration.

Public funds for research are primarily used for basic and strategic research programmes related to issues of public interest, for example environmental protection, organic farming systems and green energy.

The advisory services at the local centres provide services for approximately 48,000 customers. 40,000 of these are farmers and 8,000 are rural based SMEs in other trades. The services are paid by

the users at normal market conditions. Figure 8 shows the distribution of income at an average sized agricultural advisory centre. Please note the relative high importance of the economic department. The income here is from a combination of accounting services and actual economic advice.



**Figure 2. Annual income for a medium sized advisory centre 2005 – 2010 (in Danish Kroner)**

Source: Chipeta, Sanne 2012. Danish Agricultural Advisory Service – Financing mechanisms for demand driven agricultural extension. Evolvment of the Danish Model. Aarhus: Unpublished study for FAO

Another major source of financing of the Knowledge Centre are the levy funds paid by the Danish farmers and redirected back to knowledge and innovation to the general benefit of all Danish farmers.

Financial and regulatory tools

The financing of the Danish Agricultural Advisory Service has gone through several changes over time and there is a complex set of sources and mechanisms involved. It should be noted that since 2004, there has only been public funding of the State Consultants. They deal with tasks related to political issues and the export of Danish agricultural and food products. Hence all State Consultants are attached to a number of Danish public agencies outside Denmark.

**Table 1. Sources of financing of DAAS**

Sources of financing of DAAS after 1971 and before 2004
Public financing
Support to agricultural advisers
Support to education of farmers and advisers
State-consultants to oversee export markets and pass information and feedback to farmer leaders in the coops and to researchers
The agricultural sector’s own funds
Membership fees
Subscription fees
Direct user payment
Production levies and chemical taxes

## Public support to advisory services

The Danish Government provided support for agricultural advisory services since 1887 and up to 1971. This happened based on annual national budgeting.

Between 1971 and 2004 the support for advisory services had its own law, which provided the framework for public support to the agricultural advisory services. For expenses such as salaries, transport, pension and in-service training of the advisers, the law provides up to 70% support to the expenses and up to 50% for publication of technical reports. In special cases of difficulties, the law, however, has the possibility to support up to 85% of the costs. The percentages were gradually reduced over the years.

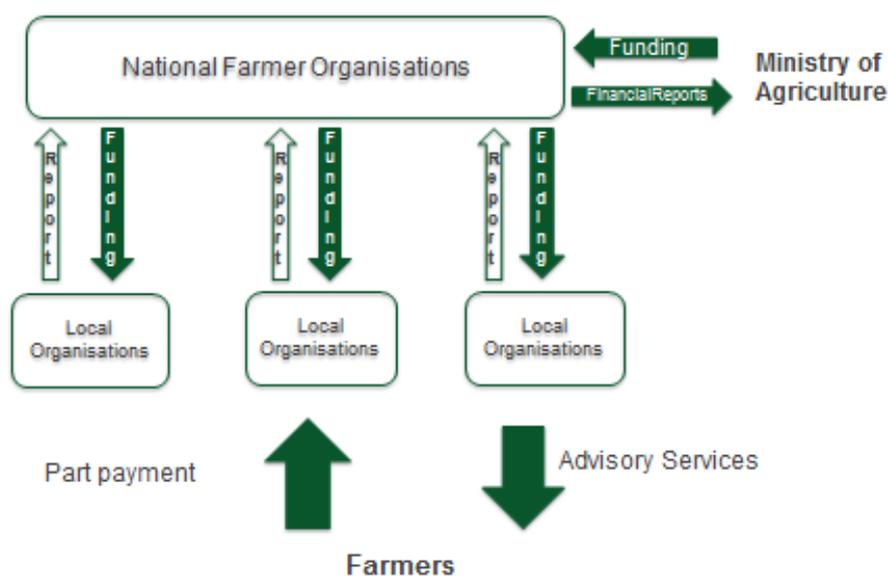
From 1988, the Government, however, decided a gradual reduction of the support and the following years the support developed as described in the following table.

**Table 2. Government allocation to advisory services 1988-1992**

Government allocation to advisory services from 1988 to 1992	
Year	Million DKK (Approx. million USD)
1988	260 (44)
1989	230 (39)
1990	200 (34)
1991	135 (23)
1992	135 (23)

Source: Chipeta, Sanne 2012. Danish Agricultural Advisory Service – Financing mechanisms for demand driven agricultural extension. Evolvement of the Danish Model. Aarhus: Unpublished study for FAO

The mechanism for providing the support was that the national organisations received a frame amount that would be subject to adjustment according to the actual expenses and distributed this to the loc:



**Figure 3: The funding mechanism for advisory services under the Law (1971-2004) for Agricultural Advisers**

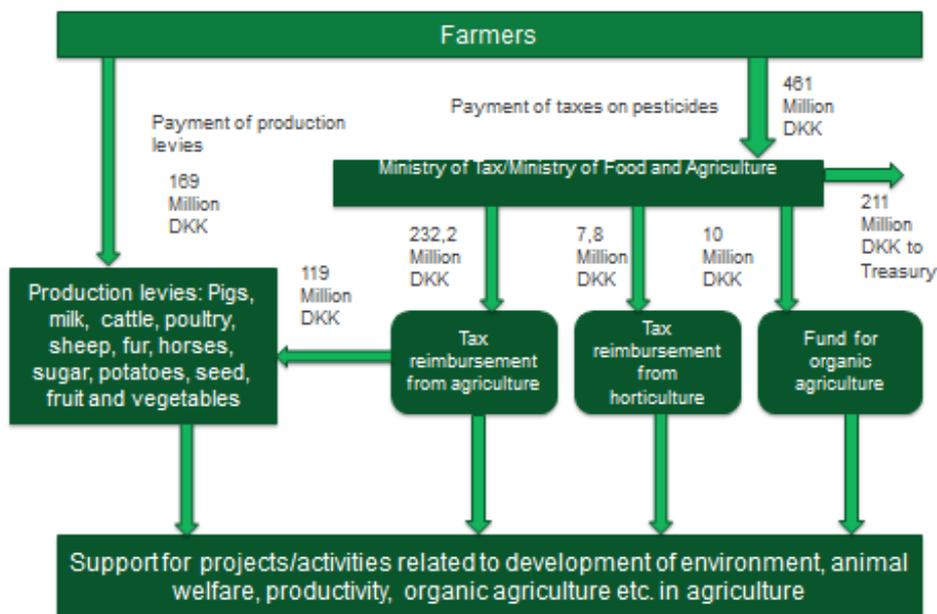
Source: Chipeta, Sanne 2012. Danish Agricultural Advisory Service – Financing mechanisms for demand driven agricultural extension. Evolvement of the Danish Model. Aarhus: Unpublished study for FAO

## Production levies and tax reimbursements for development tasks

The funds from production levies and tax reimbursement represent a grey zone between private and public funds.

The Danish agricultural sector has a long history of collecting production levies on its own, to be used for important common tasks for the sector that cannot be solved by the individual producer or company. When Denmark entered the EEC in 1972, it became necessary to institute the levies by law and the agricultural sector therefore requested the Government to do this and the funds have now a legal framework in the Law of Agricultural Support. Thereby, the funds became public funds in a way, but the agreement was that the sector's own organisations continued to fix the size of the levy and also to administer its use.

The tax reimbursement fund was instituted in 1977. At that time, it consisted of land taxes going back to the agricultural sector. Since 1995, the funds have been complemented by taxes on pesticides which today are the main source of funding.



**Figure 4. The distribution of agricultural funds according to Production levies 2010**

*Source: The Ministry of Food, Agriculture and Fisheries, the Danish AgriFish Agency*

There are today eleven production levy funds. The payment of levies is instituted by law, but the rate of the production levies is decided by the agricultural sector itself. Moreover, there are three tax reimbursement funds – for agriculture, horticulture and organic agriculture. With approximately 90% of the total fund for the three tax reimbursement funds the tax reimbursement fund for agriculture is by far the largest. The rate payment of taxes on pesticides is decided by Government and only part of it is distributed to the tax reimbursement funds. The rest goes to the treasury. Each fund is managed by a Board appointed by the Minister for Food, Agriculture and Fisheries by nomination from the sector organisations. For the board of the three tax reimbursement funds there are six representatives of the farmer organisations and five representing different public interest: Workers' unions, consumers and two research councils. That the agricultural sector has the majority in the Boards is of

symbolic importance as it means that the farmers regard their contribution to them not as actual taxes but as their contribution to development of their sector. The administration of the funds is provided by the Danish Agriculture & Food Council.

The tax reimbursement fund for agriculture supports development projects within the following nine main purposes:

- Market development 15%
- Research, trials and product development 45%
- Advisory services and education 15%
- Disease prevention, combating of disease and animal welfare 15%
- Co-financing of EU projects 10%

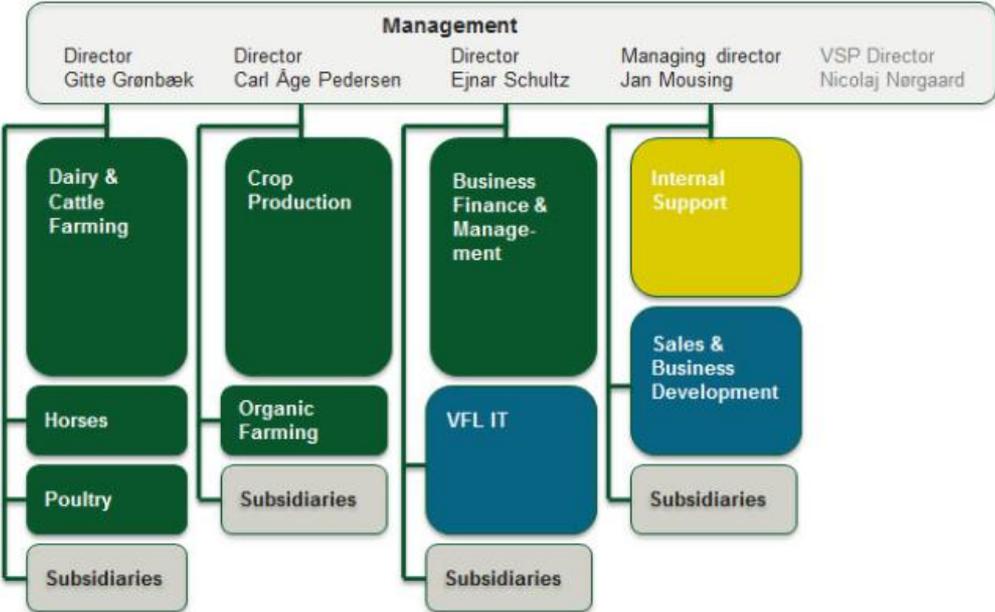
The Importance of the financing mechanism for the development of the direct advisory services

First of all, it is clear that the public support for developing the advisory service system has been of decisive importance. Without this it would not have been likely that the widespread and effective services would have been developed. The interesting question is the importance of the fact that the public funds from the Government went to the farmers’ associations rather than to the public agencies, which had a particular impact in terms of the demand orientation, the speed of transition of knowledge to practice, facilitation of the farmers access to markets, the capacity of the farmer organisations, and the role of the advisers.

**4.3 Methods and Human Resources**

Organisation and decision making at the Knowledge Centre for Agriculture

The figure illustrates the organisation of VFL with four blocks, three greens for the actual technical knowledge development and one blue for supporting the rest in terms of administration, project and business development.



**Figure 5: The organisation of the Knowledge Centre for Agriculture**

The centre is operated by four directors led by the Managing Director who is responsible to a Board of Directors consisting of:

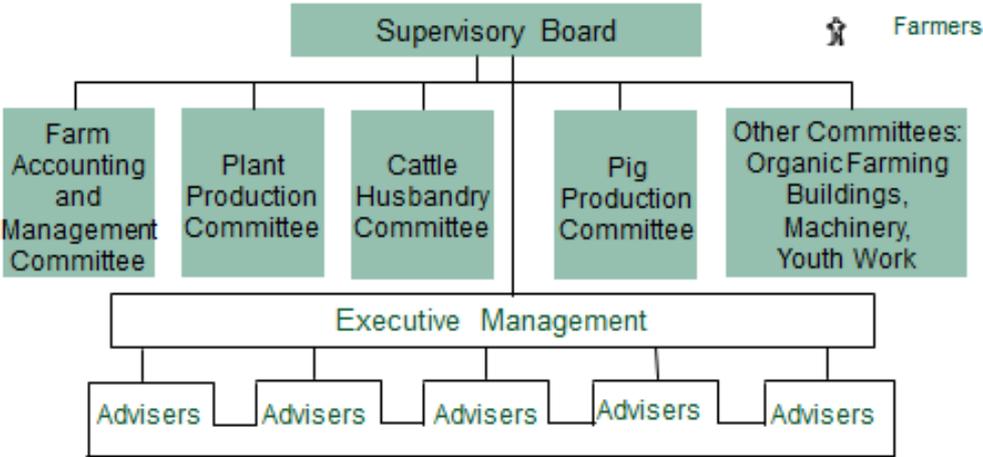
- 9 farmers from the Danish Agriculture & Food Council
- 2 directors from the local advisory centres
- The Managing Director of Danish Agriculture & Food Council
- 2 representatives of employees.

It is worth noting that VFL is strongly user driven and controlled. The Board of Directors consists mainly of representatives of the users – the farmers and directors of the local centres that KCA is serving.

Organisation and decision making at the local centres

Every local advisory centre operates as an independent enterprise, where farmer members can purchase advice and other services as they require.

The local advisory centres are normally organised in departments for each production sector with each a Head of Department, for each department there is a committee of three to four elected farmers to whom the Head of Department is responsible. The department committees define the framework within which the advisers work and are also responsible for the departmental budget. The overall Executive Management of the Centre is responsible to the Supervisory Board of farmers elected by the local farmers’ organisations.



**Figure 6. The governance structure of local advisory centres**

*Source: Chipeta, Sanne 2012. Danish Agricultural Advisory Service – Financing mechanisms for demand driven agricultural extension. Evolvement of the Danish Model. Aarhus: Unpublished study for FAO*

The distribution of advisory fields among employees

Due to poor results from the survey and to lack of data it is not possible to give exact numbers on the distribution of advisers within the different fields in the Danish advisory system. But the overwhelming majority of advisers employed at the DAAS-centres are working with bookkeeping, economic advice and business management.

### Educational levels among advisers

About 28% of all employees at DAAS including the Knowledge Centre for Agriculture have a university degree (masters level or PhD). Unfortunately it has not been possible to separate the figure for the DAAS-centres from the Knowledge Centre for Agriculture, but the number of employees with a university degree is much higher at the Knowledge Centre for Agriculture and most of the PhDs – rather few in numbers, but not an insignificant number – are employed at the Knowledge Centre for Agriculture.

In the agricultural schools about one third of the teachers have a university degree. Some of the teachers have educational background from the agricultural schools themselves supplemented with in-service training and experience. Most of the rest of the teachers have an educational background, and this is very traditional such as a primary school teacher.

### Gender

The distribution of men and women in the DAAS, i. e. the Knowledge Centre for Agriculture and the 30 DAAS advisory companies, is the following: Among senior management staff: One third is women and two thirds are men. Among Subject Matter Specialists about fifty-fifty and among Field Extension Staff about one third men and two thirds women.

But many of the women working with, or associated with, field extension are in fact women working with secretarial duties or accounting tasks. Women make up the overwhelming number of employees with secondary school diplomas, about 1,300 women out of a total number of employees of 3,300. When looking at the educational background and gender, men with a university degree are twice as many as women. This picture is the same when looking at employees with a 2-3 years' Agricultural Diploma.

Gender is not much of an issue concerning the daily business in the DAAS. The trend over the past decades has been an increasing number of women employed within agricultural advisory services and an increasing number of these women are reaching the level of top management. It is generally spoken of – often humorously – that in the future and already today the farmer receiving advice will still be a man but the adviser is, or will be, a women. But this scenario does not seem to be a problem for the farmers. The farmers are not concerned with the sex of their adviser and gender generally does not play a role for the delivery of advisory services. The farmers just want good qualified advice.

At the agricultural schools about one fourth of the pupils are girls. The proportion of girls among the pupils has increased from about 20% ten years ago.

### Advisory methods

The semi-structured interviews and a former conducted survey shows that a large variety of advisory methods are being used by the advisers. This includes face to face and visits at the farm- 40%, meeting with groups of farmers- 10%, conducting demonstrations, workshops and field days for farmers and meeting with farmers at the office 30%.

The internet as a knowledge source has been in use for many years now. The Knowledge Centre for Agriculture is running several websites either on its own behalf or on the behalf of others where knowledge and information are distributed. There are three categories of websites: 1) A

news site regarding all kinds of news within, or with relevance to, the agricultural sector. This site is open for everybody and contains commercials. 2) The Knowledge Centre for Agriculture is running a number of sites, where knowledge from projects funded by public or partly public funds are distributed. These sites are also open for everybody. 3) The Knowledge Centre for Agriculture is running a website where all agricultural knowledge and every type of relevant knowledge for the sector is gathered, e.g. legal questions, latest news of the local need for the use of pesticides etc.. This site is closed and only open through subscription (see (only in Danish) <https://www.landbrugsinfo.dk>).

The newest trend in the use of information and communication technologies is the use of technologies such as the mobile phone, the use of tablets, apps and social media.

A typical adviser at a DAAS-centre spends around 60% of his or her time with educational and advisory service activities directed towards the customer: For the farmer 35% of the working hours are spent with planning and support activities.

It has not been possible to detect any general data or answers across the companies on the number of farms per adviser. The figure seems to vary a lot depending on the type of company – whether it is an advisory company offering a variety of advisory services compared to companies specialised in only one or few areas of advisory services to large input/up-streams companies advising about/selling their products.

#### **4.4 Client and topics/content**

The Danish advisory system - both the DAAS-centres and the private advisers - is capable of delivering the services including all topics within organic farming demanded by the Danish farmers, including large, small, full-time and part-time farmers. This includes young farmers (less than 40 years) and young farmers are perceived as one of the most important groups. Though in recent years attention among the Knowledge Centre for Agriculture and the DAAS-centres has been directed towards the challenges of offering services to a sector undergoing a continued structural development where the large farms were growing in size while the number of smaller farms – where the overwhelming majority are part-time farmers with a job outside the agricultural sector – remained the same. This development meant that the traditional customer (the medium-sized farm) were the ones that were leaving the sector most rapidly. This has led DAAS to focus on developing advisory services targeted the very large farms who increasingly are looking and working like ordinary private companies.

At the other end of the spectrum more attention has been directed towards part-time farmers who will not or cannot pay the same for advisory services as full-time farmers and who have other needs, e.g. an interest in nature preservation or farm shop. In recent years the Knowledge Centre for Agriculture has furthermore put attention to those farmers who would like to change their traditional farm into a more diversified enterprise with increased variety of products, e.g. tourism or a farm shop with its own or local products.

Other new areas of advisory services are services related to how the farmers are to deal with laws and regulations related to the issue of the environment. Advisory services related to the subject of the environment have increased since the 1980s when the environment as a political

issue came on the political agenda. The newest type of farmers' demanded services are advisory services related to bioenergy, resource efficiency and the use of financial products.

Danish farmers are not asking for much advice regarding rural development. The reason for this is twofold: 1) There are not many new possibilities for new earnings or income seen in the perspective from the farmer, 2) the public implementation of the rural development programme done through the regions have not included the agricultural sector. The farms in the countryside are simply seen as farms and not as SMEs and furthermore it has been difficult to see the farms as companies that could create new types of business for the local communities. This situation may also be an unintended effect of the Danish advisory system and of the organisation of the entire Danish agricultural sector whereby most activities are under the control and in the hands of farmers themselves through their extensive network of associations with long historical roots. This excludes the areas of environment, spatial planning of the territory and the veterinarian control- and regulatory system which are in the hands of the government.

Beside these new trends Danish farmers are, as always, demanding advisory services within the classic topics of animal, crop and pig production.

The DAAS-centres have cultivated and managed to get 8,000 new customers outside the agricultural sector. Local knowledge and a long tradition and knowledge of advising SMEs have helped the DAAS-centres to attract these new customers. Attracting new customers who are not farmers has been a deliberate strategy in the face of the structural development with even fewer farmers (but do remember that the number of advisers has not decreased equivalent to the fall in farm numbers).

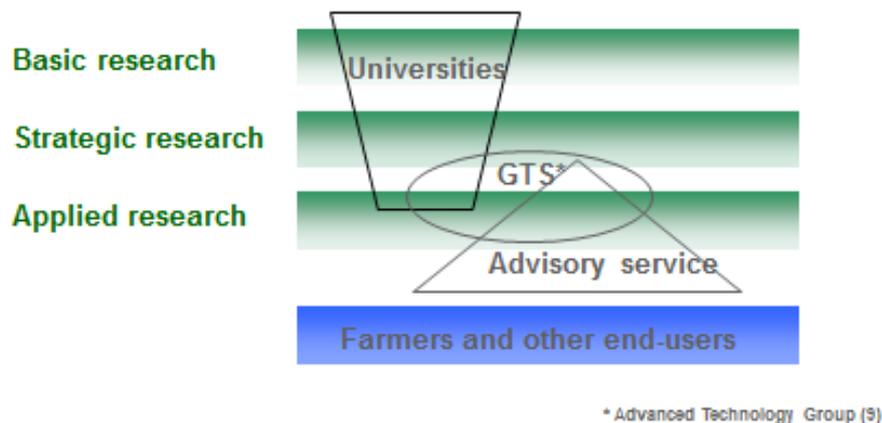
#### **4.5 Linkages with other AKIS actors**

The impacts of the agricultural funds for development have been substantial. As the funds are utilised on the part of research and development that is closest to practice, it has enabled the collaboration between the universities and KCA. The universities address the needs for basic and strategic research in the areas of agriculture and food, while KCA contributes with practise related trial development, advice and implementation. This division of roles enables development at a very high level of professionalism and is probably a strong contributing factor to the success of the Danish agricultural sector both in terms of production and environmental sustainability.

The particular set-up of the agricultural funds with the majority representation of the farmer organisations ensures ownership by the sector and thereby a strong engagement in order to ensure the maximum added value from the allocated funds. Hereby the funds have enabled independent testing of new technologies as well as development of knowledge that is closely related to the farmers' actual challenges. The independent trials and testing have had crucial outcomes for the farmers' ability to adapt to new policy frameworks which is illustrated by the very low use of pesticides and nitrogen in Denmark.

Farmers make their influence on priorities and the actual running of the agricultural research through the governance structures. As a general rule for both public and private funded research, there are representatives from both the farmer organisations and the advisory services in the research councils and also in the steering committees for most research programmes and

projects. This ensures the relevance of most research programmes from both the perspectives of the agricultural sector and the rest of society. Moreover, the fact that the agricultural sector has control over their own funds for more strategic and practical related research and development projects is another, probably even more important, aspect of the agricultural innovation system and contributing to the effectiveness of agricultural knowledge creation and adaptation of new technologies in Denmark

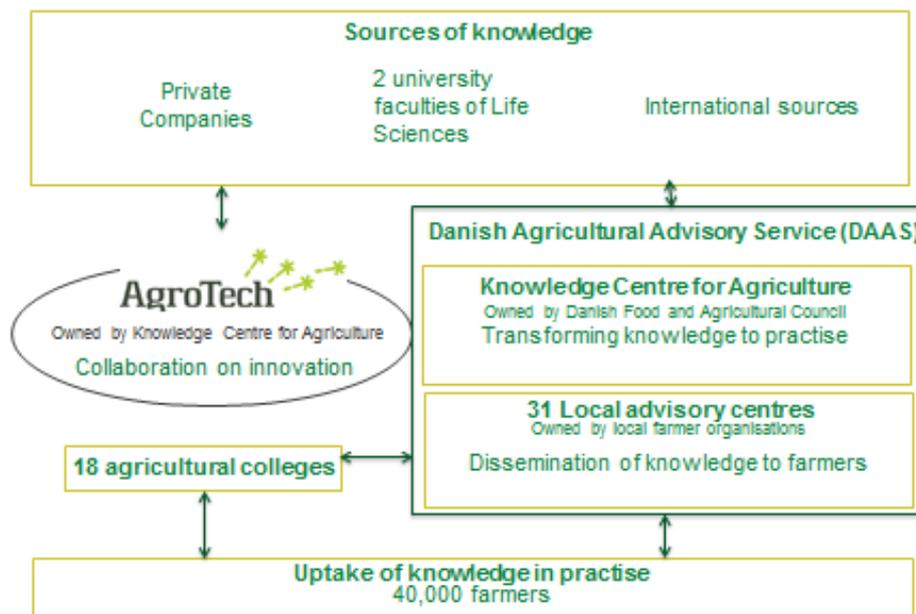


**Fig.**  
**knowledge in Denmark**

*Source: Chipeta, Sanne 2012. Danish Agricultural Advisory Service – Financing mechanisms for demand driven agricultural extension. Evolvement of the Danish Model. Aarhus: Unpublished study for FAO*

It is characteristic that the innovation and knowledge system involves collaboration between many stakeholders and institutions in Denmark:

- Research institutes – of which the main ones are the agricultural and life science oriented universities in Aarhus and Copenhagen
- Input supply companies such as seed companies, chemical factories developing fertilisers and pesticides, feed factories, livestock breeding associations, manufacturers of farm machinery and equipment etc.
- Food industries
- AgroTech - a GTS-institute - that establishes collaboration between companies, research institutions and advisory services on different technology innovations
- Danish Agricultural Advisory Service including the Knowledge Centre for Agriculture
- Danish Danish Pig Research Centre
- Agricultural colleges
- Farmers and their organisations



**Figure 8:** The knowledge channels of the Danish AKIS

*Source: The Knowledge Centre for Agriculture*

In terms of the identification of research topics and issues important and crucial for the Danish agriculture, the KCA has developed a bottom-up approach and practices directly involving outspoken and engaged farmers; representatives of the farmers' unions as well as directors of the local advisory centres. This process goes generally through several stages ending up with the prioritised research issues and recommendations.

#### The inspiration phase

Initially the board of KCA and the directors of DAAS decide and outline the priorities and cross sectorial focus for the planning and initiate the first stage which is the inspiration phase. KCA organises an inspiration forum of ideas with relevant researchers from the universities, agricultural advisers and farmers. At the Danish Agricultural Advisory Service (DAAS) level user-driven dialogue meetings are organised with DAAS and the elected farmers from the Farmers' Unions. These two activities generate a number of ideas and project proposals and direction for the structure of the concretisation phase is decided.

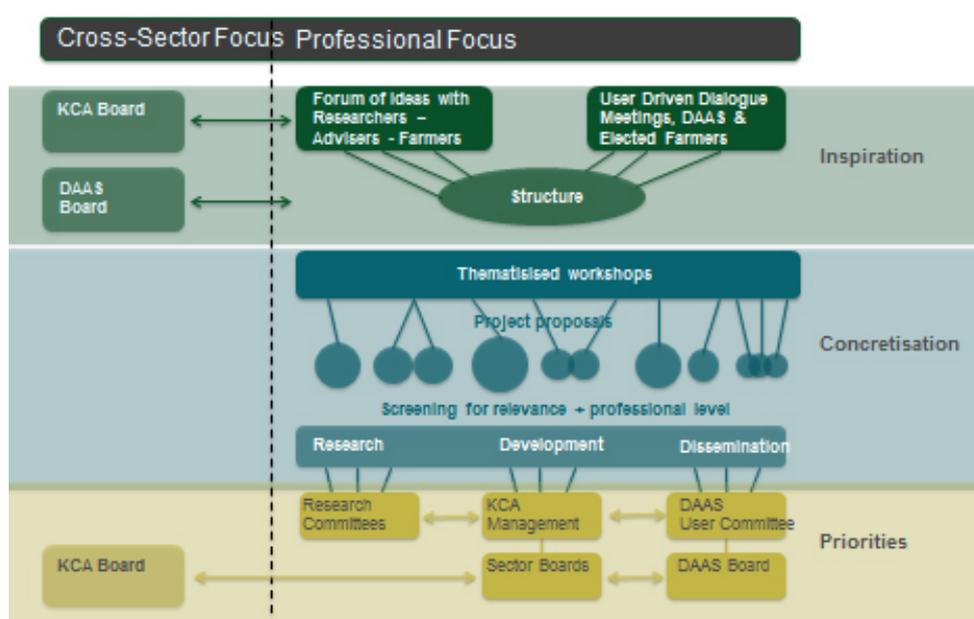
#### The concretisation phase

During this phase the project proposals and ideas from the inspiration phase are going through three kinds of different screenings. The first screening is a test for research suitability which is done in the permanent research committees, which KCA has formed with the universities within animal and crop production. The second screening is a test for the potentials for agricultural development performed by the management of KCA with special committees and by the professional board of KCA. The third screening of the project proposals and ideas is a test for their business potentials. This screening is performed by a DAAS user committee and by the board of DAAS.

## The priority phase

The Danish Agriculture & Food Council has elected three different sector committees focusing on subjects related to pig-, cattle or arable farming. These specialised committees are responsible for the final priorities of projects focusing upon the challenges for the three sectors.

Based upon these results and the inputs from the three different screenings from the concretisation phase the board of the Knowledge Centre for Agriculture and the boards of the sector committees will decide the final projects and activities for the next year.



**Figure 9: Overview of how farmer needs and priorities are identified and set within Danish Agricultural advisory Services**

*Source: The Knowledge Centre for Agriculture*

## **4.6 Programming and planning of advisory work**

The information under this subsection is first and foremost derived from the respondents who chose to answer the questionnaire.

It is regular across all types of companies to use timesheets as a record of advisers' work. It is rather unusual to use an incentive programme as a management tool.

Not surprisingly, most of the respondents report they make use of strategic or year plans as a tool for the development and delivery of advisory work. Most companies involve the employees when working out the strategic or year plans. If a board or a council is involved in working out the strategic plan, then the respondents report that either it is the farmers and owners, which in all cases are the same or it is the farmers/owners together with the advisers who develop or work out the strategic plan.

When focusing on programming and planning of advisory work you should recall that the Danish advisory system is a demand driven system much in the control of the farmers and with the needs of the farmers as the main factor behind the supply of advisory services.

## 5. Characteristics of Farm Advisory System

### 5.1 Organisations forming FAS

In Denmark there are no organisations as such either public or private who operate or perform as FAS-organisations. A number of advisers went on supplementary training back in 2006 and became certified advisers according to the minimum statutory rules of FAS. The Knowledge Centre for Agriculture was responsible for the training course and certification. This happened on request and behalf of the Ministry of Food, Agriculture and Fisheries. No specific assessments were carried out and the implementation of FAS was thus designated to be part of the framework of existing advisory services, where the major criterion for implementation and use of the national FAS would remain at the farmers and their effective demand for the services (*Evaluation of the Implementation of the Farm Advisory System* 2009; p. 18-25). But like some others countries (BE, FI, NL and SE) the FAS in Denmark were seen as something introduced from above, top-down, as an autonomous institutional set-up alongside or within the existing advisory and extension system. Since 2006 new advisers have not been trained with regards to the Directive with the requirement of establishing a Danish version of FAS. Neither the Ministry nor the farmer based advisory organisations have kept a record of the advisers who were certified back in 2006, at least to the extent that the interviews have been able to reveal this fact. Therefore it has not been possible to get any confirmed knowledge of whether or not an official public record of certified advisers exists. Thus the FAS has not been used or implemented in Denmark as it has by de facto been seen as redundant by all actors of the Danish AKIS and by the public authorities, because a well-established advisory service system covering all farmers was already in place. This was also revealed in the report *Evaluation of the Implementation of the Farm Advisory System* from Dec. 2009, which showed a rather low rate of involvement and interest from the Danish side. As stated in *Evaluation of the Implementation of the Farm Advisory System* Denmark along with three other Member States (FI, FR & NL) considered that there was no longer a need for FAS in their country (p. 97).

Further about the FAS in Denmark – see below.

### 5.2 Give an evaluation of the implementation of FAS

Since 1<sup>st</sup> January 2007 it has been compulsory for the Member States to set up the Farm Advisory System (FAS). Denmark took the initiative to do so in the years 2005 and 2006. In 2005 the setting up of the FAS in Denmark began on the basis of two cabinet regulations. The first regulation dealt with the establishment of a system of accreditation and the Ministry of Agriculture, Food and Fisheries asked the DAAS-system of advisory centres in the form of the Knowledge Centre for Agriculture to take responsibility for establishing a short-term educational and training programme for advisers to become a certified FAS-adviser. The Knowledge Centre for Agriculture developed a course and carried it through with a large number of advisers. The courses only dealt with Cross Compliance measures which are the minimum requirements of the FAS (Pillar one as defined in regulation (EC) Number 1782/2003), the field of environment, food safety, animal health and welfare (Statutory Management Requirements – SMR) and the requirements under the obligation to maintain land in good agricultural and environmental condition (GAEC).

The second regulation dealt with the (public) financial support of the Danish version of the FAS, but *only* for the year of 2006. The reason for only dealing with the financing of FAS for the year of 2006 probably rest on two arguments. First of all and as is very typical for the Danish public authorities, they were quick to respond to new directives—from the Union, and implement the Danish FAS. Secondly the reason for this one year financing mechanism of the Danish FAS is probably due to the fact that the public financial support to the FAS from the year 2007 and onwards was to be found in the Danish version of the Rural Development Programme for the period of 2007-2013. But when the Danish Rural Development Programme was launched, any reference to the FAS and any public funding or support was left out. The completed courses by and at the Knowledge Centre for Agriculture and the training course undertaken of a group of advisers in 2006 thus have not been repeated. So in practice there has not been any Danish FAS. The interviews conducted also revealed that FAS is unknown to all AKIS-actors interviewed, including public officials.

This means that FAS was *formally* established but not in use in the Danish AKIS. One interviewee - who was approached especially in relation to having some knowledge about the introduction and implementation of the FAS back in 2006 and 2007 - stated that officially it would probably be claimed that a Danish FAS exist, since a number of advisers have been trained and certified, but in practice no farmers demanded or had any need for advice according to the formal umbrella of FAS. Practically there has not been any need for the Farm Advisory System in Denmark, since Denmark already had a well-established system of advisory services which met the intention and requirements of the FAS before the introduction by the European Union of the obligation to set up the FAS. The advisory services provided in Denmark by both farmer-owned and private-owned companies already did this or were able to do so from the introduction of the CAP- reform of 2003, where the cross compliance regime was introduced in order to connect the respect of existing directives and regulations to EU direct payments. Thus national rules and the national implementation of European directives and regulations were already covered more than the minimum demand in the FAS about cross compliance. For example – according to the interviewee – today about 120 cross compliance rules and regulations exist, which also cover or meet the demands of the Statutory and Management Requirements (SMR) and the Good Agricultural and Environmental Conditions (GAEC) compared to that of 30 rules and regulations of cross compliance of other Member States. Already before the introduction of the FAS nearly all Danish farmers including part time farmers used and still are using advisory services to meet the demands from the public authorities in order to receive direct payments from the CAP. Conversely all local DAAS centres together with most private advisers - both private companies and individual private advisers - are able to provide advisory services in relation to the rules of cross compliance. For instance it is mandatory for every farmer to yearly work out a fertiliser plan for his holding. This is done with assistance from advisers. The farmer is then given a fertiliser account of approved amount of fertilisers to be used. If he/she does not apply to the amount given in the fertiliser plan, he or she will face a financial payment in the form of reduced direct payments or will have to repay direct payments (*Agrri-environmental measures in the Baltic Sea Region, 2011*).

## 6. Summary and Conclusions

Overall the Danish AKIS and the Danish advisory service system are both strong and overall able to produce and deliver both knowledge and advisory services to all groups of Danish farmers, but some challenges might occur for both of them.

### 6.1 Summary and conclusions on section 1-3

Denmark is (still) an agricultural country where almost two thirds of the area are cultivated and the animal production is high, especially and foremost the pig production. The sector is still important for the Danish economy and export of agricultural products including products from a significant agribusiness and agro machinery industry is of high importance for Danish employment and trade balance. If one disregards the current financial crisis which has affected the sector, the challenges for the sector have since the 1970s, or at least since the 1980s, all been related to the sector's relations to the surrounding society - initially the questions of environmental impact/sustainability and the impact on animal welfare from an increasingly industrial scale of production. Within the last 10-20 years the parameters of environmental impact/sustainability and animal welfare have been supplemented with the question of agricultural production and climate changes (both agriculture's impact on the climate and also challenges for the agricultural sector stemming from climate changes) and the production of bioenergy as both fuel and substitutes for current unwanted chemicals. But these challenges have also been positive as driving forces in the continuous development of Danish agriculture and as new opportunities for how Danish agriculture could keep its position in front of agricultural production when demands from the political agenda and from the consumers were transformed into production advantages and innovations.

The Danish AKIS and advisory system are strong due to their deep roots in long historical traditions and due to some specific institutional legacies and characteristics of the Danish AKIS and advisory system. The combination of a powerful class of farmers – population – in the country side, since the nineteenth century, a very strong dependency on agriculture as *the* main earner of foreign currency until the 1960s – and still important today, an advisory system controlled by a system which is demand driven by the daily needs of the farmers and finally input and downstream companies also in the hands of the farmers have created a very strong and viable agricultural advisory system. Furthermore the advisory system has been strengthened by a traditionally close cooperation and network between Danish agriculture and Danish agricultural sciences.

The basic characteristics and surprise of the links between the different parts of the Danish AKIS are that they are at the same time both very informal as there are no or very few official documents papers connecting them, and on the other hand they are rather strong links. This basic characteristic is even more evident and especially strong concerning the Danish advisory system with its dense network of formal and personal linkages between associations, organisations, boards, institutions and companies. And at the centre of all these linkages are the Danish farmers or their representatives.

Denmark thus overall has a well-functioning AKIS with strong links between universities, public ministries and agencies, agricultural knowledge centres, agricultural colleges and vocational

schools, advisory companies, and farmers and vice versa. Furthermore the Danish AKIS and advisory system are responsive towards the needs of the farmers and the demands and wishes from the political system and the public. But there are challenges.

### Challenges for the Danish AKIS and the Danish advisory system

#### The structural development within Danish agriculture

The number of full-time farmers continues to decline. The classical farmhouse farm may be at its end, and in future the ever increasing growth in size of farms will turn farms into large scale farms organised legally as a business owned by financial actors outside the sector and thus turning the farmer into a farm manager employed on ordinary employee conditions and not owning his own farm. Furthermore the number of people who are employed or just having contact with the agricultural sector and farmers in the countryside are also decreasing. Will this affect a system based on farmers' associations and the accompanying dense network of farmer controlled organisations including the farmer owned and controlled advisory companies?

The increased size of the large full-time farms on one hand and the many part-time farmers with farming more or less as a hobby on the other hand confront the advisory system with the challenge of serving two different groups of customers while the traditional dominating customer – the middle sized farmer – are the farmers that are disappearing most rapidly. The advisory companies have been confronted with this issue within the last 5-10 years. Again the expectation among interviewees is that the flexibility of the Danish advisory system will make sure that the advisory companies will adjust to this development and new needs. And rightly this development is already happening.

#### The decreasing number of farmers with resulting decreasing number of customers

So far the demand for advisers has not experienced any structural fall in demand (apart from the impact from the current financial crisis). But the number of DAAS-centres has continued to fall through the last decades and is predicted to continue do so. How will the situation be like when there are only 3-5 DAAS companies left? Will they cooperate in the DAAS-cooperation? And will they still be in need of the Knowledge Centre for Agriculture? The interviewees who brought up these issues were not nervous and predicted that the Danish advisory service system would continue to exist in the existing form.

#### The increased educational level and the continued trend for specialisation among farmers

The knowledge level among Danish farmers has always been high due to farmer cooperation and a very long tradition for attending agricultural educations – first and foremost the agricultural colleges. But today's Danish farmer - especially the young ones - has a very high knowledge level and many of them themselves have a high level of agricultural education. In addition to this the agricultural production is continuing the process of getting still more specialised. This confronts the advisers when meeting the needs and demands of the farmers. This may be a challenge and even a threat to the traditional advisers but can bring new demands and new types

of advisers forward and change the composition of the group of advisers. The development may be strengthened by the fact that the increasing number of full-time farmers is seeking advice concerning the topics of entrepreneurship, management, or being a business owner with a multitude of employees. And on the other hand farmers, especially part timer farmers, who have not seen the same decrease in number as the medium sized farmer, are seeking advice on product differentiation. The advisory companies expect to be able to respond to this change in need, and to this development, for the business.

#### The impact of the reform of the universities in 2007 – good or bad?

In 2007 the Royal Veterinarian and Agricultural University was made part of the University of Copenhagen and elements of the agricultural research within the public sector were merged with the Aarhus University and the Technical University of Denmark. This meant that research within the public sector was transferred from the Ministries and merged with the universities. Various people have feared that this could have an effect on the type and level of applied research done within different fields including agriculture in Denmark. Some of the interviewees agree to this analysis and fears that the attention towards applied research and the funds for applied research are being reduced. Furthermore that such a development may turn away the academic meritocracy from applied sciences. They fear that in the future this will affect the production and supply of knowledge with direct relevance to the farmers and the accompanying advisory service sector. Some interviewees are more optimistic and think the farmer controlled advisory system may be able to deal with this challenge and situation and bring about what the sector may need in terms of agricultural research. Furthermore political attention nationally and in the European system towards applied sciences and the political desire of a stronger focus on getting innovation and more knowledge implemented into practice will work in the opposite direction.

#### The number of young people attending agricultural educations at the agricultural colleges, vocational schools and at the universities

The number of young people attending agricultural colleges and vocational schools has stabilised after a small increase since the number hit an all-time low in the mid-2000s. The number of pupils is so far sufficient to satisfy the demand of the sector. The main challenge is to get an adequate number to go for a higher level of agricultural education and the level of managerial education, rather than just to settle with the traditional farmer training level. But again there is not any deep pessimism, although the traditional system of agricultural colleges is under pressure. Over time the numbers of agricultural colleges will probably be reduced even further.

It is a challenge for the agricultural sector and the advisory system to make the sector and the profession attractive. The sector cannot take for granted that young people will choose agricultural educations and a career in the Danish advisory system.

The students at the universities are not enrolling in the same number as earlier when it comes to the classical agricultural university educations - but again no deep pessimism. The industry will manage and already today the highest numbers of advisers work within business and bookkeeping. Furthermore in the future the highest growth in the demanded services will be in

relation to the increasing regulation of the agricultural sector and advisory services concerning the issues related to the environment, the climate, bioenergy and biotechnology.

### Erosion of production levies funds and the tax reimbursement fund?

Some fear that the system of levy funds paid in by the farmers with the backing of the public authorities and administered by the sector itself is under pressure. Fear is especially expressed in relation to the dominant tax reimbursement fund, which is the largest fund and which funds stems from taxes on pesticides. This fund has traditionally both contributed to the production funds and also been the main source for financing new and common projects with common value for the entire agricultural sector. Even today the significance of the dominant tax reimbursement fund is great, as the Knowledge Centre for Agriculture – a major recipient of funds from this fund – uses this financial source to co-finance projects which do not bring a 100% financing from the initial financial donor. Some interviewees do not fear this development. Others fear a situation, probably the most likely to happen, where the funds from the tax reimbursement only will be targeted environmental public stated political issues and goals instead of the traditional needs – subjects related to production and farm development – of the sector. This development is yet to be seen, but in the last few years the actual value of the funds from the tax reimbursement funds have been reduced as the fund is only receiving an unchanged fixed sum from the State budget for the last couple of years

## **6.2 Summary and conclusions on section 4+5**

The core of the Danish advisory system is the farmer based owned and controlled DAAS-system with the Knowledge Centre for Agriculture (500 employees) and 30 advisory companies (about 2,800 employees), who are independent from one another and who are all members of the DAAS-cooperation. This is called the two-layer system. In addition and equivalent to the Knowledge Centre for Agriculture there is the Danish Pig Research Centre (about 160 employees), which of historical and institutional reasons is not part of the Knowledge Centre for Agriculture. Outside the DAAS system two private medium-size advisory companies exist each with around 70 employees (Patriotisk Selskab) and 40 employees (LVK – Landbrugets Veterinære Konsulentteneste) ) plus a number of small companies estimated to be about 10-15 companies with about 3-7 employees. There is one NGO offering advisory services. This is Økologisk Landsforening (the National Organic Association) with 12 employees – Furthermore the DAAS-system offers advisory services within all fields of organic farming. In addition to these companies and the number of employees a number of medium sized and smaller veterinarian companies provide veterinarian advisory services to the farmers, sometimes on the basis of legal requirements, e.g. mandatory animal health visits on the farms. Finally a GTS-institute within the agricultural sector exists – AgroTech - which employs around 90 people. Their job is to assist research and businesses within agriculture and food in order to facilitate product and technology introduction, development and innovation in the agricultural and food sector.

Universities, agricultural colleges and vocational schools are all important in providing new knowledge and research, knowledge transfer, educations, training – together with the Knowledge

Centre for Agriculture, the Danish Pig Research Centre and with non-agricultural public and private institutions and companies - besides the important task of producing the future scientists, researchers, agricultural teachers and farmers.

The financing of mainly the services provided to the farmers is done through billing services. Since the beginning of the 1990s there have not been any public funds providing or paying some of the costs regarding advisory services.

The Knowledge Centre for Agriculture income originates from sales of services, project financing from national and European funds, from levy funds paid by the Danish farmers and a small sum from the Danish farmers' association. Most of the Danish Pig Research Centre's income stems from the sales of genes, but also a significant part of the income derives from levy funds.

The Farm Advisory System (FAS) does not play any role for the Danish AKIS and for the delivery of advisory services. Formally a number of advisers received training in order to fulfil the minimum requirements – the field of environment, food safety, animal health and welfare (Statutory Management Requirements – SMR) and the requirements under the obligation to maintain land in good agricultural and environmental condition (GAEC) – of the FAS back in 2006, the year before the implementation of the FAS in the Member States, but there have not been any demand for or delivery of these services. The FAS is thus implemented in Denmark but not in use as there is no need for FAS. The existing supply of advisory services - both in terms of the number of advisers, the qualifications of these advisers and the supply of advisory subjects – make up a well-functioning advisory system which covers the intention of the FAS. Furthermore the extensive number of public regulations and laws to respect in order to receive direct payments fully covers the minimum requirements sat by FAS.

This leads us to the advantages of the Danish advisory system.

Generally the Danish advisory system is characterised by:

- Its impartialness
- Being non-profit
- Its ability of fast and effective implementation of the newest knowledge
- Its high impact in terms of reaching the desired goals of the sectors
- An effective channel for knowledge transfer through the 2-layer system within Danish Agricultural Advisory Service made up of the Knowledge Centre for Agriculture and the Danish Pig Research Centre as first layer and 30 independent advisory companies in the DAAS-cooperation. Today this is supplemented by the GTS-institute AgroTech
- Its ability to produce and bring knowledge and value to the Danish agricultural sector and the Danish society, e.g. to develop and to administer a series of databases covering Danish agriculture such as data on animals and arable land and through its activities to assist with implementing public policy goals
- Being highly flexible to new needs, technologies and to the structural changes within Danish agriculture

- Being based on the cultural heritage characterised by independence, mutual trust and a deep-rooted tradition for cooperation.

The Danish advisory system is thus today still a vivid and powerful system. It is still a system working for the benefit of the Danish farmer and where the Danish farmer has the control. The two main factors are that firstly the Danish advisory system is a demand-driven system. It is the need of the farmer, which drives the system in terms of providing existing and developing new advisory services.

Secondly and as the backbone of the Danish advisory system most advisory services are provided by farmer owned companies. Thus the Danish farmer interacts with a system where he is both customer and owner at the same time. This ensures a system which *at the same time* is robust, stable and comprehensive on the one hand and on the other hand makes the system flexible in order to adapt to new challenges and needs of the farmers.

## 7. Methodological reflections and acknowledgements

This country report has mainly been based on the semi-structured interviews conducted and supplemented with short interviews with people identified who had a specific knowledge of a topic or of one part of the Danish AKIS or Danish advisory system. The first round of semi-structured interviews was supplemented with two additional semi-structured interviews and with some short interviews due to two reasons.

First of all the online survey conducted produced - unfortunately - a rather low response rate and very few results due to the difficulties of making generalisations across those few but very different responses who did actually answer the questionnaire. The questionnaire was sent to 54 respondents - among those to all the DAAS-centres, the two largest private advisory companies identified (Patriotisk Selskab and LVK - Landbrugets Veterinære Konsulentteneste), Danish Local Forrester Owners' Associations, the main input providers, veterinarians (both small and medium sized companies) identified through internet research, who are delivering services to farmers and finally the questionnaire was sent to a number of private advisory companies also identified through internet research. 14 respondents filled out the questionnaire at a satisfactory level. The 14 respondents are equivalent to a response rate of 24%. But since those 14 respondents made up a *very* non-homogeneous group of different companies in terms of size, character, main fields of activity or only one or two of their group, it seemed hazardous to make any generalisations for companies delivering advisory services. Thus answers from the different respondents were more or less seen and interpreted independently from one another. A few of the 54 respondents declined openly by e-mail to take part in the survey or expressed that their company in their opinion was not relevant for the study or that they did not consider their relations to farmers to be in an advisory capacity.

Regarding identifying the private agricultural advisory companies – not the input or output companies, but the private companies owned and run by private advisers outside the DAAS-system - this was quite a challenge as there is no public record of either company offering agricultural advisory services or any public list of all agricultural advisers in Denmark. These private advisory companies were thus – but also due to a lack of time and resources – identified through internet research. The veterinarian companies also thought to be part of the AKIS and advisory system and they were also identified through internet research.

The second reason for the use of short interviews besides the semi-structured interviews lies in the very character and nature of the Danish AKIS and especially the Danish advisory system. The Danish agricultural advisory system and much of the Danish AKIS is a *very informal* system where much of it is in the hands of the farmers and their associations. This means that there are no public policy papers on advisory services. Neither is there much written documentation within the farmer controlled advisory system. This challenge of finding official public or private documents concerning the advisory system is even more deepened by the fact that the Danish advisory system, from a legal and economic point of view, is a market-driven system where it is the farmers' demand for services which are changing the advisory system.

The interviewees were chosen on the basis of the kind of organisation they represent and on the basis of their position in, and their knowledge of, the Danish advisory system. The semi-

structured interviews were carried out face-to face and lasted one or two hours depending on the knowledge base of the interviewee. The interviews were based on the guideline for semi-structured interviews in the PRO AKIS guide for the AKIS inventory. These were supplemented by relevant follow-up questions or about topics relevant to the Danish country report. The author would like to thank all the interviewees for their willingness to bring forward their knowledge and information and to spend some of their time on the PRO AKIS Project.

The interviewees for the semi-structured interviews were:

Name	Tittel	Organisation
Bjarne Thomsen	Specialist	The Danish AgriFish Agency, Ministry of Food, Agriculture and Fisheries
Benny Kirkegaard	Chairman of DAAS and Managing Director (Landbo Limfjord)	DAAS – Danish Agricultural Advisory Services and Landbo Limfjord, an agricultural advisory company, member of the DAAS-cooperation
Morten Andersen Linnet	Head of Department, Department of Politics relating to Research- and Technology	Danish Agriculture & Food Council
Sanne Chipeta	Senior Adviser	The Knowledge Centre for Agriculture
Jytte Gad Lauridsen	Head of Secretariat, Secretariat of the Management	The Knowledge Centre for Agriculture
Jens Ejnar Kristensen	Chairman of the Board and farmer	The Knowledge Centre for Agriculture
Flemming Haagen Madsen	Manager of the Secretariat	The Danish Agricultural Schools, the Secretariat
Ejnar Schultz	Director, Business Finance and Management, and Deputy Managing Director, The Knowledge Centre for Agriculture	The Knowledge Centre for Agriculture

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# 9. Appendices

## Appendix A – Overview of organisations creating the AKIS

Provision of service				Source of financing								
Status of the organisation	Type of organisation	Number of organisations	Number of advisers	Public funds			Farmers			Private	NGO	Other (specify)
				EU funds	National funds	Regional funds	Farmers' levies	Farmers' contribution	Billing services	Other products (in-, output)	Foundation	
Public sector	Advisory department of the Ministry of agriculture	None	-									
	Local/regional agencies	None	-									
	Other (specify)	None	-									
Research and Education	University (all public)	5	None									
	Research Institute	(Universi.)	-									
	Research and Knowledge facilitator – Farmers' owned (all private legal status)	3:(KCA)(PRC) (AgroTech)	500 160	X (8 %)	X (11 %) X (7 %) X	- - -	X (15 %) X (17 %)	- -	X (63 %) X (45 %)		- -	x (3 %) X (31 %) X
	Other education bodies: Agri.colleges + voca. school	10 + 8	None (Teach)									
Private sector	Upstream industries	6-8	40-60	-	-	-	-	-	-	X	-	-
	Downstream industries	-	-									
	Independent consultant	-	50-100	-	-	-	-	-	X	-	-	-
	Private agricultural advice company	10-15	40-80	-	-	-	-	-	X	-	-	-
	Farmers' owned advice company – DAAS	30	2,800	-	-	-	-	x (9 %, medium size)	X (88 %)	-	-	-
	Farmers' owned advice company – outside DAAS	2	110	-	-	-	-	-	X	-	-	-
Farmer based organisations	Farmers' cooperative	None	-									
	Chambers of agriculture	None	-									
	Farmers' circles/groups	None	-									
	Other	None	-									
NGO		1	12	-	-	-	x	-	X	-	-	

## Appendix B – List of Danish AKIS Institutions

Status of the organisation	Type of organisation	Organisation	Website
Public sector / State organisations	Ministries	Ministry of Food, Agriculture and Fisheries	<a href="http://en.fvm.dk/">http://en.fvm.dk/</a>
		Ministry of the Environment	<a href="http://www.mim.dk/eng">http://www.mim.dk/eng</a>
		Ministry of Science, Innovation and Higher Education	<a href="http://fivu.dk/en/">http://fivu.dk/en/</a>
	Agencies under ministries	The Danish AgriFish Agency (Under the Ministry of Food, Agriculture and Fisheries)	<a href="http://agrifish.dk">http://agrifish.dk</a>
		The Danish Nature Agency (Under the Ministry of Environment)	<a href="http://www.naturstyrelsen.dk/International/English/">http://www.naturstyrelsen.dk/International/English/</a>
Research and Education	Universities and research institutes (all public)	<u>Copenhagen University, Faculty of Science:</u>	<a href="http://www.science.ku.dk/english/">http://www.science.ku.dk/english/</a>
		Department of Food Science	<a href="http://www.en.ifv.life.ku.dk/">http://www.en.ifv.life.ku.dk/</a>
		Department of Geosciences and Natural Resource Management	<a href="http://ign.ku.dk/english/">http://ign.ku.dk/english/</a>
		Department of Plant and Environmental Sciences	<a href="http://plen.ku.dk/english/">http://plen.ku.dk/english/</a>
		Department of Food and Resource Economics	<a href="http://www.ifro.ku.dk/english/">http://www.ifro.ku.dk/english/</a>
		<u>Aarhus University, Science and Technology:</u>	<a href="http://scitech.au.dk/en/">http://scitech.au.dk/en/</a>
		Aarhus University, Department of Agroecology	<a href="http://agro.au.dk/en/">http://agro.au.dk/en/</a>
		Aarhus University, Department of Food Science	<a href="http://food.au.dk/en/">http://food.au.dk/en/</a>
		Aarhus University, Department of Animal Science	<a href="http://anis.au.dk/en/">http://anis.au.dk/en/</a>
		<u>Technical University of Denmark:</u>	<a href="http://www.dtu.dk/english/">http://www.dtu.dk/english/</a>
		DTU Aqua – National Institute of Aquatic Resources	<a href="http://www.aqua.dtu.dk/english/">http://www.aqua.dtu.dk/english/</a>
		DTU Food	<a href="http://www.food.dtu.dk/english/">http://www.food.dtu.dk/english/</a>
		DTU Systems Biology	<a href="http://www.bio.dtu.dk/english/">http://www.bio.dtu.dk/english/</a>
		DTU Veterinary – National Veterinary Institute	<a href="http://www.vet.dtu.dk/english">http://www.vet.dtu.dk/english</a>
		<u>University of Southern Denmark:</u>	<a href="http://www.sdu.dk/">http://www.sdu.dk/</a>
	Danish Centre for Rural Research	<a href="http://www.sdu.dk/en/Om_SDU/Institutter_centre/C_clf_CenterLanddistriktsforskning.aspx">http://www.sdu.dk/en/Om_SDU/Institutter_centre/C_clf_CenterLanddistriktsforskning.aspx</a>	

	Centre for Fisheries & Aquaculture Management & Economics	<a href="http://www.sdu.dk/en/Om_SDUIstitutter_centre/C_FA_ME.aspx">http://www.sdu.dk/en/Om_SDUIstitutter_centre/C_FA_ME.aspx</a>
	Centre for Maritime Research and Innovation	<a href="http://www.sdu.dk/en/Om_SDUIstitutter_centre/C_mfi_maritim_forskning_og_innovation.aspx">http://www.sdu.dk/en/Om_SDUIstitutter_centre/C_mfi_maritim_forskning_og_innovation.aspx</a>
	Department of Environmental and Business Economics (subsection of Environmental and Resource Economics) (subsection of Rural and Cultural Sociology)	<a href="http://www.sdu.dk/en/Om_SDUIstitutter_centre/l_miljo_og_erhvervsøkonomi">http://www.sdu.dk/en/Om_SDUIstitutter_centre/l_miljo_og_erhvervsøkonomi</a>
	<u>Aalborg University:</u>	<a href="http://www.en.aau.dk/">http://www.en.aau.dk/</a>
	Department of Development and Planning	<a href="http://vbn.aau.dk/en/organisations/institut-for-samfundsudvikling-og-planlaegning(5f2d51f0-0584-4fd6-bcef-9acd29987792).html">http://vbn.aau.dk/en/organisations/institut-for-samfundsudvikling-og-planlaegning(5f2d51f0-0584-4fd6-bcef-9acd29987792).html</a>
Agricultural colleges (farmer based) (all public funded)	Agroskolen Hammerum	<a href="http://www.agroskolen.dk/">http://www.agroskolen.dk/</a>
	Asmildkloster Landbrugsskole	<a href="http://www.asmildkloster.dk/">http://www.asmildkloster.dk/</a>
	Bygholm Landbrugsskole	<a href="http://www.bygholm.dk/">http://www.bygholm.dk/</a>
	Dalum Landbrugsskole	<a href="http://dalumls.dk/">http://dalumls.dk/</a>
	Grindsted Landbrugsskole	<a href="http://www.grindstedlandbrugsskole.dk/en.html">http://www.grindstedlandbrugsskole.dk/en.html</a>
	Gråsten Landbrugsskole	<a href="http://www.gl.dk/">http://www.gl.dk/</a>
	Jordbrugets UddannelsesCenter Århus (Horticulture, Agriculture and Forestry)	<a href="http://www.ju.dk/">http://www.ju.dk/</a>
	Kalø Økologiske Landbrugsskole(Organic agricultural school)	<a href="http://www.kalo.dk/">http://www.kalo.dk/</a>
	Kjærgård Landbrugsskole	<a href="http://www.kjls.dk/">http://www.kjls.dk/</a>
	Nordjyllands Landbrugsskole	<a href="http://www.njylls.dk/">http://www.njylls.dk/</a>
Vocational schools offering agricultural educational programmes (all public)	Agri College Aalborg	<a href="http://www.agricollege.dk/">http://www.agricollege.dk/</a>
	CELF – Center Erhvervsrettede Uddannelser Lolland Falster	<a href="http://www.celf.dk/">http://www.celf.dk/</a>
	Kold College	<a href="http://www.koldcollege.dk/">http://www.koldcollege.dk/</a>
	Uddannelsescenter Holstebro	<a href="http://www.ucholstebro.dk/">http://www.ucholstebro.dk/</a>

		EUC Nordvest	<a href="http://www.eucnordvest.dk/">http://www.eucnordvest.dk/</a> The agricultural department: <a href="http://www.eucnordvest.dk/Morsø-Landbrugsskole/Morsø-Landbrugsskole.6105.aspx">http://www.eucnordvest.dk/Morsø-Landbrugsskole/Morsø-Landbrugsskole.6105.aspx</a>
		Hansenberg	<a href="http://www.hansenberg.dk/">http://www.hansenberg.dk/</a> The agricultural department: <a href="http://www.hansenberg.dk/om-hansenberg/hvem-er-hansenberg/vores-brancheskoler/organia/">http://www.hansenberg.dk/om-hansenberg/hvem-er-hansenberg/vores-brancheskoler/organia/</a>
		Roskilde Tekniske Skole	<a href="http://www.rts.dk/">http://www.rts.dk/</a> The agricultural department: <a href="http://www.rts.dk/afdelinger/akademiet/landbrugsskolen">http://www.rts.dk/afdelinger/akademiet/landbrugsskolen</a>
		Selandia CEU	<a href="http://www.selandia-ceu.dk/">http://www.selandia-ceu.dk/</a> The agricultural department: <a href="http://www.selandia-ceu.dk/Selandia/Uddannelser/Fagskolerne/Landbrugs-og_Gartnerskolen.aspx">http://www.selandia-ceu.dk/Selandia/Uddannelser/Fagskolerne/Landbrugs-og_Gartnerskolen.aspx</a>
Private sector / Organisations	<b>Farmer owned advisory companies:</b>		
	R&D and advisory services	The Knowledge Centre for Agriculture	<a href="http://www.vfl.dk/English">http://www.vfl.dk/English</a>
		Pig Research Centre	<a href="http://www.pigresearchcentre.dk/">http://www.pigresearchcentre.dk/</a>
	Advisory services – The DAAS nationwide network of 30 independent agricultural advisory services companies	DAAS (comprised of 30 independent agricultural advisory centres and KCA; total staff of 3,400)	<a href="http://www.dlbr.dk">http://www.dlbr.dk</a> (only in Danish)
	DAAS – Centres: (Total staff of 2,800)	Agri Nord	<a href="http://www.agrinord.dk/">http://www.agrinord.dk/</a>
		Agrovi	<a href="http://www.agrovi.dk/">http://www.agrovi.dk/</a>
		Bornholms Landbrug	<a href="http://www.bornholmslandbrug.dk/">http://www.bornholmslandbrug.dk/</a>
		Byggeri & Teknik I/S	<a href="http://www.byggeri-teknik.dk/">http://www.byggeri-teknik.dk/</a>
		Bygningskontoret NORD A/S	<a href="http://www.bk-nord.dk/">http://www.bk-nord.dk/</a>
		Centrovic	<a href="http://www.centrovic.dk/">http://www.centrovic.dk/</a>
		Dansk Landbrug Sydhavsøerne	<a href="http://www.dlsyd.dk/">http://www.dlsyd.dk/</a>
	Djursland Landboforening	<a href="http://www.landboforening.dk/">http://www.landboforening.dk/</a>	
	Heden & Fjorden	<a href="http://www.hflc.dk/">http://www.hflc.dk/</a>	

	Jysk Landbrugsrådgivning	<a href="http://www.jlbr.dk/">http://www.jlbr.dk/</a>
	Kolding Herreds Landbrugsforening	<a href="http://www.khl.dk/">http://www.khl.dk/</a>
	Landbo Limfjord	<a href="http://www.landbo-limfjord.dk/">http://www.landbo-limfjord.dk/</a>
	Landboforeningen Gefion	<a href="http://gefion.dk/">http://gefion.dk/</a>
	LandboNord	<a href="http://www.landbonord.dk/">http://www.landbonord.dk/</a>
	LandboSyd	<a href="http://www.landbosyd.dk/">http://www.landbosyd.dk/</a>
	LandboThy	<a href="http://www.landbothy.dk/">http://www.landbothy.dk/</a>
	Landbrugsrådgivning Syd	<a href="http://www.lrs.dk/">http://www.lrs.dk/</a>
	Lemvigegnens Landboforening	<a href="http://www.lemvig-landbo.dk/">http://www.lemvig-landbo.dk/</a>
	LHN	<a href="http://www.lhn.dk/">http://www.lhn.dk/</a>
	LMO I/S	<a href="http://www.lmo.dk/">http://www.lmo.dk/</a>
	Nordjysk Familielandbrug	<a href="http://www.nfplus.dk/">http://www.nfplus.dk/</a>
	Odsherred Landboforening	<a href="http://www.ohla.dk/">http://www.ohla.dk/</a>
	Rådgivningscenter Nord	<a href="http://www.hjff.dk/">http://www.hjff.dk/</a>
	Samsø Landboforening	<a href="http://www.samsoland.dk/">http://www.samsoland.dk/</a>
	Svinerådgivning Vest	<a href="http://www.srvest.dk/">http://www.srvest.dk/</a>
	Sønderjysk Landboforening	<a href="http://www.slfd.dk/">http://www.slfd.dk/</a>
	Midtjysk Svinerådgivning (owned by Landbo Limfjord and Landbo Thy)	<a href="http://www.midtsvin.dk/">http://www.midtsvin.dk/</a>
	Syddansk Kvæg (owned by LandboSyd, Landbrugsrådgivning Syd, LHN and Sønderjysk landboforening)	<a href="http://www.sd-k.dk/">http://www.sd-k.dk/</a>
	Vestjysk Landboforening	<a href="http://www.vjl.dk/">http://www.vjl.dk/</a>
	Viking Danmark (Genetics for cattle livestock)	<a href="http://www.vikinggenetics.dk/">http://www.vikinggenetics.dk/</a>
	Østdansk Landbrugsrådgivning	<a href="http://www.landbocenter.dk/">http://www.landbocenter.dk/</a>
	Østlige Øers Maskinrådgivning	No website of their own.(webpage at DAAS: <a href="http://www.DAAS.dk/Raadgivningsvirksomheder/Sjaelland/OstligeOersMaskinraadgivning.htm">http://www.DAAS.dk/Raadgivningsvirksomheder/Sjaelland/OstligeOersMaskinraadgivning.htm</a> )

	Approved Technological Service Institute (combine research-based consultancy and technological services)	AgroTech (GTS-Institute) (owned by the Knowledge Centre for Agriculture, but regulated by the law for GTS-Institutes)	<a href="http://agrotech.dk/en">http://agrotech.dk/en</a>
	Advisory services on horticulture	HortiAdvice Scandinavia (Gartnerirådgivningen) (independent company owned by The Knowledge Center for Agriculture ( <a href="http://www.vfl.dk">www.vfl.dk</a> ) and DLV Plant ( <a href="http://www.dlvplant.nl">www.dlvplant.nl</a> ))	<a href="http://www.gartneriraadgivningen.dk/OmOs/Profil/Danish_horticultural.htm">http://www.gartneriraadgivningen.dk/OmOs/Profil/Danish_horticultural.htm</a>
	Farmers' owned advice companies <u>outside</u> the DAAS-system	Patriotisk Selskab (traditionally the advisory service organisation for landowners/owners of estates)	<a href="http://patriotisk.dk/">http://patriotisk.dk/</a>
		LVK – Landbrugets Veterinære Konsulenttjeneste (Veterinarians, farmer based and owned; about 40 employees)	<a href="http://www.lvk.dk/">http://www.lvk.dk/</a>
	Upstream industries / Input providers ( <u>all owned by farmers</u> and dominate the national market)	DL (Major national player)	<a href="http://www.dlg.dk/en/">http://www.dlg.dk/en/</a>
		Danish Agro (Major National Player)	<a href="http://www.danishagro.dk/">http://www.danishagro.dk/</a>
		Vestjyllands Andel (Western part of Jutland)	<a href="http://www.vja.dk/">http://www.vja.dk/</a>
		DLA Group (owners; Danish Agro, Vestjyllands Andel and others (small shareholders) (Big player in the Nordic countries, The Baltic countries, Russia)	<a href="http://www.dlagroup.eu/">http://www.dlagroup.eu/</a>
		DLF Trifolium (The world's largest producer of clover and grass seeds; world market share of 25%)	<a href="http://www.dlf.dk/">http://www.dlf.dk/</a>
	Private agricultural advice companies and independent consultant (not an exhaustive list)		
		A number of small and independent private advisory companies exists. The total is estimated to be around 10-15. Typically they employ between 1-6 persons / owners.	
NGOs	Both farmer based/owned advisory services and interest organisation for individuals (both farmers and citizens)	Økologisk Landsforening (The National Organic Association) (Offers both advisory services and acts as a non-governmental organisation for people who are interested in and support organic farming)	<a href="http://www.okologi.dk/">http://www.okologi.dk/</a> (only in Danish)