

AKIS and advisory services in *Bulgaria*

Report for the AKIS inventory (Task 1.2) of the i2connect project

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Executive summary

The main aim of the report is to provide a comprehensive description of the Agricultural Knowledge and Information System (AKIS) in the Republic of Bulgaria, 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 i2connect project (Connecting advisers to boost interactive innovation in agriculture and forestry, Project funded under the Horizon 2020 Research and Innovation Programme, Grant Agreement number 863039).

The different actors in the AKIS contribute in different ways to the management and financing, to the initiation, creation, dissemination and implementation of knowledge and innovation in the agricultural industry. In modern conditions, the traditional "linear" model (from science to farm advisory and training) increasingly requires the application of a new model in which interested agents form different types (sectoral, regional, national, transnational) systems for "joint" creating and sharing knowledge and innovation to address the diverse needs of farmers, rural communities and food chain actors. Along with this, various hybrid structures are developing between academic, business, non-governmental, public, and international and others organizations and agents for creation, dissemination, implementation and wide commercialization of knowledge and innovations in branch, interbranch, territorial and transnational scale (MAFF 2020).

The AKIS in Bulgaria is constituted by the following actors in public sector, private advisory sector, research and education, farmer based organizations and NGOs, etc. In the last 5 years the farmers' organizations have started to play an active role.

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Abbreviations

Acronym	Explanation
AA	Agricultural Academy
AICs	Agro-Industrial Complexes
AKIS	Agricultural Knowledge and Information Systems
AMS	Agricultural Municipal Services
CAP	Common Agricultural Policy
ESU	European size units
EFA	Executive Forest Agency
FAS	Farm Advisory System
FBO	Farmer-Based Organization
LSU	Livestock unit
MAFF	Ministry of Agriculture, Food and Forestry
NAAS	National Agricultural Advisory Services
NGOs	Non-government organizations
POs/PGs	Producer Organizations / Producer Organizations
RAAS	Regional Agricultural Advisory Services
RDP	Rural Development Programme
UAA	Utilised Agricultural Area

1. Main structural characteristics of the agricultural and forestry sector

Bulgaria is located in South-East Europe. The country is divided into 6 planning regions (NUTS 2), 28 administrative regions (NUTS 3) and 264 municipalities (LAU 1). The population of the country, in 2019, was 6 951 482 (NSI, 2019). The percentage of rural areas in Bulgaria is 81% of the whole territory or 88% of the total number of Bulgarian municipalities (RDP, 2014). In 2012, agricultural land in the rural area was 54% of land area (RDR, 2014). The share of the population in rural areas is 37% of the population of Bulgaria (RDR 2014). 73% of the total arable land is privately owned, 22% is owned by municipalities and 5% is state property (RDP, 2014).

Agriculture's contribution to employment in Bulgaria is 6.26% for 2017 (MAFF, 2017 and 2018). GDP per capita for Bulgaria is EUR 7 876.15 per inhabitant (Eurostat, 2019), as the contribution of the Agrarian sector is (agriculture, forestry and fisheries) - 3.9%.

In Bulgaria, land for agriculture purpose is 5 021 412 ha, or around 45.2% of the territory of the country (MAF 2018). The Utilized Agricultural Area (UAA) is composed of arable land, perennial crops, permanent grassland, family gardens and greenhouse area. Arable land is 3 480 991 ha or 69.3% of the UAA, permanent grassland - 140 966 ha or 5.6%, vineyards - 52 517 ha or 3.1%. The total number of agricultural holdings is 201 014, which cultivates 3 795 534 ha with an average UAA per holding of around 20.58 ha.

Distribution of the holdings (MAFF, 2016) is as follows: agricultural holdings under 2 000 limits in EUR are 104 898; between 2000- 8000 are 57 911; between 8 000 and 50 000 are 28 669; between 50,000 and 1,000,000 limits are 3 967 and over 100,000 are 5 569 numbers. Specialized farms a relative share of the total number of holdings 73.5%, mixed holdings- 26.2%, non-classified holdings 0.3% Distribution of the holdings in ha is as follows: agricultural holdings under 2 ha are 129 912; between 2 ha and 10 ha are 29 741; between 10 and 50 ha are 15 343; and over 50 ha are 9 452. Farms and the animals kept in them - 54 376, 584 177 animals.

Therefore, in Bulgaria there is a strong polarization: there are many small-scale farmers with under 2 ha, 64.62% of the total agricultural holdings, who cultivate

only around 1.8% of total UAA and a small number of large-scale farmers with over 50 ha, 4.7% who cultivate 85.22% of UAA.

The number of holdings by age (MAFF, 2013) of manager is as follows: there are 14 307 under 35 years old; 144 514 between 35 and 64 years; and 93 331 over 65 years. 22.40% of the total numbers are women.

Labor force (persons and Labor in annual working units (AWU) in 2013 are 557 408 number person, what produce 298 382 AWU, divide by legal status of the holding: Natural persons 504 541 as number/ 250 180; companies and sole traders 52 867/48202 (MAFF, 2013)

Persons working on the holding by family relationship with the holder in 2013 – 557 408, family farms - 89.64% in family farms.

The total area of the forest territories at the end of 2018 amounts to 4 257 200 ha, or 38.35% of the land area of the whole country, of which 3,893,396 ha are forested areas (including dwarf 23 882 ha) (MAFF).

The distribution by type of ownership is as follows: 72.6% - state forest territories; 13.1% - municipal forest territories, 10.0% - property of private individuals, 1.1% - property of legal entities.

The total afforested area in 2018 is 3 893,396 ha, as the afforested areas with coniferous forests cover territories of 1 122 113 ha, and those with deciduous forests - 2,771,283 ha.

2. Characteristics of AKIS

2.1. AKIS description

The Agricultural Knowledge and Information System (AKIS) of the country consists of diverse and numerous organizations involved in the process of generating, sharing, disseminating and implementing knowledge and innovation in the industry. In addition to the different types of farmers and agricultural holdings, this complex system includes research institutes, universities and schools, agricultural advisory services, private consultants, specialized consulting, training and innovation companies, professional farmers' organizations, NGOs, suppliers of machinery, chemicals and innovations, food chains, processors and exporters of agricultural products, government agencies, local authorities, non-governmental organizations and interest groups, media of various kinds, international organizations, individuals, etc., and so on also various formal and informal organizations (partnerships, networks, associations, etc.) between them (MAFF, 2020).

2.1.1. AKIS actors and knowledge flows

The different participants in the AKIS contribute in different ways to the management and financing, to the initiation, creation, dissemination and implementation of knowledge and innovation in the industry. In modern conditions, the traditional "linear" model (from science to farm advisory and training) increasingly requires the application of a new model in which interested agents form different types (sectoral, regional, national, transnational) systems for "joint" creating and sharing knowledge and innovation to address the diverse needs of farmers, rural communities and food chain actors. Along with this, various hybrid structures are developing between academic, business, non-governmental, public, international and others. organizations and agents for creation, dissemination, implementation and wide commercialization of knowledge and innovations in branch, interbranch, territorial and transnational scale(MAFF, 2020).

The AKIS in Bulgaria is constituted by the following actors in public sector, private advisory sector, research and education, farmer based organizations and NGOs, etc.

PUBLIC SECTOR includes following institutions responsible for capacity development in the agricultural sector:

Ministry of Agriculture, Food and Forestry (MAFF) is the main state organization that mainly works for implementing national agricultural and forestry policy, and Common Agricultural Policy (CAP). The MAFF has strong linkages with its secondary state organizations as Regional Directorates "Agriculture", National Agricultural Advisory Services, Executive Forest Agency and Agricultural Academy, and also with farm organizations and NGOs and weaker linkage with the universities and private sectors.

Regional Directorates of Agriculture and their units at the municipal level (28 Regional Directorate at the district level and 234 Agricultural Municipal Services at municipal level) are specialized territorial administration units and secondary administrators at the MAF. Their aims are to implement state policy in the field of agriculture, to provide information to the farmers, to provide statistical data and annual reports of the agriculture in the regional levels, to create system for registered farms for direct payments, to register farmers, etc. The employees of the Regional Directorates of Agriculture also take part in the seminars, events, trainings and demonstrations in order to acquire knowledge about the interventions in the Strategic Plan and increase their capacity for more efficient service to farmers and dissemination of knowledge and information. They have strong, direct contacts with farmers as well as with other regional units of MAFF.

Executive Forest Agency (EAF) implements the state policy and control of the national legislation in the field of management and protection of forests and forest resources in Bulgaria. The Agency supports the development, elaboration and coordinates the implementation of the main strategic documents for the development of the forest sector - the National Strategy and the Strategic Plan. The activities that are carried out are for sustainable management and use of forests and game in Bulgaria, proper planning and implementation of the planned activities. The Agency coordinates and controls the protection and preservation of forests, carries out state control over the hunting activities in the country, the implementation of forestry and hunting legislation. The EAF has 16 regional forest directorates, which perform the functions of the Agency in their designated areas of activity. 11 are the directorates of nature parks, which develop annual plans for the activities for protection and restoration of the biological diversity, maintenance and development of the tourist infrastructure,

educational programs and others in accordance with the plans for management of the natural parks. Specialized territorial units at the EFA are also 3 forest protection stations and 2 forest seed control stations. The policy implemented by the Agency, its structures and specialized territorial units, goals, activities and tasks are aimed at preserving, improving the condition, increasing forest resources, for the sustainable implementation of social, economic and environmental functions of forests. 6 state-owned enterprises have also been established, which carry out economic activity in the forests. The state forest enterprises are managed by a management board and are under the control of the MAFF.

National Agricultural Advisory Services (NAAS) is the secondary administrator at the MAFF. The main office is legal entities funded with headquarters in Sofia and 27 regional offices in the country. The NAAS has provided advisory services, laboratory chemical service and technical assistance to farmers for implementing efficient and competitive agricultural practices in Bulgaria since 2000. The main mission of the NAAS is supporting the implementation of the state policy in the agricultural sector and achieving the MAFF priorities and objectives for implementation of efficient and competitive agriculture in Bulgaria. In 2007, Centre for Vocational Education at NAAS was established. Its aim was to provide a wide range of long and short term training activities in agriculture (in-depth theoretical and practical knowledge) to farmers and to make them acquainted with the latest development in agriculture. Regional offices support the transfer and application of scientific and practical achievements in the field of agriculture; providing specialised consulting in the field of agriculture; organising and conducting training for farmers; assisting by providing information; and providing a set of advisory services to individuals under the conditions and requirements of the RDP Measures. The regional offices, often, cooperate with government and non-government organizations in the field of agriculture for information, knowledge and organization of the common events science. The budget of NAAS includes: subsidy; own revenues; donations; grants; revenue of training and information activities; consulting services and funds received by international projects and programs. NAAS is and will continue to be a major provider of advisory and consulting services at the district and municipal level with strong and lasting ties with the MAFF, as well as with scientific and academic organizations and farmers. NAAS is the only participant in AKIS that has expertise for knowledge transfer, maintaining the quality and capacity of its experts.

AGRICULTURAL RESEARCH AND EDUCATION includes the Agricultural Academy with their Regional Research Institutes and Experimental Stations, Agricultural Universities/ higher education institutions and vocational high schools.

Agricultural Academy (AA) is an autonomous budget organization in the frame of MAFF for research, service and support activities in the field of agriculture, animal husbandry and food industry. 25 Regional Scientific Institutes Scientific institutes carry out basic research, applied research, innovation and consulting in the field of agriculture and food. 4 State Enterprise "Research and Production Center" carries out scientific-applied, applied, experimental-production and other activities supporting the activities of the Academy. 1 State Enterprise "Research and Production Center", unites 13 experimental stations, carries out scientific-applied, applied, experimental-production and other activities supporting the activities of the Academy. There is also 1 training center established to the AA. The AA, through the established network of institutes, centers and pilot stations, actively participates in information and discussion events organized by the NAAS and the CAP network, within which it offers solutions through scientific methods to problems identified in practice. The AA structures are a potential main player in the operational groups within the EPI participating in the search for technological solutions to address the identified needs of farmers. Strong links with MAFWE and NAAS, as well as direct contacts with farmers' associations and farmers. Strong links with MAFO and NAAS, as well as direct contacts with farmers' associations and farmers. The budget of research institutes includes state subsidy; revenue from research projects; revenue from advisory services; revenue from intellectual products; and others.

The universities mainly provide education and training to students at Bachelor, Master and Doctoral levels. There are 5 main agricultural universities in Bulgaria: Agricultural University, Trakia University, University of Forestry, Ruse University; and University of Food Technology. They offer agricultural knowledge and education in the field of crop and animal production, plant protection, farm machinery, agro-ecology, agricultural economics, food technologies, etc. Their functions in AKIS are aimed at developing and creating and implementing innovations, providing training and consultations for farmers and foresters. Universities are a major incubator of new knowledge through their units and specialists engaged in research and development in the field of agriculture and food. At this stage they have established links with MAFF, NAAS, as well as direct communication with farmers' associations and farmers.

Vocational high schools in the field of agriculture and forestry are participants in AKIS, whose functions are aimed at providing training for farmers and foresters.

FARMER BASED ORGANIZATIONS includes farmers' branch organizations, farmers' cooperative, farmers' organizations/ groups.

Branch organizations (non-profit legal entities in the field of agriculture and digital technologies) amount to 32 and their names and websites, officially, are posted in the MAFF's website. These organisations represent different sectors (e.g. milk, meat, fruits, vegetables, crop productions, etc.). Their aims are to protect the members' interests, to provide assistance to their activities and to resolve the actual problems of their members in the field of the agriculture. They have effective partnership with all institutions and organizations related to the agricultural sector. The associations work closely with the MAFF. In recent years, they have established themselves as a specific channel for information exchange in two main areas: disseminating information to their members about the opportunities and requirements for applying for support schemes and measures; feedback to the MAFF on the basic needs and problems that farmers face in the process of development of their farms, as well as when applying for support schemes and measures. Many of the branch organizations hold annual seminars for their members, to which they invite both representatives of the administration and other participants in AKIS. These seminars have established themselves as a natural channel for the dissemination of knowledge and information that can be supported and upgraded. Branch associations in the field of information technology should also join this group. They help to disseminate information about the possibilities and advantages of information technology. With the help of these branch associations, the establishment of new connections between information technology providers and agricultural producers is encouraged, as well as the finding of new opportunities for application of information technologies in the agricultural sector.

Production cooperatives are common structures in the country. Officially, 225 are entered in the register of cooperatives. They work the land of their members. Often, their annual income does allow them to re-invest in machinery and equipment, to use new seeds, varieties, to restore livestock stables, etc. ***The National Union of Agricultural Cooperatives*** in Bulgaria is a national voluntary organization uniting regional, regional, branch and cooperative unions and organizations. The member agricultural cooperatives are united on a territorial

basis in 19 regional and regional unions of agricultural cooperatives. The goal of the national union is to build and develop modern agricultural cooperatives, to protect and effectively use the agricultural resources of Bulgaria. The national union and its regional structures periodically hold courses and seminars on current issues in order to raise awareness and qualification of staff in agricultural cooperatives. This activity is carried out by attracting highly qualified lecturers from the MAFF, agricultural institutes and universities.

Farmers' organizations/ groups (FOs/FGs) are still not common in Bulgaria. So far, in the country, there are 77 producer organization/ groups (MAFF, 2019). Some of them received financial support by RDR. The maximum aid intensity is 100% and the aid is decreasing. Financial assistance shall take the form of a fixed annual payment granted for no more than five consecutive years from the date on which the producer group or organization is recognized. The amount of aid for each producer group or organization shall not exceed EUR 100 000 for each year. Each group has minimum four members - both small and large agricultural producers. Their main activities are (1) Adaptation to the market requirements of the production and production of the members of such groups or organizations; (2) Joint marketing of goods, including preparation for sales, centralization of sales and deliveries to wholesale buyers; (3) Establishing general rules for production information, in particular for harvesting and stocks; (4) Other activities that can be carried out by producer groups and organizations, such as building skills for business and trade and organizing and facilitating innovation processes. FO/Gs work intensively with public sector (MAFF, NAAS), private advisory services and private companies providing inputs.

OTHER NON-GOVERNMENT ORGANISATIONS (NGOs) are also not common in Bulgarian agriculture but where they do exist they are well-known among agricultural producers as organizations working professionally with them. They, usually, keep their employers up to date with the new innovations, methods and knowledge related to the agricultural production and all state and EU programs running in the country. They organize practical training courses for partners (e.g. NAAS) and interested farmers, agronomists, etc. NGOs.

The foundations in agricultural sector in Bulgaria are non-profit organizations too. There are not so many in the country. Mostly, they work for supporting and helping small scale farmers, landless and poor Roma families (e.g. Land-source of income) and specific sectors such as organic farming (e.g. Agrolink, Bioselena).

They focus their activities on consulting their target groups, creation and realization projects that support small-scale farmers. They educate and technical consult agricultural best practice in areas with a mixed ethnic groups, and also, organize workshops and seminars - bringing together policy makers and practitioners at the local, national and international levels

PRIVATE ADVISORY SECTOR includes private advisory companies, independent consultants, international trade organizations and regional suppliers. There are no exact information for their number and topic.

Private advisory companies in Bulgaria have started their extension services in agriculture during the PHARE and SAPARD programs. They mainly provide information and prepare applications to their clients for different measures of the RDP and the operational programs.

The independent consultants are mostly people, who are former experts from MAAF¹ structure or educated persons, who work mainly with small scale farmers and prepare applications mostly for the measures of RDP. Mostly, their clients are famers, who they know personally and are recommended by people who have already used their services.

International trade organizations are important providers of information regarding new technologies and marketing of the agricultural sector. These organizations are mainly seed companies, plant protection companies, machinery dealers, etc. Their extension services to farmers mainly relate to plant protection, machinery use and agricultural production.

Regional suppliers (trade organizations) are mostly input suppliers with well-established networks with farmers. They usually provide advice on plant protection, sanitary and soil fertility measures at each particular situation in the farm. Such local trade organizations are agri-chemical shops and distributors, who work mostly with farmers on regional level. They benefit from well-developed chemicals industry in the country.

MULTI ACTORS NETWORKS AND PROJECTS includes National Rural Network, Operational groups, Digital innovation hub for agriculture, European Forum for Rural Advisory Service, South Eastern Europe Advisory Service Network, H2020 multi-actors projects

National Rural Network (NRN) / NRN Management Unit exchanges experience, knowledge and good practices for rural development from Bulgaria and other EU member states. The unit performs functions of creating and strengthening the links between farmers, industry associations, administration, NAAS, universities, vocational schools, organizations, researchers and other participants in innovation in agriculture and rural development at the national level. The unit encourages interaction between all stakeholders in the knowledge building process and will support the implementation of innovations. These functions are performed through a developed regional structure at the district or municipal level, which aims to cover the majority of farmers through the established links at the local level and knowledge of specific channels for dissemination of information among local communities. The exchange of information and knowledge is also based on a bottom-up approach by organizing information events to share good practices on request from CAP network participants.

Operational groups

Operational Groups are intended to bring together multiple actors such as farmers, researchers, advisers, businesses, environmental groups, consumer interest groups or other NGOs to advance innovation in the agricultural and forestry sectors

Currently in Bulgaria there are only 19 operational groups funded by the RDP, but it is expected that in the coming periods the operational groups will play a significant role in AKIS.

Private training organizations, performing functions for raising the professional qualification of entrepreneurs and employees in agriculture to deal with new challenges, such as dealing with climate change, new environmentally friendly production methods, digital technologies and innovations.

Municipal Forests Association. Municipalities - owners of forest territories, are aware of the need and benefit of creating management potential and structures for forest management, in accordance with the requirements of the Forest Act and the Municipal Property Act. The association has 59 member municipalities.

2.1.2. Policy framework at national level

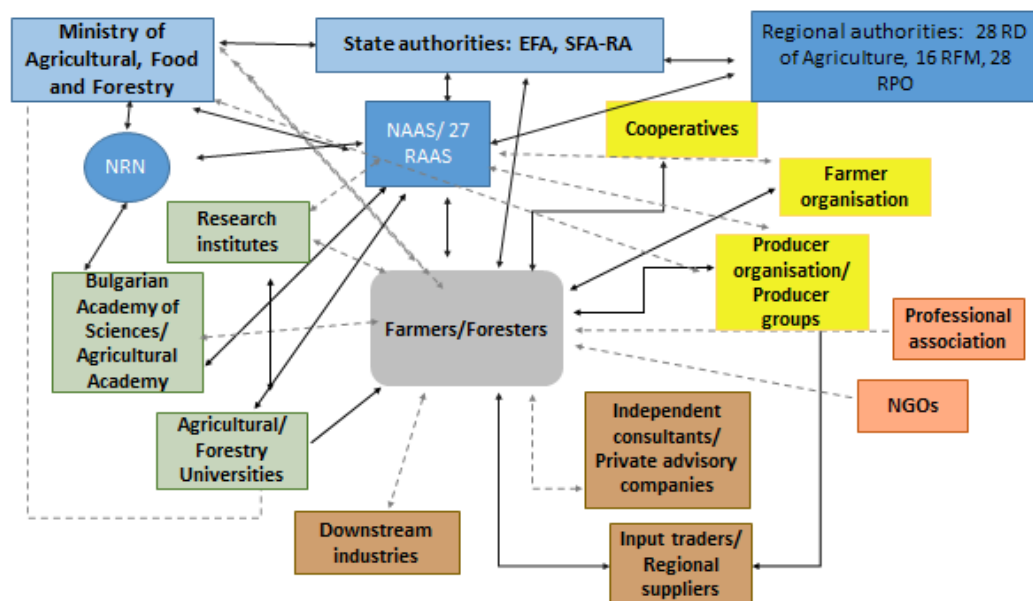
The **Minister of Agriculture, Food and Forestry** is a central sole body of the executive power that manages, coordinates and controls the implementation of the state policy in the field of agriculture, rural areas, forestry and hunting, fisheries and aquaculture and implements the state food safety policy compliance with applicable law. As a sole body of the executive power, the Minister determines the strategic goals and priorities of the policy in the agricultural sector, organizes and coordinates the development of strategies, plans and programs for their achievement and controls the implementation of the measures set in them, incl. conducts the policy of the state for development of the research, scientific-applied, experimental and production activity in the field of agriculture and food. The Minister organizes, coordinates and controls the activities related to the implementation of the Common Agricultural Policy (CAP), the Food Safety Policy and the Common Fisheries Policy (CFP) of the European Union (EU). The MAFF is an administration that assists the Minister of Agriculture, Food and Forestry in exercising his powers (MAFF, 2020).

An article 10 of the Law on Support for Agricultural Producers (Promoted in State Gazette №58/ 1998, last amendment State Gazette № 77 / 2018) provides the legal provisions and setting up of FAS system in Bulgaria. By establishing NAAS, Bulgarian government fulfills the obligations for existing, functioning and having access to farm advisory system in the country, in accordance with Art. 12 - Art. 15 of the of the Council No 1306/2013. The legal framework for advisory system and the implementation of the EU-FAS in Bulgaria includes several national regulations.

2.1.3. Coordination Structures

So far, there is no coordination structure for the functioning of AKIS. It is expected that with the adoption of the Strategic Plan for the next programming period a similar structure will be legitimized, similar to the National Rural Network - a coordination unit within the structure of the MAFF.

2.2. AKIS diagram



Legend

- Public authorities
- Research and education organisations
- Private sector (for profit)
- Third sector farmer/farmer-based organisations
- Third sector NGO (non-profit)
- Strong Linkage*
- Weak linkage

Figure 1 Agricultural Knowledge and Information System (AKIS) in Bulgaria

3. History of the advisory system

Before 1989, the Bulgarian agricultural knowledge system had a clear top-down structure. The agricultural sector was a part of the state-planned economy. It was large scale, modernised and organised into huge agricultural collective organisations, called Agro-Industrial Complexes - AICs (established in the 1968). Therefore, the agricultural consultancy activity was mostly informally organised and oriented to the technical aspects of production. Agricultural research was mainly carried out by universities and research institutes. Most of the research institutes dealing with agricultural issues were (and still are) part of the Agricultural Academy funded by MAFF.

After November 1989 until 2000 the objective of the agrarian policy was concentrated on land restitution under Bulgarian land law and privatization of the collective farm assets. After the privatisation, Bulgarian farms were structured by three groups: small scale farmers operated by people close to retirement, cooperatives, most of them with bad financial situations and large commercial farms. At this time, there were a number of cooperatives that were used as demonstration farms, with an objective of establishing private extension services. Since the experiment was not successful, the government decided to establish a National System of Agricultural Extension with external financial assistance (FAO, 2005). In 1995, the National System of Agricultural Extension was created by agreement between the National Centre for Agricultural Sciences (former name of the Agricultural Academy) and Ministry of Agriculture and Food. It was built with the technical and financial support of the PHARE Programme - Agriculture (in the framework of two projects) for the period 1995-1999.

Since 2000, the NAAS participated in several international projects, where some of them are designed to strengthen the capacity of the staff mainly in various aspects of the CAP: sustainable land management, rural development, development of organic farming, environmental protection and climate, developing strategies and management of agricultural organizations, etc. After the RDP 2007-2013 began to operate, NAAS started to provide services in the context of Measure 143 "Provision of farms advisory and extension services in Bulgaria and Romania. NAAS assists farmers with their applications for four measures (the setting up of young farmers, semi-subsistence farming, setting up producer groups and agro-environmental payments). During the RDR 2014-2020 NAAS continues assists farmers with their applications for several measures as

well as supporting the farmers to understand the EU rules for environment, public and animal health, animal welfare and the good agricultural and environmental condition (Measure 2 "Consultancy services, farm management services and farm replacement services"). Knowledge transfer activities continue and the NAAS provides the link between farmers and science. In addition to continuing to train farmers, NAAS emphasizes demonstration training, popularizes and promotes the involvement of farmers in thematic networks, and disseminates information on innovative technologies and practices for their implementation.

At the same time, many private advisory companies and professional farm associations were established. Private advisory companies mainly provided extension services to farmers regarding RDP measures and covered all other measures that have not been covered by NAAS. Professional farm associations mostly provided consultations to farmers regarding the legal framework in the sector, created links between their members and helped to find market for products produced by their members.

In conclusion, the AKIS in Bulgaria are represented mainly by the NAAS and research centres (public advisory provider), consultant organizations and farm associations (private advisory providers). NAAS mainly provided information and advisory services about "cross-compliance", measures related to climate and the environment and maintenance of the agricultural area, measures at farm level provided from the RDP, knowledge about water protection, water use and use of plant protection products. The NAAS experts and scientific researchers (from the Agricultural Academy and Universities) provide mainly advice to small and middle scale farmers, while private advisory providers frequently work and provide consultations to large scale farms and to members to the farm associations.

However, at this stage, the above mentioned organisations do not have the capacity to cover the enormous amount of knowledge dissemination work and to meet the needs of access to information from numerous farmers. In this connection, it becomes obvious the need to coordinate and join the capacities and efforts of the regional and municipal services, universities and research institutes, as well as and the non-governmental sector, in the process of knowledge transfer and innovation in agricultural practice. The development of information and communication technologies may open new opportunities for dissemination of knowledge and good practices to the farmers.

4. The agricultural and forestry advisory service(s)

The information below describes the variations of the consultancy service providers in the country, indicating their approaches to service delivery, methods and management based on the results of a specific study conducted within the project. 25 consulting service providers were interviewed – 11 advisory organizations, 8 organisations with an advisory component and 6 freelance advisors.

In addition to the survey data, secondary data sources and results from expert interviews were used to enrich the results.

4.1. Overview of all service suppliers

The providers of consulting services in the country are mainly public and private, and in the last 5 years the farmers' organizations have started to play an active role.

Taking into account the predominant percentage of small farms and the need for young farmers to enter agriculture, the MAFF in 2020 established a public consulting organization – NAAS, covering the whole county through its 27 regional offices. To date, NAAS continues has been a major player in the provision of advisory services, strengthening its role and importance in the consulting services market. NAAS offers various consultations according to its program, including a comprehensive "package of consulting services" (from the establishment of the farm to its full service in agronomic, animal husbandry and agro-economic aspects), organizes and conducts trainings for farmers, disseminates useful information and good practices and supports the application for RDP projects. The NAAS supports the transfer of scientific and practical achievements in the field of agriculture and thus supports the links "research - agricultural business". All consultations provided by NAAS are free of charge for farmers, which help to effectively share knowledge and innovation in the industry. The target groups targeted by activities in recent years are mainly small and medium-sized farms, start-up and young farmers, new productions (organic production, organic, etc.), producer organizations, etc.

Other public providers of advisory services are the AA and agricultural universities in the role of research organization. Their main activity is related to the development and application of scientific and applied products/

technologies, assessments and recommendations for the development of farms. Agricultural universities have an essential role in the education of farmers, incl. and upgrading training. Medium and large farms benefit from their services and in most cases the services are paid for unless they have used funds under national/ international projects and programs. Scientific institutes and universities provide knowledge mainly through training courses and seminars to farmers.

Although public advisory services exist, private advisory services also emerged due to increasing need of the farms to gain support from them through rural development measures. Their activities vary from writing applications for financial support to technical assistance. These private services are used mainly by large scale farmers. Non-government organizations (farmer associations and foundations) at the national and regional levels advise their members on farming and participating in different development measures. Repeatedly, they provide information for private advisory companies that can support farmers to prepare their applications within RDP measures. International trade organizations and regional suppliers, mainly, provide extension advices to farmers and farm organizations on issues related to agricultural production, plant protection and new machinery. They are important providers of new technologies and innovations for agricultural sectors.

4.2. Public policy, funding schemes, financing mechanisms, advisory service providers

The sources of funding for advisory organizations depend on their type. For public organizations, the national budget is a significant part and is supplemented by funds for programs and projects, incl. and RDP.

For private advisory organizations the budget is formed by payment for the services provided, as well as by programs and projects, incl. and RDP.

The survey data show that the main share of funding for advisory services is from EU CAP projects and funds. Only 1/4 of the participants in the survey note that their budget has increased by more than 10% over the last 3 years, and the source is from implemented activities under programs and projects.

The main EU funding schemes for Bulgaria for the period 2007-2013/ 2014-2020 are: (1) the direct payments which are complimented by national payments, and (2), measures under the RDP. All these programs actively work for support farm

productions and their activities. The RDP has several components oriented towards advisory services - provision of consulting services and trainings.

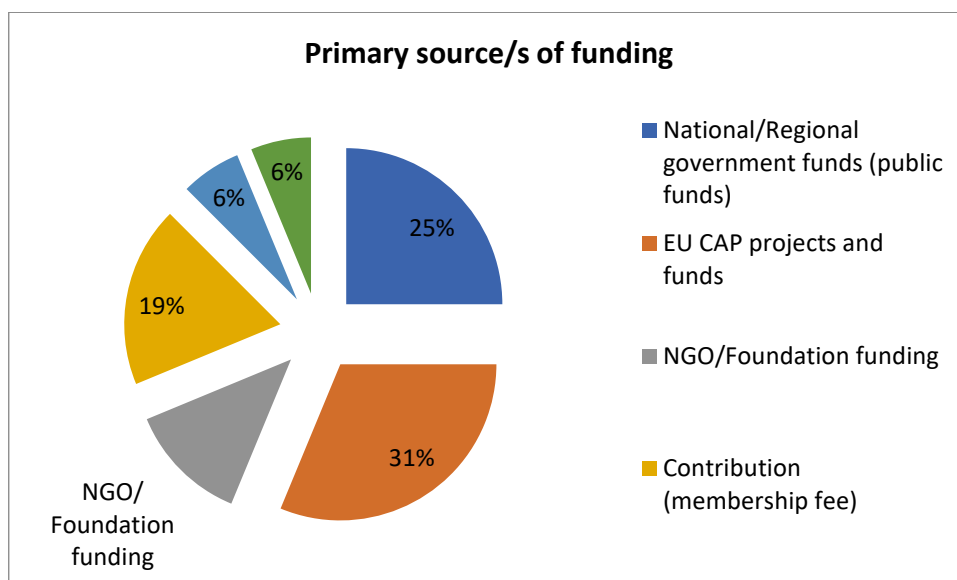


Figure 2 Primary source/s of funding (n=25)

4.3. Clients and topics and methods

Client target groups depend on the type of advisory organization. As repeatedly described above, the main public provider - NAAS, as well as some NGOs and freelance consultants provide advisory services mainly to small and medium-sized farms / enterprises, young farmers and start-up farms. The part that provides advisory services to large farms is insignificant, which does not mean that they do not need / do not use such services. The figure illustrates this condition clearly. The positive finding is that more and more actors state that they also participate in the training of consultants. These are AA, agricultural universities and institutes, incl. and private organizations (Institute for Agricultural Strategies and Innovations). At this stage, NAAS trains and upgrades the capacity of its consultants, and through its public activities (conferences, seminars, thematic networks, publications) it also contributes to increasing the capacity of others involved in this business. Confirmation that NAAS remains the main provider of advisory services is the number of farmers it serves annually - 18,000. The other actors do not have a permanent customer network. Main cross-cutting advisory topics which are most demanded by clients are: Entrepreneurship and farm management; Production technologies; Accounting/Bookkeeping; Tax and legal advice; Rural development support and

diversification (farm/forest); Support with grant application and compliance with regulation and standards; Agri-environmental stewardship measures and nature conservation. Only 4% of survey participants answered that advising farmers to adapt their farms to the cross-compliance requirements by EU-FAS.

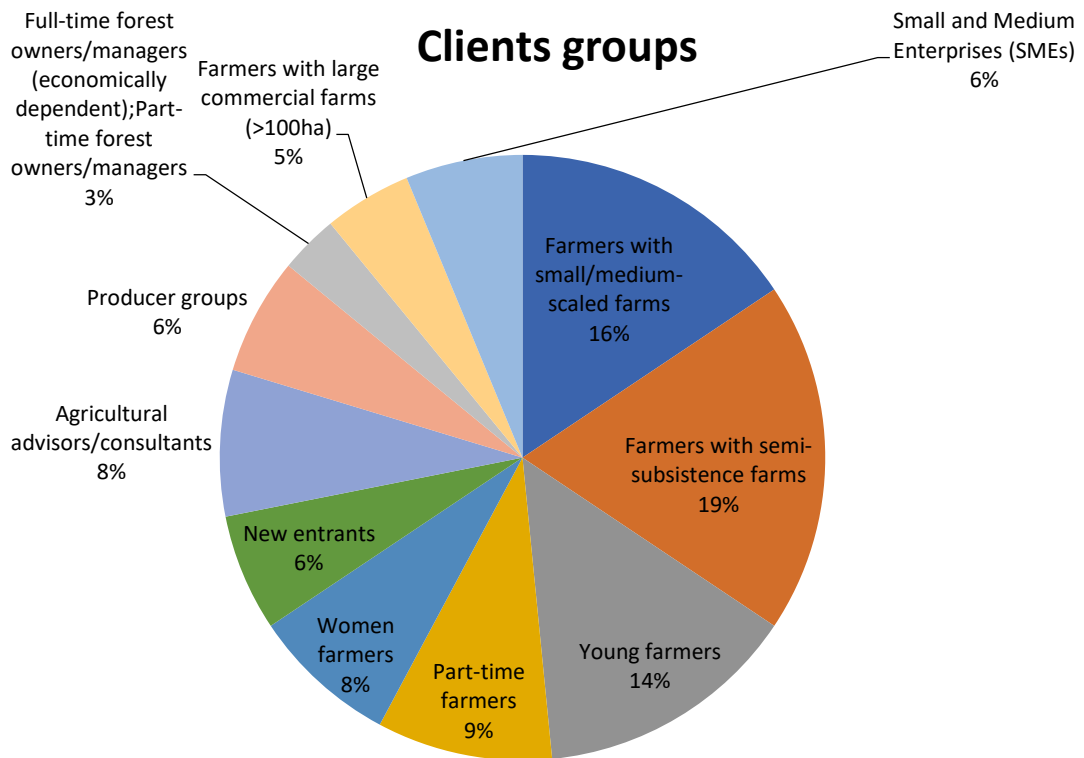


Figure 3 Clients group (n=25)

Almost all indicate the basic methods most frequently used by their advisors are: Individual face to face advice on the farm/enterprise; Individual face to face advice outside the farm/enterprise (e.g. advisory office); Individual advice via telephone; Individual advice via digital apps (e.g. skype call, WhatsApp chat, telegram) and emails); Group advice via webinars; Group advice via demonstrations, exchange visits; Mass media advice via internet (information from websites, blogs, forums); Mass media advice via social media sites (e.g. twitter, facebook); Mass media advice via printed publications, TV, radio, newsletters. Over 90% of the participants indicate that the most preferred and used methods are related to the provision of face-to-face / face-to-face advisory

services on the farm (in person or on a demonstration basis). 5% indicate that the preferred services are through Individual advice via digital apps (e.g. skype call, WhatsApp chat, telegram) and emails) or via telephone or Mass media advice via the internet (information from websites, blogs, forums). Group advice via demonstrations, exchange visits or Group advice on the farm / enterprise also have a share of about 4%. Accurate statistics cannot be given, as only the NAAS keeps registers, and the survey lists and prioritizes mainly the above methods.

1/4 report that their organization outsources to external consultants certain advisory topics.

50% have changed their methods of consulting due to the COVID-19 pandemic, reducing face-to-face consultations and switching to remote methods - internet, telephone, platforms.

4.4. Human resources and methods of service provision

Most organizations report that there has been no change in their numbers in recent years, with the exception of 1 participant (AA), where there has been a sharp decline in staff numbers. Organizations that deal only with advisory activities, the percentage of advisors is over 80%. In organizations that also perform advisory activities, e.g. agricultural universities and institutes, the number of advisers is less than 20%. In the private sector, extension staff numbers are small (often not more than 5 full-time employees) and when they need special advisory consultations they employ a person or persons part-time to provide such special services. The predominant counselors are women. Only 4 participants in the survey indicated that they have human resources dedicated to the back-office activities.

The educational level of those employed in advisory activities is mainly engineer degree (5 years) or master degree, incl. and the freelancers. 2/3 of the advisors in NAAS have over 10 years and almost 1/3 with over 5 years of professional experience. Advisory organizations do not require special certificates for their consultants, only NAAS trains and issues advisory certification for its consultants for CC-compliance.

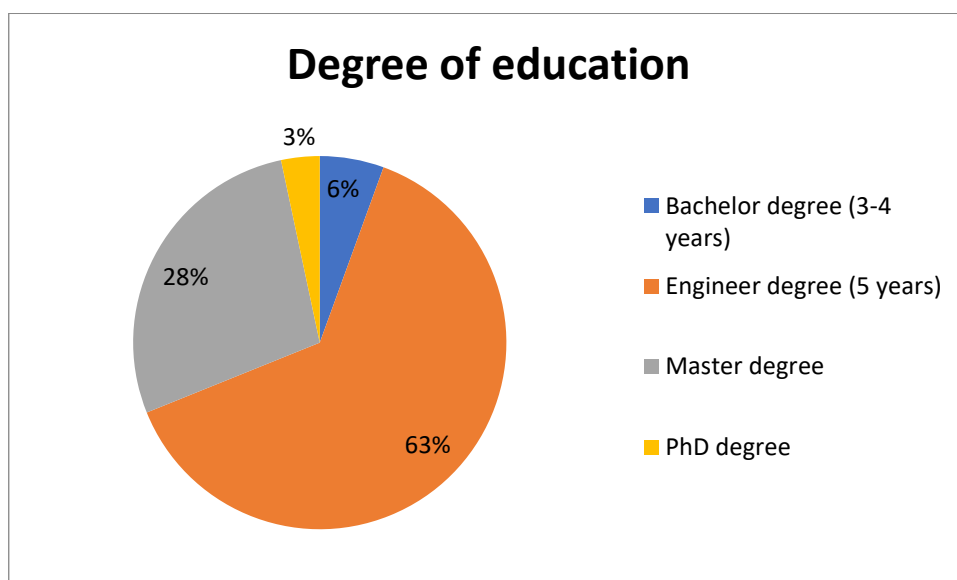


Figure 4 Degree of education (n=25)

4.5. Linkages with other AKIS actors/knowledge flows

AKIS actors cooperate and exchange knowledge / information to varying degrees. While public organizations, incl. and NAAS, have established lasting and strong links with universities and institutes, then in NGOs these links are not so visible. Freelance consultants rely primarily on connections established during their educational period or established during conferences and other events.

In connection with the ongoing knowledge transfer activities, NAAS has written framework agreements for cooperation with agricultural universities, institutes, associations and other participants in the process.

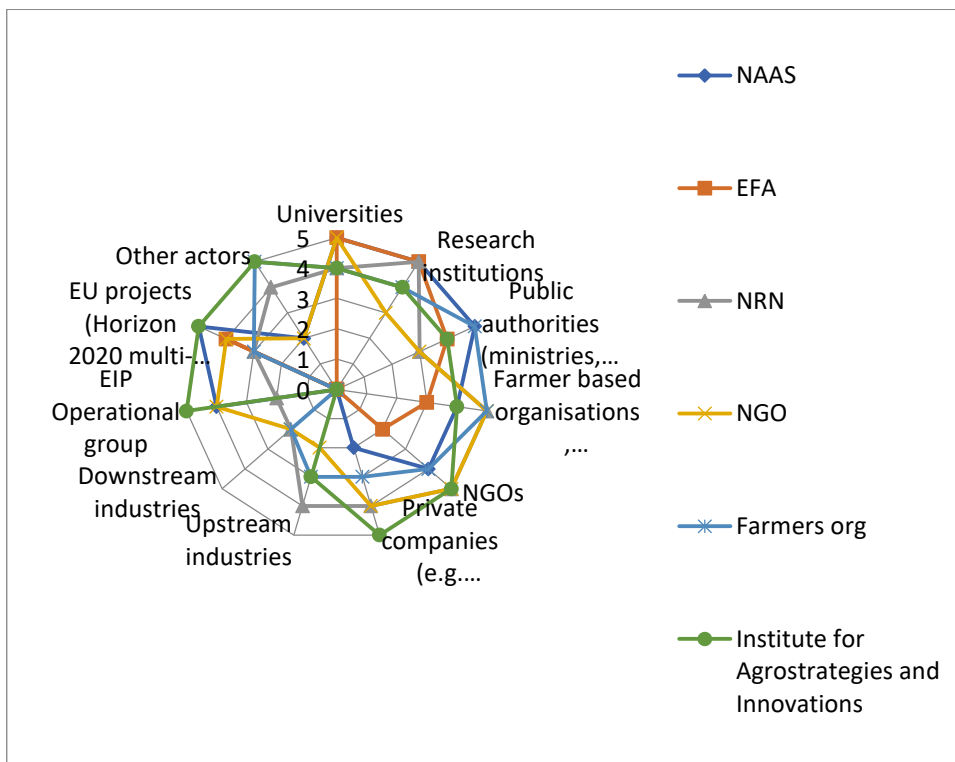


Figure 5 Degree of cooperation with various actors (1-5, 5 strong), (n=25)

In recent years, the MAFF has tried to initiate a process of regulating the relations between the individual actors, but there are still no visible results. In the coming years, this will be the task of the MAFF as a coordinate unit for AKIS.

4.6. Programming and planning of advisory work

Only NAAS has a staff development strategy/plan. The NAAS keeps a record of advisors work of their staff through timesheets, financial indicators and farm performance evaluation. Since 2011 NAAS has started to operate an information system that connects all 27 RAAS with the central office under strict access rules, data sharing and security. There are three system modules - extension, training and administration.

The NAAS is planning its work on the basis of an annual plan and programme for each RAAS. However, often the monthly schedule of RAAS is changed because of e.g. a new campaign for assisting applications to certain development measures, for visiting seminars or training courses, etc. Changes in the regulatory framework, specialized training in plant and animal husbandry, agroecology and

climate are subject to upgrading training programs. NAAS has a licensed training center, which is used not only for training farmers, but also for training its consultants. On average, each NAAS consultant spends 8 days a year on upgrading training. Mechanisms to reward good performance and incentivize skill developments for advisors also function in the NAAS, which is related to additional incentives / remuneration according to the achieved results.

Within the private extension providers, there is not so much information about the planning of their advisory work. So far, non-government organisations rely on external funding (international donors), and for that reason, do not have a sustainable strategy.

The graph below shows the average time that consultants spend in the work process. Of course, there are differences between different groups of advisory organizations, e.g. In universities, almost 80% of the activity is related to training, while at the NAAS 80% the activity is related to providing consultations and preparing business plans for farmers. Freelance consultants mainly prepare business plans for farmers and do not conduct trainings.

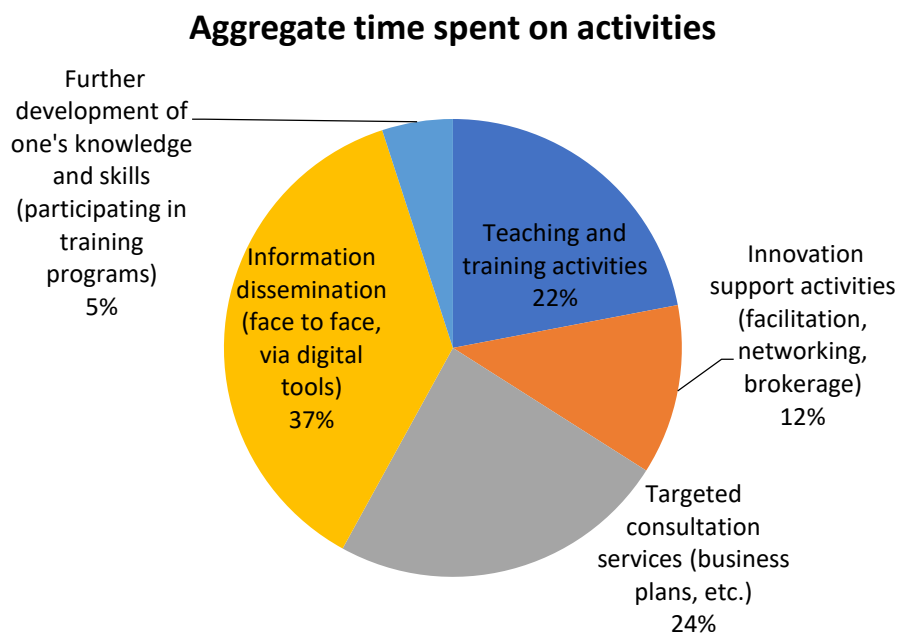


Figure 6 Aggregate time spent on activities, (n=25)

4.7. Advisory organizations forming the FAS and evaluation of their FAS implementation

The European Union-Farm Advisory System (EU-FAS) must ensure that farmers have access to advisory services and understand the European Union rules for implementing good agricultural and environmental practices. In Bulgaria, advisory services are provided by public body –NAAS and private advisory providers. The major role of the NAAS is to provide advisory services to farmers (especially for small agricultural holdings). Therefore, the NAAS as a public body fulfils the obligations of Bulgaria to exist and to access a system for farm consultations, according with Art 12 and Art 15 of Council regulation 1306/2013. The NAAS is a main representative of the advisory system in Bulgaria and takes the biggest share in advisory system in Bulgaria compare with private advisory providers and scientific organizations in the country.

The EU-FAS in Bulgaria is widely understood as an agricultural advisory system mainly carried out by the NAAS at the national level and their regional agricultural advisory offices in Bulgaria, which provide advisory services according the general EU requirements. This is a fact because the NAAS has already participated in many activities including those formulated in the EU-FAS objectives. At the regional level (NUTS3), the EU-FAS, in Bulgaria, is represented by 27 regional agricultural advisory offices (RAAS). Those regional offices are part of the NAAS structure. The system is certificated, coordinated and controlled by the MAFF. The region advisory offices offer horizontal services to all farmers. The advisory services from RAAS are available to all farmers in the over the country eligible for support the CAP.

The EU-FAS in Bulgaria need to guaranty those farmers has access to advisory services and receive information and support on the base of their specific needs. In addition, the EU-FAS in Bulgaria have obligations to provide information about the statutory management requirements and the standards for good agricultural and environmental conditions (“cross-compliance”) and agricultural practices for the climate and the environment and maintenance of the agricultural land (“greening”). The EU-FAS in the country follows the measures from both the RDP such as farm modernization, competitiveness building, sectorial integration, innovation and market orientation, promotion of entrepreneurship and, also,

measures related to water protection, efficient and sustainable water use of plant protection products, integrated pest management, etc.

An article 10 of the Law on Support for Agricultural Producers (Promoted in State Gazette №58/ 1998, last amendment State Gazette № 77 / 2018) provides the legal provisions and setting up of FAS system in Bulgaria. By establishing NAAS, Bulgarian government fulfills the obligations for existing, functioning and having access to farm advisory system in the country, in accordance with Art. 12 - Art. 15 of the Council No 1306/2013. The legal framework for advisory system and the implementation of the EU-FAS in Bulgaria includes several national regulations. These regulations are: Law on the Agricultural Academy, and in particular Article 1, defining, establishing and functioning of the National Agricultural Advisory Services; Bulgarian Law for supporting agricultural producers (Article 10 in Farm Support Act); Law on Agricultural Academy and several Regulation for RDP implementation.

5. Summary and conclusions

5.1. Summary and conclusions on sections 1 – 3

The AKIS in Bulgaria brings together a wide range of stakeholders, actively interacting with each other in order to increase the level of education and awareness of farmers and foresters and unlock and develop the potential for innovation in practice.

The main goal of AKIS in Bulgaria is to overcome the big difference between science and practice and to make science even more beneficial for agriculture by facilitating the transfer of scientific knowledge in practice.

The development of the AKIS in Bulgaria is aimed at:

- 1) Dissemination of knowledge and innovation, which play a crucial role in helping farmers and rural communities to meet the challenges now and in the future;
- 2) Institutions responsible for agricultural policy, farmers, researchers, advisers, agricultural and industry associations and the media to join forces to support the development of new knowledge and innovative solutions in the field of agriculture;
- 3) Creating an enabling environment for the more effective dissemination and implementation of innovations and for the better use of existing knowledge to achieve the objectives of the Common Agricultural Policy;
- 4) Close cooperation with the European Innovation Partnership for Agricultural Productivity and Sustainability (EMI-AGRI) to support interactive innovative projects at local and transnational level;
- 5) Stimulation, development and development of innovative projects and dissemination, use and widest possible application of their results.

The main actors in the AKIS: Ministry of Agriculture, Food and Forestry; Regional Directorates of Agriculture and their units at the municipal level; National Agricultural Advisory Service; Agricultural Academy; Higher education institutions; Vocational high schools in the field of agriculture and forestry;

Private training organizations; Branch organizations, incl. in the field of digitalization; Farmers, incl. producer groups/ organizations; Processing enterprises in the field of food; Forest managers; National Rural Network/ CAP Network Management Unit; Task Forces within the European Innovation Partnership; Others.

5.2. Summary and conclusions on sections 4

Successful actions to develop and strengthen the AKIS include the following main groups:

Facilitating the development and creation of innovations, incl. improving interactive innovation; and strengthening the links between research and practice.

It is essential for the development and creation of innovations to stimulate and support this process, as well as the free sharing of pre-existing knowledge in an accessible way for all participants in the AKIS at national and regional level. Existing knowledge can be used as a basis for innovation. The stimulation of interactive (systemic) innovations is very important, because in them the process is "bottom-up" and accordingly they arise from the practice and the needs of agricultural and forestry and processing enterprises. They are generated on the basis of good relations and cooperation between scientific organizations on the one hand and farmers and foresters, processing companies and their organizations on the other. Advisory organizations also play an important role in facilitating this cooperation. Innovations created with an interactive approach often provide more targeted solutions that are easier to implement, as the process is conducive to accelerating the introduction and adoption of new ideas. The process can be stimulated through the intervention to support the creation of operational groups within the European Innovation Partnership (Article 71 (a)).

Supporting the transfer of knowledge and innovation, strengthening all advisory services in agriculture and promoting their interconnection within the AKIS.

It is essential for the transfer of knowledge and innovation from science in practice that the easy and free sharing of knowledge in an accessible way is accessible to all participants in the AKIS at national and regional level, all of

whom must be involved in this process create a well-structured and functioning innovation system. Promoting collaborative action, building sharing skills and increasing effective cooperation is a key element of success in putting innovation into practice. Formal cooperation will grow effectively when each participant, depending on skills and expertise, will be indispensable in the development and implementation of innovations. The experience gained so far through the implementation of the RDP 2007-2013 and 2014-2020 and by EPI-AGRI show that success depends mostly on active cooperation between scientific organizations (AA and agricultural universities) organizations providing advice in the field of agriculture. and rural areas (NAAS and others) and branch and other non-governmental organizations in the field of agriculture.

The NAAS and other agricultural advisory organizations under the FAS are one of the main sources of information for farmers' decision-making. The efficiency and effectiveness of advisory services can best be enhanced by improving their links within the AKIS and by sharing knowledge and innovative applications more widely. Counselors need to have access to the latest knowledge by constantly upgrading their interactive and digital skills. Their role is important for disseminating the knowledge and results of projects to their clients and beyond.

Supporting the transition to digitalization in agriculture.

Agriculture and rural areas change significantly by increasing the use of modern technologies, accompanied by intelligent devices with autonomous behavior and connectivity. Many farmers may not be able to keep up with new technologies, so having an impartial consulting service with sufficient digital knowledge and access to data is very important in order to minimize the digital divide and make better use of digital technologies. The future role of agricultural advisory services should include facilitating innovative projects in the field of digital technologies, as well as supporting farmers to navigate the digital world.

Support and assistance for the successful implementation of projects under the Horizon 2020 program and the Horizon Europe program.

6. Acknowledgement of partners, information sources and gaps

This national report builds on the prepared “AKIS and advisory services in Bulgaria Report for the AKIS inventory” of the PRO AKIS project. The national report is based on several semi-structured interviews with experts from different key organizations and a survey conducted with different extension providers.

The main sources of information used for its preparation are Report “Analysis of the state of agriculture and food taste industry”, prepared by the Institute for Agrarian Research on behalf of the MAFF in connection with the development of the Strategic Plan.

I would like to say a special gratitude to my colleagues of NAAS, MAFF, RFA, who have done wonderful work sending and collecting information. Also, I am grateful to all experts who participate in the semi-structured interviews and those who took part in survey.

The epidemiological emergency and the covid measures introduced did not allow for extensive and face-to-face interviews, which probably affected the final quality of the report.

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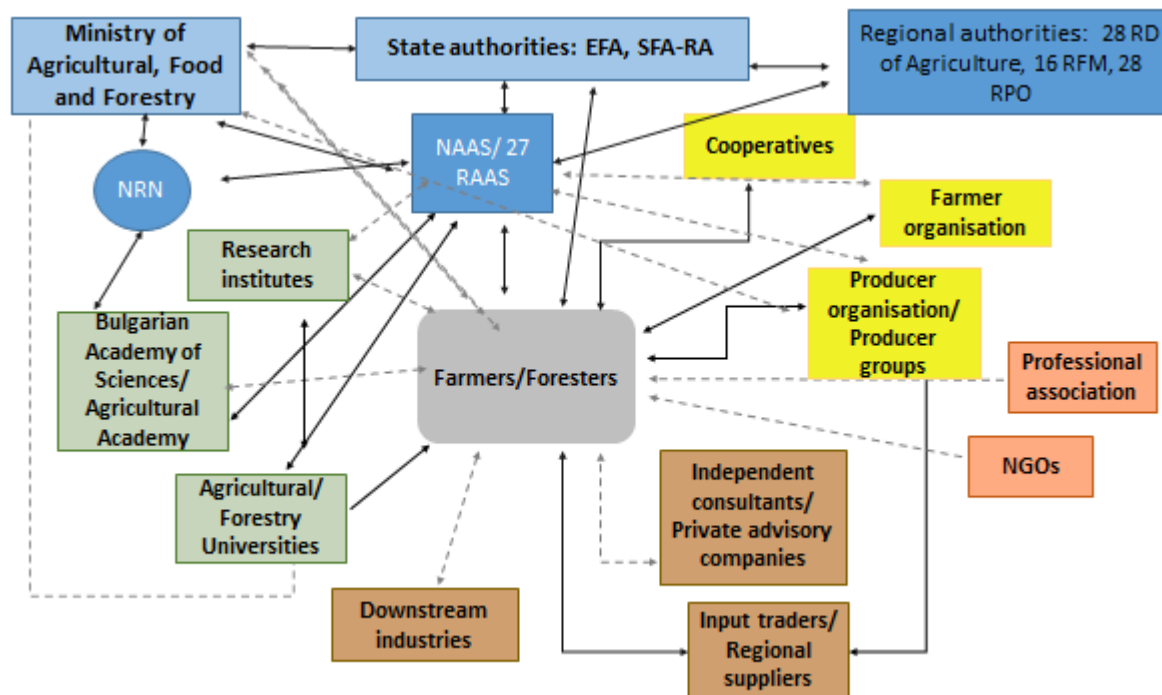
Appendices

Table 1 List of AKIS institutions (names, address, website)

Name of institutions	Address	Website	Status (public/R&E/private/FBO/NGO)*
Ministry of Agriculture and Food with 28 Regional Directorates and 234 Agricultural Municipal Services	55, Hristo Botev Blvd., Sofia	http://www.mzh.government.bg/MZH/en/Home.aspx	Public
Executive Forest Agency	55, Hristo Botev Blvd., Sofia	http://www.iag.bg/	Public
National Agricultural Advisory Services with 27 regional offices	7, Shosse Bankya Sofia	http://www.naas.government.bg/en	Public
State Fund Agriculture- Paying Agency 28 regional offices	136, "Tsar Boris III, Sofia	http://www.dfz.bg/en	Public
Agricultural Academy - including 25 scientific institutes	30 Suhodolska str, Sofia	http://www.agriacad.bg/	R&E
Agricultural University of	12, Mendeleev str., Plovdiv	http://www.au-plovdiv.bg/	R&E
Trakia University, (Advisory Service for animal breeding in Trakia University)	Student's campus, Stara Zagora	http://www.uni-sz.bg/index.php?q=engl http://virtru2.uni-sz.bg/extension/	R&E
University of Forestry	10 Kliment Ohridsky blvd., Sofia	http://www.ltu.bg/a	R&E
Ruse University, Agrarian and Industrial Faculty	8, "Studentska" Str Ruse, Bulgaria	http://www.uni-ruse.bg/en/ru.php	R&E

Forest Research Institute, BAS	132, "St. Kliment Ohridski"	https://fri.bas.bg/	R&E
National Rural Network, management unit	29 Vladaiska str, Sofia	https://ruralnet.bg/novini/	
Private advisory sector	Many private companies, individual consultants, etc		Private
Agroinnovation Institute	1 Damyan Gruev, Sofia	http://agroinnovations.bg/	NGO
Farmers' organizations/ groups	many	Visit web page of MAFF https://www.mzh.government.bg/bg/kontakti/polezni-vrzki/	NGO
Professional organisation	many	Visit web page of MAFF https://www.mzh.government.bg/bg/kontakti/polezni-vrzki/	Private
National Agricultural Register of all producers in Bulgaria	many	https://zemedeliето.bg/	Private
Register of cooperatives	222	https://registarnakoooperatsiite.com/	Cooperative
Operational groups	19	https://ec.europa.eu/eip/agriculture/en/eip-agri-projects/projects/operational-groups?search_api_views_fulltext_op=OR&search_api_views_fulltext=&field_proj_geographical_area%5B%5D=91&=Search	Association under the law on obligations and contracts
Digital innovation hub for agriculture	1 Damyan Gruev, Sofia	https://agrohub.bg/	

Figure 7 Agricultural Knowledge and Information System (AKIS) in Bulgaria



Legend

- Public authorities
- Research and education organisations
- Private sector (for profit)
- Third sector farmer/farmer-based organisations
- Third sector NGO (non-profit)
- Strong Linkage*
- Weak linkage

Note: All AFKIS actors identified shall fall into one of the five categories of knowledge and advisory actors. If two categories might apply (e.g. a farmer cooperative), use the dominant one (e.g. farmer-based instead of private body).

***Strong linkage means:**

- either there are influential actors or organisations at national level that support (parts of) the knowledge system or
- there are dedicated resources are allocated to the AKIS, for example public investment is available to enhance advisory services, knowledge production and exchange or
- farmers are being reached by and benefit from advisory services.