Diagnosis of the agricultural information, training and advice system in Bulgaria

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Abstract: Despite the great theoretical and practical significance, in Bulgaria there are no comprehensive analysis of the state and evolution of the system of agricultural information, training and advices in Bulgaria. The goal of this paper is to analyze the state and evolution of the system of agricultural information, training and advices in Bulgaria during the period after country's EU accession, identify major trends in that area, make a comparison with other EU states, specify main problems, and suggest conclusions for improvement of policies during next programing period. The analysis has found out that in years after accession of the country to EU the number of the farm managers who undertook full agricultural training increases, but despite that almost 93% of them are still with practical experiences and without any agricultural training. The extent of participation of rural areas rests weak and constantly decreasing, and Bulgaria is among the last in EU in hours of formal and informal education and training. In years of EU membership the number of provided consultations is doubled and in recent years 17% of all registered agricultural producers and each tenth farmer in the country are consulted while the subjects of provided consultation widened. Also hundreds of events associated with knowledge and innovation transfer and sharing are organized as most of them are jointly organized by the National Advisory Service with the institutes of Agricultural Academy, agrarian and other universities, research and development organizations. The number of organized events, the overall number of participants, and the average number of participant per event tend to decrease.

Key words: training, consultation, advices, agriculture, Bulgaria

Introduction

"Stimulating and sharing knowledge, innovation, digitalization and promoting their greater use" is set again as one of the strategic (a "horizontal") objective in the new programming period 2021-2027 for implementation of the European Union (EU) Common Agricultural Policy (CAP) (European Commission, 2018). In many other countries, regular in-depth analyzes of the state, efficiency and development factors of the Agricultural Knowledge and Innovation System (AKIS) are made (Anandajayasekeram and Gebremedhinp, 2009; Antle et al. 2017; Chartieret et al., 2015; EIP-AGRI EU SCAR, 2012; FAO, 2019; Touzard et al., 2015; Özçatalbaş, 2017; USDA, 2019; Weißhuhn et al., 2018; World Bank, 2006; Virmani, 2013).

In Bulgaria there are only partial analyzes of the individual elements of this complex system (Башев 2020; Башев и др. 2014; Башев и Михайлова, 2019; Bachev, 2020; Bachev and Labonne, 2000; Bachev and Mihailova, 2019). The reason for later is the lack of enough official statistics and other information as well as "sufficient" public interest in the development of this important system.

The article tries to make a comprehensive analysis of the state and development of the system of information, training and advices in agriculture in Bulgaria in the years after accession of the country to the European Union (EU). The aim is to identify the major trends,

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assess efficiency, specify modern issues, compare situation with other EU countries, and support policies in the next programming period[2].

Like most of the other EU member states, there is insufficient official (statistical, reporting, etc.) information on the status and development of this complex system, its individual components, and the complex relationships between its participants. All this makes it difficult both to analyze the state and development of this important national system and to make comparative analyzes with other member states of the Union.

The study uses all available official (statistical, report etc.) information as well as results of a specially organized experts' evaluation (2019). The later involved 32 leading experts from the research institutes of the Agricultural Academy (AA) and Bulgarian Academy of Sciences (BAS), agrarian and other universities, National Agricultural Advisory Service (NAAS), and major professional organizations of agricultural producers.

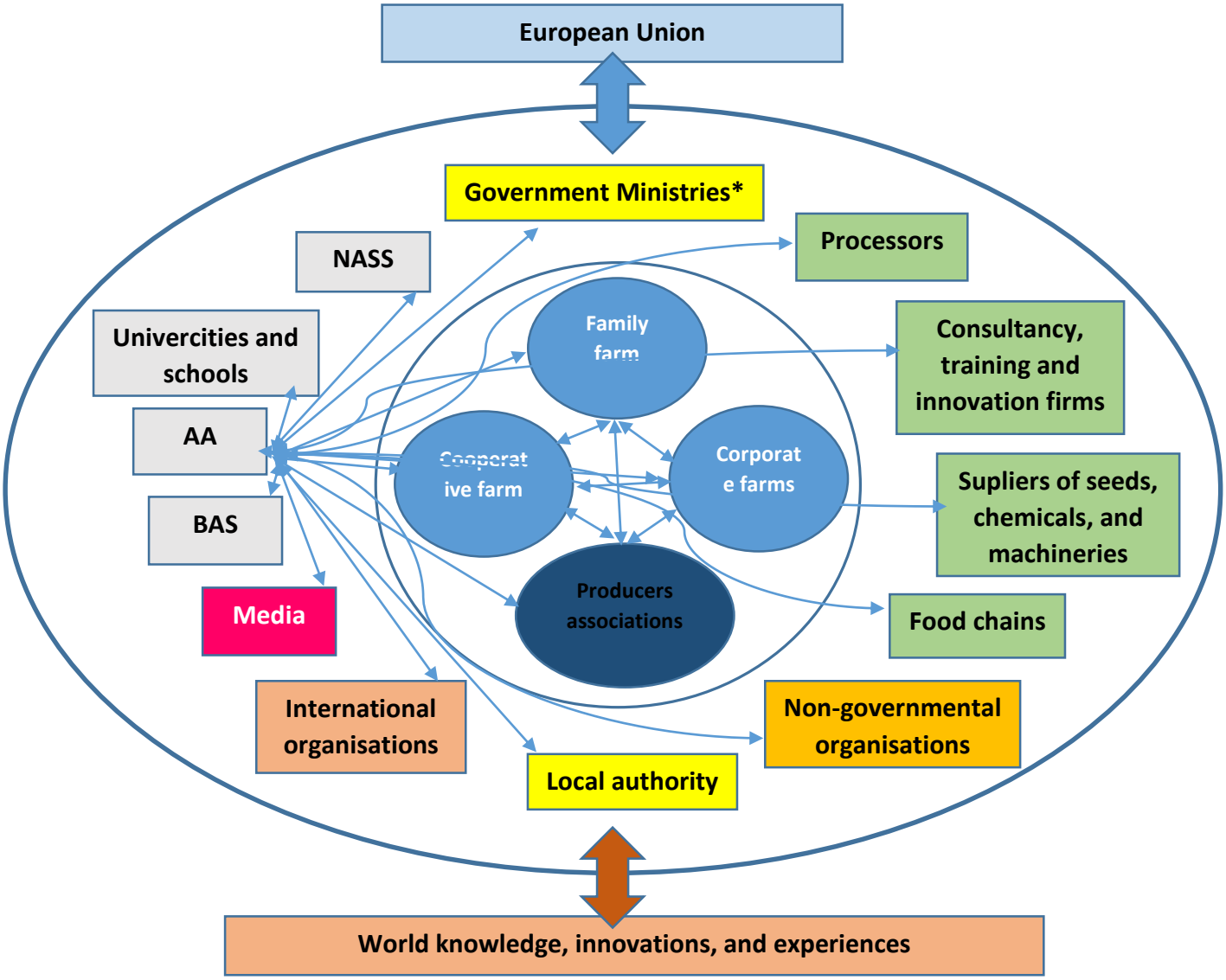
1. Identifications of the Agents of AKIS in Bulgaria

In Bulgaria AKIS is composed of diverse and numerous individuals and organizations involved in the process of generating, sharing, disseminating and implementing of information, knowledge and innovations in the sector. In addition to diverse type of farmers and agricultural holdings (subsistent, semi-market, market, individual, family, cooperative, corporative, etc.), this complex system includes research institutes, universities and professional schools, national agricultural advisory service, private consultants, specialized consulting, training and innovation firms, professional organizations of agricultural producers, non-governmental organizations, suppliers of machinery, chemicals and innovations, food chains, processors and exporters of agricultural produce, government agencies, local authorities, non-governmental organizations and interests groups, media of various kinds, international agents and organizations, private individuals, etc. (Figure 1).

Figure 1 shows the main agents involved in the Agricultural Knowledge Sharing and Innovation System of Bulgaria. For a greater clarity only relationships of one organization (AA) with other organizations in this complex network of multilateral and complex relationships are highlighted.

[2] In fact, that analisis is being used for identifying public intervention needs and measures in the 2021-2027 Program for Agrarian and Rural Development of Bulgaria (Иванов, Башев и др., 2020).

Figure 1. Main actors and relationships in the national Agricultural Information, Knowledge Sharing and Innovation System of Bulgaria



*Leading among them are: Ministry of Agriculture, Food and Forestry, Ministry of Education and Science, Ministry of Industry, and Ministry of Environment and Waters

Source: the author

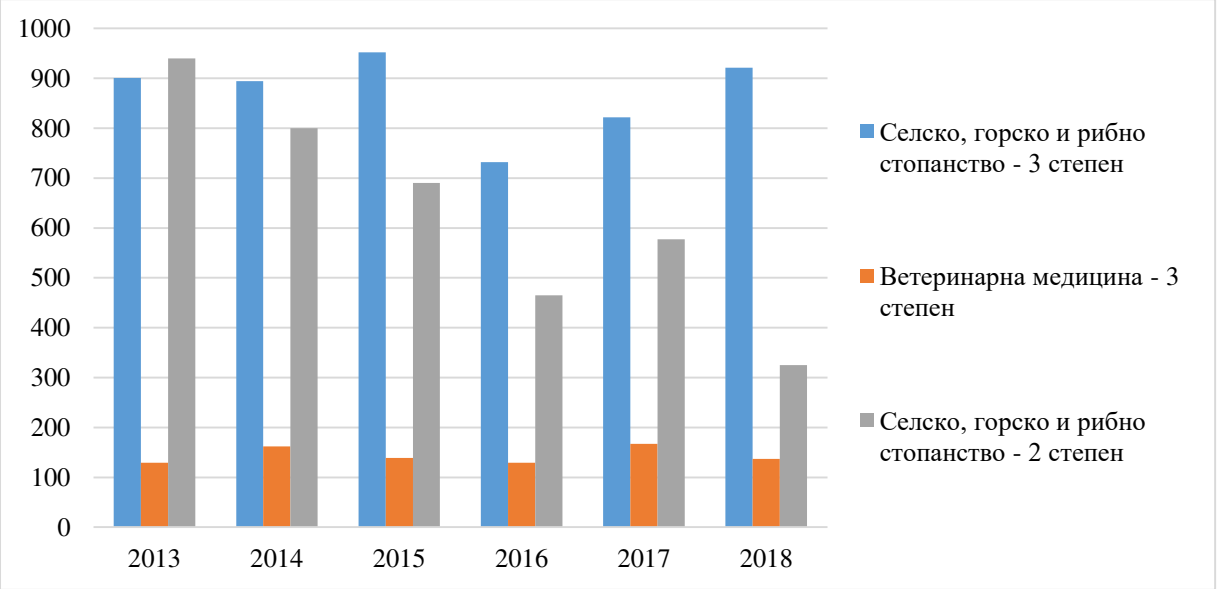
2. Analysis of the system of education and training of agricultural producers

In 2014 the professional education in the field of agriculture and forestry covers 92 institutions (technical schools, high schools, etc.) and more than 880 vocational training centers with licensed professions and specialties for vocational education and training in the fields of agriculture, veterinary medicine, forestry and food technologies (ПРСР 2014-2020, МЗХГ). Subsequently, some of them were closed due to the low interest in the specialties, the number of students enrolled and dropped out, etc.

During the period 2013-2018 on average annually 870 persons receive a Level-3 qualification in the field of Agriculture, Forestry and Fisheries, and 144 in Veterinary Medicine (НСИ). For the same period, 633 people also receive a Level-2 qualification in Agriculture, Forestry and Fisheries. Agrarian graduates represent 6.14%, 1.08% and 16.25% respectively of the total professional qualifications in the country.

The number of persons acquiring in 2018 the professional qualifications Level 3 in the fields of Agriculture, Forestry and Fisheries and Veterinary Medicine is higher than the beginning of the period by 2% and 6% respectively (Figure 2), with a decrease in the total level of qualifications acquired in the country by 13% (НСИ). The number of graduates with vocational qualifications of Level 2 in general and in the field of Agriculture, Forestry and Fisheries have been significantly reduced since 2013, as the reduction in the agrarian sphere is less than the overall graduates in that level.

Figure 2. Graduates of the II and III Levels programs for professional qualification in different fields of education (number)

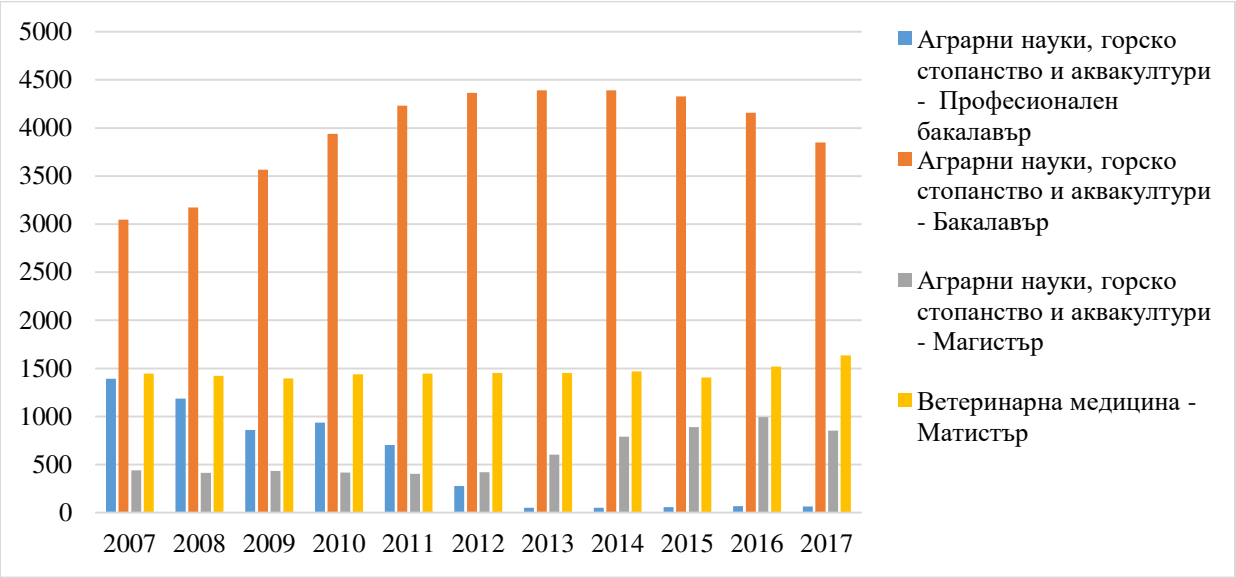


Source: НСИ

The higher education in agrarian specialties is carried out at several universities offering similar qualifications and competing for a limited number of students – e.g. Agronomy and Agrarian Economics is offered in 6 universities and colleges, etc.

The number of undergraduate students in Agrarian Sciences, Forestry and Aquaculture and Veterinary Medicine in 2017 is well above the 2007 levels for Bachelor and Master degrees (Figure 3). Moreover, the relative share of these two branches of the agricultural education relatively increased in the total number of students in the country during the period - for Bachelor's Degree in Agrarian Sciences, Forestry and Aquaculture from 1.89% to 2, 48%, for the Master's Degree Program in Agricultural Sciences, Forestry and Aquaculture from 0.67% to 1.1%, while for the Master's Degree in Veterinary Medicine it is relatively stable (НСИ). This confirm the aspirations of many young people to increase their education in agrarian sphere.

Figure 3 Number of undergraduate and graduate students and fields of education

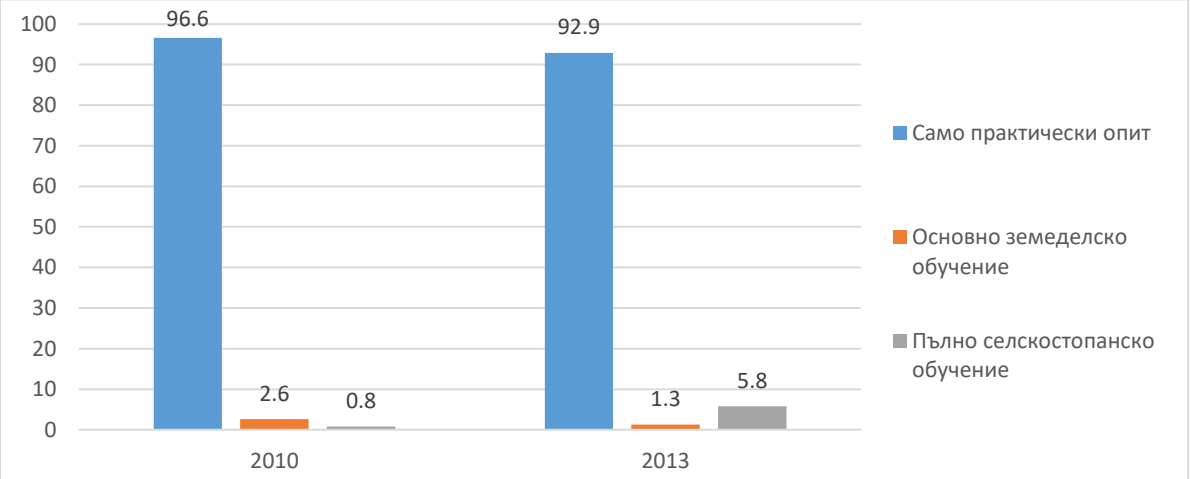


Source: НСИ

However, there is no information on how many of the graduates of agricultural specialties in vocational and higher education institutions work in the agricultural sector. It is well known, for example, that a small number of university graduates work subsequently in their fields of education. Moreover, discussions regarding the (low) quality of education and the efficiency of schools adaptation to the needs of the business have been constantly on the agenda.

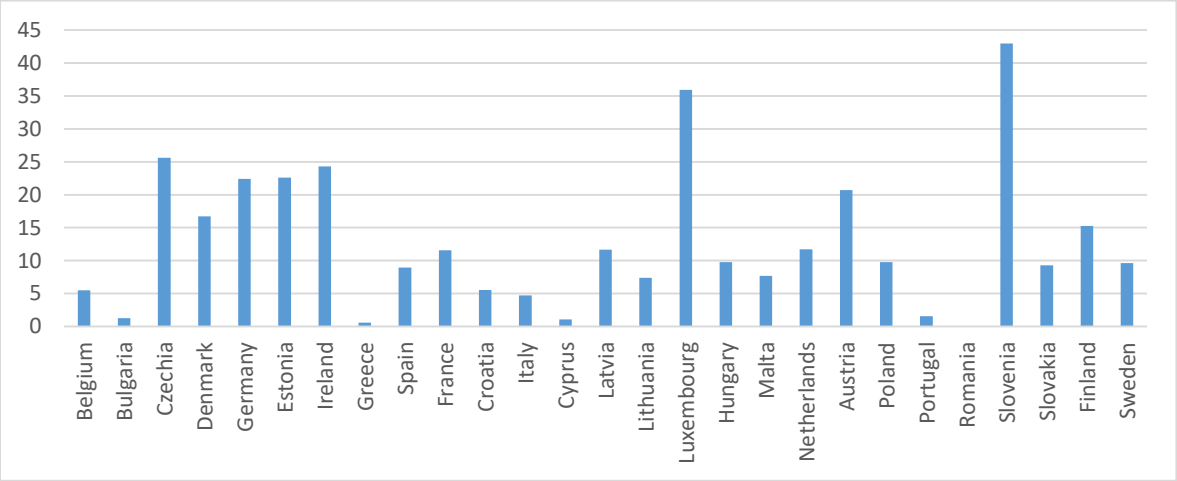
Available data on the agricultural training of the managers of agricultural farms in Bulgaria show that in the first years after the accession to the EU, only a small number of them have basic or full agricultural training, most of them being only with practical experience (Figure 4). Moreover, in 2010, only 1.3% of the farm managers had undergone some form of training in the last 12 months (Figure 5). By this indicator, Bulgaria is among the most lagging behind countries in the EU, along with Romania, Greece and Cyprus.

Figure 4. Agricultural training of the managers of agricultural farms (%)



Source: Eurostat

Figure 5. Share of holdings with vocational training by manager in last 12 months in EU member states in 2010 (%)

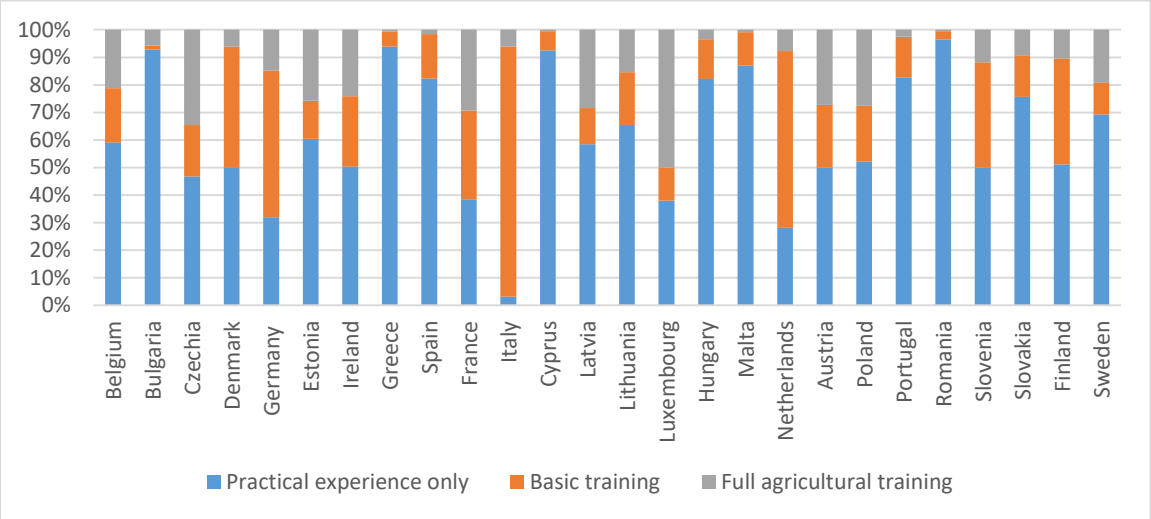


Source: Eurostat

As a result of the undertaken measures for public support during the period 2010-2013 the share of managers having completed full agricultural training increased from 0.83% to 5.8%, while those with basic agricultural training and only practical experience decreased slightly. At the end of the First programming period for the implementation of the CAP in the country almost 93% of all farm managers are only with practical experience and without any agricultural training.

The relatively small proportion of the farm managers who have completed basic or full agricultural training (7.12%) require significant public intervention for training and consultations of agricultural producers. With the exception of Romania, Greece and Cyprus, all other EU countries far outperform Bulgaria in the extent of training of farm managers (Figure 6).

Figure 6. Agricultural training of farm managers in EU member states in 2013



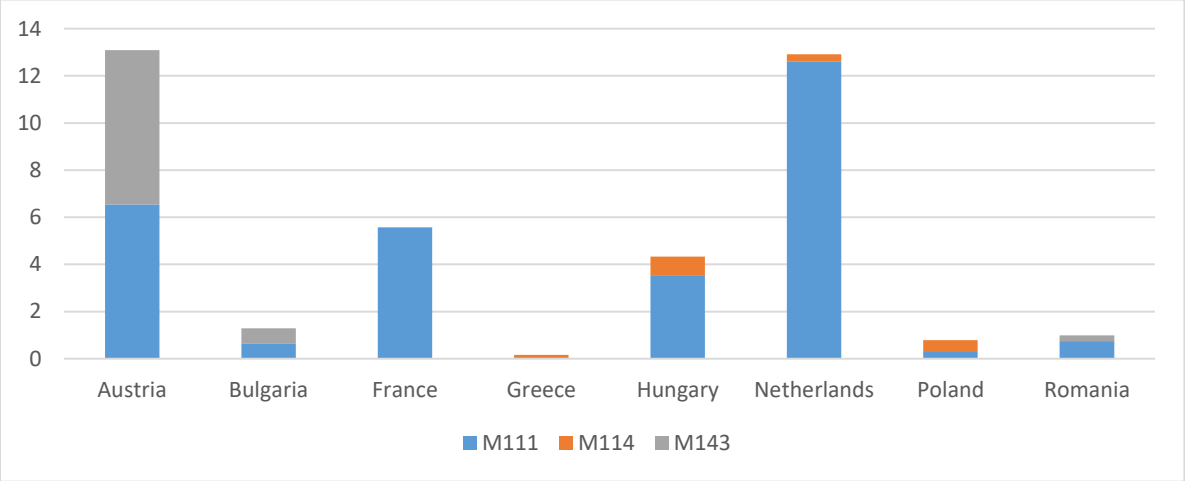
Source: Eurostat

Since 2007, agricultural and rural development programs have been a major tool for public support for the training and consultations of farmers to successfully adapt to the ever-changing economic, market, institutional and natural environment.

The total amount of public funds spent under the RDP 2007-2013 under Measure 111 "Vocational training, information activities and dissemination of scientific knowledge", Measure 114 "Use of advisory services by farmers and forest owners" and Measure 143 "Provision of advice and agricultural consultancy in Bulgaria and Romania "amounts to 15 236 905 Euro (MAF, 2018). It represents 1.65% of the total amount of the public expenditures under Axis 1 and 0.5% of the total budget of the program.

Bulgaria is in the group of EU countries (along with Greece, Poland and Romania), in which these three measures account for the smallest share in the total expenditures of Axis 1 and of the RDP 2007-2013 as a whole (Figure 7). Developed European countries such as Austria, Netherlands, France, etc. attach a greater importance to farmers' consultations and training and devote a much larger share of the Axis 1 and RDP budgets to these activities, as majority implement more measures related to them.

Figure 7. Share of public expenditures for Measures 111, 114 and 143 in total public expenditures for Axis 1 of Rural Development Programmes 2007-2013 in selected EU countries (June 2015)



Source: ENRD

Measure 111 represents 0.99% of the public expenditures in Axis 1 and 0.3% of the budget of the PRD. For the entire period of implementation (2008-2015), 91 contracts were concluded under the measure with various training organizations for financial assistance, totaling BGN 30 685 570. The training is provided by AA, NAAS, universities, private and professional organizations, etc. In order to increase the efficiency of the RDP, the vocational training was introduced as a prerequisite for the participation of farmers without agricultural education in some of the other public support measures - Measure 112 ("Setting up farms for young farmers") and Measure 214 ("Agri-environment payments").

During the implementation of the measure, the initial budget was reduced four times, which is due to a greater initial interest and unrealistic planning, lack of training providers,

insufficient promotion of the activity and reluctance of the producers to study away from the farm.

In the course of implementation of the Measure 111 "Vocational training, information activities and dissemination of scientific knowledge", a total of 40 062 farmers were trained, with an average training duration of 5.1 days (Table 1). This represents almost 16% of the total number of farms in the country and just over 52% of the number of registered farmers in 2013. This is a significant success given the large number of farmers in the country and their (low) qualification level. The public cost per trained person is EUR 228.7 and one-day training EUR 44.9, which demonstrates the high efficiency of this public intervention.

Table 1. Implementation of measure 111 of the RDP 2007-2013

Area of training	**Total trained participants**	**Number of days of training**	**Public funds paid, thousand EUR**	**Duration of training per student, days**	**% in total trained**	**% in total days**	**% of total cost**
Administrative, management and marketing skills	5892	32020	1347	5,4	14.71	15.70	14.70
ICT in agriculture	233	1921	53	8,2	0.58	0.94	0.58
Technical knowledge and skills - new technological processes and machines, innovative practices	14898	85500	3407	5,7	37.19	41.93	37.19
New standards	170	2247	39	13,2	0.42	1.10	0.43
Quality of production	100	2163	23	21,6	0.25	1.06	0.25
Sustainable management of natural resources and environmental protection	17157	75874	3923	4,4	42.83	37.21	42.82
Others	1612	4184	369	2,6	4.02	2.05	4.03
TOTAL	40062	203909	9161	5,1	100	100	100

Source: Последваща оценка на ПРСР 2007-2013 г., МЗХ, 2018

The over-passing of the planned indicators is high - by 158% for the indicator number of participants and by 54% for the number of training days. The participation of farmers in the training under this measure is high given the opportunity to acquire new knowledge, improve qualifications, transfer of knowledge and experience, as well as the mandatory requirements for participation in other measures of the program.

A positive result in the implementation of the activities under that measure is the high participation of young people up to 40 years and women. Trainees between the ages of 18 and 40 are 60% of all trainees (M3X). In 2013, the number of farm managers under 40 is between 30-35000, which means that over 70% of them have received training. Women enrolled in the training are 35% of all trained, indicating that one quarter of women managers in the country have received training during the period.

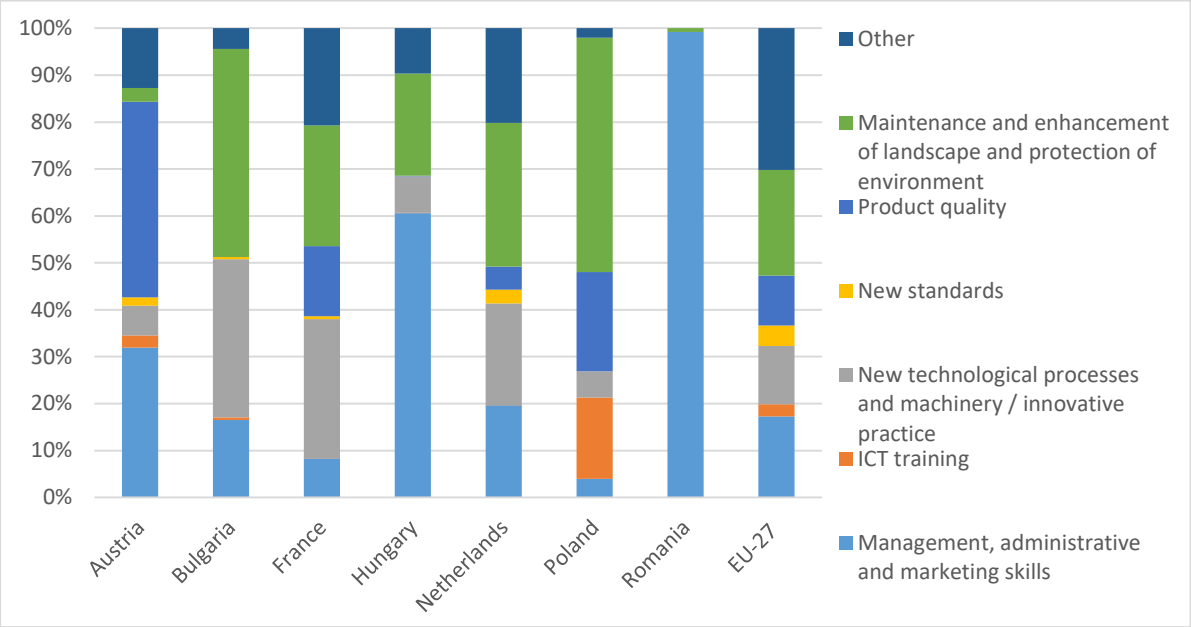
The biggest number of participants in the trainings and information events are in the thematic area “Sustainable management of natural resources and environmental protection” (Table 1). This area represents 42.8% of all trained persons and expenditures and 32.7% of all training days, with an average of 4.4 days of training.

The second most popular topic is "Technical knowledge and skills - new technological processes and machines, innovative practices", which represents 37.2% of the number of trainees and total expenses and 41.9% of the training days, with an average length of training of 5 ,4 days.

The third topic that farmers are most interested in is "Administrative, Management and Marketing Skills", in which 14.7% of the participants are trained, 15.7% of the training time is engaged, with an average duration of 5.4 days.

An average for the EU countries, these three thematic areas also dominate, along with "Others", but take a different relative share than in Bulgaria (Figure 8). In more developed countries such as Austria, France and Poland, and in the Union as a whole, product quality training has a significant share. In some countries in Eastern Europe, such as Romania and Hungary, the vast majority of participants in the training have preferred “Administrative, management and marketing skills”.

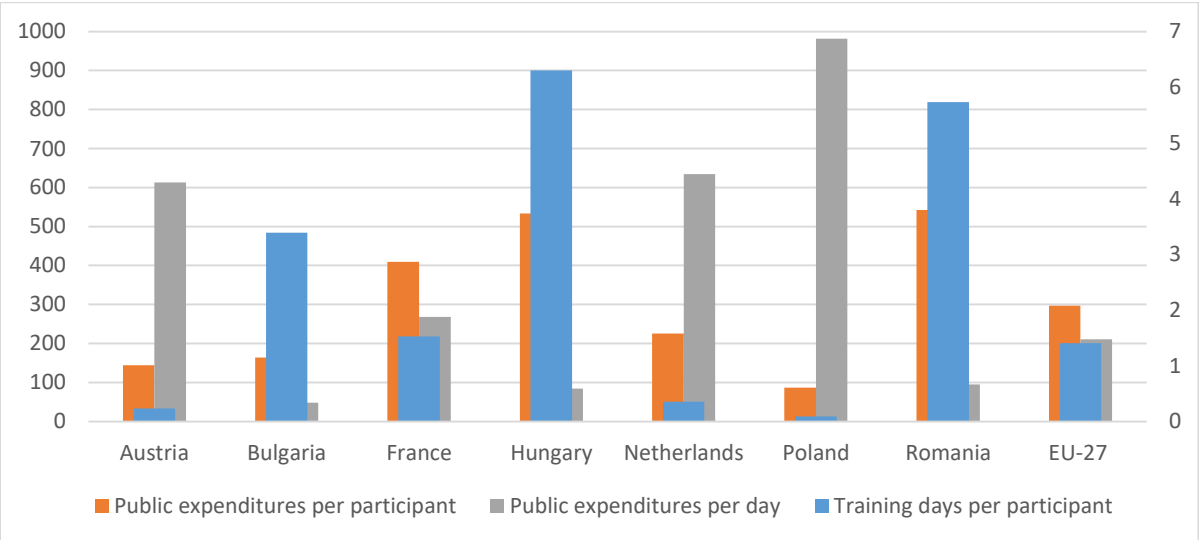
Figure 8. Measure 111 Vocational training and information actions of Rural Development Programmes 2007-2013 of selected EU countries (June 2015)



Source: ENRD

In terms of the number of training days, Bulgaria is 2.4 times above the EU average, well above that in developed countries such as Austria, the Netherlands and Poland, and well below the duration in Hungary and Romania (Figure 9). At the same time, the public expenditures of one participant and one day of training in the country are significantly lower than the average for the Union and some of the compared countries. This is an indicator of the higher (economic) efficiency of the organization of training compared to other European countries.

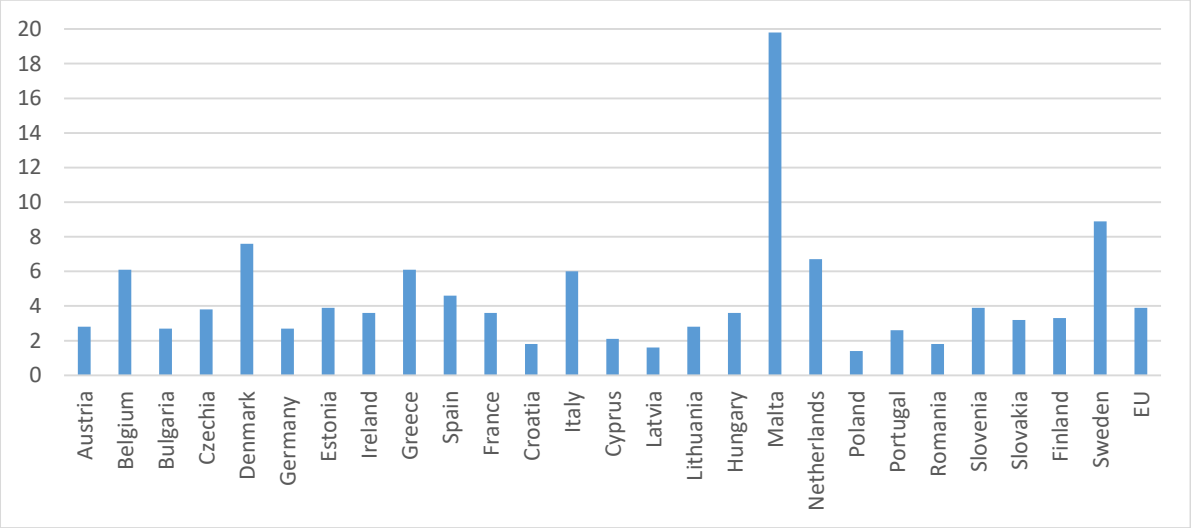
Figure 9. Number of training days received and Public Expenditure per participants and training day of Measure 111 in EU countries, June 2015 (Number, Thousand Euro)



Source: ENRD

The RDP 2014-2020 also gives a priority for the "Knowledge transfer and information actions" (Measure 1), "Consultation services, farm management, and transfer of farms" (Measure 2) and "Cooperation" (Measure 16), which respectively represent 0.87%, 0.15% and 1.12% of the total budget of public funds. Compared to the EU average and most Member States, the relative share of expenditures for co-operation, knowledge transfer and advisory services is significantly lower in Bulgaria (Figure 10). The part of this component of the budget in the country is similar to Germany and exceeds only that of a few countries (Croatia, Latvia, Romania and Cyprus).

Figure 10. Percentage of expenditure under Measure 1, Measure 2 and Measure 16 in relation to the total expenditure for the RDP 2014-2020 in EU countries

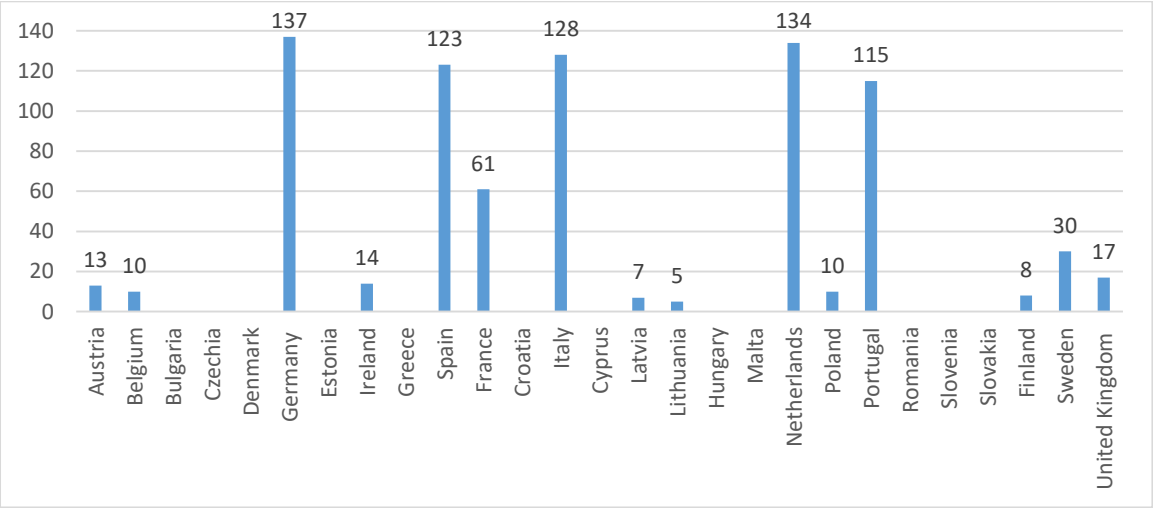


Source: ENRD

The implementation of the main activities under the individual measures in the country is significantly behind in comparison with other European countries. For example, due to the delay of competitions, trainings have not been supported so far. There are also no funded EIP projects of stakeholder groups, researchers, consultants and businesses within the European Innovation Platform[3]. At the same time, many of these promising forms of knowledge sharing and innovation have already been established and are successfully operating in 15 other EU countries. With the largest number of EIP operational groups in place, are the older developed member states - Germany, the Netherlands, Italy and Spain (Figure 11).

[3] The first call for applications for the Sub-measure 16.1. "Support for the formation and functioning of operational groups within the EIP" under measure 16 "Cooperation" of the RDP 2014-2020 was published on 17.10.2019. There are a good numbers of proposals submitted but up to date there are no selected projects for funding.

Figure 11. Number of EIP Operational Groups in EU countries (November 2018)

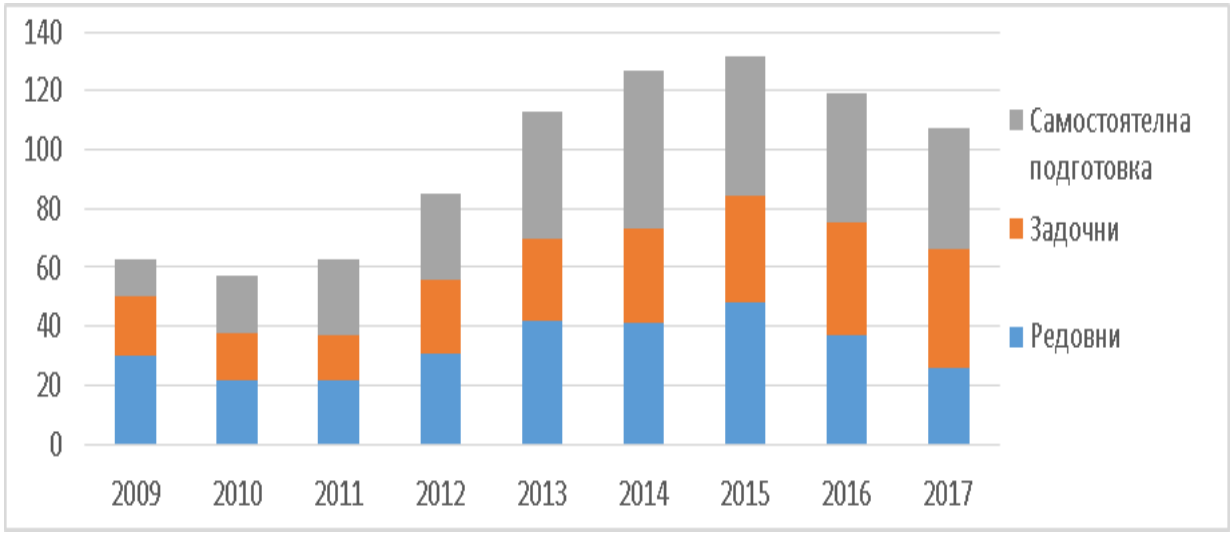


Source: DG AGRI

In Bulgaria there is no information about the total number of PhD students in the agrarian and rural sector. Agricultural Academy is one among numerous institutions providing superior training at Doctoral level in Agricultural and related sciences like Economics, Business, Public Administration, rural development, etc. It trains PhD students for the needs of the Academy and other public and private organizations. Throughout the period, there has been a trend of increasing the number of successfully defended theses. By 2015, the total number of PhD students enrolled in AA has increased, which has declined in the last two years (Figure 13). At the same time, the relative share of the full-time PhD students is decreasing and that of the part-time students and so called independent preparation students increasing. This shows that the AA's role in training highly qualified specialists for the needs of scientific and other organizations in the country is increasing.

We can only presume that the similar trends exist in other organizations involved in PhD training in agrarian and rural sector like public and private universities, institutes of BAS, foreign and international (like EU JRCs) organizations, etc. Nevertheless, in the country there is no any information about the number of employed in agriculture out of total completed PhD studies in the agrarian, rural and related fields.

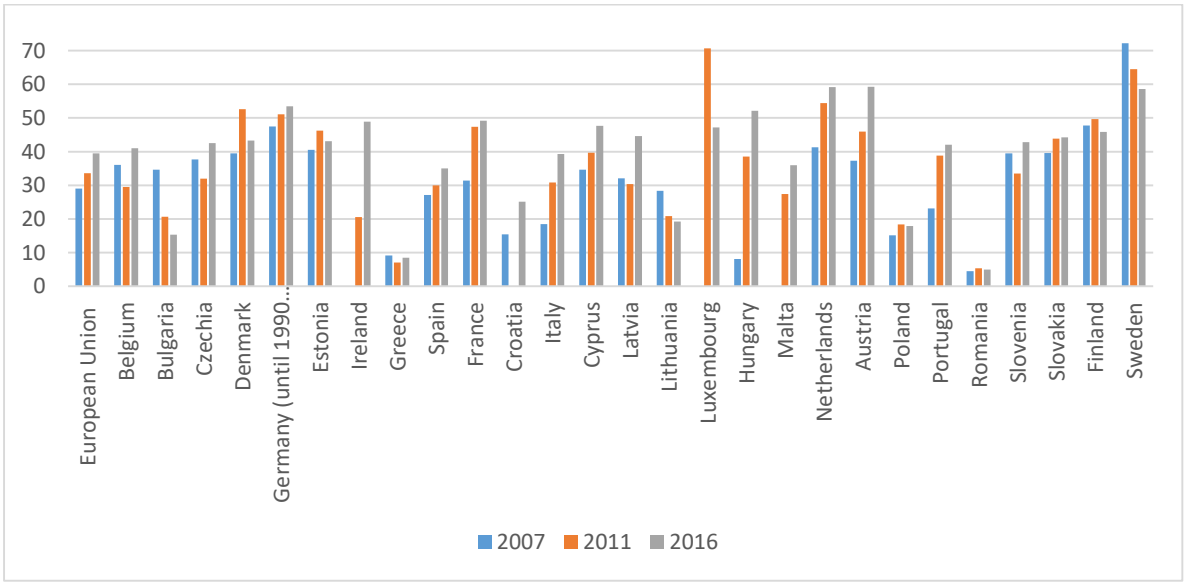
Figure 13. Number of PhD students trained at Agricultural Academy



Source: Annual reports of the Agricultural Academy

Despite the various forms of education and training offered and the considerable amount of public money spent, the participation rate in rural areas remains weak and steadily decreasing in the years after accession of the country to the EU (Figure 13). This trend is the opposite of that in most EU Member States except Romania and Greece. In terms of formal and non-formal education and training in rural areas, Bulgaria is also much worse than most of the EU countries (Eurostat).

Figure 13. Participation rate in education and training in rural areas in EU (%)



Source: Eurostat

3. Evolution of the system of advices and consultations in agriculture

Supporting a specialized advisory service (NAAS) and consultation services to farmers is another major priority for the state during the years following country‘s accession to the EU. The RDP 2007-2013 includes two measures in this regard - Measure 114 "Use of advisory services by farmers and forest owners" and Measure 143 "Provision of advices and consultations advice in agriculture in Bulgaria and Romania".

Measure 114 is among the measures to which there is a little interest from the potential applicants. Only 96 contracts for support were concluded, with a total amount of public funds of BGN 191326, using only 36.9% of the planned expenditures (M3X). Funds spent under this measure represent only 0.004% of the total expenditures under Axis 1 of the program.

Under the Measure 143, as much as 0.65% of the total expenditures under Axis 1 and 0.2% of the total RDP expenditures were spent. Under this measure, the NAAS is the sole beneficiary, effectively providing a full set of advisory services to eligible persons under measures 141 ("Supporting semi-subsistence farms in the process of restructuring"), 112 ("Setting up farms for young farmers"), 142 ("Creating Producer Organizations") and 214 ("Agri-environment Payments").

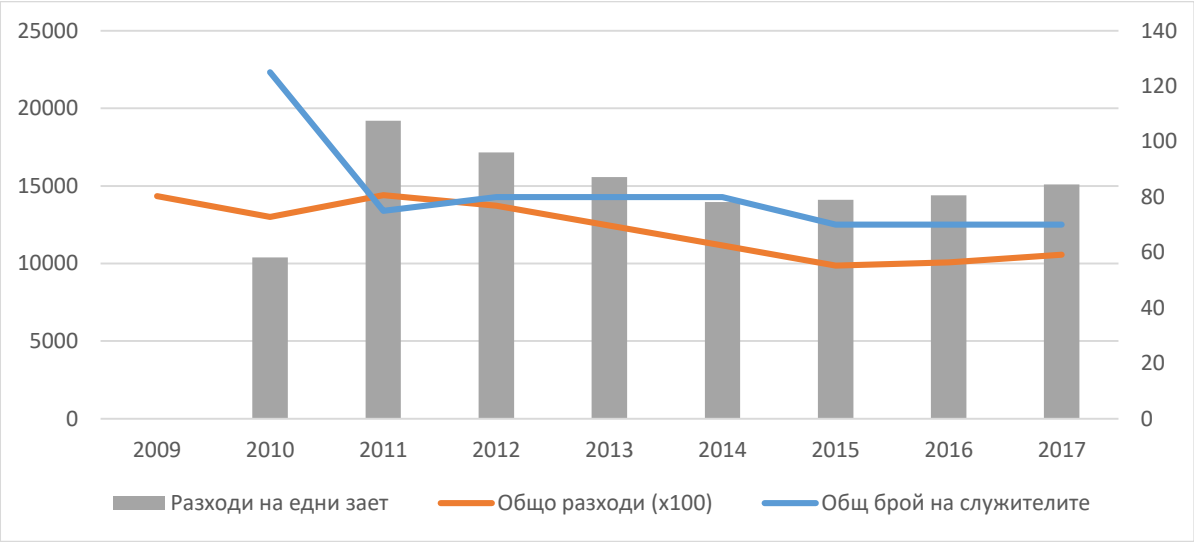
The NAAS is the main participant in the training and advice system of the country. The analysis of the activity and performance of the NAAS gives a good idea of the overall development of the public system of advices and training to farmers.

The NAAS employs experts organized in 3 departments at the central level ("Training, Information Activities and Analyzes", "Consulting Services for National and European Programs" and "Analytical Laboratory"), and 27 offices in each of the regions of the country. The NAAS offers a variety of consultations according to its program, including a comprehensive "package of consultation services" (from the establishment of the farm to its full servicing in agronomic, livestock and agro-economic aspects), organizes and conducts training for farmers, disseminates useful information and good practices, and assists in application for RDP projects. The NAAS supports the transfer and application of scientific and practical achievements in the field of agriculture and thus supports the link "research - agricultural business".

All consultations provided by the NAAS are free of charge to farmers, which helps to effectively share knowledge and innovation in the sector. The target groups targeted in recent years are mainly small and medium-sized farms, start-ups and young farmers, new production (organic production, ecological, etc.), producer organizations, etc. In this way are supported the involvement of all producers in the knowledge and innovation system and the development of new forms and directions.

Funding of the activities of the NAAS is provided by budget subsidies and projects financed by various national, European and others organizations. Following the peak of the overall expenditures of the NAAS in 2011, their size was reduced by 2015, and has increased slightly over the last two years (Figure 14). At the same time, the number of NAAS staff has been steadily declining, with a 44% decrease over the last three years compared to 2010 (70 full-time employees).

Figure 14. Number of employees and the amount of expenditures of NAAS



Source: Годишни отчети за дейността на НССЗ

The endowment with financial and material resources per one employed follows the dynamics of total expenditures. Compared to 2009, the expenditures per employee has been significantly higher in all the years so far, with their level steadily declining until 2014 and improving slightly in recent years. Reduced public support for the NAAS's activity is indicative of the reduced financial capacity of the state, the "reduced" need for advices, new public priorities, as well as directing of the budget subsidies to other organizations and activities.

Consulting agricultural agents (potential and actual farmers, other agriculture and rural entities and organizations) is a key task of the NAAS. Since the country's accession to the EU, the number of consultations provided by the NAAS has almost doubled, reaching nearly 93,000 (Figure 11). The majority of consultations (about 90%) take place at NAAS offices, but there is a slight increase in the share of on-site consultations on the farm. The latter give the opportunity to give specific advice, depending on the specific conditions of the farm visited.

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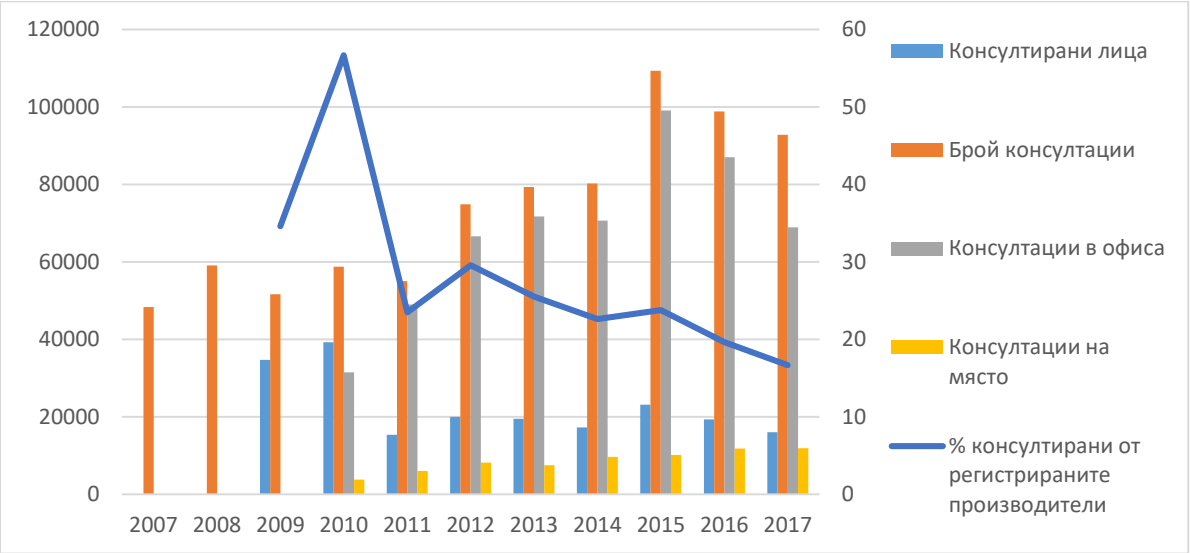
Figure 15. Number of consulted persons and conducted consultations by NAAS



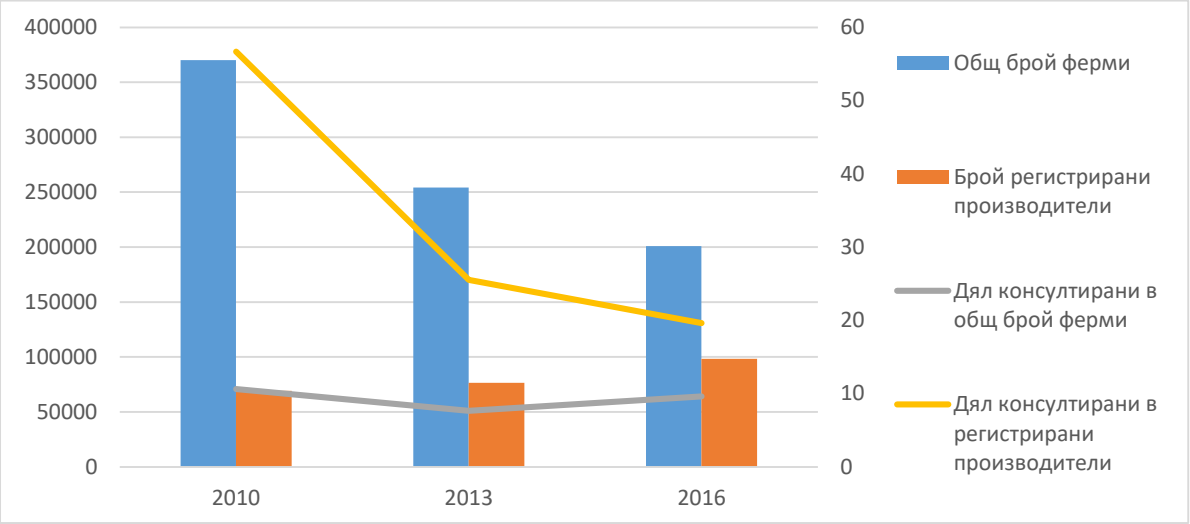
Source: Годишни отчети за дейността на НССЗ, Аграрни доклади

Compared to 2009-2010, the number of persons consulted is significantly reduced to 16,000 and varies significantly from year to year. That is a result of both the improving qualification level of farmers (the need to consult a smaller number of farmers) and the development of alternative forms of service provision (private companies, suppliers of machinery and chemicals, producer organizations, scientific institutions, etc.).

In order to extend and facilitate farmers' access to advisory services and reduce their costs from 2015, the NAAS is implementing a new form of "field receptions" (consultancy days) in various settlements, usually far from the regional centers. By 2017, the number of field receptions increased to 1104, and the average number of attended persons decreased to 3.7, due to the decreased total number of participants and the increased number of receptions. This is an indicator for improving the consulting services of NAAS in all regions and settlements of the country.

In recent years, the share of farmers consulted by the NAAS in the total number of the agricultural holdings and the registered agricultural producers has different dynamics (Figure 16). In 2010 and 2016, the number of persons consulted represented respectively slightly above and slightly below 10% of the total number of agricultural holdings in the country (compared to nearly 8% in 2013). During the same period, the proportion of the consulted persons in the number of registered agricultural producers dropped sharply from close to 57% to just under 20%. The NAAS does not limit its consultations to only certain groups of agricultural producers (registered, small, etc.), and the number of different groups is not constant - the total number of holdings is constantly decreasing, the number of registered producers is increasing, etc.

Figure 16. Share of consulted persons by NAAS in the total number of agricultural holdings and registered agricultural producers

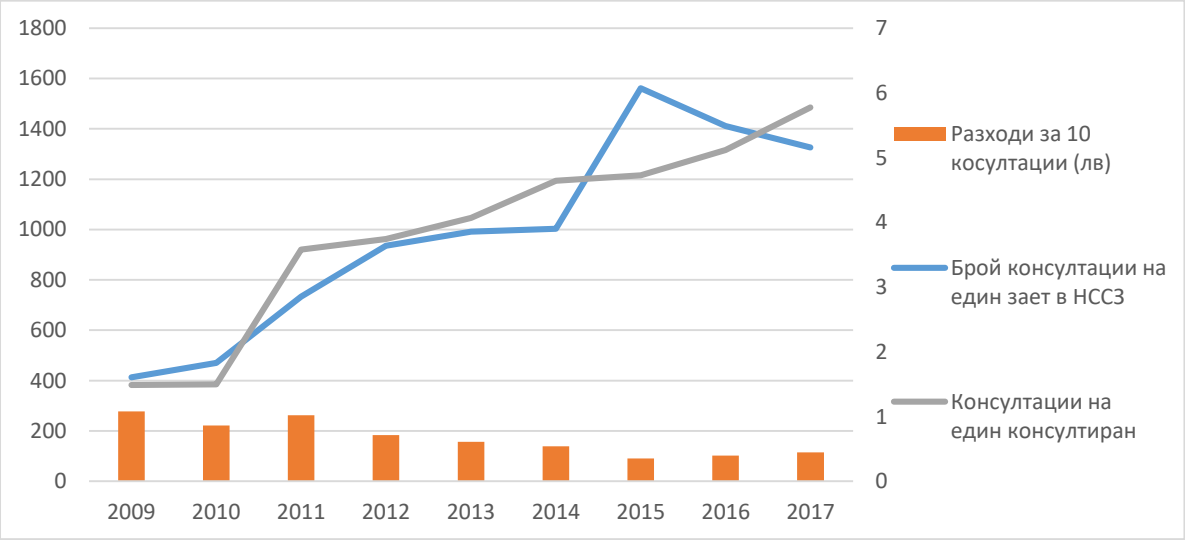


Source: Годишни отчети за дейността на НССЗ, Агростатистика, МЗХ

Although approximate, the above proportions give an idea of the scope of agricultural producers covered by the consultancy services of NAAS. In 2017, about 17% of all registered agricultural producers were consulted and nearly 10% of the total number of farms in the country. This can be considered a great achievement given the number of the farmers and the experts of NAAS.

Compared to 2009, the number of consultations per consultant increased almost 4 times to 5.8 in 2017 (Figure 17). This is a result of both a steady increase in the consulting needs of farmers as well as a longer, better and more diverse service provided by the NAAS.

Figure 17. Number of consultations per employee at the NAAS, consultations per consulted person, and costs per one consultation

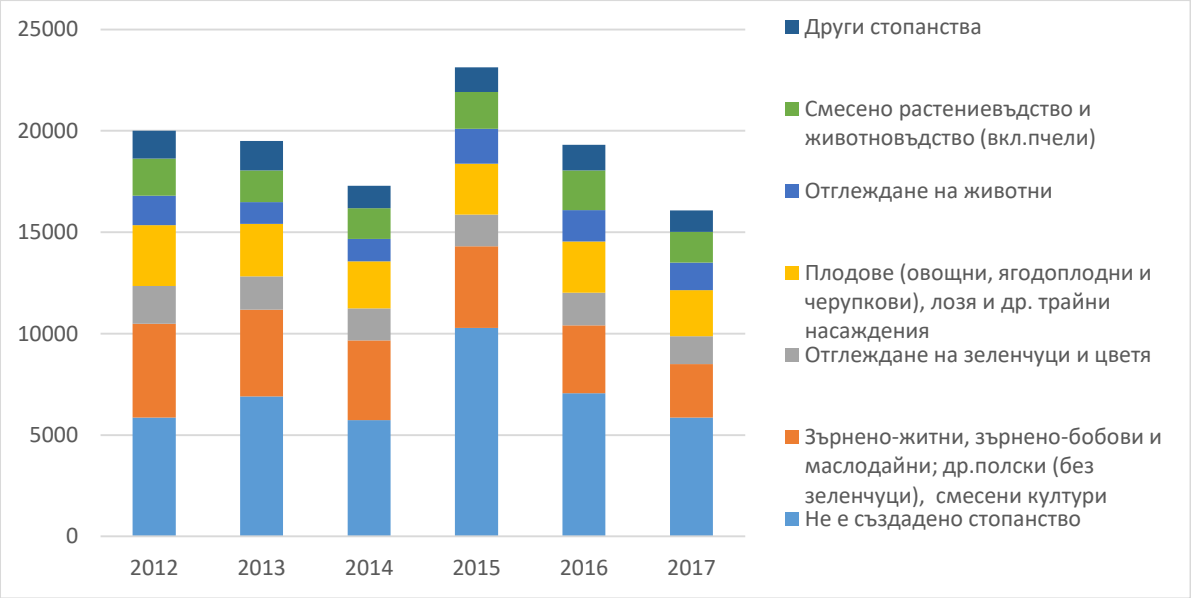


Source: Годишни отчети за дейността на НССЗ

As a result of the increased experience, qualification and productivity of the NAAS staff, the cost of one consultation has been significantly reduced over the period (Figure 17). All this testifies to the continuous improvement of the organization and to the increase of the efficiency of the consulting work and the activity of the NAAS.

The analysis of the various persons consulted according to the type of their farming in recent years shows that those who have not yet set up a farm and do not cultivate land or raise animals occupy a dominant share (Figure 18). Moreover, after 2012, the number and relative share of the potential farmers, which in 2015 increased, represent 44% of all consulted persons. The later confirms the important role of the NAAS in advising new entrepreneurs in agriculture.

Figure 18. Number of consulted persons by NAAS according to the type of agricultural activity performed



Source: Годишни отчети за дейността на НССЗ, Аграрни доклади

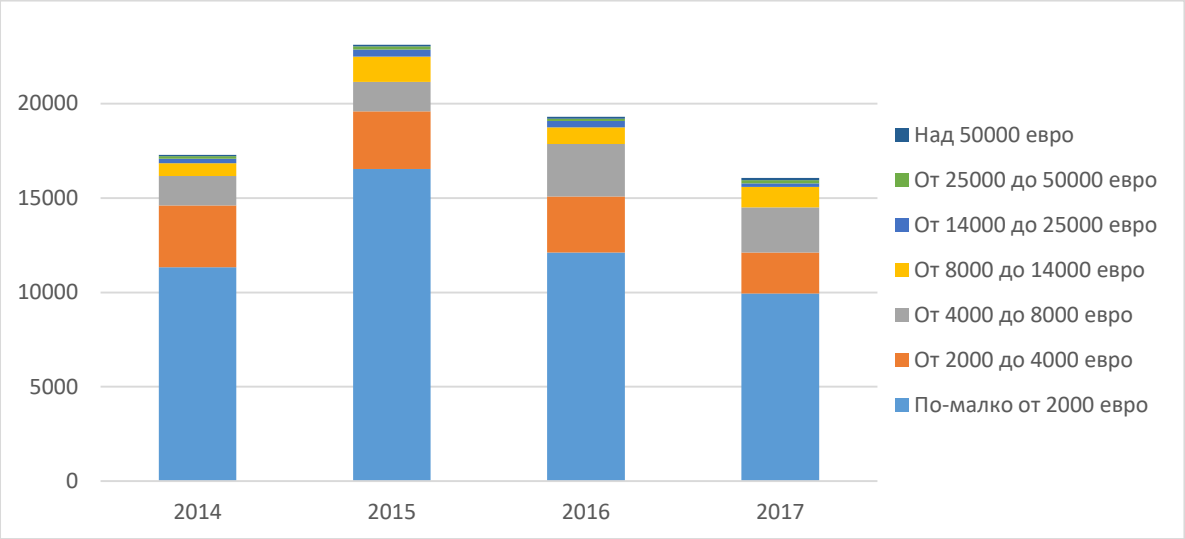
Producers of cereal, beans and oilseeds, other field crops (excluding vegetables) and mixed crops are the largest group of farmers involved in the consultations of NAAS. During the analyzed period their number and relative share decreased significantly, accounting for 16% of all consulted in 2017.

The second largest among consulted by NAAS is the group of farmers specialized in fruit production (including fruit, berries and nuts trees), vineyards and other perennials. Their share dropped slightly until 2015, after which it again increased to 14% of all consulted persons.

The consulted farmers involved in mixed crop and livestock (including bees) are the third largest group targeted by the NAAS consultations and their relative share is relatively constant over the period (9%). The relative share of the consulted farmers specialized in growing vegetables, flowers and animals is relatively small and constant over the period.

Most of the farms consulted are small in size (Standard production volume of up to EUR 8000) - over 90% in the last few years (Figure 19). The economic size of most of these farms is very small (up to 2000 euros) and they are essentially “semi-market” producers.

Figure 19. Number of consulted persons by NAAS according to the size of holdings in Standard Production Volume

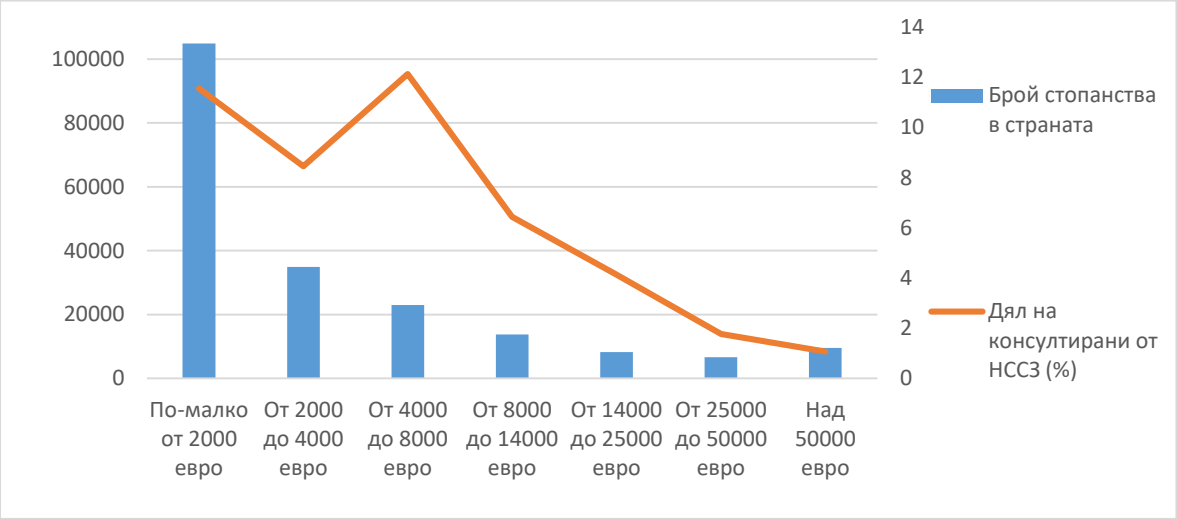


Source: Годишни отчети за дейността на НССЗ, Аграрни доклади

The large-sized farms have their own specialists (agronomist, etc.) and/or the ability to hire outside private consultants and to a small extent use the services of the NAAS. The number of large farms consulted (over € 25,000) is small, but their relative share increases up to 1.8% over the period. This proves that NAAS has the capacity and manage to serve the needs of all types of farmers.

The farms of different size groups in the country receive to a various degree consulting services from the NAAS. In 2016, the largest proportions of consulted farmers are in the total number of small market-oriented farms in the country, with a Standard production volume of EUR 4,000 to 8,000 (just over 12% of them) (Figure 20). They are followed by the small semi-subsistence farms (up to EUR 2,000) and those ranging from EUR 2,000 to 4,000, with slightly less than 12% and slightly more than 8%, respectively, receiving consultations from the NAAS.

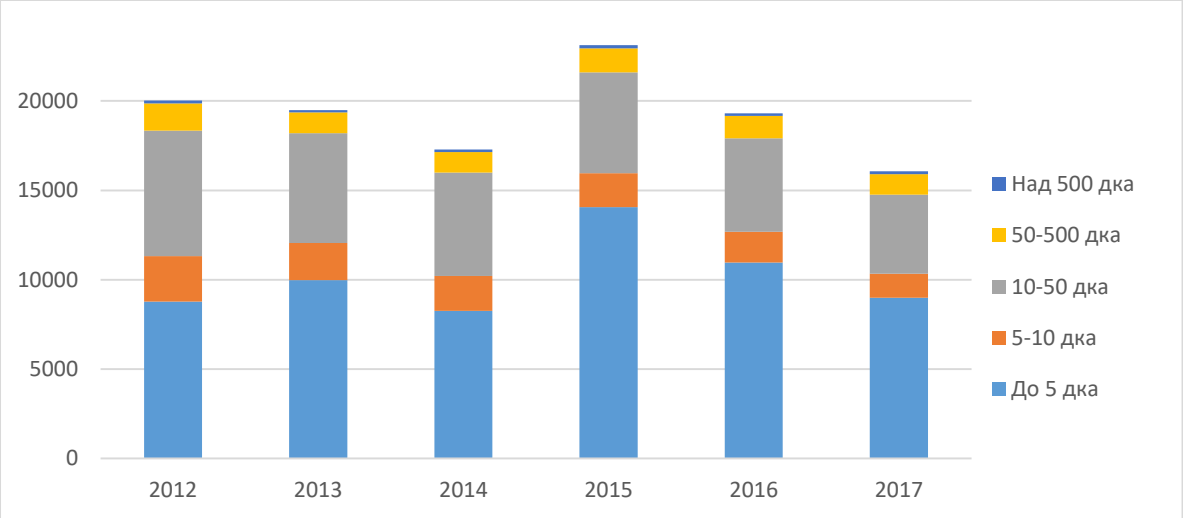
Figure 20. Total number of holdings with different Standard production volume and the share of farmers consulted by NAAS in the respective group (2016)



Source: Годишни отчети за дейността на НССЗ, Агростатистика, МЗХ

These conclusions are also confirmed by the analysis of the number of persons consulted according to the size of the cultivated land. The majority of the farms consulted manage up to 5 dka[4] of agricultural land, followed by the farm group of 10 to 50 dka (Figure 21). These groups consist mainly of small producers of crop and livestock produce. At the same time, the share of large farms with more than 500 dka is negligible during the period - between 0.7% and 1%.

Figure 21. Number of consulted persons from NAAS according to the size of the managed land



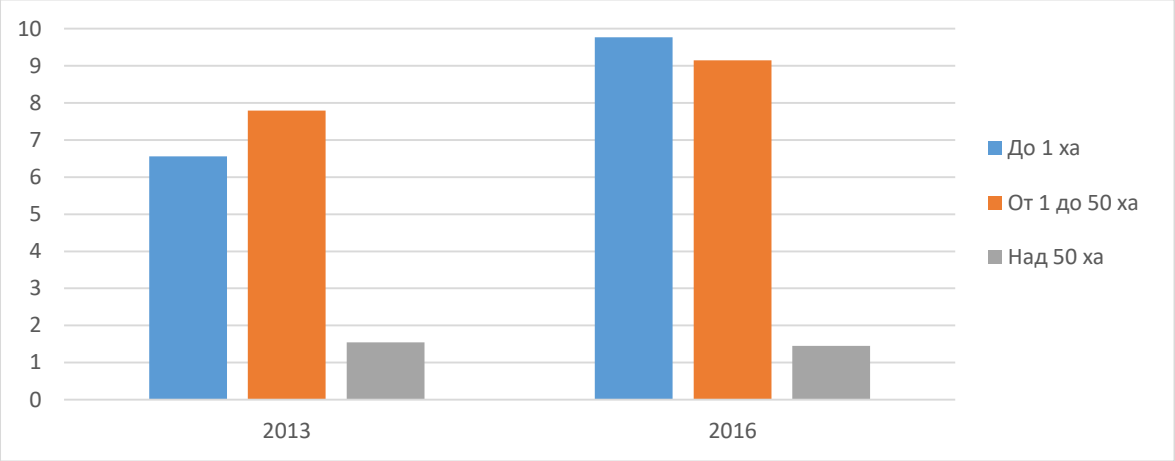
Source: Годишни отчети за дейността на НССЗ, Аграрни доклади

In 2013 and 2016, a significant and growing share of all small farms in the country (up to 1 ha of utilized agricultural land) received consultations from the NAAS - 6.6% and 9.8%

[4] 1 dekar (dka) = 0.1 ha

respectively (Figure 22). In addition, a significant and growing number of farmers from small and medium-sized holdings (from 1 to 50 ha of UAA) have been consulted by NAAS during these years - 7.8% and 9.2% respectively. In the same period, only about 1.5% of all large holdings in the country (over 50 ha) received consultations from the NAAS.

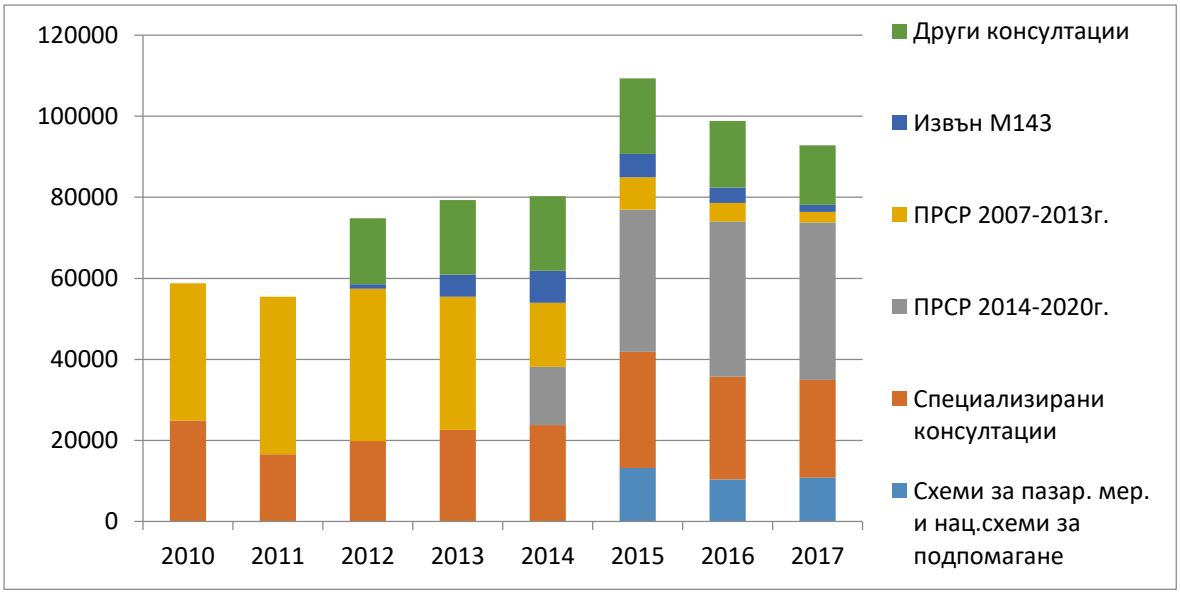
Figure 22. Share of consulted farmers by NAAS in the total number of holdings with a certain size of managed land (%)



Source: Годишни отчети за дейността на НССЗ, Агростатистика, МЗХ

Along with the evolution of the needs of agricultural producers, the theme (subject) of the consultations provided by the NAAS has been progressively developing. The consultations regarding the possibilities for supporting the farms with the measures of the Rural Development Programs dominate followed by the specialized consultations, other consultations and consultations related to direct payments (Figure 23).

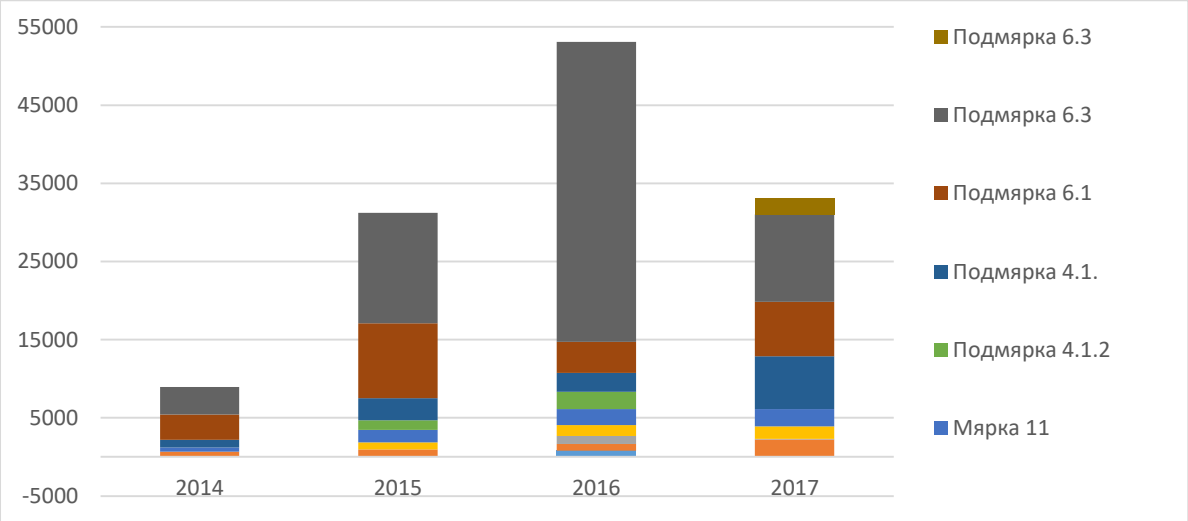
Figure 23. Number of consultations by NAAS according to their topic



Source: Годишни отчети за дейността на НССЗ, Аграрни доклади

In the first thematic group, the most consultations in the last years have been provided for sub-measure 6.3 "Start-up aid for the development of small farms", 6.1 "Start-up aid for young farmers", sub-measure 4.1.2. "Investments in agricultural holdings" under the Thematic Sub-Program for the Development of Small Farms and the measure "Organic agriculture" (Figure 20). In the last three years, special attention has also been paid to consultations related to the National Climate Change Action Plan 2013-2020 and river basin management plans, in relation to the Water Framework Directive and the Water Act.

Figure 24. Number of consultations provided by NAAS related to the various measured of RDP

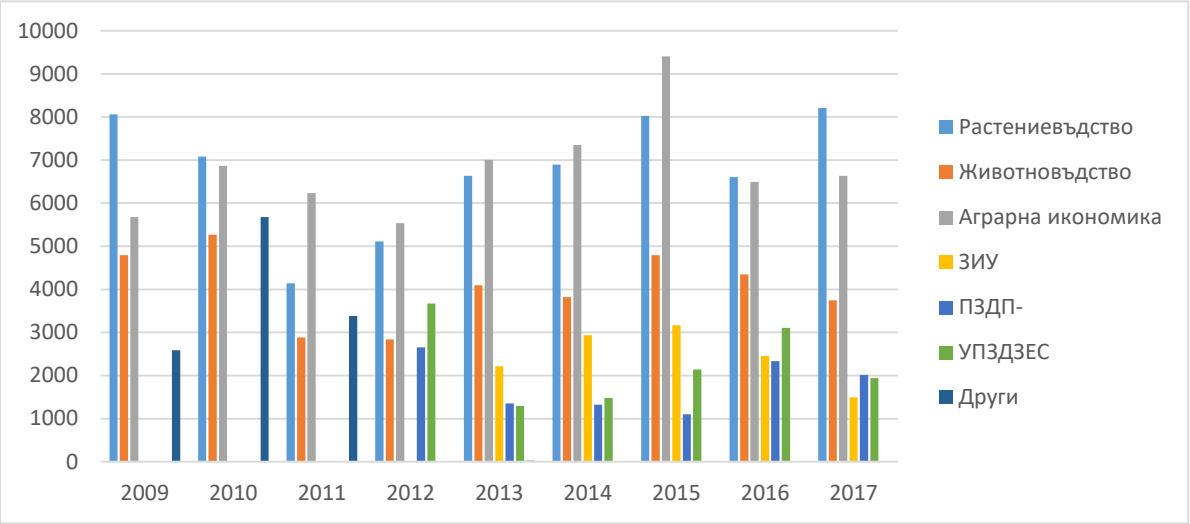


Source: Годишни отчети за дейността на НССЗ, Аграрни доклади

In the volume of specialized consultations those in the field of crop production and agrarian economy dominate, as their share varies in each year during the period 2009-2017 respectively from 25% to 39% and from 25.6% to 38% (Figure 25). This is undoubtedly related to the dynamically changing regulatory, market and natural environment, which requires intensive consultations with experts.

Livestock consultations are the third most important in this thematic group, with their number and relative share decreasing over the period (from 23% to 14%).

Figure 25. Number of specialized consultations by NAAS



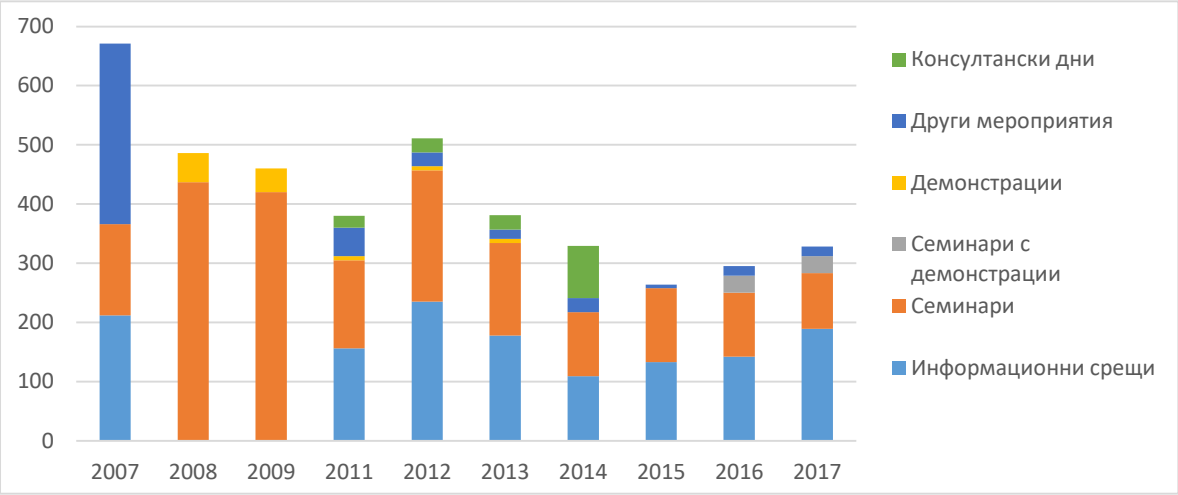
Source: Годишни отчети за дейността на НССЗ, Аграрни доклади

Furthermore, NAAS also uses other effective forms of dissemination of knowledge and innovations in the sector. For the period 2007-2017 as many as 2,979 farmers and other persons were trained in the various long and short-term courses at the Center for Vocational Training at the NAAS. The trainings provided were funded with the European and national funds under the Operational Program "Human Resources Development" under measure 111 "Vocational training, information activities and dissemination of scientific knowledge" by the RDP or without external funding, and they are free of charge to farmers.

In 2014, the NAAS completed the trainings under measure 111 "Vocational training, information activities and dissemination of scientific knowledge", and no courses were conducted under measure 1 "Transfer of knowledge and information actions" of the RDP 2014-2020. Therefore, in 2017, only two training courses were conducted on "Agroecology" and "Training on major environmental issues in agriculture", with a total of 41 farmers and 5 experts trained (НССЗ).

In addition, NAAS organizes hundreds of different events each year related to the transfer and dissemination of knowledge and innovations - information meetings, seminars, demonstrations, consulting days, etc. (Figure 26). Information meetings have taken a major share, which has expanded in recent years. Since 2016, a combined organization of seminars with demonstrations has been implemented, which is more effective in disseminating knowledge and positive experiences than conducting it separately.

Figure 26. Number and type of events organized by NAAS

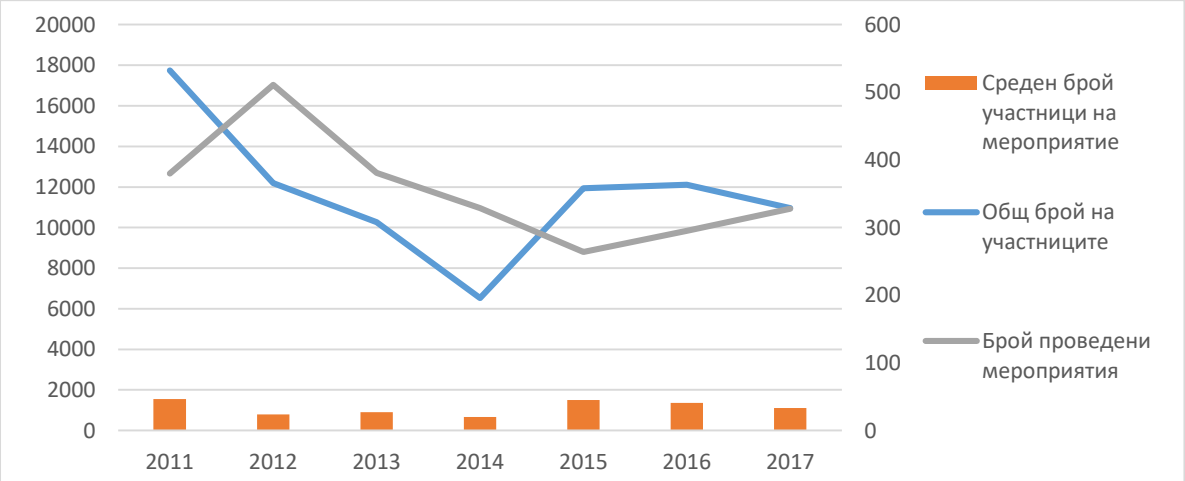


Source: Годишни отчети за дейността на НССЗ

A large part of the NAAS activities is organized jointly with leading AA scientific institutes, agrarian and other universities, development and other organizations and individual experts or teams. For example, in 2017, joint activities and activities of the NAAS with universities, scientific institutes, and other organizations were one-third of the total and more than 2 600 farmers participated in them (НССЗ). Collaborative events are very popular with farmers and, by their nature, are specialized one-day training.

In the period after 2010, the number of events conducted by the NAAS, the total number of participants in them, and the average number of participants per event varied from year to year and tend to decrease. (Figure 27). For example, in 2017, nearly 11,000 were participants in 328 events, with an average of just over 33 people per event. The reduced number of participants in a single event enables the improvement of communication and exchange of knowledge and experience between experts and farmers and between the participants themselves, a greater adaptation to the specific needs of the participants and increased efficiency.

Figure 27. Number of events organized by NAAS and participants



Source: Годишни отчети за дейността на НССЗ

Since 2015, the NAAS has introduced a new form of dissemination of information to farmers through the so-called. "Farmer circles". The purpose of the 27 farming circles set up in each region is to increase the efficiency and reach to more farmers through consultations, advices, dissemination and sharing of useful information, promotion of good practices for applying and implementing RDP projects, etc. The total number of farmers participating in these circles is around 315 and varies widely in the different regions - from 6 (Blagoevgrad) to 23 (Varna).

The NAAS produces and disseminates hundreds of information materials (educational leaflets, farmer calendars, brochures, etc.), the number of which is steadily decreasing (from 731 in 2009 to 143 in 2017). At the same time, the use of effective modern forms of communication such as the Internet and the media is increasing. NAAS website, which contains diverse up-to-date information about the activity, a library with useful tips in various fields, etc. Demonstrates a steady increase in visits (including from abroad). NAAS experts also make numerous media appearances, reaching numerous audiences by publishing articles, giving interviews in the national and local press, appearing in national, regional and local radio and television broadcasts, Internet publications, etc.

The NAAS experts are also constantly participating in forums organized by other organizations in the knowledge and innovation sharing system at home and abroad. It is also active in the preparation and participation in projects with neighboring and other European countries to improve capacity, coordination and cooperation of activities, exchange of knowledge, experience and innovations, etc.

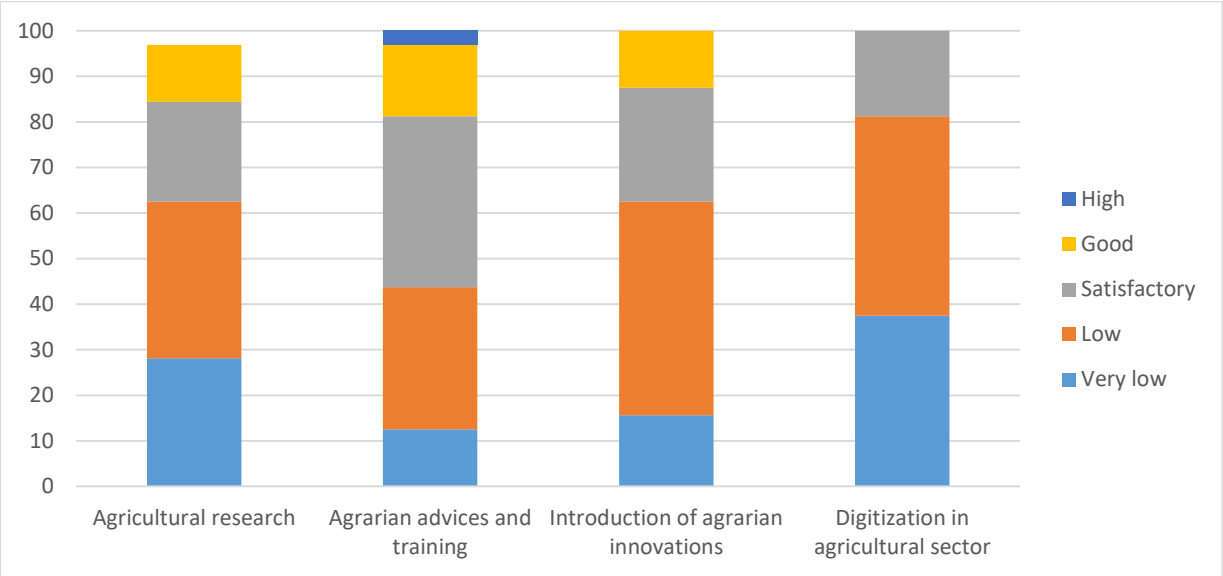
An informal Advisory Council is also put in place to improve the service activity to farmers at each territorial office of the NAAS. This form allows for effective discussions with farmers, professional organizations, scientific institutes and representatives of the local state structures on how to improve the activities of the respective office. All of this contributes to increasing the efficiency of the NAAS in transferring, disseminating and sharing knowledge and innovations.

Agricultural and other universities, AA institutes and stations, producer organizations, various non-governmental organizations, etc. also provide training and provide a wide range of advices to farmers. In addition, with a similar or complementary (as part of a marketing and production strategy) activity are also involved numerous organizations and individuals from the private sector - suppliers of seeds, chemicals, machinery and technologies, agricultural processors, specialized firms for training, consultations and innovations, and the farmers themselves. In this way, farmers receive such services for free, in a "package" with the main commercial activity of suppliers and/or buyers, or share and/or trade with each other. However, in the country there is no systematic reporting, statistical or other information on the rapidly developing and extensive university and private sector of training and consulting.

Expert assessment on the state of Agricultural Information, Training and Advices System

Most experts believe that the level of public spending and investments for the introduction of agrarian innovations (62.5%), and for agricultural advice and training (43.7 %) is low or very low (Figure 28).

Figure 28. Level of public expenditure and investment in AKIS (%)

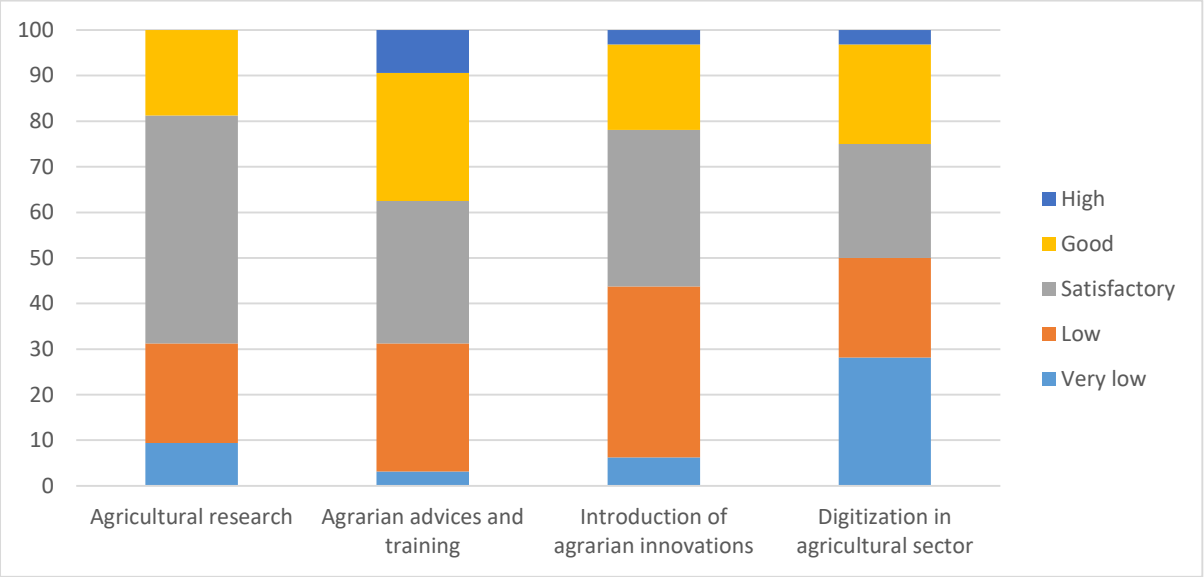


Source: Experts assessment

A relatively small number of experts consider the costs of the diverse components of the AKIS to be satisfactory, with a larger share of public expenditure and contributions to agrarian advices and trainings. However, none of the experts consider the level of expenditure and investment is high in agrarian research, and the introduction of agrarian innovation, and only a small fraction considers them to be high in agrarian advice and training. Therefore, public expenditure and investment for the development of all these important areas of the AKIS are to be significantly increased so that the main objectives of the CAP can be achieved in the next programming period.

As far as the efficiency of public resources for agrarian advices and training is concerned, the majority of experts believe that it is good or high (37.5%) (Figure 29). This proves that the comparatively higher level of public support in this area also gives comparatively higher efficiency. At the same time, however, for a small number of experts, the efficiency of public spending and investment in agrarian advice and training is satisfactory (31.2%) or low (28.1%). Therefore, work is to be continued to raise the efficiency of public investment in this important area.

Figure 29. Efficiency of public expenditures and investments in AKIS (%)

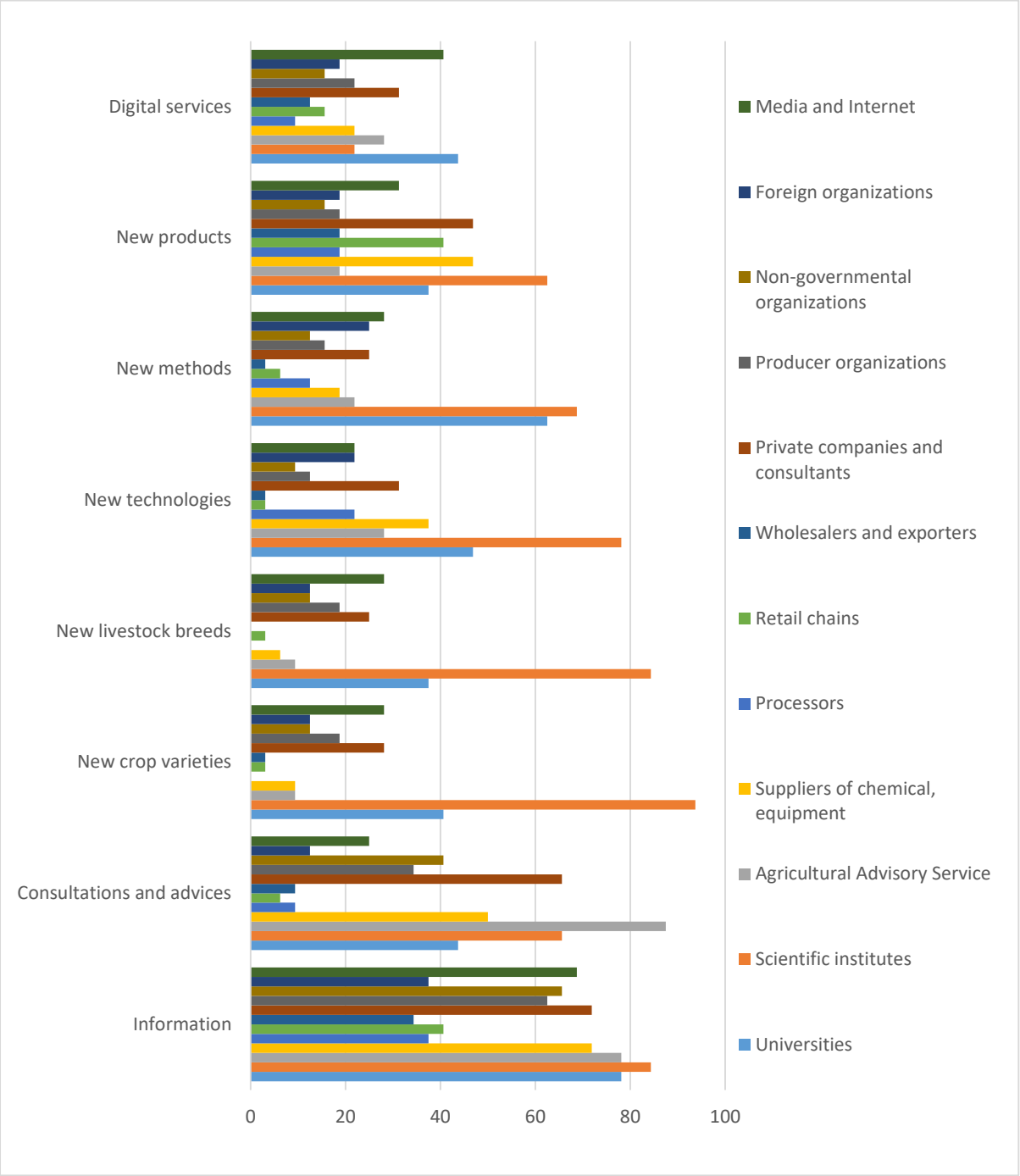


Source: Experts assessment

According to the majority of the experts (43.7%), the efficiency of public investments for the introduction of agrarian innovations is low or very high. However, a significant proportion of them rate the efficiency of this type of public support as satisfactory (34.4%). Moreover, for almost 22% of the experts, public spending and investments for the implementation of agrarian innovations are of good or high efficiency. The later indicates that limited investment in this area is of high efficiency and are to be increased, as there is a great potential for improving efficiency through additional investment.

Experts are largely unanimous that the most important "providers" of new information to farmers are research institutes (84.4%), universities and NAAS (78.1% each), private companies and consultants (71.9%), the media and Internet (68.8%), non-governmental organizations (65.6%) and producer organizations (62.5%) (Figure 30). A considerable number of experts also believe that important suppliers of new information to farmers are retail chains (40.6%), processors (37.5%), foreign organizations (37.5%), and wholesalers and exporters (34.4%).

Figure 30. The most important organizations providing agricultural farms with information, advice, innovations and digital services (%)



Source: Experts assessment

The experts are also almost unanimous that the NAAS is the most significant provider of consultations and advices for Bulgarian farms (87.5%). Other important organizations for providing consultations and advices to producers in the sector are research institutes and private companies and consultants (65.63% each). Every second expert also believes that suppliers of chemicals, equipment, etc. are among the most active in providing the necessary consultations and advices to their actual and potential clients. For a good number of experts, the universities (43.8%), non-governmental organizations (40.6%), producer organizations (34.4%), media and

Internet (25%) are among the most important organizations providing agricultural consultations and advices in the country. The importance of other types of organizations is less in providing farmers with consultations and advices.

With regard to new plant varieties, the vast majority of experts (93.8%) identify research institutes as the most important organizations providing this type of innovations to agricultural farms. Many experts also identify universities (40.6%) as a major supplier of new plant varieties to farmers. A relatively large proportion of all experts (28.1%) also consider that private companies and consultants, and the media and internet are important in providing information on/or supplying new varieties of plants.

With regard to new breeds of animals, the situation is similar to that of new plant varieties, with experts ranked as the most important research institutes, followed by universities, the media and Internet, and private companies and consultants. A considerable number of experts (18.8%) also consider that producer organizations are among the most significant suppliers of new breeds of animals to farmers.

Regarding the provision of new technologies to the farms, research institutes are again ranked by the majority of experts (78.1%), followed by universities (46.9%), suppliers of chemicals, machinery, etc. (37.5%), private companies and consultants (31.2%), and NAAS (28.1%). A considerable proportion of experts (21.9%) also place foreign organizations, the media and internet among the most important in providing information, assistance or direct supply of new technologies.

According to the majority of experts, the most important organizations providing new methods of production and management for farmers are research institutes (68.8%) and universities (62.5%). A relatively large proportion of experts also place the media and Internet (28.1%), private companies and consultants, foreign organizations (every fourth) and the NAAS (22.9%) among the most significant organizations in providing information on /for new methods of production and management in the sector.

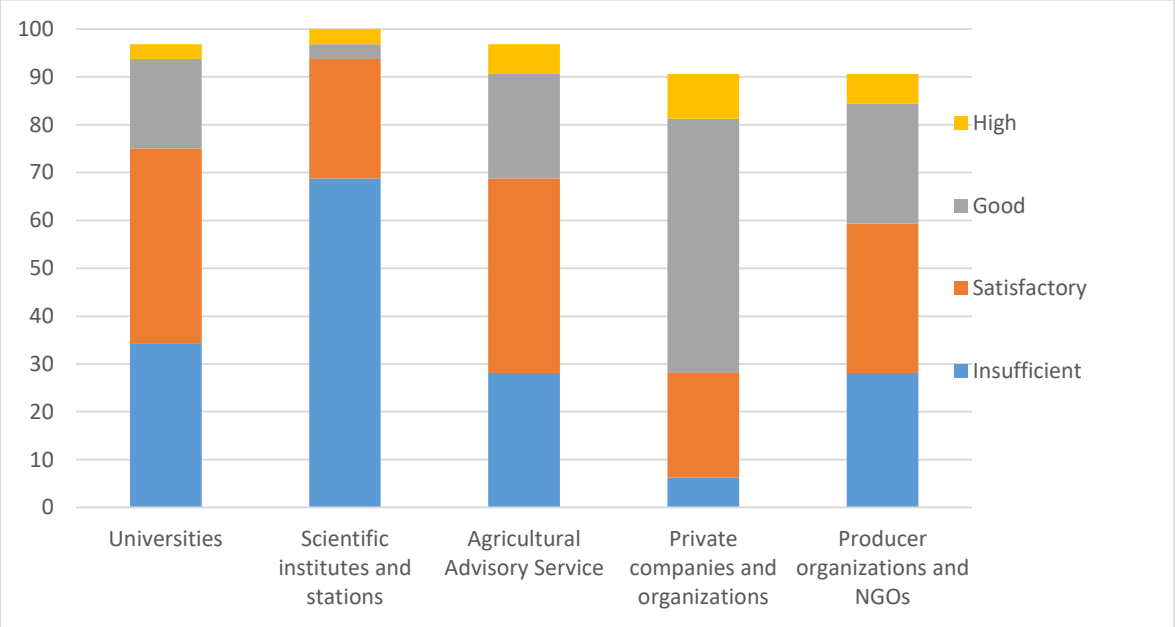
The most important for the presentation to the farmers of new products are scientific institutes (62.5%), private companies and consultants (46.9%), suppliers of chemicals, equipment, etc. (46.9%), retail chains (46.9%), and universities (37.5%). A significant number of experts also put media and Internet (31.3%), NAAS, processors of farm produce, wholesalers and exporters, producer organizations and foreign organizations (18.8% each) as important in product innovations.

With regards to digital services and innovations, the universities (43.8%), and media and Internet (40.6%) are pointed by the majority of experts as most important to farmers' organizations. For a good number of experts, among the most significant providers of digital information and services, are also private companies and consultants (31.2%), NAAS (28.1%), scientific institutes, suppliers of chemicals, equipment, etc., and producers organizations (21.9% each).

According to the experts the highest financial endowment of agricultural research and consulting is in the private companies and organizations, where, according to nearly 63% of experts, it is good or high (Figure 31). At the same time, financial endowment of agrarian research and consultancy at scientific institutes and stations is estimated by almost 69% of experts as unsatisfactory. The later shows that the profit-oriented private sector invests more in financial resources in these important activities comparing to the public scientific institutes

that dominate in the sector. Therefore, the financial support to public research institutes is to be increased in order to reduce the existing imbalance with the private sector.

Figure 31. Financial endowment of agrarian research and consultations in the main organizations of the AKIS (%)

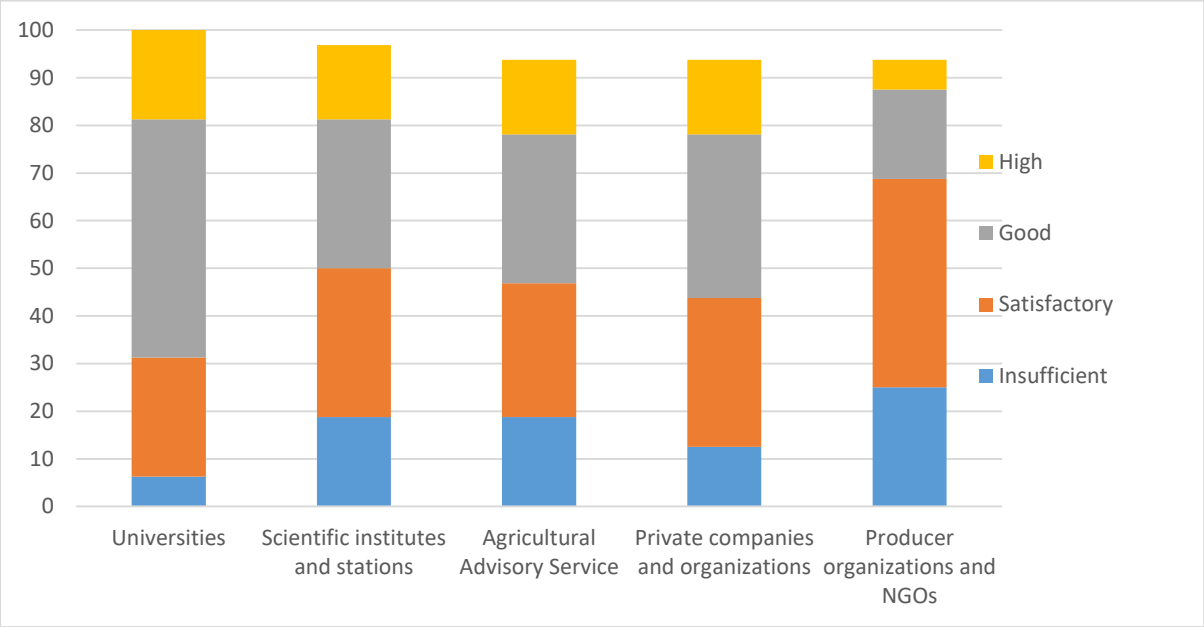


Source: Experts assessment

The majority of experts believe that the endowment of research and consultations with financial resources in the universities and NAAS is satisfactory (40.6%). Moreover, a considerable number of experts evaluate that these activities of the NAAS and the universities are with good or high financial endowment - 28.1% and almost 22% respectively. The financial support for agrarian research and consultations of the non-profit-making producer organizations and non-governmental organizations was rated as satisfactory (31.2%) or unsatisfactory (28.1%) by most experts.

Universities are with the best staff endowment for agrarian research and consultancy, where, according to nearly 69% of experts, it is good or high (Figure 32). Every second expert also believes that staffing for research and consultations of NAAS, and private companies and organizations is good or high.

Figure 32. Staff endowment of agrarian research and consultations in major organizations of AKIS (%)

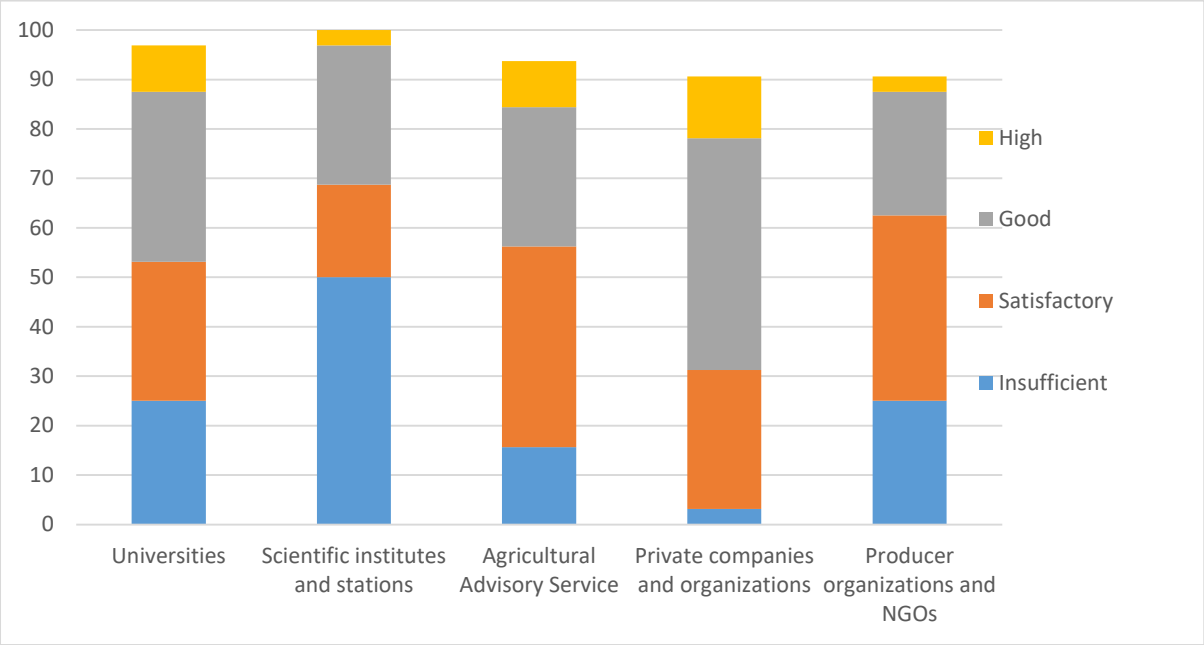


Source: Experts assessment

At the same time, the majority of experts estimate that the staffing of agricultural research and consultancy in scientific institutes and stations as satisfactory or good (31.2% each), and that of producer organizations and non-governmental organizations as satisfactory (43.8%). This calls for urgent measures to improve the incentives to attract new staff and to improve the skills of existing staff in the state and non-governmental agrarian research and consultancy sectors.

There is also considerable differentiation in the availability of advanced agricultural research and consulting equipment in different types of organizations (Figure 33). While in private companies and organizations it is good or high (59.4%), in scientific institutes and stations every second expert rates it as unsatisfactory, and only 31% as good or high. This proves the need to significantly modernize the equipment of the public scientific institutes that dominate the sector.

Figure 33. Endowment with modern equipment of agrarian research and consultations in major organizations of AKIS (%)

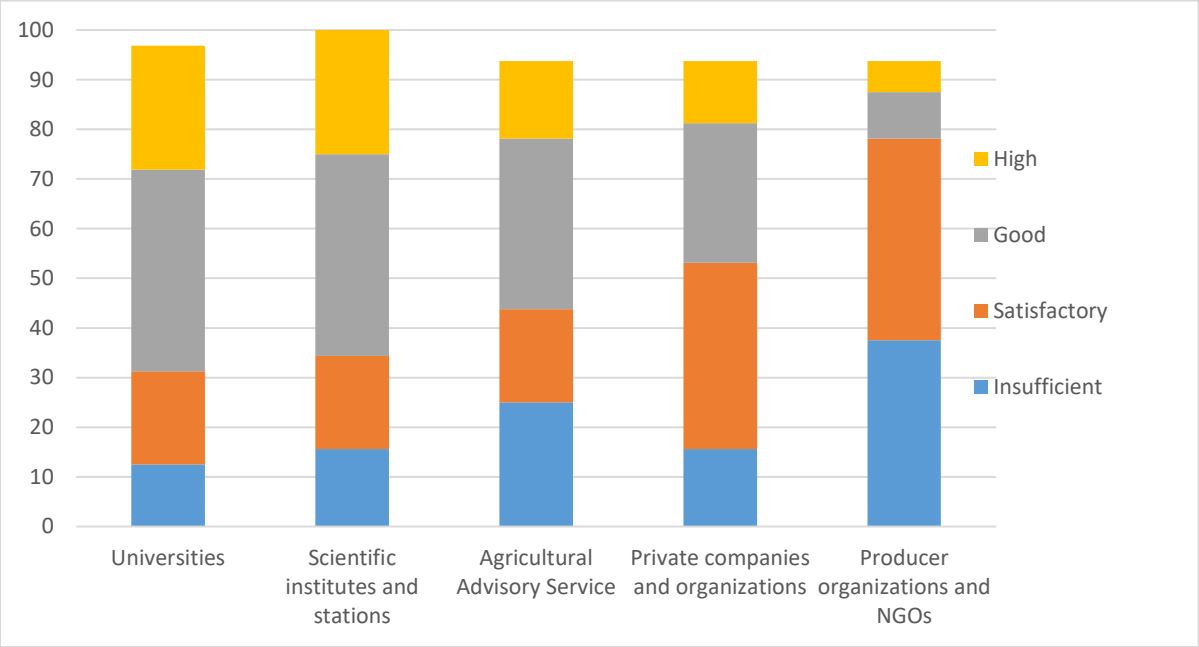


Source: Experts assessment

The majority of experts believe that the availability of modern equipment in NAAS is satisfactory (40.6%), and not many who rate it as good or high (37.5%). The material endowment of this type of activities of the producer organizations and non-governmental organizations was evaluated by the majority as satisfactory (37.5%). At the same time, however, every fourth expert thinks that it is either unsatisfactory or good. The later indicates for the different material capacities of the individual non-profit-making organization, and the needs to take public action to support those lagging behind.

Despite the inadequate and quite divers endowment with financial, human and material resources, the public agricultural research and consultation system demonstrates high potential for modern agricultural research and consultations. According to the majority of experts, the potential of universities, research institutes and stations, as well as the NAAS for modern agrarian research and consultations is good or high - 65.6%, 65.6% and 50% respectively (Figure 34). This indicates that public organizations in agricultural research and consultations will continue to dominate in the future and have to receive increasing public support.

Figure 34. Potential for modern agrarian research and consultations in major organizations of AKIS (%)

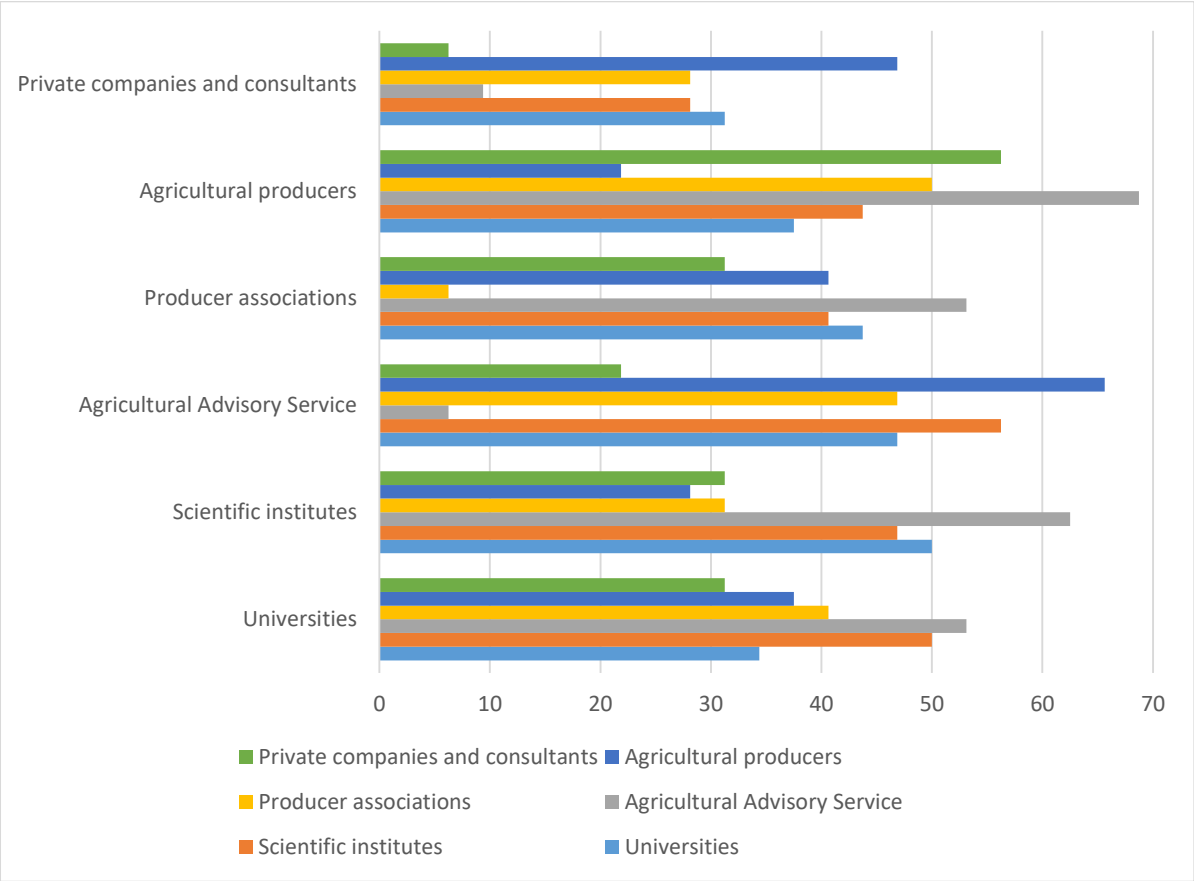


Source: Experts assessment

On the other hand, the potential for modern agrarian research and consultations in the private sector has been identified as satisfactory - by 37.5% of experts for private companies and organizations, and by 40.6% for producer organizations and non-governmental organizations. Along with this, however, nearly 41% of the experts believe that the potential of profit-oriented private companies and organizations for modern agricultural research and consulting is good or great. This shows that with effective public support and regulation, the role of the private sector in agricultural research and consultations will be expanded in the future and has to be a priority.

The majority of experts regard the links between the universities and scientific institutes, scientific institutes and NAAS, NAAS and farmers, NAAS and producer associations, producer associations and agricultural producers, private companies and consultants and farmers as highly effective (Figure 35).

Figure 35. Efficiency of links between organizations in AKIS (%)



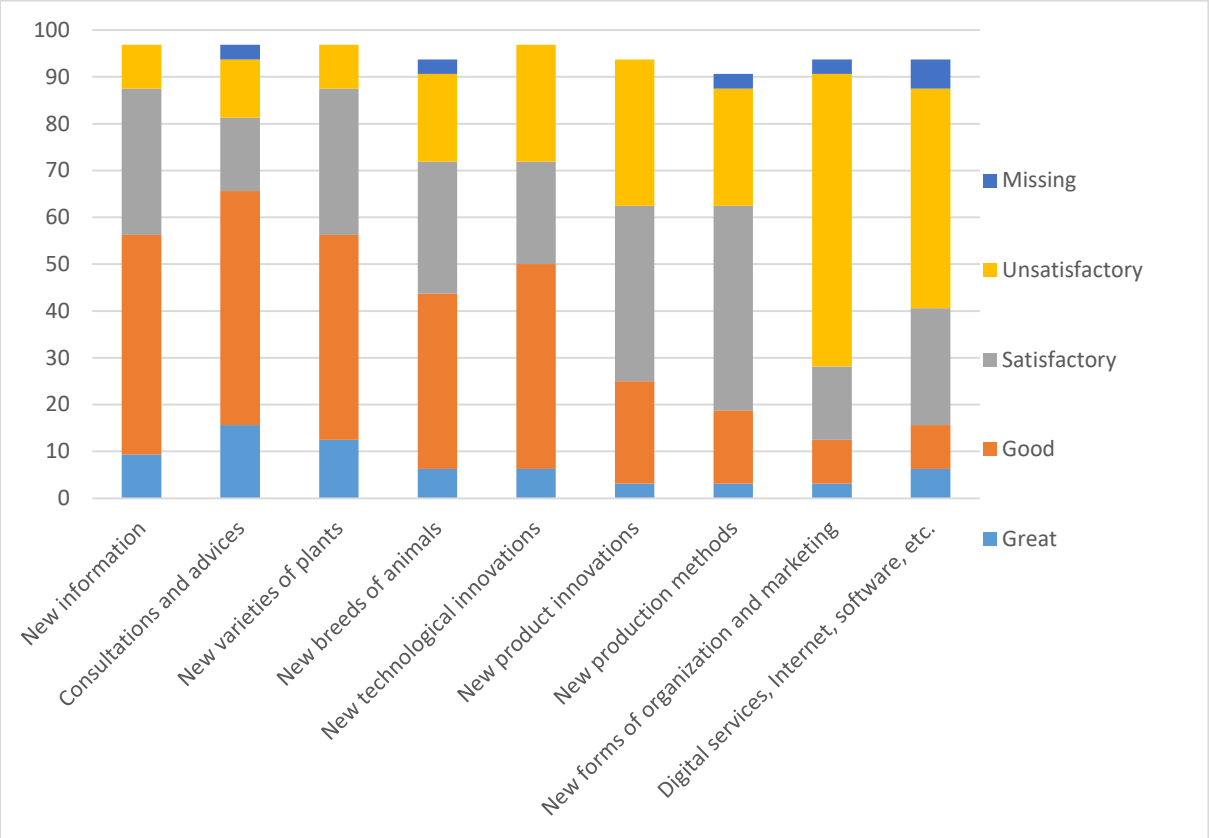
Source: Experts assessment

At the same time, some important links for the development of the AKIS are not identified as effective by experts - between individual universities, universities with farmers and private companies and consultants, scientific institutes with farmers and private companies and consultants, NAAS with private companies and consultants, producers' associations among themselves and with private firms and consultants, between private firms and consultants, and between farmers themselves. Also, only 46.9% of the experts are convinced that the links between the scientific institutes themselves are highly effective, which is not a good indicator of the degree of integration and coordination of the activities of the various scientific institutes in the country.

In order to improve all these critical links for the development of the AKIS, effective measures are to be taken immediately from the leadership of the public sector organizations, as well as adequate incentives for participants and public support introduced though state funding, tax relief, logistics, assistance, regulations, networking, etc.

According to a large part of the panel of experts, farmers in the country have good or great access to new information (56.3%), consultations and advices (65.6%), new plant varieties (56.3%), new breeds of animals (43.8%) and new technological innovations (50%) (Figure 36). Therefore, in these areas, the existing AKIS works relatively well and serves farmers effectively.

Figure 36. Extent of access of agricultural producers to information, consultations, innovations, and digital services (%)



Source: Experts assessment

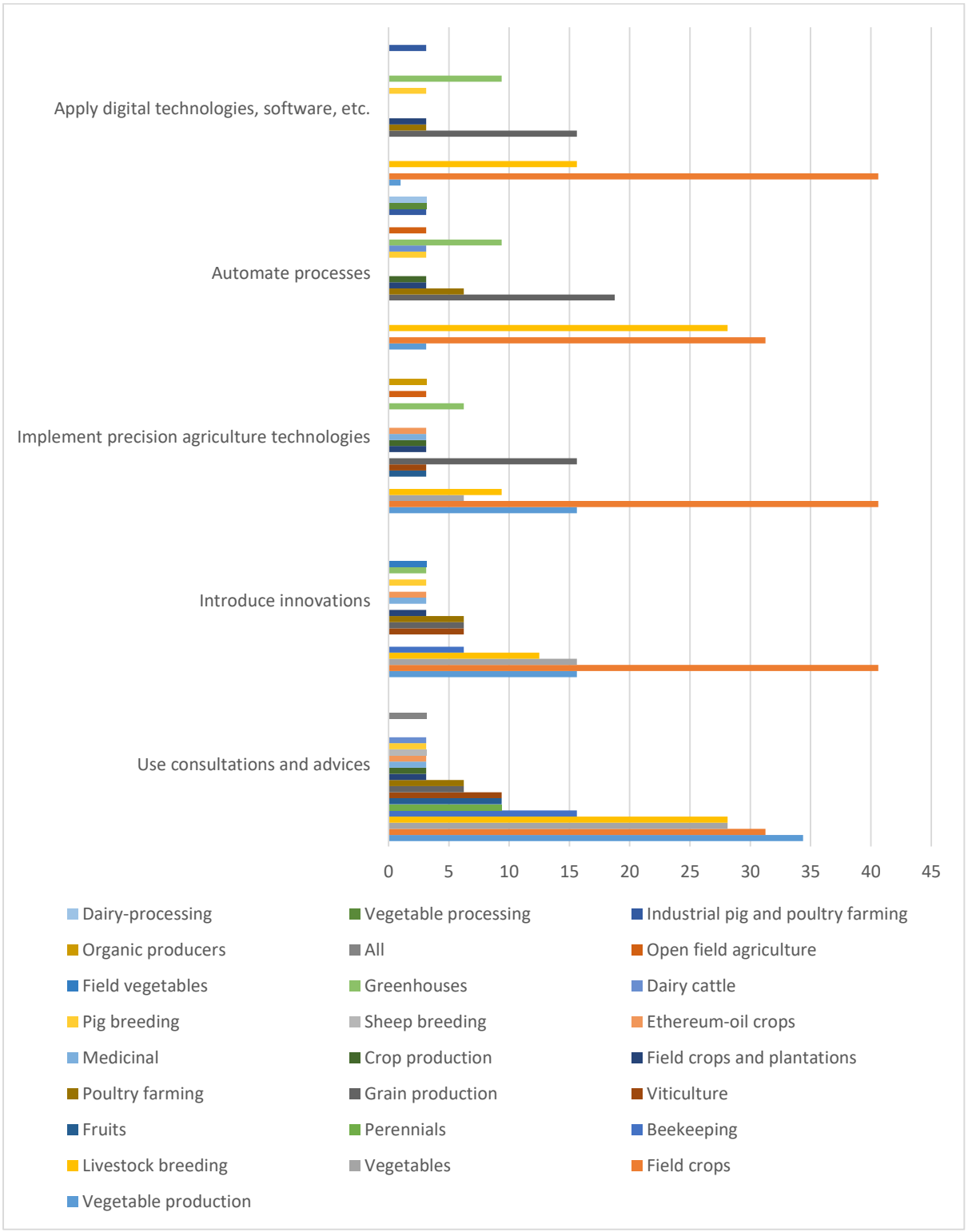
At the same time, however, the majority of experts assess that producers' access to new product innovations and new production methods is satisfactory (37.5% and 43.8% respectively) or unsatisfactory (31.3% and 25%). The most unfavorable situation is the access of farmers to new forms of organization and marketing, which is estimated by a significant number of experts as unsatisfactory (62.5%). Therefore, public measures are to be taken to support and encourage the participants in the AKIS in order to improve the supply and market development of diverse types of innovation in the country.

The situation with the farmers' real access to digital services, internet, software, etc. is also unfavorable. Just over 53% of the experts consider this access to be inadequate or nonexistent, with one in four assessing it as satisfactory. Cardinal public support measures (investments, training, incentives, partnerships with the private sector, etc.) are to be also undertaken in this important area in order to overcome the lag in the digitalization of the agricultural production and rural areas of the country.

There is considerable differentiation in the degree of use of advices and consultations, and in the introduction of innovations of different kinds in individual sub-sectors of agriculture, in farms of different legal types and sizes, and in different regions of the country. According to the experts, the most widely advices and consultations are used in vegetable production (34.4%), field crops (31.3%), fruit growing (28.1%) and animal husbandry (28.1%) (Figure 38). At the same time, only a small number of experts believe that the other sub-sectors of

agriculture benefit greatly from the advices and consultations provided by various public and private organizations.

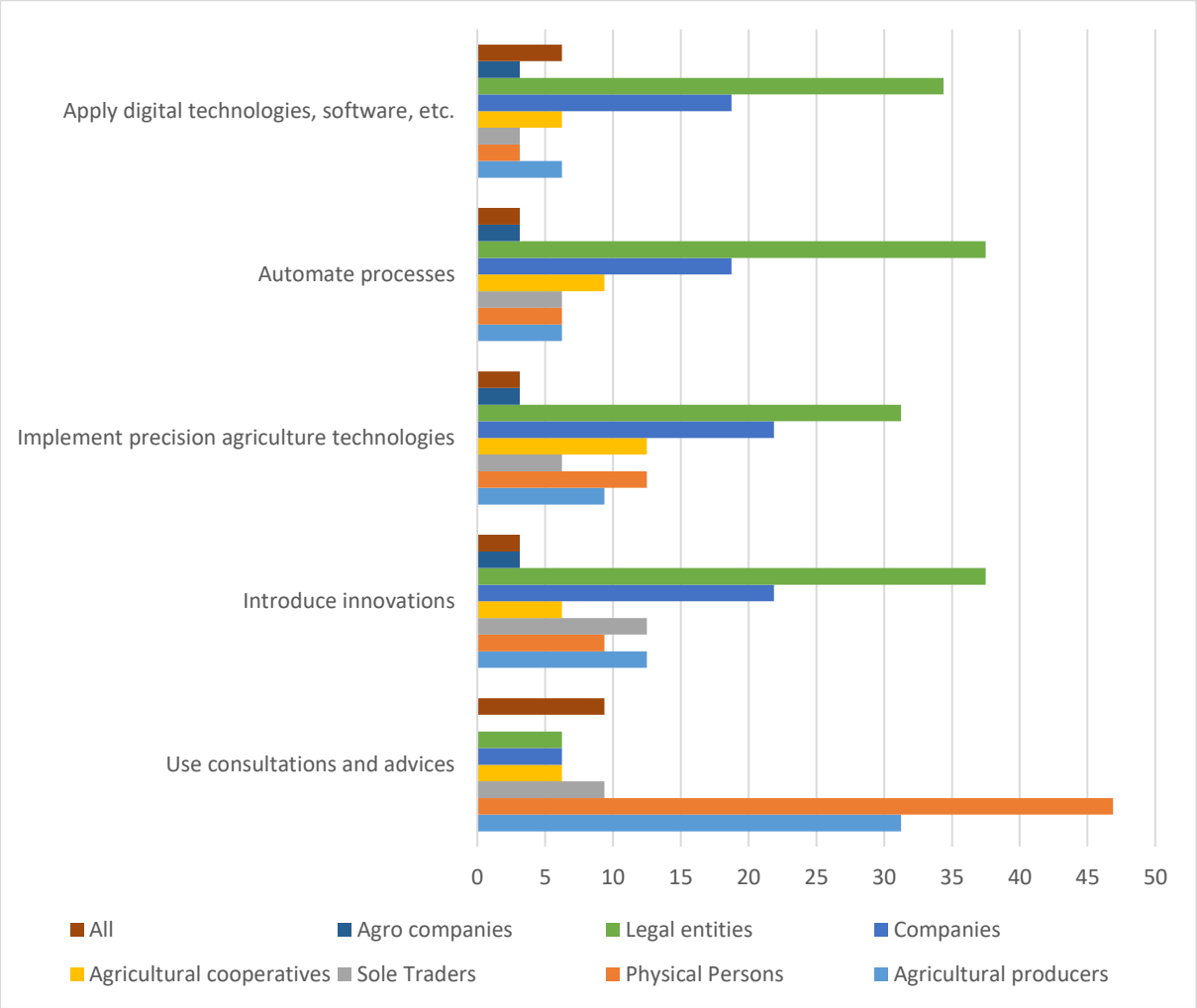
Figure 38. Extent of utilization of advices and consultations, and introduction of innovations of various type in individual subsectors of Bulgarian agriculture (%)



Source: Experts assessment

There is also a great variation in the extent to which advices, consultations and innovations are introduced on farms of different types. According to the majority of experts, Physical Persons (48.9%) use to the greatest extent advices and consultations (Figure 39). Just over 31% of the experts also indicated that advices and consultations was widely used by agricultural producers. According to the majority of the experts' panel, other juridical types of farms make little use of the advices and consultations provided by various public and private organizations.

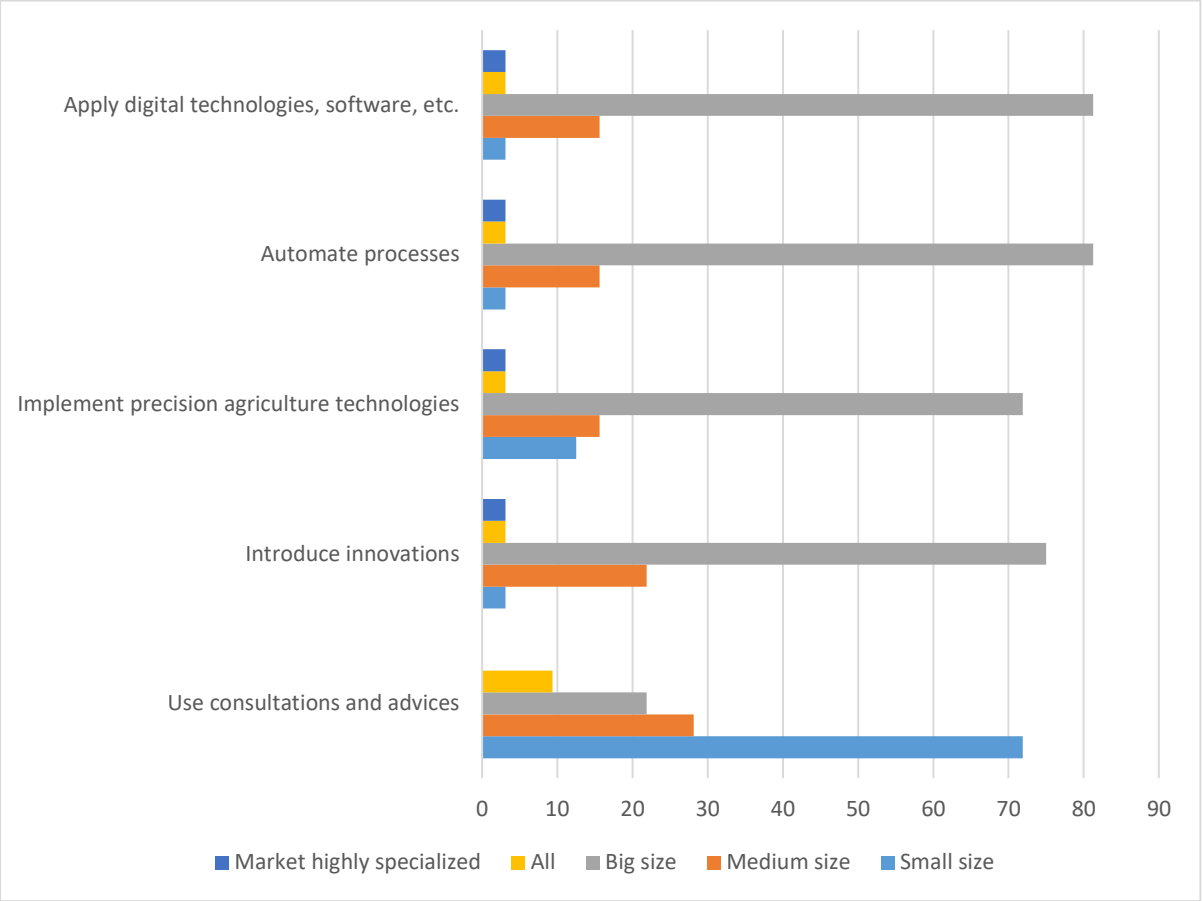
Figure 39. Extent of usage of advices, consultations, and introduction of various kind of innovations in agricultural farms od different juridical type (%)



Source: Experts assessment

A significant number of experts consider that small farms use the most advices and consultations (71.9%), while other categories of producers use less "external" advices and consultations (Figure 40).

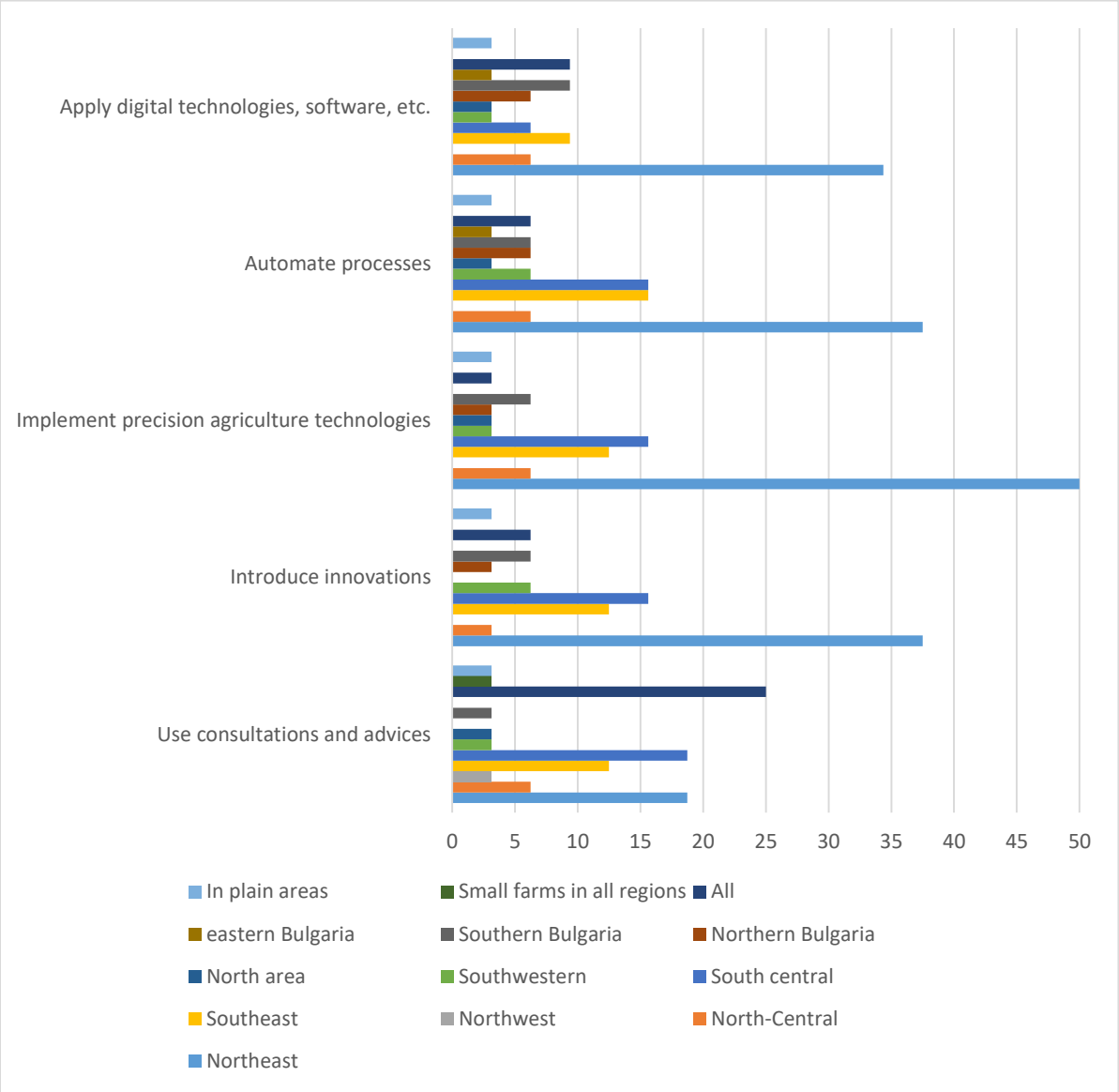
Figure 40. Extent of utilization of advices and consultations and in the introduction of innovations of various type in agricultural farms of different sizes (%)



Source: Experts assessment

Finally, there are differences in the degree of use of advices and consultations, and in the introduction of different types of innovation in different geographical regions of the country. According to one in four experts, advices and consultations are used evenly throughout the country (Figure 41). A considerable number of experts also points the North-East and South-Central regions of the country (18.8% each) as the largest users of advices and consultations.

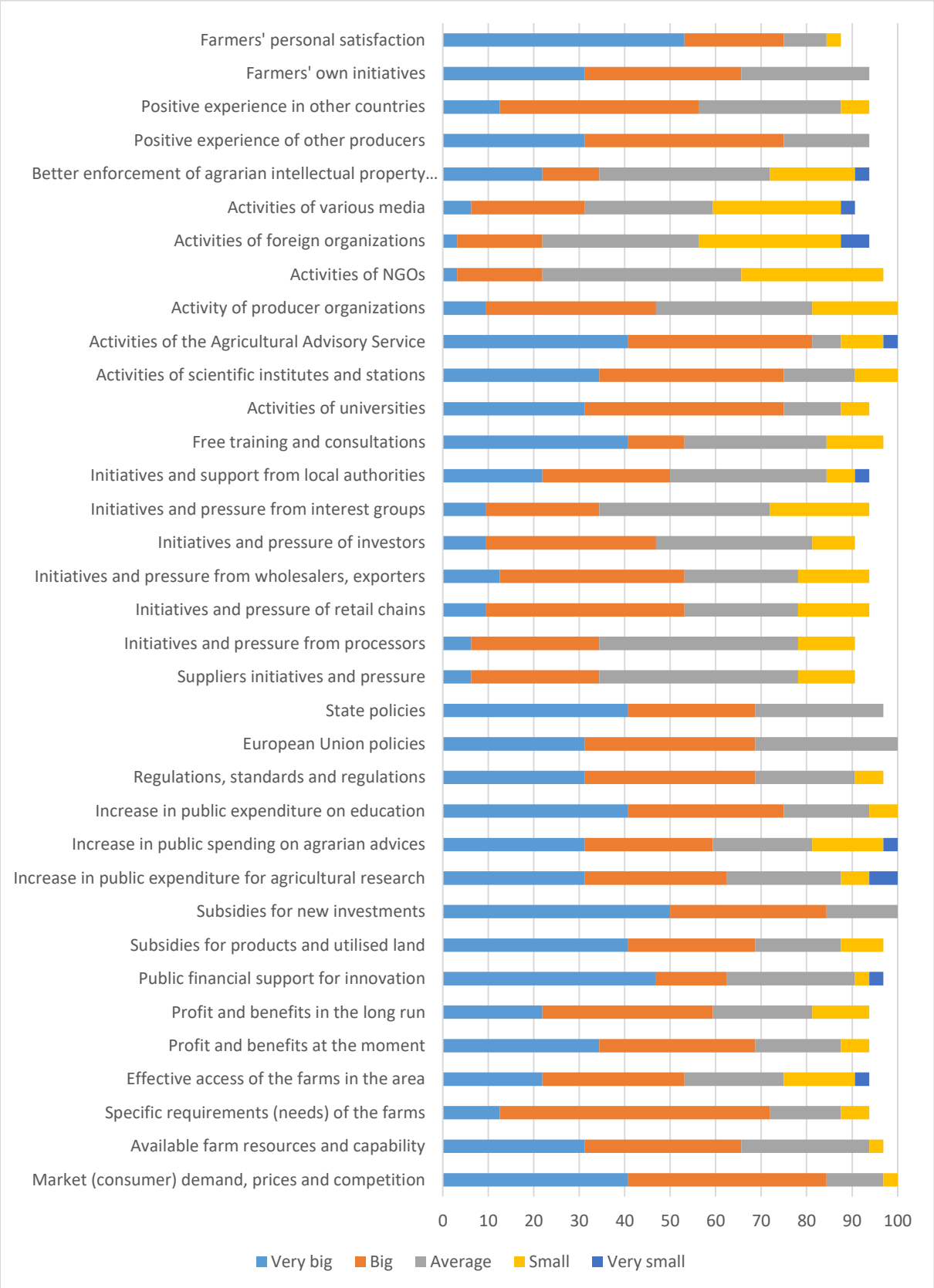
Figure 41. Extent of utilization of advices and consultations and in introduction of innovations of various type in different regions of the country (%)



Source: Experts assessment

Experts are very unanimous that the most important factors (of great or very great importance) for improving the dissemination of knowledge, innovation and digitalization in agriculture and rural areas of the country at this stage are: market (consumers) demand, prices, competition and subsidies for new investments (84.4% each), as well as the activity of the National Agricultural Advisory Service (81.3%) (Figure 42). Therefore, the support for market development is to be extended as well as of the public support (subsidies) for consultations and training, and for the private investments in the area.

Figure 42. Importance of various factors for amelioration of the dissemination of knowledge, innovations and digitalization in Bulgarian agriculture and rural areas (%)



Source: Experts assessment

Three quarters of the experts also believe that the increase in public spending on education, the activities of universities, the activities of scientific institutes and stations, the positive experience of other producers, and farmers' personal satisfaction, are important factors for improving knowledge dissemination, innovation and digitalization in agriculture and rural areas.

A large number of experts also estimate that the specific requirements (needs) of the farms (71.9%), and the profit and the current benefits, subsidies for products and used land, regulations, standards and regulations, EU policies and policies of the state (68.8% each) are decisive for improving the diffusion of knowledge, innovations and digitization in agriculture and rural areas.

The majority of experts also give a high rank to the available resources and capability of the farms, and the farmers' own initiatives (65.6% each), as well as to the public financial support for innovations, and the growth of public expenditure on agricultural science (62.5% each), the long-term profits and benefits, and the rise in public spending on agrarian advices (59.4% each), the positive experiences in other countries (56.3%), and the effective access of farms and in the region, the initiatives and pressure of the retail chains, the initiatives and pressure on wholesale traders and exporters, and the free training and consultancy (by 53.1%) for improvement the situation in this respect. All these factors for improving the existing state are to be taken into account in the process of amelioration of the public support for the development of AKIS in the next programming period

Most experts believe that the successful achievement of the horizontal objective contributes to a large or very large extent to the achievement of all specific objectives of the EU CAP (Figure 43).

According to most experts, improving the dissemination of knowledge, innovations and digitalization of agriculture and rural areas contributes to the greatest extent to the achievement of the specific objectives of sufficient agricultural incomes and sustainability (81.3%), and enhancing market orientation and increasing competitiveness (78.1%).

On the other hand, a relatively smaller majority of the experts believe that improving dissemination of knowledge, innovations and digitalization in agriculture and rural areas contributes significantly to promoting employment, growth, social inclusion and local rural development (53.1 %).

All this proves that the effective measures are to be undertaken during the new programming period to realize the horizontal objective of the EU CAP for improvement of the dissemination of knowledge, innovations and digitalization in agriculture and rural areas, in order also to achieve successfully the specific objectives of the Union.

Figure 43. Extent in which dissemination of knowledge, innovations and digitalization in agriculture and rural areas in Bulgarian contributes for achievement of different objectives of EU CAP (%)

Source: Experts assessment

Conclusions

The agricultural training and advice system includes numerous actors for which diverse activities and relationships lack summarized information. As a result of the measures taken, the proportion of managers who have completed full agricultural training has increased since the country's accession to the EU, however, almost 93% of all agricultural managers are still with only practical experience and no agricultural training. The participation rate in the rural

regions remains weak and steadily decreasing, with Bulgaria being among the lagging EU member states in formal and non-formal education and training in rural areas.

Since our country's accession to the EU, the number of consultations provided by the NAAS has doubled, with 17% of all registered agricultural producers and every tenth farmer in the country consulted in recent years. The number of consulted is significantly reduced, which is a result of both the improving qualification level of farmers and the development of alternative forms of counseling. Along with the evolving needs of farmers, the topics of the consultations provided is evolving, with consultations relating to the possibilities of supporting farms with RDP measures occupying a predominant part.

The NAAS organizes hundreds of different events each year related to the transfer and dissemination of knowledge and innovations, many of which jointly with AA scientific institutes, agrarian and other universities, and other organizations, as well as individual experts or teams. The number of events held, the total number of participants and the average number of participants per event tends to decrease. New forms are being introduced to disseminate information to farmers through consultations on the farm, field offices, farmer circles, etc.

Financial and material resource endowment in the agricultural information, education and advices sector as well as the links between participants and with agricultural producers are have to further improved.

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