

# Sustainability of Bulgarian Farms during Reformed CAP Implementation

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## Summary

The goal of this paper is to present results of the first large-scale study on integral, governance, economic, social, and environmental sustainability of Bulgarian farms in general and holdings of different juridical type, size, specialization and location during current EU CAP implementation. Initially, a framework for assessing farm sustainability is outlined which is based on incorporation of the interdisciplinary methodologies of New Institutional Economics, and Sustainable Development. That holistic framework includes a system of appropriate principles, criteria, indicators, and reference values for evaluating the individual aspects and the integral sustainability of farms in the specific Bulgarian conditions. After that an assessment is made on the overall, governance, economic, social, and environmental sustainability levels of Bulgarian farms in general and holdings of different juridical type, size, specialization and location. The assessment is based on a survey with the managers of 190 typical farms of different type carried out in the summer of 2016 with the cooperation of major professional associations and the National Agricultural Advisory Service. The study has found out that Bulgarian farms are with a good integral sustainability due to moderate governance and economic sustainability, and a higher social and ecological sustainability. There are considerable differences in the sustainability level of farms of different type – while Companies and Cooperatives are with a higher sustainability level, the Physical Persons and Sole Trades are with lower one. Furthermore, 30% of all farms are with low sustainability or unsustainable at all, including 34% of Physical Persons, a quarter of Sole Traders, 15% of Cooperatives, and almost 6% of Companies. There is also a significant variation in sustainability levels of farms with different specialization, size and location – e.g. 45% of holdings specialized in vegetable, flowers and mushrooms are with low sustainability or unsustainable as well as 57% of those with mix livestock specialization, a half of semi-market and a third of small-size holdings, 39% of farms located in mountainous regions with handicaps, and 40% of farms in South-West and 37% in North-West regions of the country. Finally, implications for further research, farm management and strategy formation, and improvement of public policies are withdrawn.

**Key words:** integral, governance, economics, social, environmental sustainability

## Устойчивост на българските ферми при прилагане на реформирана ОСП

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## Резюме

Целта на доклада е да представи резултатите от първото широкообхватно изследване на интегралната, управленска, икономическа, социална и екологична устойчивост на българските ферми, като цяло, и стопанствата от различен юридически тип, размер, специализация и местоположение

по време на текущото приложение на ОСП на ЕС. Първоначално е очертана рамката за оценка на устойчивостта на фермите на базата на обединяване на интердисциплинарните методологии на Новата институционална икономика и Устойчивото развитие. Тази холистична рамка включва система от подходящи принципи, критерии, индикатори и референтни стойности за изчисляване на индивидуалните аспекти и общата устойчивост на фермите при специфичните български условия. След това е направена оценка на цялостните управленски, икономически, социални и екологични нива на устойчивост на българските ферми и стопанства от различен юридически тип, размер, специализация и местоположение. Изследването е базирано на анкетно проучване със 190 фермери, управляващи типични ферми от различен тип. Проведено е през лятото на 2016 г. със съдействието на главните професионални асоциации и Националната служба за съвети в земеделието. Анализът показва, че българските фермери имат добра цялостна устойчивост, вследствие на умерена управленска и икономическа устойчивост и по-висока социална и екологична устойчивост. Има значителни различия в нивото на устойчивост на ферми от различен тип – докато компаниите и кооперативите са с висока устойчивост, физическите лица и едноличните търговци са с по-ниска устойчивост. Освен това, 30% от всички ферми са с ниска устойчивост или неустойчиви, включително 34% от физическите лица, 1/4 от едноличните търговци, 15% от кооперативите и около 6% от компаниите. Има също значителни разлики в нивата на устойчивост на фермите с различна специализация, размер и местоположение – напр. 45% от стопанствата, специализирани в производство на зеленчуци, цветя и гъби, са с ниска устойчивост или неустойчиви, както и 57% от тези със смесена животновъдна специализация, половината от полупазарните и една трета от фермите с малък размер, 39% от фермите в планински райони с неблагоприятни условия, 40% от фермите в Югозападен регион и 37% в Северозападен регион на страната. Накрая са набелязани изводи за бъдещи изследвания, фермерски мениджмънт и формиране на стратегии, както и за подобряване на публични политики.

**Ключови думи:** обща, управленческа, икономическа, социална, екологическа устойчивост

## **Introduction**

Evaluation of sustainability of agricultural farms is among the most topical academic and practical (farm, agri-business, policies forwarded) issues (Башев, 2006, 2015, 2016; Иванов и др.; Andreoli and Tellarini; Bachev, 2005; Bachev and Petters; Bastianoni et al.; FAO; Fuentes; Häni et al.; OECD; Rigby et al.; Sauvenier et al.; UN). Despite that there are practically no studies on overall, economic, social, ecological, etc. sustainability of farms in general and holdings of different type in Bulgaria during EU CAP implementation.

The goal of this paper is to present results of the first large-scale study on integral, governance, economic, social, and environmental sustainability of Bulgarian farms in general and holdings of different type during current EU CAP implementation. Initially, a framework for assessing farm sustainability is outlined. That holistic framework includes a system of appropriate principles, criteria, indicators, and reference values for evaluating

the individual aspects and the integral sustainability of farms in the specific Bulgarian conditions. After that an assessment is made on the overall, governance, economic, social, and environmental sustainability levels of Bulgarian farms in general and holdings of different juridical type, size, specialization and location. Finally, implications for further research, farm management and strategy formation, and improvement of public policies are withdrawn.

## **Framework for assessing sustainability of Bulgarian farms**

Farm sustainability characterizes the ability (internal capability) of a particular farm to exist in time and maintain in a long-term its governance, economic, ecological and social functions in the specific socio-economic and natural environment in which it operates and evolves (Башев, 2006, 2015). Farm sustainability has four aspects (pillars), which are equally important:

- *managerial* – the farm has to have a good or high absolute and comparative efficiency for the organization of its activity and relations, and a high adaptability to evolving socio-economic and natural environment, according to the specific preferences and capability of farm owners;

- *economic* – the farm has to have a good or a high productivity for utilization of natural, personal, material, and financial resources, “acceptable” economic efficiency and competitiveness, and “normal” financial stability of activity;

- *social* – the farm has to have a good or a high social responsibility regarding farmers, workers, other agents, communities, and consumers, and contribute to the conservation of agrarian resources and traditions, improving welfare and living standards of farm households, and for the development of rural communities and society as a whole;

- *environmental* – the farm has to have a good and high ecological responsibility and its activity to be associated with a “socially desirable” con-

servation, recovery and improvement of the components of natural environment, respecting animal welfare and other socially determined standards related to the nature.

The hierarchical levels, which facilitate the formulation of the system for assessing the sustainability of Bulgarian farms, include selected by the leading experts in the area 12 Principles, 21 Criteria, 42 Indicators and Reference values (Figure 1). Indicators selection process and criteria are presented in details by Bachev (2015) and Bachev (2016).

Sustainability assessment is based on a first-hand information provided by the managers of 190 “typical” farms of different juridical type, size, specialization and location type collected in summer of 2016.<sup>1</sup> The managers were asked to

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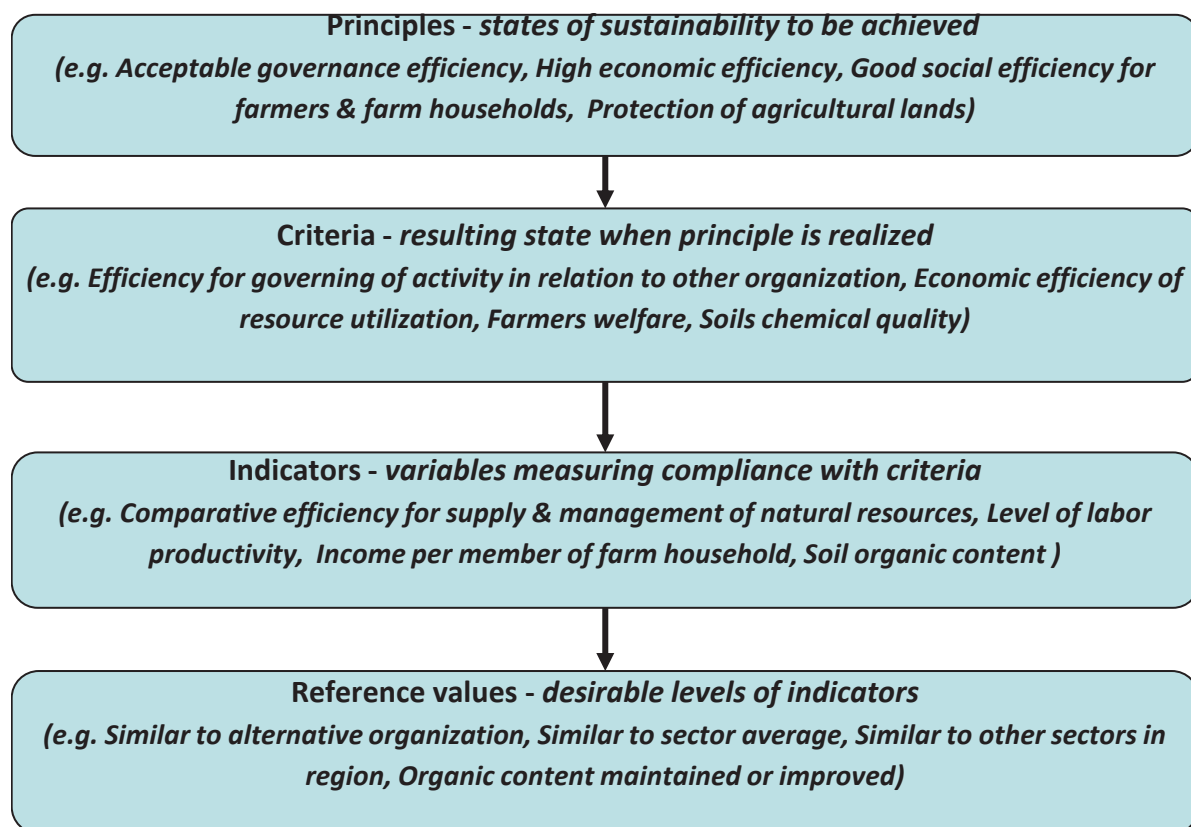


Fig. 1. Hierarchical levels of system for assessing sustainability of Bulgarian farms  
Source: Bachev, 2015.

give assessments for each indicator in four qualitative levels: High, Good/Average, Low, Unsatisfactory/Unacceptable. The estimates are later quantified and transformed into (unitless) Indexes using following scales: 1 for “High”, 0.66 for “Good or Average”, 0.33 for “Low”, and 0 for “Unsatisfactory or Unacceptable”.

Equal weights are used for integration of estimates for each Principle in a particular Aspect, and for each Criteria in a particular Principle, and for each Indicator in a particular Criteria. For interpretation of the quantitative levels following sustainability levels of farms are distinguished: “High” for range between 0.84 and 1 as, “Good” – range 0.5 to 0.82, “Low” – range 0.22 to 0.49, and “Non-sustainable” – between 0 and 0.2.

### Sustainability Levels of Bulgaria Farms

Multi-indicator assessment of the sustainability of Bulgarian farms demonstrates a *good* level (Figure 2). Environmental and social sustainability of the holdings are highest, while governance and economic sustainability are at the border with the low level. Therefore, improvement of the latter two is critical for maintaining the good sustainability of farms in the country.

Analysis of sustainability levels for major principles, criteria and indicators let us identify components contributing to individual aspects of farms’ sustainability. For instance, governance and economic sustainability of Bulgarian farms are low because of fact that Governance Efficiency and Financial Stability of holdings are low (Figure 3). Similarly, it is clear that despite the overall environmental sustainability is relatively high, the Preservation of Agricultural Lands and of Biodiversity are relatively low and critical for maintaining the achieved level.

In depth analysis for individual criteria and indicators allow to specify the elements, which enhance or reduce farms’ sustainability level. For instance, low levels of the Comparative Governance Efficiency and Financial Capability (Figure 4) are determined accordingly by low Comparative Efficiency of Supply of Short-term Inputs in relations to alternative organization, and unsatisfactory Profitability of Own Capital and Overall Liquidity of farms (Figure 5). Similarly, low levels of the Preservation of Agricultural Lands and of Biodiversity are determined accordingly by the insufficient Application of Recommended Irrigation Norms, the high level of Soils Water Erosion, and lowered Number of Wild Animals on farm territory.

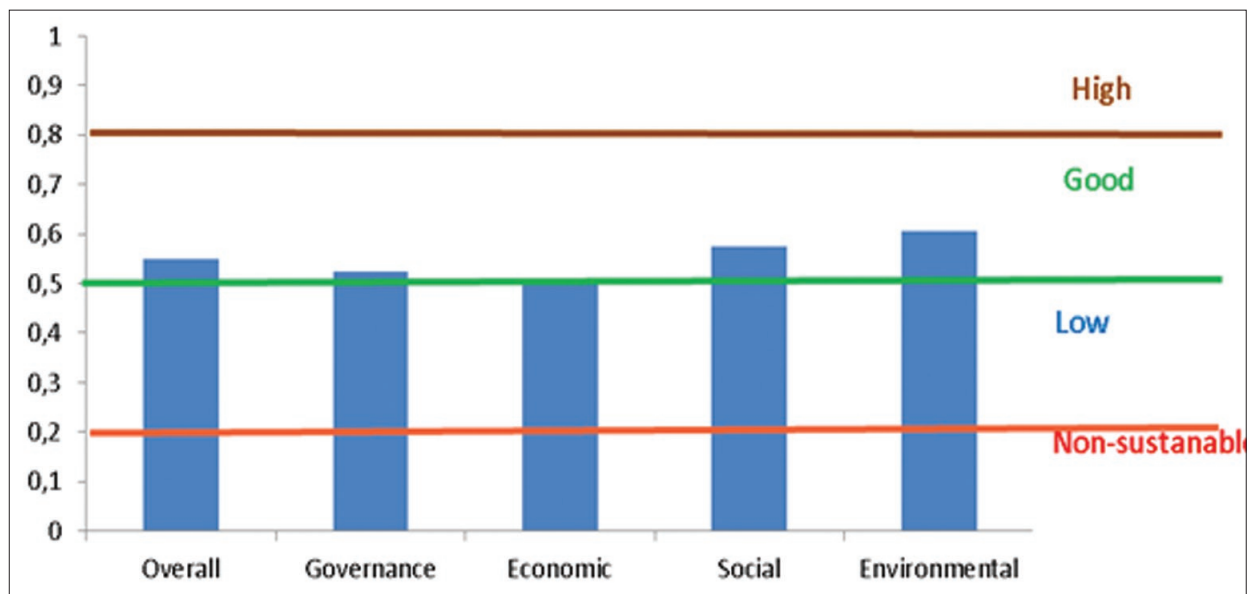


Fig. 2. Index of Sustainability of Bulgarian Farms

Source: Survey with farm managers, July 2016

Low levels of indicators also specify the specific areas for improvement of sustainability levels of farms through adequate change of management strategy and/or public policies for agrari-

an structures. For instance, despite that the overall Adaptability of Farms is relatively high, the Adaptability of Farms to Changes in Natural Environment (climate, extreme events, etc.) is rela-

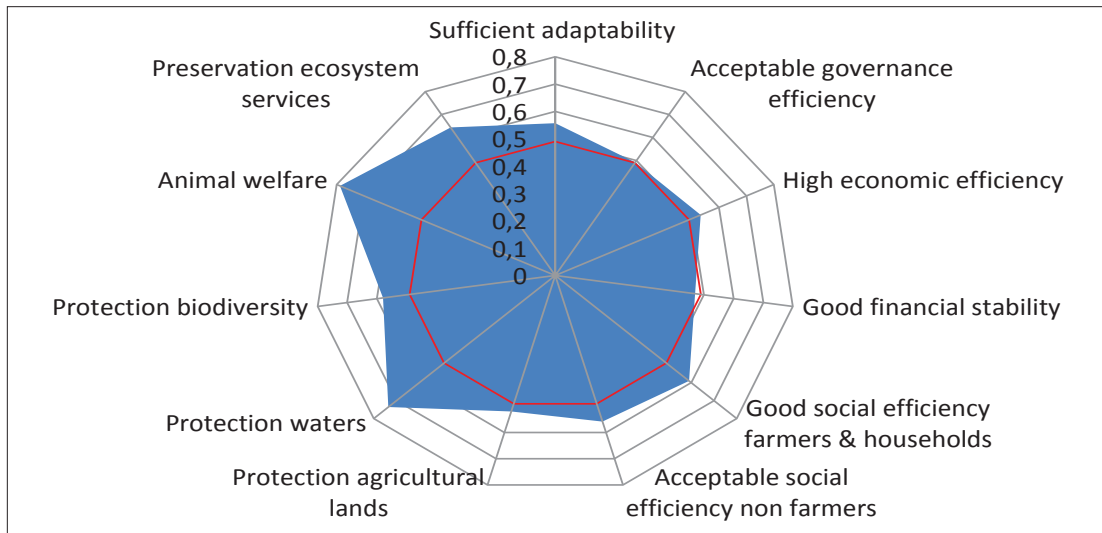


Fig. 3. Index of Sustainability of Bulgarian Farms for Major Principles

Source: Survey with farm managers, July 2016

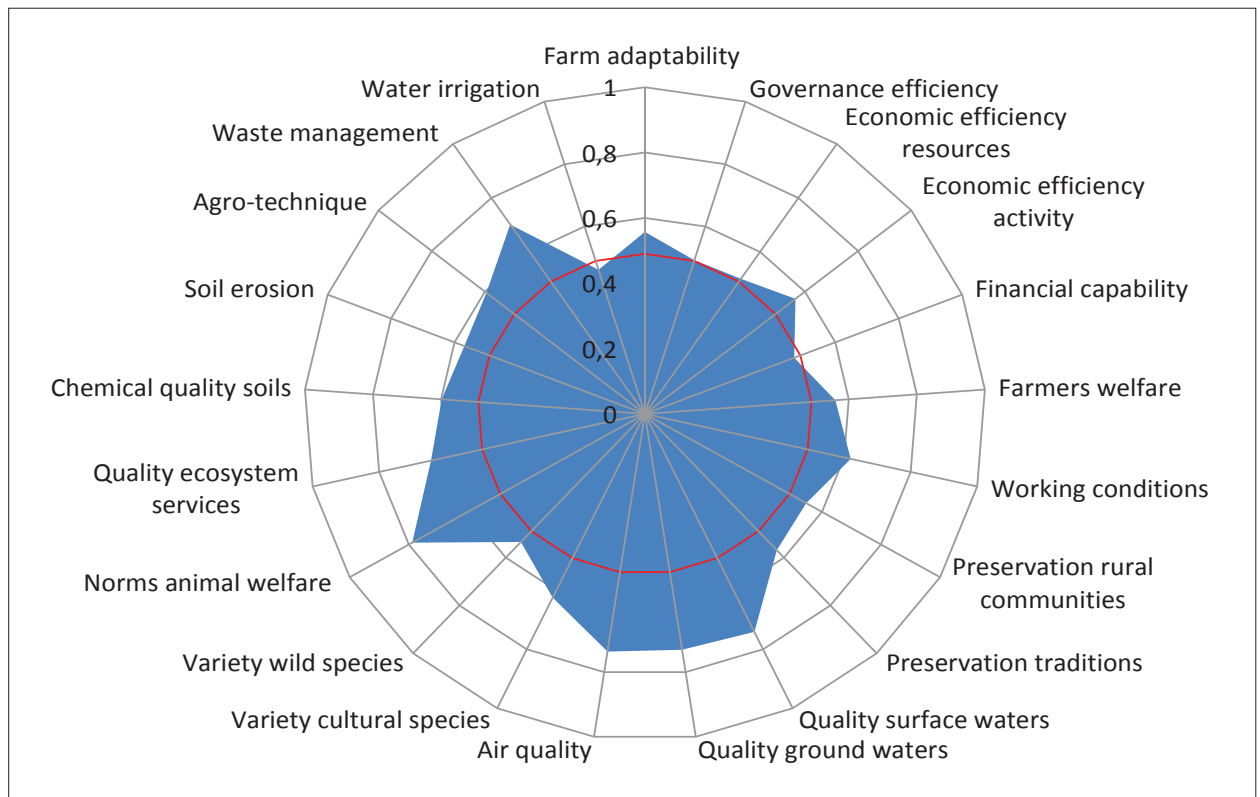


Fig. 4. Level of Sustainability of Bulgarian Farms for Individual Criteria

Source: Survey with farm managers, July 2016



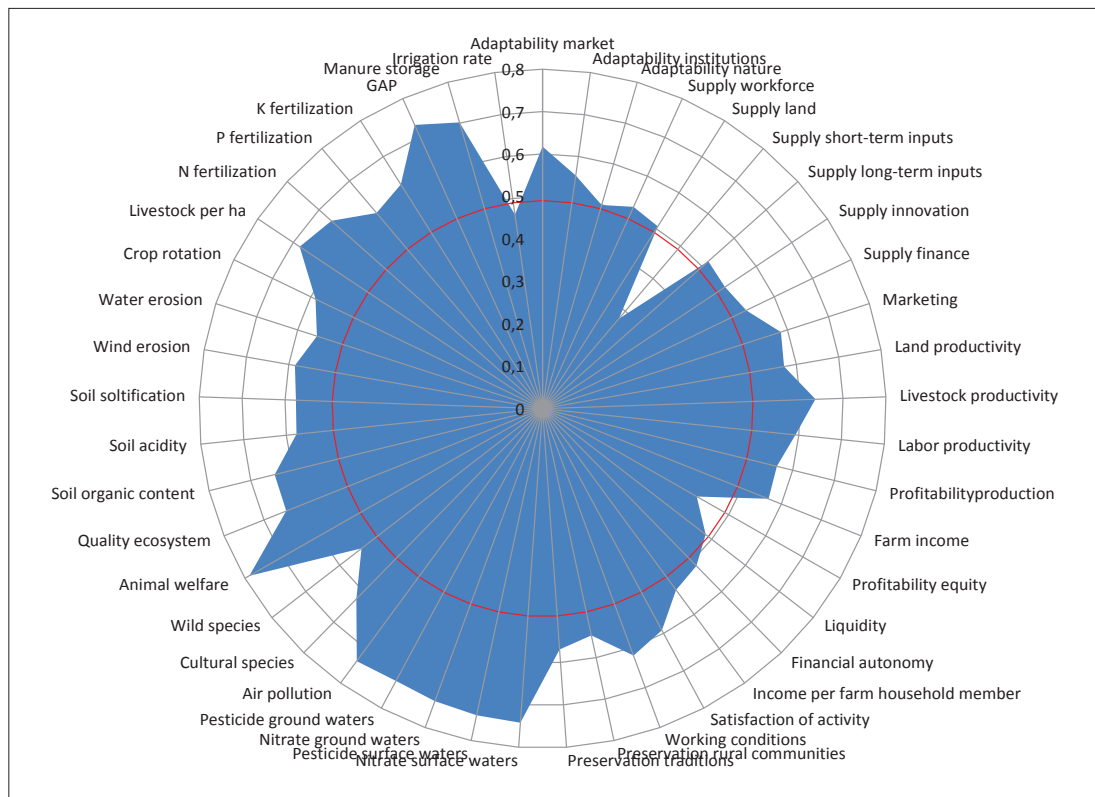


Fig. 5. Indicators of Assessing Sustainability of Bulgarian Farms

Source: Survey with farm managers, July 2016

tively low. Therefore, measures are to be undertaken to improve that type of adaptability through education, training, information, amelioration of agro-techniques, structure of production and varieties, technological and organizational innovations, etc.

Superior levels of certain indicators show the absolute and comparative advantages of Bulgarian farms related to sustainable development. At the current stage of development they are associated with the respecting Animal Welfare standards, Preservation of Quality of Surface and Ground Waters in respect of contamination with nitrates and pesticides, Preservation of Air Quality, implementation of Good Agricultural Practices, reduced Number of Livestock per unit of Farmland, acceptable Labor Conditions and comparative Satisfaction from Farming Activity, optimal Productivity of Livestock, good Adaptability to Market (prices, competition, demands), and Comparative Governance Efficiency of Marketing of Products.

There is a great variation in sustainability levels of farms of different type and location (Figure 6). Only holdings Predominately for Subsistence and Mix Livestock are with low sustainability. Economics, governance, and social sustainability of first ones are particularly low (Figure 7). The second group is with low economic, environmental and governance sustainability and marginal social sustainability.

Another category of farms is with a good sustainability, but with levels on or close to the border with inferior (low) level. In the latter group are holdings specialized in Vegetables, Flowers and Mushrooms having a low governance and economic sustainability, and not a particularly good social and environmental sustainability. In that group are Physical Persons and farms located in Northwest region of the country. Former are with a low economic sustainability and a marginal social and governance sustainability. The latter are with an economic sustainability and not particularly good social, governance and environ-

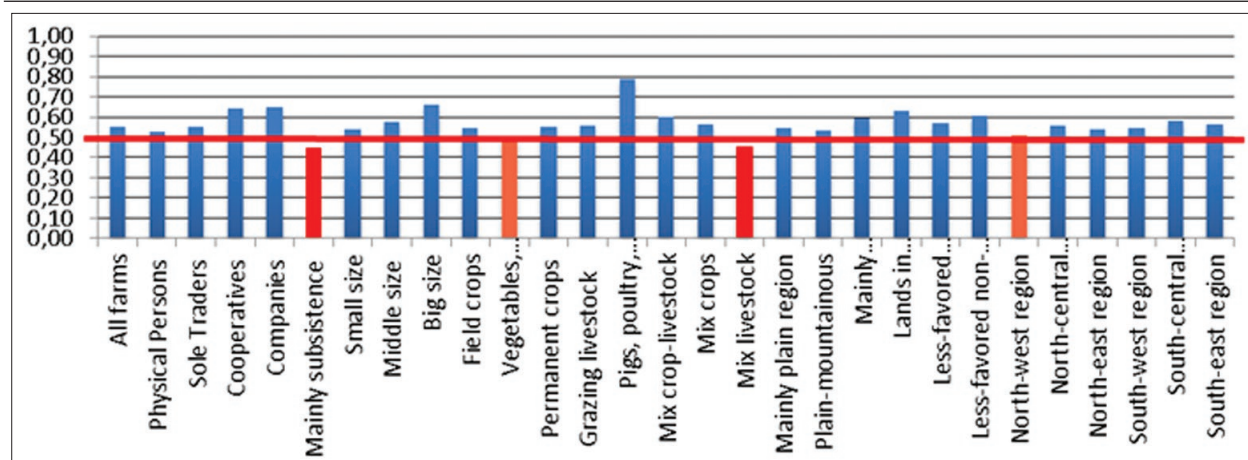


Fig. 6. Index of Sustainability of Bulgarian Farms of Different Type and Location

Source: Survey with farm managers, July 2016

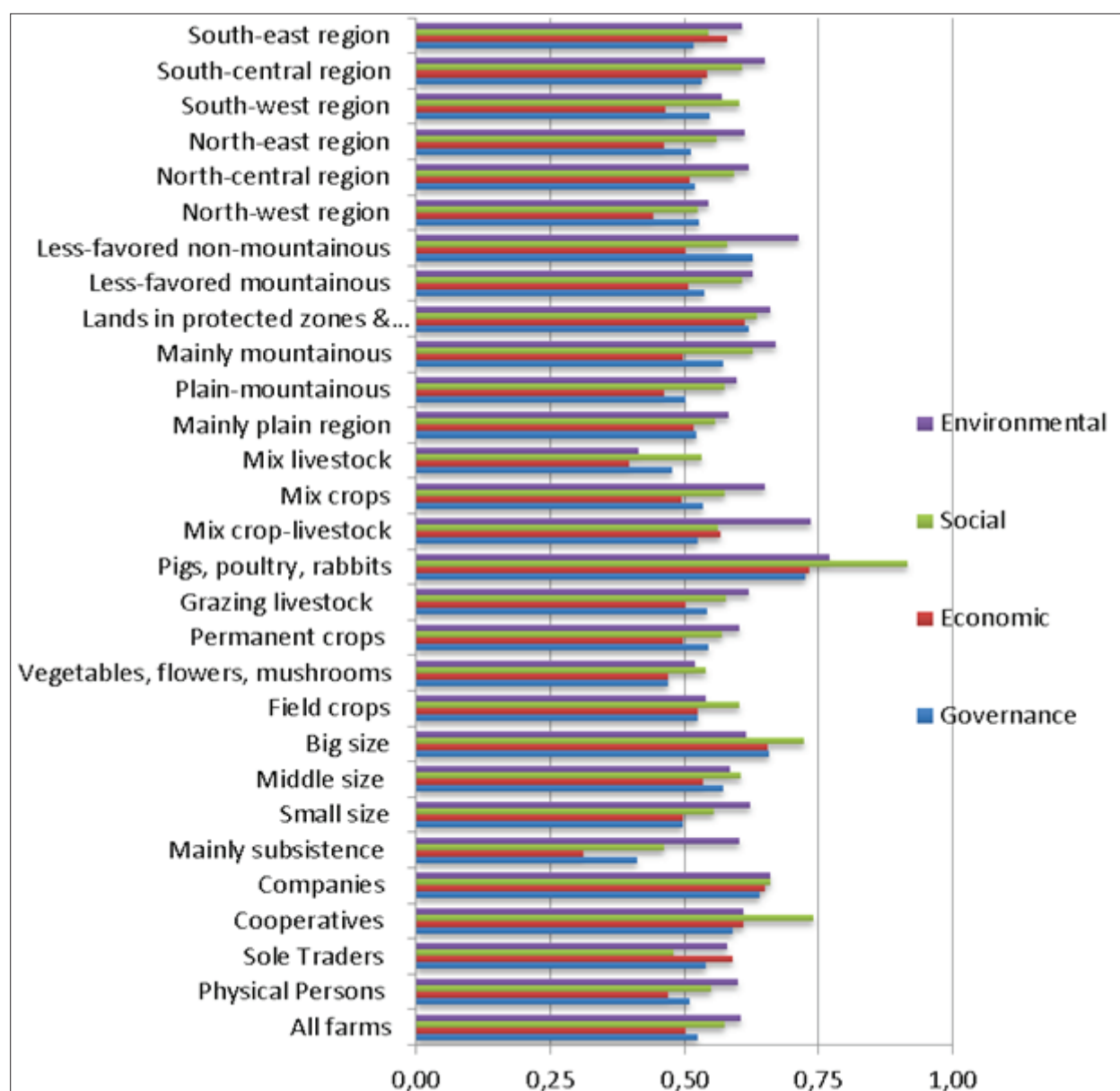


Fig. 7. Governance, Economic, Social and Environmental Sustainability of Bulgarian Farms

Source: Survey with farm managers, July 2016

mental sustainability. For all these farms measures have to be undertaken for improvement all aspects of sustainability.

With a low economic sustainability are also farms with Small size, specialized in Mix Crops and Permanent Crops, and those situated in Mountainous Regions, and in Northeast and Southwest regions of the country. Consequently, the overall sustainability of these farms is close to the border with the low level. For all these holdings measures are to be undertaken for increasing their economic sustainability in order to improve the overall level of long-term sustainability. With a low social sustainability are merely farms of Sole Traders, for which adequate measures are to be introduced for improvement of that aspect of their activity such as training, stimulation, regulation, support, etc.

With the best overall sustainability are Companies, Cooperatives and farms with Big size, all having high levels of governance, economic, social and environmental sustainability. Holdings specialized in Pigs, Poultry and Rabbits are with the highest sustainability, having very good levels for governance, economic and environmental aspects. Farms with Lands in Protected Zones and Territories, and those located in Non-mountainous Regions with Handicaps and in South-Central region are with the superior levels of sustainability. Former group are with a high governance, economic, social and environmental sustainability. Holdings in Non-mountainous Regions with Handicaps and in South-Central region are with relatively good levels of certain aspects of sustainability – governance and environmental for the first ones, and environmental and social for the latter. The rest aspects of sustainability of all these farms are with relatively low levels – accordingly for the former ones economic and social sustainability, and for the latter governance and economic sustainability. Similarly, Mix Crop-livestock farms are with a relatively high environmental sustainability, but with a lower level of governance sustainability. The latter necessitates to undertake measures to improve sustainability in aspects with critical inferior levels for these types of farm.

Furthermore, there is a significant differentiation in the levels of sustainability indicators for

farms of different juridical type, size, specialization and location (Башев, 2016).

Assessment of sustainability of individual holdings indicates, that there is a great variation in the share of farms with different levels of sustainability. The biggest portion of Bulgarian farms is with a good sustainability (68%) and only an insignificant part (under 2%) is with superior sustainability (Figure 8). At the same time, 30% of agricultural farms in the country are with low sustainability (26%) or unsustainable at all (4%).

The greatest share of farms with a good (88%) and high (6%) sustainability is among Companies, following by Cooperatives, of which 77% are with a good and 8% highly sustainable, and Sole Traders three-quarters of which are with a good sustainability. The smallest share of holdings with a good sustainability is among Physical Persons (65%), of which fewer than 1% are highly sustainable. Furthermore, more than a of latter farms are with a low sustainability (29%) or unsustainable at all (5%). Every fourth of Sole Traders is with low sustainability, like 15% of Cooperatives, and merely 6% of Companies.

There are also considerable differences in the portion of holdings with unlike sustainability depending of farm size. While all farms with Big size are with a good sustainability, more than a half of holdings Predominately for Subsistence are with low sustainability (41%) or unsustainable (12%). Around a third of farms with Small size and 24% of those with Middle size are with low sustainability or unsustainable.

Among farms with diverse specialization, the share of holdings with a good and high sustainability is greatest for Pigs, Poultry and Rabbits (100%), Mix-crops (78%), Permanent Crops (76%), Mix Crop-livestock (73%), Field Crops (72%) and Grazing Livestock (70%). On the other hand, majority of holdings in Mix-livestock are with a low sustainability (43%) or unsustainable (14%). A good portion of the farms specialized in Vegetables, Flowers and Mushrooms is also low sustainable (41%) or unsustainable (4%).

The share of farms with a good and high sustainability is significant among those located in Non-mountainous Regions with Handicaps



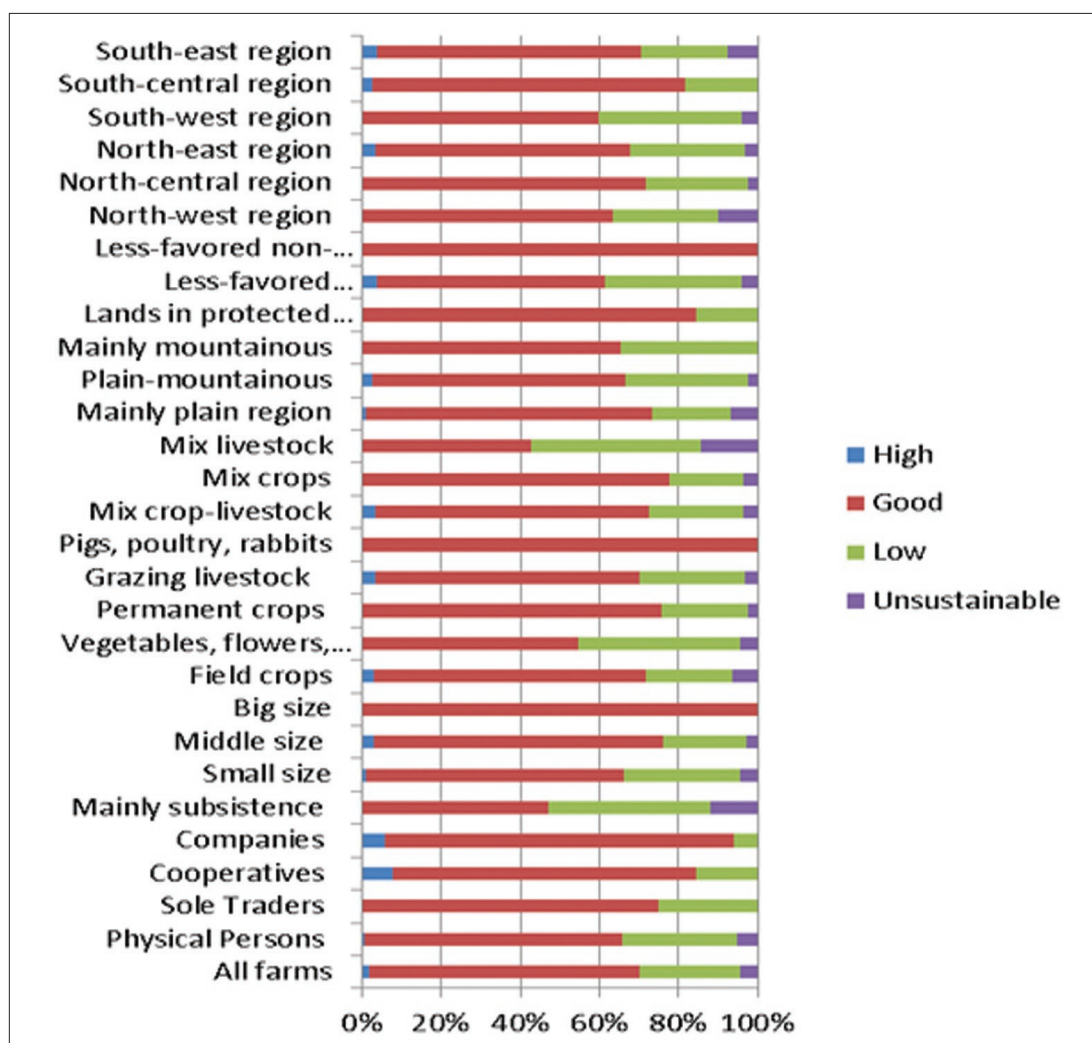


Fig. 8. Share of Bulgarian Farms with Different Levels of Integral Sustainability (percent)

Source: Survey with farm managers, July 2016

(100%), With Lands in Protected Zones and Territories (85%), in Plain Regions (74%), in South-Central (82%), North-Central (72%), and South-East (70%) regions of the country. Simultaneously, 40% of holdings in Southwest region with low sustainability or unsustainable, similar to 37% of those in Northwest and 32% in Northeast region. Northwest region is the leader in segment of unsustainable farms, where every tenth is unsustainable. Many of the farms in Mountainous Regions with Handicaps (38%) and Mountainous Regions (35%), and a third in Plain-mountainous Regions are low sustainable or unsustainable.

Data for dispersion of farms of different type in groups with diverse level of sustainability has

to be taken into account when forecast the number and the importance of holdings of each kind, and modernize public (structural, sectorial, regional, environmental etc.) policies for supporting agricultural producers of certain type, sub-sectors, eco-systems and regions of the country.

Analysis of structure of farms with different level of sustainability for each aspects gives an important information about the long-term sustainability of farms and factors for its improvement. Our assessment shows that 40% of holdings in the country are with a low governance sustainability (35%) or managerially unsustainable (5%). That means that comparative governance efficiency for supply of labor, land, finance, etc. and/

or marketing of produce in these farms is lower than other feasible organization, and adaptability to evolving socio-economic, institutional and natural environment is insufficient. At the same time, 42% of all farms are with a low economic sustainability (34%) or unsustainable at all (8%). That means that economic and financial efficiency of activity and resource utilization in a good portion of Bulgarian farms is low and do not correspond to modern management and competition requirements.

The share of farms with a good and high governance sustainability is the biggest among Companies (94%) and Cooperatives (77%), holdings with Big (89%) and Middle (75%) size, specialized in Pigs, Poultry and Rabbits (100%), Permanent Crops (63%), Mix Crops (63%), Field Crops (63%) and Mix Crop-Livestock (62%), and those located in Non-mountainous Regions with Handicaps (100%), with Lands in Protected Zones and Territories (77%), Plain Regions (63%), Mountainous Regions with Handicaps (62%), and in North-Central (67%), South-East (63%), North-West (60%) and South-West (60%) regions of the country. The greatest portion of farms with a low or absence of governance sustainability are among Sole Traders (50%) and Physical Persons (45%), holdings Predominately for subsistence (65%) and Small size (49%), specialized in Vegetables, Flowers and Mushrooms (50%), and located in Plain-mountainous Regions (48%), and in North-East (45%) and South-Central (45%) regions. Thus, a significant part of Bulgarian farms are with insufficient governance sustainability for meeting contemporary socio-economic, institutional and natural challenges, and they have to modernize or will cease to exist in middle term.

The section of farms with a good and high economic sustainability is the biggest among Companies, (88%), Cooperatives (85%), and Sole Traders (62%). A considerable portion of firms is with a high economic sustainability (18% of Companies and 12% of Sole Traders), and all farms with Big size are with a good economic sustainability. All these proves the comparative economic advantages of registered and large holdings. The share of farms with a good and high economic

sustainability is also significant for holdings with Middle size (66%), specialized in Pigs, Poultry and Rabbits (100%), Crop-Livestock (66%), Field Crops (59%), Mix-Crops (59%), and Permanent Crops (59%), and those with Lands in Protected Zones and Territories (77%), in Plain Regions (63%) and Mountainous Regions with Handicaps (62%), and in South-East (78%), South-Central (66%) and North-Central (62%) regions of the country.

The greatest portion of holdings with a low or none of economic sustainability is among Physical Persons (48%), most farms Predominately for Subsistence (88%), and among specialized in Mix-Livestock (57%), Grazing Livestock (47%), and Vegetables, Flowers and Mushrooms (45%), and located in Mountainous (54%) and Plain-mountainous (45%) regions, and North-East (58%) and South-West (52%) regions of the country. A significant portion of all these groups of holdings are economically unsustainable, which concerns almost every tenth of Physical Person, 29% of farms with Mix-livestock, each fifth one North-West region and 12% in South-West region, 18% of holdings Predominately for Subsistence, 9% of farms specialized in Vegetables, Flowers, and Mushrooms, 9% of Small farms, and 7% of those located in Plain-mountainous regions. That indicates that a considerable fraction of Bulgarian farms are currently with inferior economic sustainability or economically unsustainable, and most likely will cease to exist in near future unless effective measures are taken (public support, regulations, etc.) for amelioration of their economic sustainability.

As far as social aspect is concerned the majority of farms (77%) are with a good (71%) or high (6%) sustainability. Despite that holdings with a low social sustainability are numerous (18%), and each tenth one is socially unsustainable. That means, that the social efficiency of holdings for farmers, communities and society does not correspond to modern demands and standards.

A good portion of Cooperatives is with a good sustainability (77%), and the rest part (23%) is highly socially sustainable. The share of Companies with a good (82%) and high (12%) social sustainability is enormous, and only 6% are low

sustainable in social respect. A significant part of Physical Persons is with a good (70%) or high (4%) social sustainability. Nevertheless, more than a quarter of these holdings are with a low sustainability (20%) or unsustainable (7%) in social term. With the greatest portion of low sustainable in social aspect are Sole Traders – 38% of total number.

The level of social sustainability increases along with the size of holdings. Each third farm with Big size is with a high social sustainability, and another major part are with a good social sustainability (56%), while the share of low socially sustainable is 11%. Among Middle size holdings dominates fraction with a good (72%) and high social sustainability, while almost every fifth one is with low social sustainability (15%) or unsustainable at all (4%). With the greatest share (35%) of low sustainable or unsustainable in social respect are holdings Predominately for Subsistence (including 18% social unsustainable) and every fourth farm with Small size (4% socially unsustainable).

In groups with different product specialization, the biggest portion of farms with a good or high social sustainability is in Pigs, Poultry and Rabbits, Field Corps and Mix-crops. On the other hand, 37% of holdings specialized in Vegetables, Flowers and Mushrooms are with a low social sustainability (32%) or socially unsustainable (5%), followed by farms in Mix-livestock where 29% are with inferior level of social sustainability (including 14% socially unsustainable).

The farms with a good and high social sustainability are located in Mountainous regions and in Protected Zones and Territories, in Southwest, South-Central and North-Central regions. The most numerous are socially low sustainable or unsustainable holdings in Plain (accordingly 21% and 8%) and in Plain-mountainous (19% and 5%) regions, in North-West (23% and 10%), South-East (22% and 7%) and North-East (26% and 3%) regions. These data show, that a good portion of Bulgarian farms currently are with a low social sustainability or socially unsustainable, which compromises their overall middle and long-term sustainability. Therefore, measures have to be undertaken to improve income,

labor and living conditions of farmers and farm households as well as their importance for preservation of rural communities and traditions.

Environmental sustainability of the majority of Bulgarian farms is good (69%) or superior (9%), while a considerable portion is with a low sustainability (18%) or environmentally unsustainable (4%). These figures clarify that eco-efficiency in a large number of farms do not meet contemporary norms and standards for preservation of lands, waters, air, biodiversity, ecosystem services, and animal welfare. A great portion of Companies (18%) and a good part of Physical Person (9%) and Cooperatives (8%) are with a high environmental sustainability, while the majority of holdings in these groups are with a good eco-effectiveness (59%, 68% and 69% accordingly). Despite that a main fraction of above farms are with a low eco-sustainability (24%, 18% and 23% accordingly), as every twentieth of Physical Persons is environmentally unsustainable. The biggest is the share of farms with a good and high eco-sustainability among Predominately for Subsistency (76% and 12% accordingly), with Small size (71% and 10%), and Big farms (67% and 11%). The greatest portion of holdings with low or unacceptable eco-effectiveness is for Middle (27%) and Big (22%) size groups.

The share of farms with a strong environmental sustainability is significant for holdings specialized in Crops-Livestock (21%), Grazing Livestock (17%), Mix-crops (11%) and Permanent Crops (7%). All farms specialized in Pigs, Poultry and Rabbits, the majority in Mix-crops (81%), and by three-quarters in Crops-livestock and Permanent Crops are with a good environmental sustainability. At the same time, a considerable part of farms specialized in Vegetables, Flowers and Mushrooms is with a low eco-sustainability (32%) or ecologically unsustainable (14%), similarly to these in Mix-livestock (correspondingly 29% and 14%) and Field Crops (31% and 3%). For farms specialized in Permanent Crops is also considerable portion of environmentally unsustainable holdings (7%), while for those with Grazing Livestock for low sustainable in environmental respect units.

All farms located in Non-mountainous Regions with Handicaps are with a good environmental sustainability as well as the majority of those with Lands in Protected Zones and Territories (93%). Most holdings with a high eco-sustainability are in Plain-mountainous (12%) and Mountainous (12%) regions of the country, and a major part of those situated in Mountainous Regions and Mountainous Regions with Handicaps (each 77%). At the same time, the biggest fraction of holdings with a low eco-sustainability or environmentally unsustainable are in Plain-Mountainous (26%) and Plain (25%) regions, and in Mountainous Regions with Handicaps (19%). The greatest share of farms with a high and good sustainability are in North-Central (3% and 87%) and South-Central (18% and 63%) regions, while with a low eco-sustainability or environmentally unsustainable in South-West (28% and 4%), North-West (17% and 10%), South-East (26% and 0%), and North-East (23% and 3%) regions. That indicates, that a good number of Bulgarian farms are with a low eco-sustainability or environmentally unsustainable, which also compromises their overall long-term sustainability. Therefore, measures have to be undertaken for improving the eco-efficiency in these groups of farms through training, informing, stimulation, sanctions, etc.

## Conclusion

Applied holistic framework gives a possibility for assessing, analyzing and improvement of farms' sustainability level and it has to be further discussed, experimented, improved and adapted to specific conditions of functioning and evolution of farms, and the specific needs of decision-makers in different levels.

Our initial assessment has found out that the overall sustainability of Bulgarian farms is at a good level, with superior levels for environmental and social sustainability, and close to the border with the low level for governance and economic sustainability. With the best sustainability are Companies, Cooperatives, and farms with Big size, holdings specialized Pigs, Poultry and Rabbits, with Lands in Protected Zones and Ter-

ritories, and these located in Non-mountainous Regions with Handicaps, and in South-Central region, while holdings which are Predominately for Subsistency and with Mix-livestock specialization are with a low sustainability. Furthermore, there is a great variation in the share of farms with different levels of sustainability as each forth one is with a low sustainability and 4% unsustainable at all.

Having in mind the importance of farms' sustainability assessments, such calculations have to be expanded and their precision and representation increased. The latter requires a closer cooperation of all related parties and involvement of farmers, agrarian organizations, local and state authorities, interest groups, research institutes and experts. What is more, the precision of evaluations has to be improved, and in addition to assessments of farms managers they are to be based on other adequate information from field studies and tests, statistical, etc. data, and expertise of specialists in the area.

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