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SMALL FARMS IN THE FRAMEWORK OF SUSTANABLE DEVELOPMENT OF THE AGRICULTURAL SECTOR IN THE REPUBLIC OF MOLDOVA

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Abstract

The general well-being of small farms represents an important and actual issue for the Republic of Moldova. Taking into consideration that they are more likely to be exposed to hazards of different origin, it is becoming increasingly important to enhance their living and working conditions. The aim of the paper is to analyse the current situation of small farms in the Republic of Moldova in the context of sustainable development of the agricultural sector and emphasize their future possibilities of progress. For the purpose of the research, a survey has been carried out on a sample of 552 small farms from North, Centre and South regions of the Republic of Moldova. The main findings present prospects for development of small farms in the country under certain conditions, like: specialization in high added value production, efficientization of working time, modernization of farming activities, establishment of direct relations with the market, etc.

Key words**:** *small farms, sustainable development, agriculture, Republic of Moldova*

INTRODUCTION

The dynamic character of the agricultural sector has manifested during the past decade and can be attributable to a large variety of factors, such as disruption of production, distribution networks enhancement, climate change, economical strategies and globalization or investments dynamics [5]. Therefore, taking into account that in 2019 Moldovan agricultural sector's share in GDP accounted for 10.1% and 21% of the population with usual residence were employed in this segment, the sustainable development of the agricultural sector in the Republic of Moldova should represent a key priority in the context of growth of the national economy.

In the Republic of Moldova, about two thirds of agricultural land is cultivated by agricultural farms that cultivate more than 50 ha of land [6]. At the same time, the number of smallholders accounts for approximately 98% of the total number of land users [7] and their role played in the further development of the agricultural sector should not be neglected. Small farms contribute significantly to ensuring food security, especially in developing countries [7]. They have a considerable social impact, as they are presented as a safety net for the rural inhabitants. Small farms are more likely to preserve the natural environment and biodiversity, produce public goods and they have a significant role in ensuring economic growth, at least at the local level.

The issue related to sustainability of small farms has been researched by various scholars. Thus, D'Souza and Ikerd (1996) indicate that the potential "benefits" of small farms appear to outweigh the potential "costs" when viewed in a sustainable development context. Further, the characteristics of small farms seem to most closely resemble those of sustainable systems [1].

After carrying out a comprehensive analysis of studies cited in benchmark publications in agroecology to sustain the advanced sustainability of small farms, Ebel (2020) concludes that there is evidence that small farms are more sustainable than large farms, but this depends on diverse management strategies, which are more frequently applied in small farms, not directly on their size [2].

In the Republic of Moldova, small farms have been analyzed in the framework of the paradigm of sustainable development by Stratan et al in a chapter of an international monograph [7] mentioning that small farmers can be more flexible and more adaptable to changes occurred on the market. Moroz et al (2014) presented the trends and perspectives of small farms versus large farms indicating that the multidimensional role of small farming for rural areas in the Republic of Moldova is demonstrated by active involvement in different non-agricultural activities that are oriented towards the adding value to the agricultural raw material, but also to related services such as trade, transport and agro-tourism [4]. At the same time, Timofti et al (2015) mention that large fragmentation of the agrarian structure adversely affects the economic results and land productivity. Fragmentation contributes to a significant reduction in the small farms competitiveness [9].

Therefore, the aim of the paper to analyse the current situation of small farms in the Republic of Moldova in the context of sustainable development of the agricultural sector and emphasize their future possibilities of progress is achieved by authors through an analysis based on survey data from 552 small farmers from the Republic of Moldova.

MATERIALS AND METHODS

The current paper is based on processing and analysis of the data obtained from a survey of small farmers from the Republic of Moldova.

Taking into account that there is no an unanimously accepted definition of small farm in the Republic of Moldova and the concept of small farm is not expressly defined within a legal act or regulation, the existing lack of data on estimating the standard output of a farm led to the acceptance by authors of the size criteria for small farms (less than 10 ha), which better fits the particularities of the Republic of Moldova.

Therefore, for the research purpose, a survey on a sample of 552 small farmers from three geographical regions of the country (North, Centre and South) was carried out in 2019. The authors will use just a few indicators obtained as a result of the survey related to socio-economic situation of farmers, market access and future development intentions. One limitation of the received data is that it does not include Transnistria and Gagauzia regions of the country.

RESULTS AND DISCUSSIONS

The social well-being of smallholders represents an important and actual issue for the Republic of Moldova. Taking into account that they are more likely to be exposed to indigenous and exogenous hazards, it is becoming increasingly important to enhance their living and working conditions [7]. In such a way, small farmers will be more adapted to the current conditions from the sector and will represent a generator of sustainable development of the agricultural sector.

Age of managers of small farms represent an important indicator related to the future development or modernization of the farm. According to the carried out survey, most of the surveyed farmers are placed in the range between 36 – 63 years old, followed by the group of young farmers till 35 years old, while 57 of farmers are over 64 years old (Figure 1). The average age of the surveyed farmers is 46.4. As for the gender breakout, 25% of the questioned managers of farms are women, while men account for 75%.

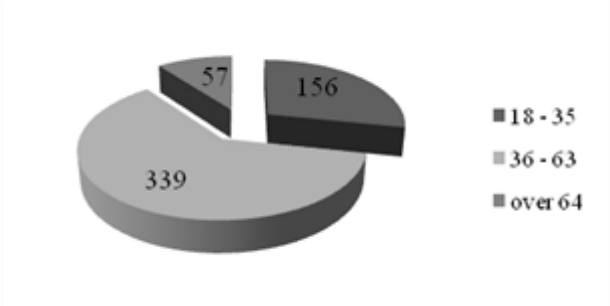

Fig. 1. Age of surveyed farmers, years old
Source: [8].

In regard to the education level of farmers, most of smallholders have a higher bachelor degree (231 farmers), while 166 farmers have secondary education, followed by 112 farmers with vocational education, 30 with general

education and 1 with primary education. Only 12 farmers have a higher master degree (Figure 2). One particularly important moment is that out of the 552 respondents, 175 have received education in the field of agriculture, while 377 farmers have no studies in this field. This can be explained by the fact that not all farmers intended from the early beginning to deal with agriculture, but as a result of the low level of non-agricultural activities in rural areas, impossibility to find a job place according to the held specialization, desire to remain at home and not to emigrate determined their involvement in the agricultural field. From the specialization point of view, this may represent a challenge for the sustainable development of the sector, as most of small farms are not only managers, but also have the function of farmer, having to deal with all the works related to the land/farm. Lack of knowledge may determine a deficient management of farm or even less production and income as a result of lack of specialized information in the field. Nevertheless, a promising fact is that out of the 552 interviewed farmers, 287 mentioned that they participate in the system of continued education, meaning they are really interested in gaining specialized knowledge and learning modern agricultural practices.

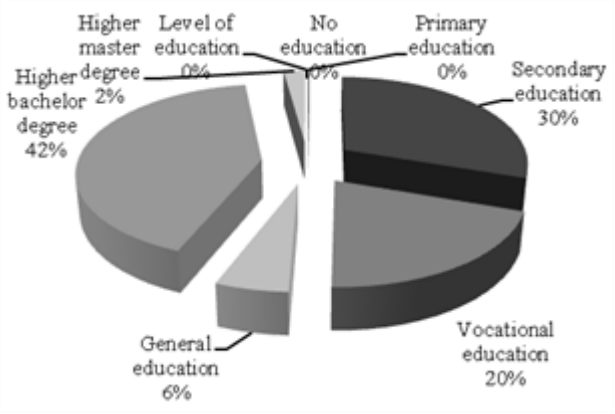

Fig. 2. Level of education of surveyed farmers, %
Source: [8].

In regard to farm specialization, out of the surveyed producers, 131 farms have a mixed specialization, meaning that more than 2/3 of the total production does not belong to one crop, being mixed. Also, 124 producers are specialized in fruit growing, 74 in growing field crops – cereals, 63 - other perennial plantations, 47 – vegetables, 44 – in growing other field crops besides cereals, 31 – other types (i.e. bees, rabbits, nutria, etc.), 23 in growing grapes for wine, 7 – other granivores, 5 – milk producers and 3 – granivores (Figure 3).

These data confirm the previous finding of Moroz et al that small farms, especially subsistence and semi-subsistence farms generate a limited surplus of high value-added crops [4]. The significant number of respondents with mixed specialization of farm indicate on the desire to diversify the production in order to anticipate some potential risks in one sub-sector or another or to ensure the household with various type of production for own consumption. The livestock sector is still not very attractive for small farmers, as it is a very demanding sector that requires significant investments of funds and time. Especially for smallholders, it has additional risks, being subject to a strong dependence with the cereal and forage sub-sector. As a result of the decrease in the harvest of cereal crops, there is always anticipated an increase in their prices, which will contribute to the reduction of feed volumes, and directly, the decrease in the number of animal heads.

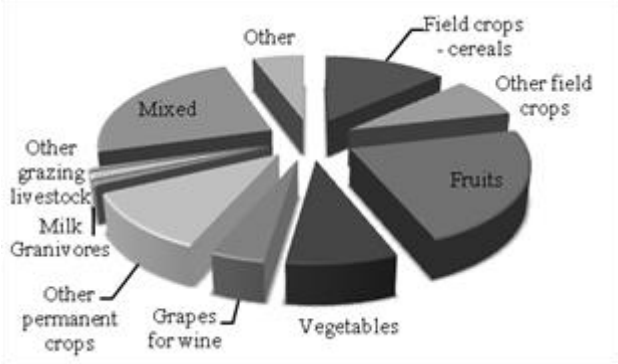

Fig. 3. Farm specialization, number of surveyed farms
Source: [8].

Most of the surveyed farmers are dependent from agriculture in terms of income. Only 46 farmers indicated that the share of income from agriculture ranges between 0 - 20% in the total income and 72 – between 21 and 40%. 434 farmers indicated on the range between 41 and 100% of income from agriculture as a share of total income (Figure

4). Besides offering the necessary products for own consumption, small farms in the Republic of Moldova ensure the owners and their families with a certain degree of income. For a significant share of respondents, agricultural activity is the main generator of household income, being followed by employment in other sectors, self-employment, remittances, etc. Glover and Kusterer identify a major goal of small farm to be to increase the security and income of their families while retaining their independence as owners and operators of a farm enterprise [3]. This goal provides a motivation that might ensure their long-term economic sustainability [1].

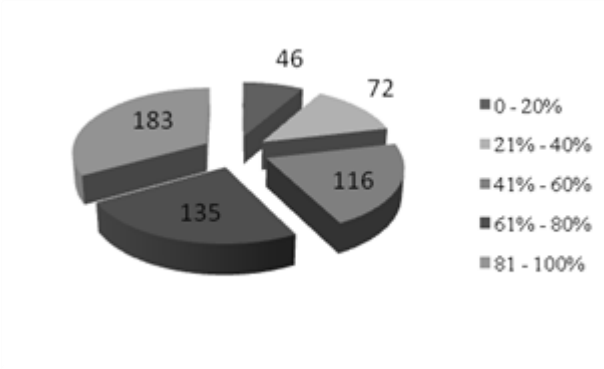

Fig. 4. Share of income from agriculture in relation to the total income
Source: [8].

At the same time, when being asked to assess the financial situation of the household, 57.1% of farmers mentioned that they have enough money to survive, but the standard of living is below the average in the country, 31.3% indicated that they can define their situation as comparable to the average in the country, 8.2% stated that they do not have enough for everyday needs, and have to live on borrowed money or use social benefits, while 3.1% indicated that they can afford a lot without saving money, their standard of living being above the average and only 0.4% mentioned that their financial situation is very good, and they can afford practically everything they need.

As for the current investments in agriculture, being asked about if farmers invest money in the maintenance or development of agricultural production, most of the respondents indicated that they invest funds. In such a case, 48% of respondents mentioned that they invest only from their income, 43% indicated that they invest but partly have to support their selves with loans or credits, 8% stated that they do not invest because can not afford and only 1% indicated they invest, but in whole from loans or credits (Figure 5).

Savings are an important aspect of the functioning of agricultural holdings, as they allow farmers to have a direct influence on the development and changes in their economic activity, as well as being a vital element of financial security in case of unforeseen events [11].

Therefore, the indicator of 48% of small farmers that mentioned they invest in agriculture only from their income is much less that the one of 97% of small individual farms in Poland that were able to self-finance and generate savings from their core business [11].

At the same time, investment of funds in the maintenance or development of their farms expressed by 91% of interviewed farmers indicates on the willingness to continue to activate in this sector, which should be supported by specific targeted programs that would enhance the access of smallholders to financial services.

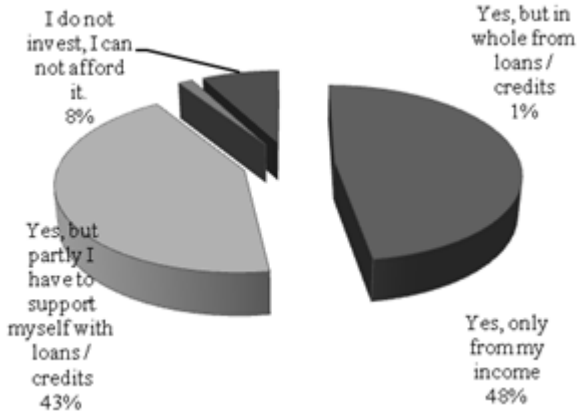

Fig. 5. Farmers' opinion on the question "Do you invest money in the maintenance or development of your agricultural production?"
Source: [8].

The most common indicator for differentiating small farms is the physical threshold expressed in farmland areas such as hectares (ha) or utilized agricultural area

(UAA). Another structural indicator is the size of labor force – annual working units (AWU). Small farms generally use a lower labor input than larger farms [7].

Therefore, based on the results of the survey, one can note that not only farm managers are involved in agricultural activities in their farms, but also their spouses (partners). In average, a farm manager works about 6.9 hours daily at his / her farm, while spouse (partner) is involved for about 5.8 hours (Table 1). At the same time, it is worth mentioning that out of the surveyed farm managers, 288 respondents mentioned they also work outside the farm. This indicator may have an important correlation with the income factor, as one of the reasons for being involved in other activities than agriculture is the low level of income from agricultural work, impossibility to ensure the family with the necessary needs only based on income from agriculture, seasonality of income from agricultural activity, as well as increased risk due to climate conditions or other endogenous or exogenous factors.

Table 1. Daily working time (average in a year) in hours

	No. of persons	Average daily working time
Farm manager - work on farm	551	6.9
Farm manager - work outside the farm	288	5.1
Spouse/ partner - work on farm	401	5.8
Spouse/ partner - work outside the farm	201	4.0
Other members altogether - work on farm	80	8.0
Other members - work outside the farm	8	4.5

Source: [8].

Access to market represents another indicator related to the future development of farms. Being asked about what part of agricultural production is intended for sales, 383 respondents mentioned that the share of sold production is between 81 – 100% of the total amount of production, meaning that they understand agriculture mainly as an income generating activity. 79 of respondents indicate on the shares between 61 – 80%, 34 – between 41 – 60%, 13 – between 1 – 20% and 11 – between 21 – 40%. 32 smallholders mentioned they do not sell at all their agricultural production (Figure 6). Therefore, in the Republic of Moldova activities related to farming are seen as activities not only for ensuring self-consumption within the household, but also in terms of obtaining income.

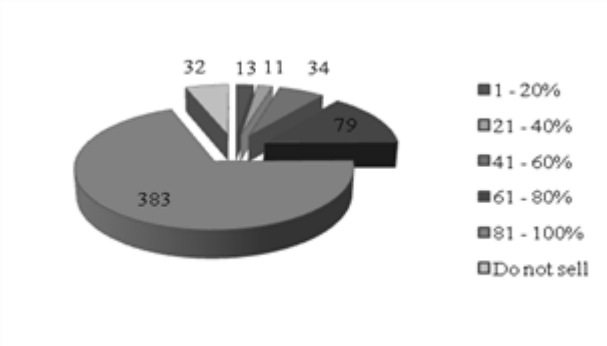

Fig. 6. Farmers' opinion on the question "What part of agricultural production goes on sale (%)?"
Source: [8].

Being asked if the farm sells agricultural products to the market, through which distribution channels, most of respondents mentioned they sell production to local warehouses, local stores and intermediaries, being followed by street markets, marketplace and bazaars. 97 of respondents indicated they sell a certain amount of production to processing plants, while 27 – sell it directly from the farm. Only 10 respondents stated they sell their products in retail chains (Table 2).

Table 2. If the farm sells agricultural products to the market, through which distribution channels (specify the estimated share of a given form of sale in brackets)

	Local warehouse, local store, intermediary	Street markets, marketplace, bazaar	Retail chains	Processing plants	Directly from the farm	Trade fairs	Via websites
Number of persons	396	184	10	97	27	11	0

Source: [8].

It is worth mentioning that when accessing the markets, small farms encounter more difficulties compared to larger ones. First of all, their production capacity is quite limited due to small areas and limited amount of harvest. In such a way, they have no much diversified options for selling their products. Small farms usually sell via long value chains which include intermediates that usually set the price due to the low bargaining power of smallholders. At the same time, due to financial reasons, farmers are lacking in capacities to certify their production. Establishment of associations of producers may represent a solution to the described problems, as there will be possible to ensure large quantities of production, to diversify marketing channels and joint investments can be made in order to develop post-harvest infrastructure.

According to 1990 USDA Farm Bill, sustainable agriculture means an integrated system of plant and animal production practices having a site-specific application that over the long term will: satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agricultural economy depends; make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; sustain the economic viability of farm operations; and enhance the quality of life for farmers and society as a whole [10].

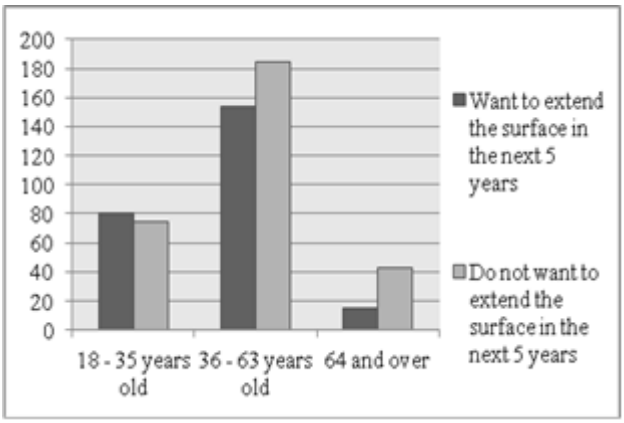

Fig. 7. Interviewed small farmers' intentions for the next 5 years
Source: [8].

Future intentions of small farmers in the Republic of Moldova are strongly connected to the sustainable development of the entire sector. Being asked about their intentions of expanding the current agricultural activities, most of the small farmers, 54.9% answered they do not plan to extend the surface in the next 5 years and 45.1% indicated they would like to extend (Figure 7).

Among the age groups, farmers between 18 and 35 years old are more likely to extend than to leave it as it is (51.6% for and 48.4% against), while for the rest of age groups 36 – 63 years old the proportion shifts to the against group (54.6% compared to 45.4% pros) and when increasing the age group, much less smallholders intend to expand the area (25.9% pro and 74.1% against).

The answers received are not very surprising, as small farmers experience difficulties specific for their sizes, mainly related to intensive labour work and dedication of most of their time to farming activities and additional plots would require much more efforts and time; low level of mechanization in small farms require additional human capital which due to poverty and excessive migration is difficult to find in rural areas; every enlargement requires additional investments and funds which are not accessible for smallholders due to limited financial capacities and lack of targeted programs.

Nevertheless, the desire of 45.1% of surveyed persons to expand the surface may contribute to the further development of the sector especially through valued added production, growth of distinguished products that can find a niche on the market and desire to invest in this sector.

CONCLUSIONS

Small farms from the Republic of Moldova contribute considerably to the sustainable development of the entire agricultural sector, being a safety net for rural inhabitants and providing households with products both, for own consumption and for selling purposes. They have a say in ensuring food security, especially in rural regions and have a

noteworthy role in ensuring economic growth, at least at the local level.

Specialization in high value added production represents an important indicator in terms of future development, but additional factors are needed to be taken into account for increasing their sustainability, like age of farmers, level of education and specialized studies in the field, modernization of farming activities and rationalization or the working time.

In terms of market penetration, establishment of associations of producers may represent a solution to boosting direct access to market and shorten the value chain, as this will lead to diversification of marketing channels and joint investments for developing post-harvest infrastructure.

Desire to invest in maintenance or development of their farms expressed by 91% of interviewed farmers and the will to increase the surface in the next 5 years mentioned by 45.1% indicates on the motivation to carry on activating in this segment. Nevertheless, the problems encountered by small holders like the insufficient level of mechanization, necessity for more labour force during the harvest season, excessive migration and lack of infrastructure and decent living standards in rural areas give us the reason to conclude on the need for specific public support programs that will target small farmers as their main beneficiaries, like introducing the current subsidy program of special measures for small farmers, introduction of subsidies in advance instead of the current post-investment ones, enhancing their access to financial services and instruments, more programs intended for rural development and improved infrastructure in countryside areas.

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