



SUFISA WHEAT REPORT AN EXTENDED SUMMARY

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Approaches applied in the practice:

(1) traditional approach comprising of measures directly applied in the farm practices - diversification on the farm, and rural economy diversification - implementation of complementary activities of rural economy at the local level, such as tourism, trade and processing;

(2) "the old story" - producers are still waiting for the strong state support, both in direct and indirect ways;

(3) agricultural and rural development policy measures applied at the local level are oriented toward improvement of management quality and farmers skills (training, education and innovations).

“Well, sustainability, what do I know ...wheat is not so interesting, but we have to plant it...

(Interviewer: Why (though not interesting)?)... Every 2nd year it must be sown so that the soil can be cleared of sorghum and other grasses.”

(Farmer, <40, up to 50ha)

1. Introduction

SUFISA (Sustainable finance for sustainable agriculture and fisheries) project from Horizon 2020 category aims to identify practices and policies that support the sustainability of primary producers in a context of complex policy requirements, market imperfections and globalisation. Knowledge on market conditions and other driving forces exists, but in a fragmented way: relevant producer groups and regions have not yet been analysed, or framework conditions and driving forces have changed in the meantime. Moreover, little information is available on cross-linkages between various drivers and future opportunities and threats will need to be integrated for an encompassing analysis.

The work of the SUFISA project is based on close cooperation with stakeholders of the industry, policy makers and representatives of governmental and non-governmental organisations. The combination of theoretical approaches and multi-actor involvement is the precondition for the identification of practices and policies aiming at addressing market failures hindering farmers and fishers to function sustainably. More information on SUFISA project can be found on its official [\[website\]](#).

However, a wheat sector in Serbia is a part of SUFISA project in in-depth analysis. So, this policy brief is related to the results obtained from this analysis and will be presented in the subsequent sections. This policy brief focuses in particular on the fundamental technological, market and regulatory conditions that potentially impact wheat farming businesses, including price volatility, and the key strategies emerging to manage these risks and pressures. This policy brief is based on the full report, available on the SUFISA [\[website\]](#).

Wheat is a strategic product in Serbia. It is used as a primary raw material in the bakery industry, whose products are widely used in human nutrition. There are significant fluctuations in wheat yields per ha and areas sowed with wheat by individual years. They are caused by the weather conditions in individual years and consequently the stock prices. Despite the seasonal fluctuations in wheat production, wheat is one of the major crops in Serbia.

High volatility regarding yields may be the consequence of the weak implementation of the agro-technical measures and low irrigation rate. Namely, out of the total arable area in Serbia of 3.3 million hectares, only 86 thousand hectares is irrigated, so the irrigation rate of 2.6% is by more





than two times lower than the average irrigation rate in Eastern Europe (5.4%) and by 3.5 times lower than the Europe average (9.3%). Lower irrigation rate in Serbia is not the consequence of lack of water, but rather the consequence of underinvestment in irrigation systems, due to the domination of other (non-investment) subsidies programmes in public spending on agriculture.

From the side of policy instruments applied, it can be noticed that the year by year practice was exposed to significant changes. From 2000 to the present, four characteristic stages have emerged: the first (2001-2003), with policy oriented towards price support for specifying agricultural crop (soybean, sunflower, sugar beet, wheat); the second (2004-2006), that abolishes price support and introduces support for investment; the third (2007-2008) that brings numerous non-market measures and puts more interest in rural development; the fourth (2008 forward), governed in the economic crisis conditions with absolute marginalization of specific measures aimed at quality improvement and support to areas with difficulties. A particularly important issue in agriculture is the labour force and its characteristics. Serbia rural areas are generally characterized by depopulation process and very pronounced emigration process. These two components virtually leave Serbian villages “empty”.

This document aims to show the state regulation and policy towards the agricultural sector in general and to analyse the extent to which public policy creates more favourable conditions for agribusiness development in a changing environment. For that purpose, various types of analysis were performed with focus is on the following topics: quantity, quality, price risk management and farm income, fixed and variable costs, relations with other food chain stakeholders (traders and processors), production reorientation and crowding out of marginal producers.

In the **first phase**, analysis of various sources (policy documents and strategies, scientific articles, as well as public media and blogs and focus groups discussions) was performed. This analysis provides a general overview of both conditions and limitations that agricultural producers are exposed to and gives the first indication of applied strategies aiming to control different sources of risks in agricultural practice. For example, we found out that young farmers (less than 40 years of age) are more interested in emerging agricultural technology and making things grow differently than in previous business practices. Serbia is generally faced with substantial demographic problems. The rural areas in Serbia are characterized by depopulation process and very pronounced emigration

process. However, crop farming in Vojvodina¹ is a sector with younger farmers who are continuing family business or starts merely agricultural production on the land that was abounded by their parents during the socialist period. Also, wheat farmers younger than 40 years might have a different approach than other wheat farmers. According to the expert opinion, these farmers often think about the economic part of their businesses, but the social or the environmental part is less important for them. They are also less oriented toward community development goals.

When it comes to sustainability, the first phase of analysis shows that the first associations on that phenomena are connected with environmental protection. Participants in our pilot interviews emphasised the importance of biodiversity and shed light on consequences of intensive chemicals use in wheat production. They are more oriented toward the use of the four-course system in crop production which reflects certain traditionalism. Producers also think about economic conditions such as price volatility, an increase in production costs and input-output parities which influence their income.

The **second phase** of our analysis, survey analysis, served to check previous findings and to find more comprehensive insights related to wheat production in Serbia – its main obstacles and future challenges. For that purpose, we focused our attention on the Vojvodina region as the primary and traditional Serbian region of the wheat production. Because of the historical, but also environmental and social factors, agriculture in Vojvodina differs from one in Central Serbia. The average farm size in Vojvodina is quite more significant, and the agriculture is more specialised and mainly relays on crop production. This is a predominantly rural area with fertile arable land and intensive agricultural production. Most of the farms are small, with an average size up to 10 ha. The farmers are mainly landowners and the most prominent farms with an over 100 ha, are rare and usually corporately owned. Figure 1 shows the significance of wheat production in Vojvodina for the whole country, based on the production and area coverage statistics.

¹ Vojvodina is a NUTS3 region, a distinct political and administrative entity, and takes the north part of Serbia, comprising 28% of the total land area of Serbia and 26% of the tot

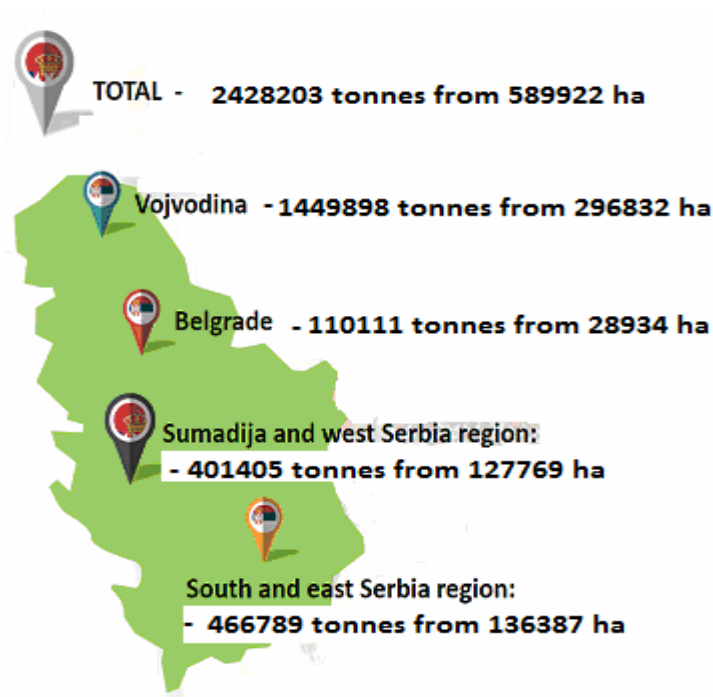


Figure 1. Wheat production (t) and shown area (ha) in Serbia, 2015.

Source: SORS database (2015)

The analysis is focused on young farmers (younger than 40 years) and farms above 20 ha of the agricultural area used for the production of wheat as the additional criteria. The interviews were conducted partly in December 2017 and partly in January 2018. The sample size is 150, and the final database contains 140 responses (10 interviews were rejected due to inconsistency in answering, e.g. shallow understanding of questions by farmers – in these cases, the lowest level of understanding is marked in the questionnaire).

Next two sections are dedicated to the primary survey results and upon them the policy recommendations that could be derived.

2. The survey results

The primary results of our quantitative research on Serbian wheat farmers will be summarised in this section. First, we will depict some basic facts related to the farmers' **age structure** in our sample. The larger farms dominate in the sample (the smallest number of farms belongs to the group of less than 10 ha of total area). Young farmers represent a group slightly over a third of our sample. The youngest farmers on average belong to a group of the largest farms (44.25 years based on total area and 41.67 based on the wheat area on average).

As far as **farmers education** is concerned, higher educated farmers manage the largest farms on average (around 260 ha in total and 93 ha in wheat area). Traditional gender structure is manifested by more significant share of the male population in the role of farm holder, while the share of lower secondary education among surveyed farmers reached 70% of our sample.

In our sample, it can be noticed that **formal and informal arrangements** co-exist, although the informal arrangement is more popular and therefore, widely accepted. The informal agreement at the time of sale is most represented in our sample (n=52), followed by legal contract before or during production (n=35). The least frequency is recorded for collective organisation membership (n=12). It might be controversial that collective type of sale dominates our sample. It can be explained by specific characteristics of the Serbian “cooperative” sector where a limited number of farmers hold membership, while the majority of farmers play a role only of a coop-partner (so-called “cooperates”), referring that membership is not a precondition for an institutional arrangement with cooperatives in Serbia.

Most **sales agreements** are made either for particular sale (n=55), or they last between 7 months and 1 year (n=42). Surveyed farms reported a limited number of medium (n=21) or long run contracts (n=3). Without stable price arrangements (in the medium and long run), it is hard to run the farm business successfully. Most of the payments in this sample belong to the category “at delivery” of the product or even “before” that, which implies a standard form of price formation. At delivery, payments are more common to the individual sales channels, but payments before are more common to the “collective” ones. The price of wheat is in most cases based on the market supply and demand conditions, making farmers similar to perfect competition price-takers. However, there are some price differences among farmers that belong to the different sales channels or are different in size.

The higher average **income** in total is generated on farms of larger size. However, it is interesting to notice that the average wheat price is higher for the group of farms from 10 to 50 ha in comparison with other firm size groups (both in total and wheat area). Average price reported by all farmers for the year 2016-17 is 0.15 EUR/kg. However, farmers who are involved in individual sale channels managed to reach higher commodity price of EUR 0.166 in comparison to the collective price of EUR 0.143, on average. In the total sample of farms production costs as a share of selling price vary between 40-100%, being on average 76.69%.



Among the relevant **production standards**, quality and food safety are dominantly imposed to both collective and individual sales channels, while animal welfare standards are not mentioned at all, which suggest this topic unimportant to the farmers. The law on animal welfare is still not adopted in Serbia, although the Law on Food advocates for this issue specific regulation. On the other side, primary producers in Serbia are obliged to implement GM-free practices, and it seems that farmers are quite aware of that.

The predominant opinion among wheat producers is that only some social and economic factors are more important in the **farm/production sustainability**. On the other side, environmental factors do not have so much influence on that. However, the older group of farmers gave higher ponders to the soil quality and animal welfare. The linkages among farmers and stakeholders are the most critical aspect of social sustainability. It is interesting that the older and less educated producers pay more attention to the social recognition of their farming activities (probably the influence of the tradition), while less educated producers still have a very high opinion about arable land value when it comes to succession. On the economic side, the profitability maintenance and investment opportunities are generally the highest scored (even higher than wheat prices and other market conditions).

The level of **satisfaction** in both sub samples (individual and collective arrangements) indicates that wheat farmers are generally satisfied with the sale agreements. The overall opinion of the wheat producers in Serbia is that climate change and market prices are the two most important factors that will shape some future strategies. However, the factor – “Market prices” is singled out as one of the most important factors of the future sustainability by almost all groups of producers, although that some groups, like older or less educated producers, “don’t know well what this factor means”.

The surveyed farmers reported their **expectations of the future** (in the coming five years are) about what their strategies for the development of wheat production within the context of farm business are. The larger wheat farmers (above 50 ha) report that they want to expand production (it is more important for this group than in other groups), while the highest share of response “to abandon” farming was reported in the group of 10 to 50 ha. When it comes to the age structure, younger farmers (below 40 years of age) are more prone to expand farm activity, while abandonment or reducing of farm activity is more present when it comes to older farmers. It is also important to notice that among farmers from 50 to 250 ha, the group of older is overrepresented, and many of the interviewed farmers in this group have no expectations regarding successors

(evidently, the strong demographic problem is present). Insurance and investments dominate among selected strategies related to the improvement of wheat farmers' production in the Region of Vojvodina, while market plans dominantly include diversification and new forms of partnership. The specific food chain structure requests better coordination and cooperation both among farmers and between farmers and other food chain stakeholders in Serbia. Additionally, the active role of farmers is recognized in the area of sales channels innovation and income insurance as the strategic response to price fluctuations.

3. Policy recommendations

Policy recommendations are focused to the following topics that we consider crucial for the analysed sector: quantity, quality, price risk management and farm income, fixed and variable costs, relations with other food chain stakeholders (traders and processors), production reorientation and crowding out of marginal producers.

Table 1. The list of discussion topics in the focus and strategic goals in the wheat sector

Category in focus	Strategies
Quantity	To control weather risk
	To control productivity growth
	To improve management skills, to control chemicals used in production, to improve market skills.
Quality	To reach higher standards in production
	To guarantee standards
Price risk management and farm income	To improve management skills, to control price risk
	To address other sources of income
Other food chain stakeholders (traders, processors and consumers)	To address public health and environmental issues
	To control the power of different market players
Product reorientation	To improve competitiveness
Quit the agricultural production	To modernize agriculture

Table 1 pairs these essential topics/categories with logical strategic goals that should be achieved. In reaching those goals, when the wheat sector is in focus, two approaches can be separately addressed. First, we have

“bottom-up approach”, related to farmers strategies that should be conducted based on our findings of wheat sector analysis. Second, we have “top-down approach” which consider different modes of institutional support to a wheat sector that could also be derived from this analysis. Obviously, some activities can be done by the producers themselves, while some of them require the broader institutional support.

It seems that risks they are facing are probably the primary concern of wheat producers. For example, when they talk about strategies to overcome the risk, producers are mainly concentrated on their practice. They think about different activities that they can do during the production process to ensure a better market position. As they cannot affect the price, they are considering ways in which they could affect cost reduction (total and per unit of production). They want to be recognized as the modern producers, but they use wheat as the only winter crop that plays a significant role in the sowing structure for crop rotation purposes. It is well known that crop rotation can help to control pests and diseases to maintain soil quality and ensure enough nutrients are available to different crops each year. However, it seems that wheat as the only solution for the crop rotation is not enough for the modern achievements.

Farmers have faced different problems, and they can use different instruments to overcome the risks and assure farm business sustainability. Table 2 gives possible farmers strategies related to the mentioned categories. It should be noticed that they can use traditional instruments such as insurance, product differentiation based on quality standards (higher quality of wheat should reflect higher price), farm income diversification (based on additional activities – larger producers integrate pre-harvesting and post-harvesting services, while others think about additional activities in rural economy or in other sectors using opportunity for part-time farming), cooperation within producers’ organizations etc.

Wheat sector analysis suggests that there is a need to improve instruments related to financial stability and risk control. These improvements are usually connected with reforms such as the adaptation of the new legislative, the new institution's establishment, education of all stakeholders that are going to implement new instruments and strategies in practice. The main reasons behind such low percentage of insured arable land are the following: (1) ignorance of farmers about the benefits provided by insurance; (2) underdeveloped agricultural production – low investments lead to lower income, which results in fewer households being insured and, consequently, with insurance relied on higher premiums.



Beside farmers strategies listed in Table 2, our whet sector analysis also elaborates different “state projects” related to institutions development that can help farmers to manage the risks. This can be considered as “top-down approach” activities, and they are listed in Table 3. Some activities will receive particular attention in the following text.

Table 2. Farmers’ strategies

Category in focus	Bottom-up approach
Quantity	Insurance
	IT in agriculture
	Education
Quality	Differentiation of products by quality
Price risk management and farm income	Education, Developing of the business plan with other alternatives around agriculture in rural areas
	Part-time farming
	Involvement in the local initiatives and projects
Fixed cost	Credit lines and leasing
Variable cost	IT in agriculture
Consumers	To offer higher value-added products
	To offer sustainable practices
Traders and processors	Straitening producers’ power throughout producers’ groups, cooperatives, contracting.
Product reorientation	Developing of the business plan with other alternatives in agriculture
Quit the agricultural production	Find new business alternatives

Therefore, the need for strengthen support for the new risk control instruments development or agricultural insurance and price hedging based on the innovative financial instruments is evident. It aims to support market institutions establishment that could help agricultural producers to cope with a wide range of risks. The newest initiative appeared as the result of the public-private partnership.

Based on project financing the information technologies are intensively implemented for purposes of farm management decision making process improvement. For example, using GIS system, different data based on

micro-location can be gathered in a significant information database (big data), while all farmers can use their mobile phone to access the system and to monitor the current state of their plants in the field. Farmers are advised when and how to use different chemicals to improve soil quality or to protect their plants from diseases. Consumers also benefit from this system as fewer chemicals are put on the field. Producers can use this technology to control their variable costs and to improve income sustainability. As they still cannot to strongly influence the price of wheat, they can take care of costs control.

Traditional farms that sell crops usually go for capacity expansion – they expand their activities horizontally with more land in ownership or leasing. They accept low margins to maximise returns by increasing productivity and spreading fixed costs over increased production. This strategy usually requires substantial capital investments in land, machinery and other assets. The critical element is access to capital. However, the policymakers should also think about the creation of the system that can make farmers more efficient in the use of inputs (seeds, fertilisers and other chemicals). This system can be based on IT implementation in agriculture and big data analysis. An excellent example is the research institute BIOSENSE from Novi Sad which delivers innovative solutions accessible by all farmers, regardless of the size of their holdings. The farmers can easily reach important information about the state of their crops, crops prices, weather forecast at the micro-location, input use, optimisation and that can allow them to become sustainable in the global competitive environment.

On the other side, state support is also vital in different institutions development related to warehousing, warehouse receipts and pre-harvesting financing. Majority of small farms will immediately be relieved when such measures take place. As for the big farms and its capacities, these measures could help to unlock their investment potential. Every year, agricultural producers are facing the same challenges like preserving the quality of their goods, deciding whether to sell their produce immediately after sowing or store it, securing finances for the entire production process etc. The warehouse receipt system enables the agricultural producer to keep his produce in a warehouse which provides guarantees that the product will be safe and that its quality and quantity will be preserved. At the same time, the warehouse receipt system gives a producer freedom to choose when and at what price he is going to sell his produce. An agricultural producer is not forced to sell the goods to obtain money since as long as the goods are stored in a public warehouse, he can obtain a short-term loan by warehouse receipts issued on account of stored goods.



It seems that Serbian government tries to follow the EU model for investments support on the farm governed toward structural adjustments in agriculture during the pre-accession period. These investments are also connected with the establishment of practices that make farmers businesses less risk-dependent. The largest farms, mostly organised in the form of agribusiness systems (the legal entities) recognised the importance of these investments. On the other side, only the most robust family farms can afford investment which will result in the return of money spent in asset procurement from the state budget with significant delay. Delays should be reduced to enable better investment planning and predictability and to enable small farms to conduct such endeavour.

Table 3. The strong institutional support is requested

Category in focus	Top-down approach
Quantity	EuropaRE
	Research & Big data analysis
	Extension service
	Better lend leasing contracts
Quality	Law on Public Warehousing
	Laboratories
Price risk management and farm income	Innovative instruments for price risk control
	Farm income support
Fixed variable costs control	Support for investment in new technologies
	Research & Big data analysis
Consumers, traders and processors	To protect food consumers
	To protect the natural environment
	Law on Competition
Product reorientation	Institutional arrangements and contracting
	Specialization of regions
Quit the agricultural production	Fostering of capital concentration and centralisation

It should also be noticed that the Directorate for Agrarian Payments, as a part of the Ministry of Agriculture and Environmental Protection, in the context of the EU assessment was established by the Law on Agriculture



and Rural Development (Official Gazette of the Republic of Serbia 41/09). Directorate performs the activities related to the implementation of the subsidies program in agriculture, making calls for applications, decides upon the right to assistance, making payments to the final beneficiary, performs administrative and on the spot checks, establishes and keeps accounting records of contractual obligations and payments, implements international assistance to agricultural policy in the Republic of Serbia, and manages the Farm Register. One of the goals of the Directorate is the fulfilment of the requirements for using of the European funds in the area of agriculture. Unfortunately, this agency still waiting for certification from the EU authorities, and farmers in Serbia cannot use the EU funds for improvement of their businesses (IPA fund for rural development).

The bank decisions on lending are based on the banks' risk assessments and their estimate of the clients "ability and willingness" to repay. Bankers make their credit decisions by the borrower's creditworthiness, taking into account the potential clients' business performance, historical data, market prospects and plans for the future. The problem often arises when family farms apply for credit. They are not obliged to keep business records and to make the financial reports at the end of the year. This significantly complicates the process of the credit analysis, and widely influences the final bank decision. In order to support mechanisms of lending the Ministry of Agriculture should make additional efforts to encourage banks to lend to the sector by subsidising interest rates or by giving guarantees to the farmers to keep banks interested to finance this sector.

Finally, the land-lease market in Serbia is currently more important than the land-sales market due to lacks of the proper legislative framework for the latter. The lease market is characterised by insecure property rights and a relatively high lease tax that result in many lease transactions not being officially reported. Most of these transactions take place in the Region of Vojvodina with high-quality soil. Due to unstable conditions, the land-lease contracts are often short-term and do not encourage medium-term investment in the land or the development of the farm infrastructure.



*““We have to invest a lot, and after production storage capacities take care only on quantity, quality is on the second place, price is not determined in advance.”
(>55, up to 50 ha)Enter key SUFISA quotes here”*

“Producers have changed their habits. They had their own calculations and calendars, but climate changes have influenced their practices - they cannot finish everything in the way how they were working previously. "Just in time" practice is very important in the wheat production. They follow forecasts and experts advices more accurately now.”

(Expert - agricultural advisor)

"They can get anything they want from phone. They apply as users of information system in Vojvodina and they can get any information about their land under crops, quality of plants, perspective yields, meteo conditions etc."

(Expert/agricultural advisor)

"I hope it will be better. I have children and I hope that it will be better, but it is difficult to achieve. We are going to have very big problems with the use of chemicals; the land will be contaminated "... The livestock fund has decreased, there is less and less organic fertilization, we use chemicals, it will bring our land to be of poor quality." (<40, less than 50 ha)

