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SCIENTIFIC REVIEW ARTICLE
DOI: 10.5937/ekonomika2202055G
Received: February, 24. 2022.
Accepted: May, 04. 2022.

INDICATORS OF MARKET ORIENTATION OF FAMILY AGRICULTURAL HOLDINGS IN SERBIA AND KLADOVO MUNICIPALITY

Summary

The aim of this paper is to point out the importance of family agricultural holdings (FAH) in Serbia from the aspect of market orientation. The purpose of writing the paper is to analyse the indicators that affect the market orientation of FAH, which are: utilized agricultural area (UAA), economic size of the holding, the structure of the engaged labour force (by gender, age range and by educational level). The main source of data is from the Farm Structure Survey (FSS), and the results for the area of Serbia and the municipality of Kladovo are presented. It is concluded: fragmentation of land holdings; unfavourable economic size of holdings (small in Serbia and very small in Kladovo); in the structure of the engaged labour force on the territory of Serbia, members of the holdings participate with 56.7%, particularly 59.1% in Kladovo; male headed holdings are dominated, while women are most often represented as members of holdings; holdings are mostly elderly because 39.1% of holdings' managers in Serbia are aged 65 and over, specifically 45.9% in Kladovo; 95.3% of holdings' managers in Serbia and 97.2% in Kladovo have entirely practical experience. The analysis included only FAH because in Serbia they make up 99.7% and in Kladovo 99.8% of the total registered farms. The observed indicators were processed by the methods of descriptive statistics.

Keywords: *agricultural holdings (AH), family agricultural holdings (FAH), economic size of holdings, labour force.*

JEL classification: *Q12, Q15, J40*

ПОКАЗАТЕЉИ ТРЖИШНЕ ОРИЈЕНТИСАНОСТИ ПОРОДИЧНИХ ПОЉОПРИВРЕДНИХ ГАЗДИНСТАВА СРБИЈЕ И ОПШТИНЕ КЛАДОВО²

Резиме

Циљ рада је да укаже на значај који имају породична пољопривредна газдинства Србије са аспекта тржишне оријентисаности. Сврха писања рада је анализа показатеља који утичу на тржишну оријентисаност породичних пољопривредних газдинстава, а то су: коришћено пољопривредно

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² Article as research is financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia no. 451-03-68/2022-14 from 17.01.2022.

земљиште (КПЗ), економска величина газдинства, структура ангажоване радне снаге (полна, старосна и образовна). Примарни извор података је Анкета о структури пољопривредних газдинстава 2018, а резултати су приказани за подручје Србије и општине Кладово. Добијене вредности указују на: уситњеност земљишних поседа; неповољну економску величину којој припадају газдинства (у Србији преовлађују мала, а у Кладову веома мала); чланови газдинства учествују са 56,7% у структури ангажоване радне снаге на подручју Србије, односно 59,1% у Кладову; доминирају мушкарци као носиоци газдинства, док су жене најчешће заступљене као чланице газдинства; газдинства су претежно старачка јер 39,1% управника (менаџера) газдинстава у Србији су старости 65 и више година, односно 45,9% у Кладову; само практично искуство има 95,3% управника газдинства у Србији односно 97,2% у Кладову. Анализом су обухваћена само породична пољопривредна газдинства јер у Србији чине 99,7% односно у Кладову 99,8% од укупно регистрованих пољопривредних газдинстава. Посматрани индикатори обрађени су методама дескриптивне статистике.

Кључне речи: пољопривредна газдинства, породична пољопривредна газдинства, економска величина газдинстава, радна снага.

Introduction

It is well known that agricultural production is characterized by many specifics, primarily seasonal labour force, mismatch of production time and working time, very slow turnover, expertise of agricultural producers, and fragmentation of land parcels in some countries and similarly. Despite these facts, an increase in participation in the creation of gross domestic product of Serbia (Grujić et al., 2019) have been only recorded in agriculture.

Author Klymak (2022) conducted a survey and concluded that half of labours in developing countries are not paid for the work they do on their FAH. Such labours are usually self-employed and unpaid at the same time. She interpreted this problem in two ways. *First*, FAH challenging high level competition rely on family workers not paying to reduce their costs. *Second*, diversify the costs of unpaid family labour by working on other holdings in order to compensate for the loss on their holdings with this income. Some authors (Dissanayake et. al., 2021) consider that the use of family labour force instead of hired employed labours contributes to greater efficiency of the agricultural production system on the family holding.

The group of authors (Cheng et. al., 2022) stated that higher employment of labours in agricultural production would contribute to the opening of new agricultural entities, due to small agricultural producers redirect their free time to work in new companies.

It is concluded, by the researching, there are differences in the volume of labour force used by members of the agricultural holdings between individual countries. The group of researchers (Volkov et al., 2022) analysed the volume of labour force used by members of the family holdings between the Nordic and Baltic countries. The result of the research displayed that the labour force of the members of the family household is

higher among the Baltic countries than on the family holdings of the Nordic countries.

In the territory of Serbia, FAH are the most important subjects in the organization of agricultural production composing 99.7% of the total registered agricultural holdings, specially the labour force that determines the overall development of agriculture is concentrated on family holdings (Maletić, Popović, 2016).

The problem of fragmented land parcels is predominantly represented in Serbia, which hinders the further development of agriculture. Land parcels with a small area dominated by plant production affect the weak development of Serbian agriculture (Stojanović, 2022).

The group of authors Grujić et. al. (2021) hold that Serbia ought to continue with further progress in the field of agriculture through the further development of the agricultural sector which could have a vital role in further socio-economic development in the sense of the availability of human resources. The authors Aničić et. al. (2019) agree also that agricultural development is necessary for the future economic growth of Serbia. The afore mentioned authors hold that agricultural development is required to secure the transition of small agricultural holdings into market-oriented holdings and for the better availability of a quality labour force.

Given the fact that FAH represent the backbone of future agricultural development, in the following parts of this paper, the indicators of the market orientation of agricultural holdings from the aspect of UAA, the economic size of the holding, the structure of the employed labour force on the holding, the gender structure, age structure (of the managers), and the educational structure of the managers on the holdings will be analyzed. The results are from 2018 and they are shown for the territory of Serbia, and for the area of the municipality of Kladovo (Strategija razvoja poljoprivrede i ruralnog razvoja opštine Kladovo za period 2021-2026. godina). The municipality of Kladovo is located at the furthest south east of Serbia, with a population of about 30,000 is situated on an area of roughly 63 ha. The municipality is composed of 23 settlements and 6 hamlets, while as many as 18 settlements are located on the banks of the river Danube (<https://www.kladovo.org.rs/polozaj-klima-i-stanovnistvo.htm>).

The results of the research show that, on average, the UAA in the municipality of Kladovo (5.5 ha) is larger than the national average (5.2 ha), while the involvement of FAH with a property of up to 5 ha is larger in Serbia (71.9%) than in Kladovo (70.3%). Most of the holdings in Serbia belong to the economic class of 'small' (they achieve a level of production from 2,000 to 8,000 euros) with share of 46.6%, while in Kladovo 36.2% of them belong to the category of 'very small holdings' (achieving a level of production of up to 2,000 euros). The labour force structure of Serbia is predominantly made up of members of holdings who make up 56.7% of the labour force; 59.1% in Kladovo. An analysis of the gender structure on the territory of Serbia and Kladovo shows that males predominate as the heads of the holdings, while women usually make up the members of the holdings. Finally, the age structure has shown that FAH are generally made up of older individuals and that in Serbia every third one has 65 years or more; while in Kladovo every second.

In conclusion, the FAH has a deciding role in the activation of local growth potential of rural areas because a large number of registered holdings are FAH.

Methodology

This work uses data from the Statistical Office of the Republic of Serbia (SORS), published in *Farm Structure Survey 2018 (FSS)*. Analysed indicators are: used agricultural area (UAA), the economic size of the holding, labour force structure (gender, age and education). The aforementioned have been analysed both on the national level and for the municipality of Kladovo. The data has been processed via the methods of descriptive statistics. In accordance with the results, adequate comments and conclusions have been provided.

Results and Discussion

It is known that agricultural production in Serbia operates under the Law on Agriculture and Rural Development (Official Gazette of the Republic of Serbia, No. 41/2009, 10/2013 – other law, 101/2016, 67/2021 – other law and 114/2021) which precisely defines the meaning of the terms ‘*agricultural holding (AH)*’ and ‘*family agricultural holding (FAH)*’. However, it is necessary to emphasize what criteria determine an agricultural holding as a FAH.

According to the methodology of the *FSS 2018* (SORS, 2018), a FAH is defined as every community of persons (family or of some other kind) who live together. Besides that, they live together and spend their income on basic life needs (including single households). Also, one or more members of the holding are engaged in agriculture, regardless if it is a primary or secondary activity and they, as well, use resources together (land, machines, buildings). The holder of the holding is an individual.

For a holding to be categorized as a FAH, it needs to fulfil certain criteria as shown on the table (*Table 1*).

Table 1: Criteria for determining the status of the FAH

<p>work - use 50 or more ares of agricultural land on which they engage in agricultural production, regardless if it is meant for the market or not, or;</p>	<p>work - use less than 50 ares of agricultural land, but engages in intensive farming, fruit growing, viticulture, vegetable and flower production (including greenhouse production), mushroom production and livestock production that is they engage in agricultural production, regardless if it is meant for the market or not, or;</p>	<p>grow the least: – two cattle heads, or – one cattle head and two heads of small livestock (pigs, goats, sheep – together), or – five sheep heads or five goat heads, or – three pig heads, or – four heads of small livestock (pig, goat, sheep together), or – 50 pieces of poultry – 20 bee hives.</p>
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Source: SORS, methodological instruction, FSS 2018.

Data from the FSS 2018 shows that, on the territory of Serbia, FAH significantly predominate in the structure of agricultural holdings (562,895), with share of 99,7%. According to the same source, in the municipality of Kladovo 1,921 AH are registered, and 99.8% of them, or 1,917, are FAH. However, according to the date from the Register of agricultural holdings (as was on 09.02.2021) the municipality of Kladovo has 993 registered AH (947 in active status, 46 in passive status), of which 8 are AH in the possession of legal entities (6 enterprises, 1 unincorporated enterprise and 1 agricultural cooperative). At any rate, the data from the Register of Agricultural Holdings is more valid because it encompasses holdings that earnestly engage in agriculture, have an active status and are market-oriented.

The analysis above shows that the prevalence of FAH in the total number of AH in Serbia and Kladovo are on the same level (99.7% and 99.8% respectively). In other words, on the territory of Serbia and Kladovo, FAH that are aiming to be market-oriented predominate and as such they contribute to the sustainable development of the agriculture of the Republic and the municipality.

Indicators of Market-Orientation of Family Agricultural Holdings (FAH)

Agricultural production rests on family holdings where the members of the holdings have an uneven engagement in agricultural activities throughout the year, counting even the regularly employed labour force on the holding (Bogdanov, Babović, 2014). For every family holding the initial phase is crucial for funding in order to make managing the holding easier (Dudek, Pawlowska, 2022). The Authors Čejanović, Cvijanović (2005) hold that a family holding is characterized also by the work they do either on their own or rented land, by which the holding earns an income in order to meet the existential needs of the family.

The data from the FSS 2018 has been used for the analysis of FAH in relation to: *the area of UAA, economic size, labour force, as well as the gender, age and education structure of the labour force on the holding.*

UAA on FAH. According to the methodology instructions from the FSS 2018, UAA consist of: agricultural land in the kitchen garden, arable land (including fallow land), perennial plantations, meadows and pastures.

Of the total number of UAA in the area of the municipality of Kladovo, 86.7% or 10,547 ha are to be found in the possession of FAH, which is higher than on the national level, where it is at 83.9%.

Average UAA per FAH in Kladovo is slightly higher than the national average, though it still points to the problem of the fragmentation of possessions (*Table 2.*)

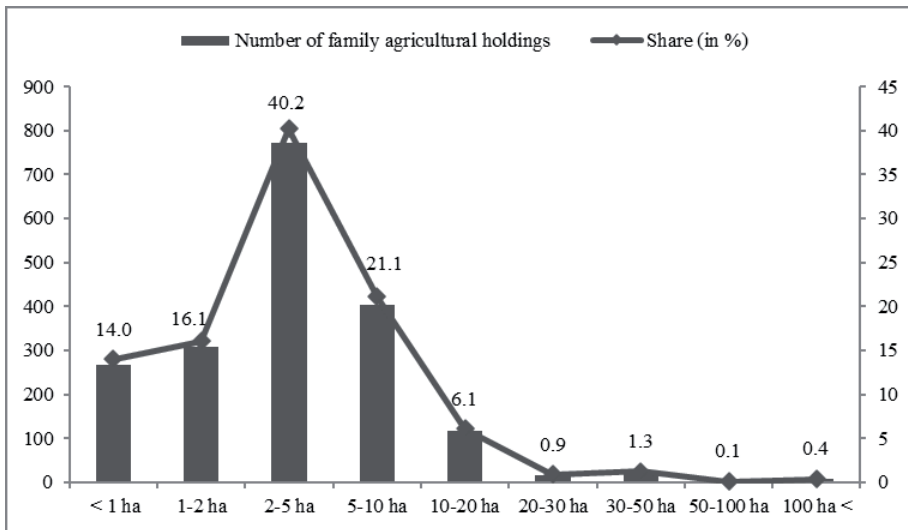
Table 2: Average UAA per FAH in Serbia and Kladovo, 2018

	UAA (ha)	Number of FAH	Average UAA per FAH (ha)
Republic of Serbia	2,916,125	562,895	5.2
Municipality Kladovo	10,547	1,917	5.5

Source: SORS, eletronic database of FSS 2018.

Observing the number of FAH compared to the size of UAA in 2018 on the level of Serbia, it can be noted that the vast majority of FAH use agricultural land that ranges in size from 2 to 5 ha and makes up 32.3% of the total number of agricultural holdings. A similar state of things can be found in the area of the municipality of Kladovo where 40.2% of FAH, from the total number of agricultural holdings, use agricultural land the size from 2 to 5 ha (*Graph 1*).

Graph. 1: Number of FAH in Kladovo compared to the size of UAA, 2018



Source: SORS, electronic database of FSS 2018.

On the graph above it is notable that with the rise of the area of UAA in Kladovo, the number of FAH begin to decline which confirms the existence of the already present problem of the fragmentation of possessions. The results of the analysis of the structure of the holdings as compared to the size of UAA, show that on the territory of Serbia, FAH with a size of 5 ha share 71.9%, while in the area of the municipality of Kladovo, they share 70.3%.

We conclude that the problem of the fragmentation of possessions exists on the level of Serbia, as well on the level of Kladovo because it hints that FAH have small area of UAA to work with. The author Popović R. (2003) holds that if in the structure of agricultural holdings, the holdings with small and fragmented possessions predominate, then such a structure negatively influences the growth of total agricultural production. Possessions that are fragmented to such a degree can be a roadblock to further market development of FAH. That is why adequate measures should be taken in order to facilitate their enlargement.

FAH in relation to economic size. The economic size of a holding is measured by the value of its total standard output. Standard Output (SO) represents the sum of the individual SO of all the agricultural produce (types of crops, perennial plantations and types of livestock) which is produced on the holding and is expressed in euros. The Regulation of the European Commission no. 1242/2008 defines 14 classes of the

economic size of holdings expressed in euros. Eurostat, however, has grouped these holdings into 5 classes which cover the following intervals (RZS, 2019):

- *very small, up to 2,000 euros;*
- *small, 2,000 to 8,000 euros;*
- *medium, 8,000 to 25,000 euros;*
- *large, 25,000 to 100,000 euros;*
- *very large, over 100,000 euros*

According to this classification, there is no holding in Serbia that could be classified as very large. The vast majority of holdings belong to the small class with share about 46.6% of the total number. Very small holdings are at second place as they share about 27.6%, namely every fourth holding in Serbia belongs to this economic class.

Observing Table 3, notice that most of FAH with UAA on the territory of the municipality of Kladovo belong to the class of very small holdings, which is in the category of 0-2,000 euros in realized production, and with share of 36.2% of the total number of FAH in the municipality. On second place are small holdings which release 2,000 – 8,000 euros and share 27.9% of total number of FAH in the municipality.

Table 3: Number of FAH with UAA by economic size on the level of the Republic of Serbia and municipality Kladovo, 2018.

	0-2,000 euros	2,000-4,000 euros	4,000-8,000 euros	8,000-15,000 euros	Over 15.000 euros
Republic of Serbia	155,579	132,516	130,073	83,132	61,595
Municipality Kladovo	694	509	478	136	100

Source: SORS, electronic database of FSS 2018.

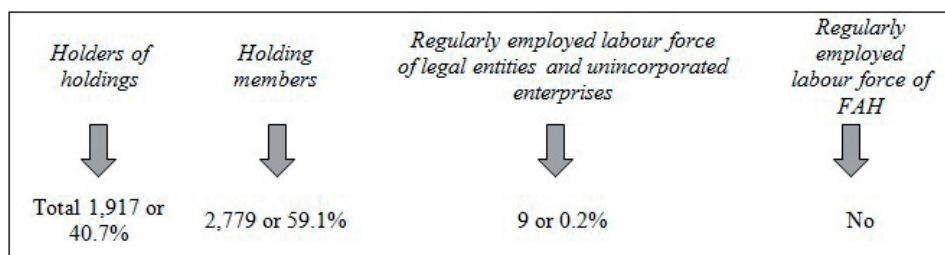
While analysing the economic size of FAH, we conclude that holdings in Serbia and Kladovo are primarily very small and as such cannot achieve a certain level of marketability. However, such holdings can achieve good results only within certain limits which are available to them and which can often be obstacle for further development.

The Labour Force on the Holding. According to the data in the FSS 2018, in Serbia 1,336,940 persons are hired as workers in the sector of agricultural holdings³. In the structure of the engaged labour force, the members of the holdings are predominantly represented with 56.7%, while holders of the holdings are represented with 41.8%. The remaining 1.5% of hired workers are made up of regular employees on the family holdings (0.1%) and at legal entities and unincorporated enterprises (1.4%).

On the territory of Kladovo, the total engaged labour force in the sector of agricultural holdings in 2018 numbered 4,705 persons. The structure of the total engaged labour force on the holdings is shown on Graph 2.

³ Given that SORS does not possess data on the level of FAH for all indicators, in a number of the analyses data about AH are given in total. This discrepancy won't significantly affect the real state, given that FAH make up 99.7% of total AH in Serbia and 99.8% in Kladovo.

Graph. 2: Structure of engaged labour force on holdings in municipality Kladovo, 2018



Source: Graphic view by author based on the electronic database of SORS, FSS 2018

By comparing the structural data about the labour force, we notice that members of the holdings have a larger share in the total number of workers than that of the national average (56.7%). Interpreting this result could indicate that in Kladovo holdings with a larger number of members are more dominant and that almost all the members actively engage in agriculture.

Gender structure of the engaged labour force on the holdings. The gender structure gives an overview of the distribution of males and females in accordance with their ability to make decisions about agricultural production or if they only perform executive affairs.

Data from SORS (2018a) shows the following information, on the territory of Serbia the gender structure of the labour force is:

- 80.6% of the total number of holding holders are men;
- 58.3% of holding members are women;
- 84.1% of the regularly employed labour on family holdings are men;
- 77.5% of the regularly employed labour of legal entities and unincorporated enterprises are men.

On the territory of the municipality of Kladovo the gender structure of the engaged labour force is:

- 78.5% of the total number of holding holders are men;
- 61.4% of the total number of holding members are women;
- All 9 who are regularly employed by legal entities and unincorporated enterprises are men.

The analysis of the gender structure on the territory of Serbia and Kladovo shows that men predominate as the holders of holdings, while women are most often members of holdings. Given that, we conclude that men are given the possibility of decision making in agricultural production, while women only engage in executive affairs. Some of the reasons for why women participate less in decision making were explained by Pierotti et al. (2022). They explained this discrepancy by the time limitations which women have while working in agriculture, and most of their time being spent on housework, care for the children, food preparation etc. Because of this, decision making jobs would have suffered, so they were handed over to men.

The Age Structure of Managers on the Holdings. According to the methodology of the FSS 2018 (SORS, 2018), there are as many managers in AH as there are AH and they

are regarded as the holders of the holdings. Also, the manager of the holding is regarded as any person who is responsible for daily decision making and the implementation of production and financial decisions in regards to the holding. According to the quotes of Birovljev J. (1997) today's manager should carry out the entire activity on the AH (plan, move, lead, direct etc.) which he contributes to successful business on the holding.

Analysing the age structure of agricultural holdings, it is noted that the holdings were generally of elderly people (SORS, 2018a). This is supported by the fact that in Serbia every third manager of a holding has 65 or more years (39.1%). In second place are managers who belong to the age group of 55-64 years with 29.1%. However, it is not laudable that only 0.3% of holding managers belong to the age group of people younger than 25.

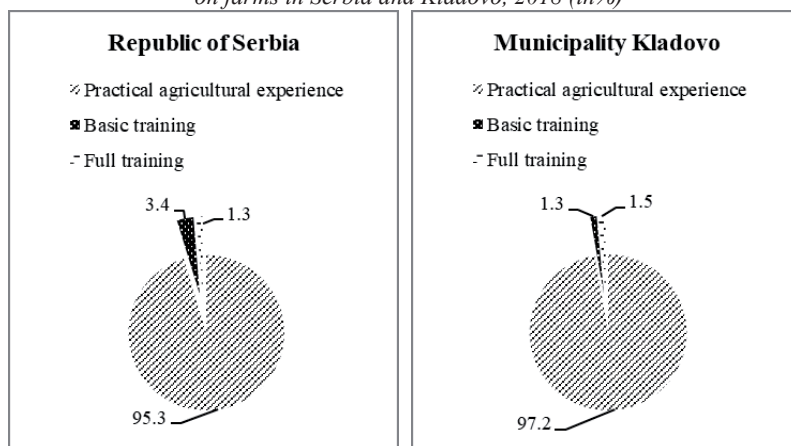
The age structure, as shown, only confirms the assumption that holdings are primarily of older persons. Authors Bogdanov, Babović (2014) consider these results as a consequence of the slow transfer of possession of the holdings onto younger holders, as well as that the traditional model of property relations is very prevalent along with the insufficient participation of physical division and sale. Authors Dudek, Pawlowska (2022) have conducted research in which they confirmed that when younger people take over farms, this is followed by an increase in production potential and a betterment of the economic index in the following years.

At the territory of Kladovo in the structure of managers of AH every second of managers of holding has 65 years old or older (45.9%), while every third of manager of holding has 55-64 years old (31.1%). The least engaged are managers 25-34 years old (0.5%) and there is no one of manager under the age of 25.

Generally, the problem is that holdings held by older persons can't quickly and easily adapt to new market rules and that it is difficult to decide on further development, so we should work on improving the age structure.

Education structure of the managers on the holdings. As for the education structure of the managers of AH in the municipality of Kladovo, it is evident that the largest percentage of them (97.2%) has only practical experience, which is higher than on the national level (95.3%) (Graph 3).

Graph. 3: Comparative overview of the level of training of managers on farms in Serbia and Kladovo, 2018 (in%)



Source: SORS, electronic database of FSS 2018.

Data from the FSS 2018 (SORS, 2018a) shows that on the level of the municipality of Kladovo, more managers with higher education (1.5%) have been noted than on the national level (1.3%). This fact only shows that there is a wish for the perfecting of managers and their further education.

The group of authors (Bogdanov, Babović, 2014) hold that the educational characteristics of holding managers indicate a low presence of formal and systemic education and professional training because the number of managers with a higher level of training is very low compared to the total number of managers of AH.

Conclusion

After presenting the analysis of the market orientation of AH, we conclude that these holdings have a dominant role in the engagement of development potentials of rural areas because they have a high share in total number of AH. Given that the number of family holdings compared to the total number of holdings in Serbia and Kladovo is very high, we hold that these holdings are striving to be market-oriented and as such contribute to the sustainable development of agriculture in the nation as a whole and in the municipality.

The problem of the fragmentation of possessions of AH in Serbia and Kladovo hints that FAH work with a small area of UAA. In this way, fragmented possessions become a obstacle to the further market development of family AH, therefore it is recommended that adequate measures be taken for their enlargement.

The analysis of the economic size of FAH has shown that holdings that belong to the class very small and small predominate and, as such, cannot survive and achieve better results.

Given that in the area of the municipality of Kladovo holdings are present with a larger number of members than the national average, the conclusion is that almost all the members of the holdings are actively engaged in agriculture. With additional engagement of all members of a holding, the results of production become better.

Since men predominate as the holders on FAH, and women generally as members of the holdings, it cannot be said that this uneven distribution has negatively influenced on the marketability of FAH.

We hold that the bad age structure of FAH is a consequence of a slow transfer of ownership over the holdings onto younger holders, as well as the existence of the insufficient participation in the purchase and sale of property and plots. Because of this, these holdings have with time become run by older persons and cannot sufficiently become market oriented.

In regards to the education structure, our recommendation is that more work be put into the betterment of the education of all the persons who are part of the chain of agricultural production and into the transfer of knowledge on the national level. With the implementation of these recommendations and with a greater implementation of new technologies, better results could be achieved in the sector of agricultural production. Also, the high number of holders with low professional training influences the slow implementation of new measures and technologies on the holding itself.

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