
ENHANCING THE PRODUCTIVITY OF SMALL FARMERS IN CROATIA THROUGH THE AGRICULTURAL FUND FOR RURAL DEVELOPMENT

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ABSTRACT

Since 2015, investment subsidies from the EAFRD through the Rural Development Program have been available to farmers in Croatia. The most numerous holdings in Croatia are those with an economic size of up to 8,000 euros, characterized by a low level of productivity due to insufficient production capacity and inadequate machinery. They are the intended aid recipients in the sub-measure 6.3. In the three tenders held so far, this sub-measure has been mostly used for the purchase of machinery (62% of all users), which most often includes old tractors inadequate for modern agricultural production. The increase in production capacity with the growth of the Standard Output was used by only 38% of sub-measure users, with a slightly higher share of young farmers and those working in flower production. The conclusion of the paper is that in order to increase the productivity of small farmers, it is necessary to redefine the criteria for approving applications in sub-measure 6.3 in a way that preference is given to farmers committing to activities that will increase their production capacity and Standard Output.

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Introduction

In late May 2015, the European Commission approved the Croatian Rural Development Program for the period 2014-2020 (hereinafter the Program). The Program, *inter alia*, contains 19 measures aimed at increasing the competitiveness of Croatian agriculture and improving development factors in rural parts of Croatia. One of the measures within this Program is measure 6, which includes Sub-measure 6.3, – “Support for the development of small agricultural holdings”. The name of the sub-measure as well as its description in the Program indicate that it is intended for small, potentially sustainable agricultural holdings that are market-oriented, but have a lack of main resources for a more active market role. This support will help those holdings to transition to market-oriented production, which is a precondition for achieving competitiveness in the agricultural sector.

Small, numerous, fragmented and partially autarchic agricultural holdings occupy a high share in the agricultural producers structure in Croatia and are one of the reasons why Croatian agriculture is lagging behind. It is understandable that agricultural policy creators want to transform these holdings into production and market units through various forms of investment support, that would, alongside productivity growth, generate higher agricultural output and contribute to the growth of Croatian agricultural income.

Due to the considerable size of the targeted market group, the simplicity of the project application and the direct grants it includes, the sub-measure 6.3 is the most popular measure of the Program. A total of 11,673 farms have applied for the three tenders held so far, which is more than for any other investment measure. Although the defined goals of the sub-measure are aimed at increasing and/or improving production resources, it is questionable to what extent it will achieve its basic goal – transition to market-oriented production. Among the applicants there are also older farmers as well as holdings in the category of self-sufficient agricultural holdings whose market orientation is dubitable. In the previous three tenders, eligible activities included purchase of old used machinery with subpar technical properties that do not meet the needs of modern agriculture. The conditions of the tender do not give precedence to the holdings with regard to the holders’ education and age or type of production. Any farm with the economic size between 2,000 and 8,000 euros can be an eligible applicant, regardless of the type of agriculture it engages in.

The goals of this paper are:

- a. to determine the socio-demographic characteristics of the beneficiaries of sub-measure 6.3 aid, intended for small farmers,
- b. to determine the types of investments financed under this aid,
- c. to determine the differences between investments in regards to the age of the users and the type of agricultural production of the holdings.

The research assumptions are as follows:

- (H1) beneficiaries of sub-measure 6.3 are more focused on the modernization of production resources than on increasing production, i.e. increasing production capacity,
- (H2) Younger holders of the farms decide to increase production resources and production to a greater extent than older ones.

Data required for the paper were obtained from the database of beneficiaries of the rural development program of the Agency for Payments in Agriculture, Fisheries and Rural Development (hereinafter PAAFRD) omitting any personal data (name and address of the beneficiary). By applying a univariate statistical analysis, measures of central tendency and dispersion of socio-demographic characteristics of respondents and planned investments during the project implementation were determined.

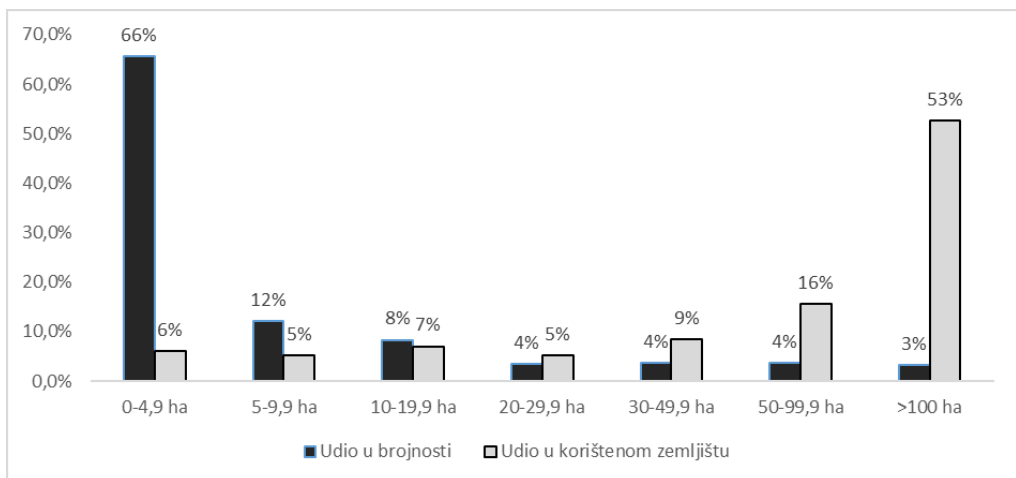
Small farms in Croatia and in the European Union

Despite the continuous consolidation of agricultural producers, small farms remain the main exponents of agricultural activity in most European Union member states. Due to some indisputable market mechanisms (cost competitiveness by applying economies of scale and mass production, productivity of intensive specialized production, market advantage of standardized products in larger production quantities), small farmers' economic power is realistically lower than the respective economic power of larger, industrialized and specialized agricultural farms (Guimar et al., 2018). Nevertheless, the concept of multifunctionality, comprising the idea that the purpose of agriculture is not exclusively food production but also the preservation of natural environment and cultural and historical heritage of rural areas, became a generally accepted model of European agriculture in the late 20th century (Subić et al., 2017). In addition to contributing to the overall agricultural output and food security through their agri-food production, small farms generate jobs, thus contributing to local rural employment and ensuring social, cultural and environmental contribution to the sustainability of rural areas.

Small farms are often described as low-income, non-economically viable holdings, relying on limited resources (in terms of quality and quantity) and producing mainly for their own consumption (Hubbard, 2009 according to Nagayets, 2005, Dixon et al., 2003, Narayanan and Gulati, 2002, Sarris et al., 1999). In the formal sense, there is no universally accepted definition of small farms (Davidova and Thomson, 2014), which is why the categorization of farms by size is most often derived from their spatial and economic size (Gioia, 2017). The spatial size of the holding means the area of used agricultural land, while the economic size is the total monetary value of agricultural production expressed in euros (Official Gazette, 89/2011). At the European Union level, small economies are usually considered to be those whose economic size does not exceed the value of 8,000 EUR (Eurostat, 2018). Croatia also took over this categorization criterion, so the funds from the Rural Development Program for the development of small agricultural farms are intended for farmers whose farms have economic size between 2,000 and 8,000 EUR. One of the classifications of farms by

size coincides with their role in the market. Farms are therefore divided into self-sufficient, semi self-sufficient and commercial. Self-sufficient farms are usually the smallest farms that are not market-oriented, but their production is spent entirely on the farm (household). In semi self-sufficient farms up to 50% of production is spent on household needs, while in commercial farms most of the production is intended for the market. The congruence of the shares of small, self-sufficient and semi self-sufficient farms (SSFs) is noticeable in the group of newer EU member states: in Romania, for example, 93% of small farms (up to EUR 8,000 in economic size) are also marked as SSFs. In the older EU member states, the share of SSFs is significantly lower, so that only 16% of small farms are also classified as SSFs (calculated by Eurostat, 2010). Although the EU agricultural sector is still characterized by a predominant number of very small farms, there is a trend of consolidation, i.e. an increase of the average size of farms accompanied by a decrease in their number (Eurostat, 2018). Between 2005 and 2013, the total number of farms in the EU (excluding Croatia) decreased by 26.2%, which is equivalent to an average annual decline of 3.7%. The largest decline in the number of farms was registered in Slovakia (-12.5% per year), Bulgaria (-8.9% per year) and Poland (-6.6% per year). Ireland is the only EU member state that recorded an increase in the number of farms between 2005 and 2013, with an average annual growth rate of 0.6%. Out of a total of 10.5 million farms in the European Union, according to Eurostat (2016), 78% of them used up to 10 hectares of agricultural land. On the other hand, the fewest farms are large ones with over 100 hectares of used land, whose share is 3.3%. Despite their numerical inferiority, the largest farms covered more than a half of the total used land, while the largest group of small farms (up to 10 ha of used land) covered only 6% of the total used land area.

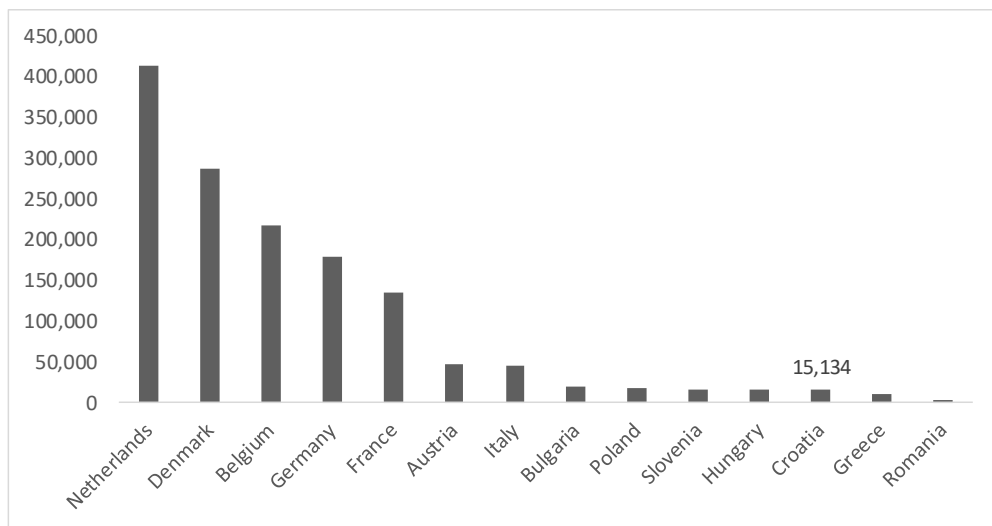
Figure 1. Distribution of farms in the EU by number and land used



Source: Author's calculation according to Eurostat (2016).

Considering the average economic size, Croatia belongs to the group of EU countries with the smallest farms. According to Eurostat (2016) data, the average SO in Croatian agriculture is 15,134 EUR. According to this indicator, only Lithuania, Greece, Malta and Romania have economically smaller farms in the EU. The highest average economic size is registered in the Netherlands, where the corresponding SO amounts to 414,638 EUR, i.e. 27 times higher than in Croatia.

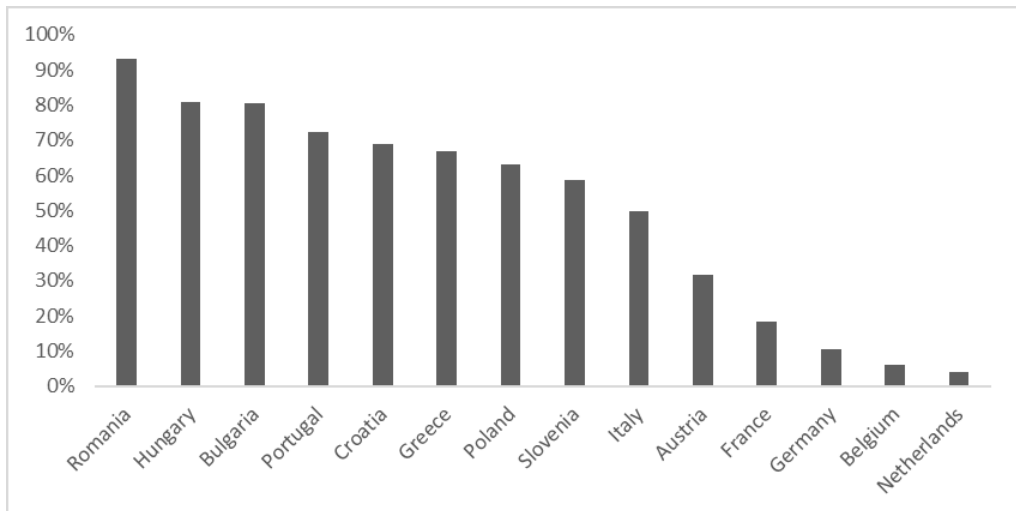
Figure 2. Average economic size (SO) of farms in selected EU members



Source: Author's calculation according to Eurostat (2016).

Apart from the average economic size, Member States also differ significantly in the distribution of the number of farms of different economic size. Assuming that economically "small" farms are those with an economic size of less than EUR 8,000, their largest share is found in Romania, 93% of all agricultural holdings. On the other hand, only 4% of Dutch farms could be considered "small" according to the same criteria. Croatia belongs to the group of member states in which small farms make up more than two thirds of all agricultural economies. Their share in Croatian agriculture is 68.7%, which objectively forms a structural constraint on the development of a highly productive market-competitive agriculture, focusing on the non-economic externalities of a multifunctional agriculture.

Figure 3. Share of small farms in selected EU member states (2,000 EUR > SO < 8,000 EUR)



Source: Author's calculation according to Eurostat (2016).

Small farmers productivity increase

The most important economic feature continuously present in the population throughout human history is the desire to increase one's quality of life and living standards. In addition to the mathematical expression of the growth of living standards through the gross domestic product indicator, the growth of living standards is simply explained by the improvement of general well-being and satisfaction of citizens. The basic precondition for the living standard growth is an increase in personal income, which is attained in the conditions of productivity growth. As in all economic activities, productivity growth in agriculture can be achieved:

a. by increasing production capacities alongside economic size growth (Standard Output) in order to increase production according to the theory of growing economies of scale with subproportional growth of resource consumption

or

b. by improving the technical equipment of the agricultural holding, which will enable the growth or maintenance of the existing level of production with a more rational use of resources.

Rada and Fuglie (2019) investigated the relationship between farm size and productivity. They concluded that there are significant differences in this tendency between the world's poorest and developed countries. In the underdeveloped parts of the world (Africa and Asia), farmers have smaller production areas, mostly farms with less than 5 hectares of land. In such conditions, production per unit area is higher on smaller farms,

with sufficient human resources. In such conditions, higher productivity is achieved on smaller farms. As a consequence of economic development and better technical equipment on farms, the role of human resources is reduced, which is why higher productivity is achieved on larger farms with bigger production capacities. A similar study on the example of 80 European regions was conducted by Błażejczyk-Majka et al., 2012. They concluded that in the developed European Union member states (EU15) the largest economies with more than 100 European units of size (ESU) are also the most productive ones. In the newer members, including Croatia, productivity increases with the size of the economy as well. However, the the most productive farms are not the largest ones (above 100 ESU), but those that dispose with 16 to 40 ESUs.

In addition to higher production capacity as a factor in increasing the productivity of small farmers, there is no doubt that replacing obsolete machinery with new and technically better helps the productivity increase. Sims and Kienzle (2016) identified a number of benefits brought to small farmers by the appropriate mechanization adjusted to the size of the farm. These benefits are especially noticeable in countries with labor shortages and continuous deagrarization processes with the participation of young and vital members of agricultural households. According to Solow's theory of growth (Solow, 1988), the contribution of technical equipment to productivity growth is the greatest in economically less developed societies. Croatia is among the least developed members of the European Union with this state of agriculture, so it is reasonable to expect that better machinery in agricultural holdings would lead to an increase in their productivity and income growth in agriculture.

Rural Development Program of the Republic of Croatia and support for small agricultural holdings

The growth of the average agricultural holding size is an inevitable precondition for the development of agriculture in less developed EU member states. Many small farms struggle daily with insufficient and unadapted machinery, the inability to occupy important market positions due to small quantities and inhomogeneous products. Longer and more complex supply chains as well as hygiene and health standards demands that some small farms cannot meet due to lack of capital are an additional barrier to their sustainability. In order to solve the problem of lagging behind larger farms in terms of production capacities and technical/technological handicaps, small farms have the need for financial resources for investment purposes. Classic sources of financing in the form of commercial bank loans are less available to small farmers. This was shown by a study conducted in 2019 by the European Commission. It points out that, due to aversion to higher risk in doing business with smaller entities, banks refused to lend to 17.4% of small farms, 7.7% of medium-sized farms and 2.7% of large farms (European Commission, 2019). In the same research, banks cited the insufficient quality of business plans as one specific reason for rejecting the requests of small farmsthe other being the lack of loan repayment instruments that are difficult to obtain for small farmers compared to large ones.

The importance of small farms and the need to favor them in relation to larger farmers has been recognized by the European Commission, which is why since 2015 all member states have the opportunity to use payments for small farmers. This opportunity was used by 15 members in the programming period, among which the newer EU members predominate, along with Germany and Italy. Direct payments in Croatia include a program for small farmers, whose total annual amount of direct payments does not exceed HRK 5,000. This allows them to simplify application procedures and receive direct payments without having to meet the requirements for green payments and cross-compliance.

Support for rural development is the second pillar of the European Union's Common Agricultural Policy, that provides funding to Member States in order to achieve the six economic, environmental and social development priorities of rural areas.

The European Commission adopted Croatian Rural Development Program (hereinafter the Program) on 22 May 2015, which allocated EUR 2.3 billion of public funds for the period from 2014 to 2020. Eligible investments under the measures of the Program are mostly co-funded through the European Agricultural Fund for Rural Development (EAFRD).

Measure 6 is one of the four most generous measures of the Program. Through this measure, 226 million EUR intended for the development of agricultural operations is available to farmers in Croatia. Measure 6 contains four sub-measures, one of which is sub-measure 6.3 intended for the development of small farms. The categorization of the economies into „small“ was made according to their economic size, i.e. according to the value of the total standard output (SO). Eligible applicants for tenders in sub-measure 6.3 are farms spanning between two and eight thousand euros in economic size. Translated into production resources, these would be farms with 2.5 to 9.5 hectares used under wheat, corn and similar crops, fruit farms with fruit production on an area between 1.2 and 4.5 hectares, milk producers with at least one and maximum of 3 dairy cows, or holdings with a combination of production resources whose total standard output is less than 8,000 euros.

Conducted tenders for sub-measure 6.3

Three tenders for sub-measure 6.3 have been conducted to date. The first tender was conducted in mid-2015. Data from the Croatian Ministry of Agriculture (2020) state that a total of 1,475 applications were received for this tender and 974 Decisions on the allocation of support funds in the total approved amount of EUR 14,939,771.82 were issued. The second tender was held in the first half of 2017. It received 4,189 applications, 1,334 of which were approved for funding.

The third tender for sub-measure 6.3 was open from June 27 to December 13, 2018. A total of 6,009 applications received, 4,251 were approved for funding. The total number of applications in the three tenders was 11,673, of which 56.2% were approved for funding. In the three-year period between the first and the third tender, the number of applications has tripled. The main reason for this is the farmers being better informed about the possibilities of using EAFRD funds. This was largely due to the promotional

activities of the Ministry of Agriculture, as well as numerous private consultants who, for their own financial reasons, recruited farmers' associations and individual farms.

In all three tenders, farmers could apply for modernization of production, which was mainly reduced to the purchase of new or used machinery, financing the increase of production capacity (purchase of agricultural land, purchase of livestock, raising perennial crops, building protected areas – greenhouses), or for both the aforementioned purposes.

Results and discussion

Statistical analysis of conducted tenders

Of the total number of approved applications for funding from sub-measure 6.3, most holders (4,910 or 75.0%) are men. The average age of sub-measure users is 49.7 years. The economic size of the agricultural holding (SO) was on average 5,219.80 euros. The largest number of applicants had secondary education (44%). The majority of applicants (72.1%) were agricultural producers with plant production, most of whom engaged in fruit and vegetable production.

Table 1. Characteristics of the user of sub-measure 6.3

| Characteristics | f | % | |
|--|-------------------|---------|-------|
| Gender of the holdings' holder | male | 4910 | 75.03 |
| | female | 1634 | 24.97 |
| Age of the holder | 18-40 | 1868 | 28.55 |
| | 41-55 | 2334 | 35.67 |
| | 55+ | 2338 | 35.73 |
| | n/a | 4 | 0.06 |
| | Average age | 49.7 | |
| Standard Output | Average SO | 5219.80 | |
| | EUR 2000-4000 | 1788 | 27.32 |
| | EUR 4001-6000 | 2275 | 34.76 |
| | EUR 6001-8000 | 2481 | 37.91 |
| Completed level of education of the holder (only for the 3rd tender) | n/a | 2299 | 35.13 |
| | Primary school | 603 | 9.21 |
| | Secondary school | 2878 | 43.98 |
| | College education | 260 | 3.97 |
| | Higher education | 504 | 7.70 |

| Characteristics | f | % | |
|--------------------------------------|-------------------------------------|------|-------|
| Predominant production of the holder | Cultivation of cereals and oilseeds | 1741 | 26.60 |
| | Floriculture | 80 | 1.22 |
| | Cattle breeding | 950 | 14.01 |
| | Sheep and goat breeding | 301 | 4.60 |
| | Pig breeding | 249 | 3.81 |
| | Viticulture | 550 | 8.40 |
| | Fruit and vegetable growing | 2331 | 35.62 |
| | Other | 342 | 5.95 |

Source: Paying Agency

Purpose of investment

In the context of this paper, investments imply the primary investment of funds in order to obtain certain economic benefits or profits. By acquiring financial resources through the tender, agricultural producers have invested mainly in real forms of assets that enable the realization of economic benefits or profits through certain productive business activities.

The three possible objectives for investing support for small farmers according to the used PA database are:

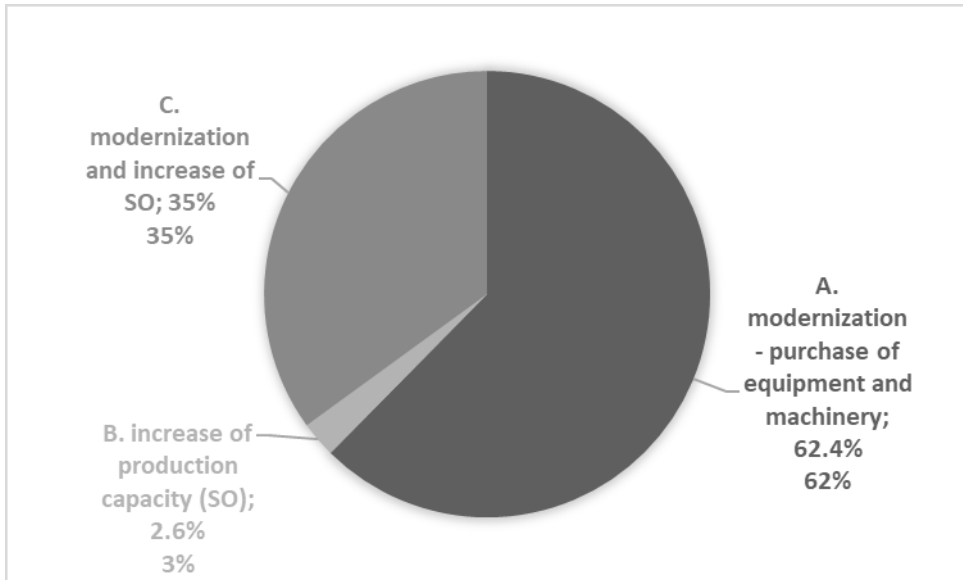
(a) *Modernization and/or improvement of work and business processes (business plan activities must relate to investment in tangible and intangible assets related to the restructuring and modernization of agricultural holdings that improve business processes)*

(b) *Increase in production capacity expressed through increase in overall standard economic result*

(c) *Modernization and/or improvement of work and business processes and increase of production capacity expressed through increase of overall standard economic result (combination a and b)*

Within these three categories, in accordance with the description and goal of the project, nine eligible investment activities are defined, including purchase and development of agricultural land, construction and/or equipping of farm buildings, purchase of planting material and domestic animals, planting of perennial crops, purchase of agricultural machinery until acquiring professional knowledge, and operating business activities.

Out of the total number of users in all three tenders, the majority applied for activities in the category “Modernization and/or improvement of work and business processes”; 4,082 or 62.4%. The smallest share of those who applied falls into the category “Increase of production capacity expressed through an increase in the overall standard economic result”; 2.6%. The share of participants who reported a combination of activities – modernization of business and increase of production capacity – is 35.0%.

Figure 1. Planned investments in sub-measure 6.3

Source: Authors according to PA data

If we look at the implementation of activities by individual subcategories shown in the following table, the most investments, i.e. applications for funds were intended for the purchase of agricultural machinery (A4). Of the total number of participants, only 1.5% did not mention the purchase of machinery in their portfolio of activities. On the other hand, only 1.1% of participants planned activities of investing in the acquisition of professional knowledge during the project implementation (A8).

Table 2. Distribution of sub-measure 6.3 beneficiaries with regard to reported activities

| Subcategory | f | % |
|--|------|--------------|
| (A1) Purchase of domestic animals, perennial plants, seeds and planting material | 1303 | 19.91 |
| (A2) Purchase, construction and/or equipping of facilities | 1055 | 16.12 |
| (A3) Purchase or lease of agricultural land | 977 | 14.93 |
| (A4) Purchase of agricultural machinery | 6449 | 98.55 |
| (A5) Raising new and/or restructuring existing perennial plantations | 1164 | 17.79 |
| (A6) Arranging and improving the quality of agricultural land | 634 | 9.69 |
| (A7) Construction and/or equipping of facilities for the sale and presentation of own products | 94 | 1.44 |
| (A8) Acquisition of necessary professional knowledge and skills | 72 | 1.10 |
| (A9) Operating business | 2924 | 44.68 |

Source: Author's calculation according to the PA data

The relationship between agricultural productivity and the level of education of its stakeholders has been researched in numerous studies. The authors Nguyen (1979), Lau and Yotopoulos (1989) proved that a higher level of farmers' education also implies higher productivity of their agricultural activity. Reimers and Klasen (2013) cite some recent research in which this relationship has not been determined (Frisvold and Ingram, 1995; Vollrath, 2007) or is even negative (Craig, 1997). Reimers and Klasen pointed out the methodological shortcomings of these papers, as they are based on problematic indicators of farmers' literacy and their access to various educational programs. Instead, as an indicator of farmers' education, these authors used the attained level of education of farmers in 95 developing countries and accompanied this indicator with the change in agricultural productivity in the period from 1961 to 2002, thus proving the contribution of education to productivity growth of 3.2% annually. Considering this assumption, only 1.1% of small farmers in Croatia, users of sub-measure 6.3, is ready to invest in education, i.e. to meet this precondition for increasing the productivity of their agriculture.

Another problem that hinders the increase of agricultural productivity is related to the procurement of inadequate machinery, specifically old tractors. Although the Agency's data do not show how many users reported the purchase of tractors, gray literature data reveal that the purchase of used tractors with older years of production is an activity found in more than a half of funded projects where the investment structure includes the purchase of machinery. The possibility of financing the purchase of tractors from the EAFRD has led to a significant increase in their purchase and sale. In the first 6 months of 2019, 2,125 used tractors were registered in Croatia for the first time, which is 2.3 times more than in the same period last year and twice as many as the total annual figures in the period from 2014 to 2017. The purchase of used tractors regardless of age has been allowed in all three previous tenders for support to small farmers. According to the internal data of the Faculty of Agriculture, authorized to determine the compliance of tractors with the conditions of import specifications, the average age of imported tractors is about 30 years, and among them there are some older than 50 years (Šimić, 2021). The most numerous are IMT tractors, whose manufacturer has ceased to exist for some time. Although it is unrealistic and financially unreasonable to expect that small farmers would buy modern tractors that meet precision farming settings with starting prices at around 40,000 euros, it is certain that the purchase of old, used tractors will not increase the productivity of their farms. Accordingly, Dhoubhadel (2020) concluded that on predominantly small farms, modern tractors adapted to precise agriculture cannot increase business productivity, while Popescu et al. (2017) used the example of agricultural machinery inventory in Romania to conclude that old and technically obsolete tractors are not able to perform agricultural work at the same level as new ones, require frequent repairs and with higher fuel consumption result in higher total production costs and reduced productivity.

The largest number of agricultural holdings in Croatia has outdated machinery of a lower average age and condition than the average level of EU as a whole. A significantly better situation is seen in large agricultural companies, larger farms that are equipped

with modern tractors, combines and other machinery and have enough land to be able to use this machinery optimally.

Of the total number of applicants for all three tenders, 29% were under 40 years of age, i.e. belonging to the category of young farmers. Although their planned activities under the sub-measure do not differ significantly from their older counterparts and most farmers in both age groups decide to modernize production, the share of young farmers deciding to increase production capacity is double.

Table 3. Distribution of sub-measure users 6.3 given the age of the holder and planned activities

| | Up to 40 years (n=1868) | | Above 40 years (n=4676) | |
|---|-------------------------|-------|-------------------------|-------|
| | N | % | N | % |
| A. Modernization and/or improvement of work and business processes | 1055 | 56.48 | 3027 | 64.73 |
| B. Increase in production capacity expressed through increase in overall standard economic result | 76 | 4.07 | 95 | 2.03 |
| C. Combination A and B | 731 | 39.13 | 1546 | 33.06 |
| n/a | 6 | 0.32 | 8 | 0.17 |

Source: Author's calculation according to the PA data

The conclusion that younger farmers are more focused on increasing the size of the farm than older farmers is in line with the results of research by Katch and Ahearn (2014), who concluded that the increase in average farm size is more common among younger farmers, while among fifty or more year-old holders the size of the farm stagnates.

Tauer (1995), based on data from the U.S. Census of Agricultural Holdings, also concludes that farmers' productivity increases until the age of 35 to 44, after which it begins to decline. The increase in productivity at a younger age is explained by the increase in experience, while after the age of 44, the effects of experience give way to a decrease in life vitality and motivation.

An analysis of planned activities with regard to the predominant agricultural activity of the beneficiaries of the sub-measure shows that the greatest interest in increasing production capacity is registered among florists. The share of those who want to increase production either as an independent activity within the sub-measure or in combination with modernization amounts to 63.8%. On the other hand, only 35.8% of cereal and oilseed producers plan to increase the production capacity of the farm, of which only 2.4% will do so without modernization through the purchase of machinery. These results are somewhat surprising given that, in capital-intensive production of cereals and oilseeds, a prerequisite for business success are large agricultural areas where economies of scale are expressed. Given that the beneficiaries of this measure are small agricultural holdings with a small average size of land used, it is illogical to expect that they would use sufficient land areas in crop production for the financial sustainability of the farm.

Table 4. Distribution of users of sub-measure 6.3 with regard to predominant production

| Sector/category of activities | (a) | (b) | (c) | n/a |
|-------------------------------|-------------|------------|-----------|---------|
| | f (%) | f (%) | f (%) | f(%) |
| Growing cereals and oilseeds | 1115 (64) | 581 (33.4) | 41 (2.4) | 4 (0.2) |
| Floristry | 29 (36.3) | 38 (47.5) | 13 (16.3) | |
| Cattle breeding | 573 (60.3) | 351 (36.9) | 24 (2.5) | 2 (0.2) |
| Sheep and goat breeding | 173 (57.5) | 123 (40.9) | 5 (1.7) | |
| Pig breeding | 179 (71.9) | 69 (27.7) | 1 (0.4) | |
| Viticulture | 427 (77.6) | 115 (20.9) | 4 (0.7) | 4 (0.7) |
| Fruit and vegetable growing | 1433 (61.5) | 818 (35.1) | 77 (3.3) | 3 (0.1) |
| The rest | 142 (41.5) | 195 (57.0) | 4 (1.2) | 1 (0.3) |

Conclusions

Small farms of economic sizes up to 8,000 euros are the most numerous group of agricultural producers in Croatia. As in other EU member states, the main obstacles to their productivity growth are insufficient production capacities and inadequate equipment with modern machinery. In order to overcome these restrictions, financial support for investments from sub-measure 6.3 of the Rural Development Programme has been made available to small farmers since 2015.

Although the main goal of this sub-measure is to ensure the growth of production capacity and standard output of the farm, the research confirmed the hypothesis (H1) that most users use this measure to purchase machinery, while only 1/3 of users plan to increase production capacity. An additional problem is the fact that tractors whose excessive age and technical specifications do not meet the needs of modern, highly productive agriculture predominate among the purchased machinery. Although the education of farmers has been highlighted in numerous studies as one of the preconditions for increasing their productivity, only 1% of beneficiaries will use the funds from the sub-measure for the purpose of education.

The second hypothesis (H2) has also been confirmed; among the farmers with an intention to increase production capacity there is a slightly higher share of young farmers as well as those engaged in flower production.

From the presented results, it is certain that thusly defined sub-measure 6.3 and the conditions of its use will not ensure the growth of small farms productivity. Although the 15,000 euros allocated to the beneficiaries of this measure will help their daily lives, it is necessary for the long-term productivity growth of small farmers to reshape the conditions of using the sub-measure in a way that favors those producers who commit to increasing production capacity, which implies growth in business productivity.

Conflict of interests

The authors declare no conflict of interest.

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