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## THE DETERMINANTS OF PROFITABILITY OF ORGANIC PRODUCTION IN THE OPINIONS OF FARMERS IN THE PODLASKIE VOIVODESHIP<sup>1</sup>

Key words: organic agriculture, profitability of organic agriculture, conditions of profitability, farmers' opinions

**ABSTRACT.** The aim of the research paper was to present a character description of organic agricultural holdings and identify factors affecting profitability of these holdings basing on the opinions of farmers specializing in such production. The area analyzed in this research was the Podlaskie Voivodeship. In order to achieve the aim, various research methods were employed, such as the study of relevant literature opinion surveys conducted using a questionnaire directed to 101 organic farms (selected randomly ensuring representativeness of results) as well as means of descriptive statistics. The conducted research indicates that a typical organic farmer in the Podlaskie Voivodeship is 48 years old and has 16 years of experience in agricultural holding management. He is also well educated (44% have higher education) and possesses good knowledge about organic agriculture. Almost 80% of analyzed agricultural holdings have certificates, usually for several products. 51% produce mostly for their own needs, while production of only every third is for the most part dedicated to market purposes. In 55% of these holdings, production is oriented mostly towards plant production, whereas 35% is multidirectional. In the majority of farmers' opinions, the economic situation of their holdings is comparable to that of conventional farms. Only every fifth farmer considers their situation to better. According to the respondents, subsidies from the European Union are among the most important factors determining profitability of organic agricultural production. The factors that affect profitability negatively, according to interviewed farmers, are: low sale prices, unfavorable climate conditions, high costs of obtaining certificates and overly extensive bureaucracy.

### INTRODUCTION

The main condition of the sustainable operation and development of any enterprise is profitable production. This applies to any organization, the running of which is based on obtaining a positive financial result. According to the *Encyclopaedia of agriculture*

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*and economy*, profitability of products or services is determined by the relation between value and total costs of creation [Encyklopedia... 1984, p. 492].

Thus, defined profitability is described using a diverse set of indices, such as: the relative production profitability index, the relative cost index, the production profitability index and the return rate index [Kapusta 2012 p. 172-173]. In economic practice, a commonly used method of production profitability evaluation (in accordance with EU methodology) is standard gross margin (SGM). This is a standard (average of three years in a specified region) value of production obtained from one unit of production means (1 ha of plant crops, 1 animal), reduced by standard direct costs necessary for production [Augustyńska-Grzymek et al. 2000 p. 1-55]. The direct surplus also contains the value of obtained subsidies relevant to a given type of production [Skarżyńska 2008 p. 9-10].

Having defined profitability of agricultural production in such a way, four basic groups of factors form its basis, namely: legal and organizational; economic; production and environmental; as well as social [Kowalska 2010 p. 87-88]. In relation to organic agricultural production, some of these conditions gain particular significance.

The rules of organic agriculture are mainly determined by law [Prutis 2013]. Since Poland's accession to the EU, legal regulations pertaining this activity consist of two distinct levels: European, describing the general framework of organic production and national – defining tasks of public authorities in the execution of EU regulations on organic agriculture. The diversity of legal regulations and changes therein may be a factor limiting the interest of potential farmers in undertaking such an enterprise. Violating regulations in this area may even result in a renouncement of the certificate for the product related to the infringement [Journal of Laws, 2017.1761, art. 2].

Economic conditions of organic production profitability concern mostly price-cost relations which, in turn, depend on e.g. demand for organic products. According to a report by IMAS International Sp. z o.o., the organic food market is developing by 10-20% per year. The development potential of the Polish organic food market is high, considering that it constitutes only 0,5% of the food market, whereas in western Europe this percentage is ~8% [IMAS International 2017, p. 14].

Prices of organic products may even be 50% higher in comparison to conventional food products, which is mainly a result of a smaller scale of production, logistic issues and higher costs of production related to greater labor intensity [IMAS International 2017, p. 14]. Moreover, farmers moving to organic production have the opportunity to obtain subsidies from EU programmes [Kozłowska-Burdziak, Gardocka-Jałowiec 2018].

However, these apparently favorable conditions do not lead to a significant increase in the sale of organic products. According to IJHARS (Inspekcja Jakości Handlowej Artykułów Rolno-Spożywczych – Inspectorate for trade quality of food and agricultural products), the sale of organic products in Poland remains relatively low. In 2016, only 720 of organic food producers (3% of the total) undertook activities towards introducing organic products to the market (excluding products imported from other countries). At the same time, a decrease in the number of organic agricultural holdings has been observed in recent years (from 26,598 in 2013 to 20,257 in 2017) [IJHARS 2017].

These circumstances raise the question concerning what factors determine organic production profitability. The answer to this question shaped the direction of research

pursuits with the assumption being made that the opinions of organic farmers will be of key significance. It is worth noting that the authors are well aware of the imperfect character of such an approach due to its inaccuracy in precisely calculating production profitability. Values provided by the respondents are only estimates. Moreover, farmers are reluctant to answer questions pertaining to financial issues, particularly with regard to income and revenue. Furthermore, these answers are frequently distorted. Nonetheless, providing farmers' opinions on factors affecting profitability of production contributes to the discussion on the development of organic agriculture.

## MATERIAL AND METHODOLOGY OF RESEARCH

In order to achieve the aim, both primary and secondary data had to be gathered. Secondary data came mostly from reports created by GIJHARS (the Chief Inspectorate of Trade Quality of Agricultural and Food Products) and IBRKK-PIB (Instytut Badań Rynku, Konsumpcji i Konjunktury – the Institute for Research on Market, Consumption, and Conjunction) as well as reports and analyses pertaining to organic agriculture created by various research and scientific institutions. The source of primary data was results of opinion surveys conducted in organic agricultural holdings in the Podlaskie Voivodeship. An interview questionnaire was used for this purpose, containing both open and multiple-choice questions allowing to obtain basic data pertaining to organic farms and farmers' opinions on factors stimulating and limiting the development of their holdings. The research sample contained 101 organic farms in the Podlaskie Voivodeship, randomly selected from the IJHARS database, so that data would be representative<sup>2</sup>. The choice of the Podlaskie Voivodeship as a research area was based on the fact that it holds second place in its number of organic holdings (the first being the Warmińsko-Mazurskie Voivodeship) – their share in the total number of such holdings nationwide was 15.3% [IJHARS 2017]. What is more, the Podlaskie Voivodeship is a region with one of the highest environmental values [Kozłowska-Burdziak, Gardocka-Jałowiec 2018], thus it is particularly predestined for environmentally friendly production. Considering these facts, the Podlaskie Voivodeship sets a good example for further consideration.

Research was conducted using such methods as: study of relevant literature, analysis of reports and evaluations, opinion surveys, processing gathered data using descriptive and mathematical statistics as well as a descriptive and comparative analysis of obtained results.

<sup>2</sup> With an assumed finite population of 3437 organic farms operating in the Podlaskie Voivodeship in 2016 (according to IJHARS). Fraction size of 50%, significance level of 5% and permissible error of 10%, minimal sample size is 94. Changing significance level to 1% leads to an increase in the minimal sample size to 159. Considering the aforementioned indices and margin of error, the assumption was made that the selection of 101 holdings should allow to obtain representative (with confidence level of 90%) data on organic agricultural holdings in the Podlaskie Voivodeship.

## RESEARCH RESULTS

Conducted research indicates that the average age of owners of the analyzed agricultural holdings was 48. At the same time, the percentage of farmers younger than 35 was only 10%, lower than the national average by 4,7 percentage points (pp) and higher than the EU on average by 4 pp [TPR 2017]. This index is significant for the assessment of generational change and thus, perspectives for development. A relatively high age of farmers correlates with experience in running an agricultural holding, which, on average, was 16 years. This indicates substantial professional experience of the interviewed farmers and provides further significance to their opinions on matters related to the management of an agricultural holding. It is worth highlighting that 44% of the analyzed farmers have a degree in higher education<sup>3</sup>, while close to 70% estimates their knowledge on organic production to be good or very good.

Among the 101 analyzed holdings in the Podlaskie Voivodeship, 77 possess certificates. These certificates usually apply to various cereal species, but also to fodder plants, grass, vegetables, soft fruit, apples, eggs, milk, slaughter cattle, sheep and rabbits etc. Other holdings are still in a conversion stage.

The average acreage of analyzed holdings was 21.43 ha of arable lands, placing it above the average acreage for organic holdings in the Podlaskie Voivodeship by 5.33 ha (the Voivodeship average is 16,1 ha). However, it remains lower than the national average for organic farms by 2.6 ha. Considering the standard deviation was 18.09, the median was 16 and the mode was 20, this indicates high diversification among the analyzed holdings in terms of acreage. One third of the analyzed farms have between 10 and 20 ha of land at their disposal, with every fourth holding being smaller than 10 ha. Only 7% of the analyzed farms operate on an area larger than 50 ha, with the largest one having 125 ha of agricultural land. In total, analyzed farms hold 2,164.74 ha of land, with utilized agricultural land constituting 88% thereof.

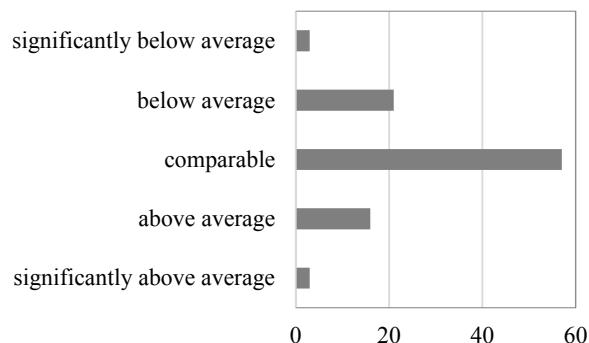
According to declarations of the interviewed farmers, over half of the holdings specializes in plant production and only 5% in animal production. In 35% of the holdings, production is multidirectional, while activity of 5% is limited to keeping arable lands in good agricultural condition. Importantly, the answers of the farmers show that half of them (51%) mainly produce for own needs. On the other hand, a strong relationship with the market is formed by around 30% of the farms, mainly producing for market purposes [UMWP 2018a].

The products most frequently selected as having the greatest significance in market sales were: cereals, potatoes and vegetables as well as milk and slaughter cattle. In the farmers' assessment, income from the sale of agricultural production was typically estimated to be in the range of PLN 5,000-20,000 (56 answers) and PLN 20,000-50,000 (19 answers); however, 12 farmers did not provide any answer to this question. Only 4 holdings reported an income exceeding PLN 100,000. The analysis of these enterprises indicates that they specialize in milk and cattle production (three cases), with only one of them possessing a certificate for milk production. The acreage of these holdings is between 22 and 60 ha, with the size of their basic herd being between 25 and 60 milk cows and, in one holding,

<sup>3</sup> It should be added that in the sample, 20% were women and all of them have a degree in higher education.

Figure 1. Assessment of economic situation of analyzed holdings in comparison to conventional farms (number of answers)

Source: own study based on conducted survey



additionally 22 heads of slaughter cattle. One holding specializes in cereal production and utilizes 125 ha of land.

Considering the above, responses of farmers asked to assess the economic situation of their farms in comparison to conventional holdings seem particularly interesting. The distribution of these answers is presented in figure 1.

Data presented in the figure above indicate that half of the interviewees consider the economic situation of their holdings to be comparable to conventional farms, whereas 16 people find their situation to be better. However, one in four farmers claim that the economic situation of their holding is worse than that of the average conventional farm. Considering the above, the question should be posed: what motivates farmers to undertake

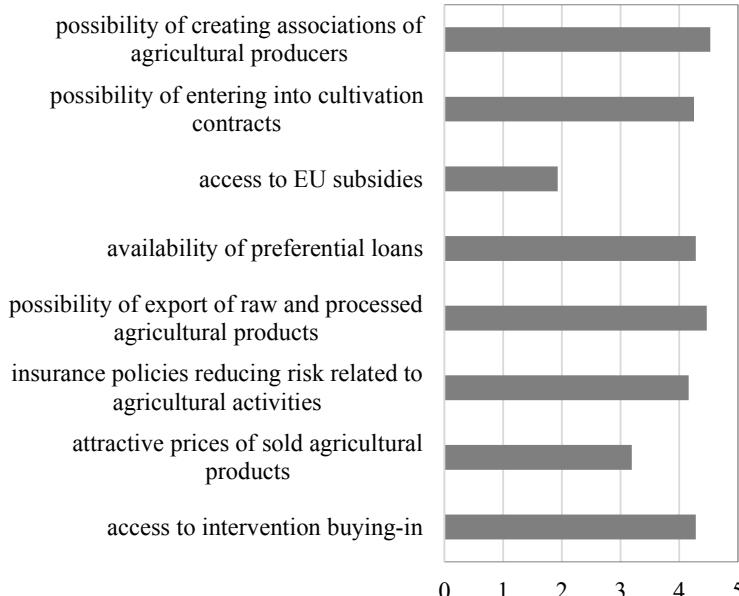


Figure 2. Factors promoting the development of organic holdings (graded in a 5-point system with 1 point denoting a factor of greatest significance and 5 – a factor of no significance)

Source: own study based on the conducted survey

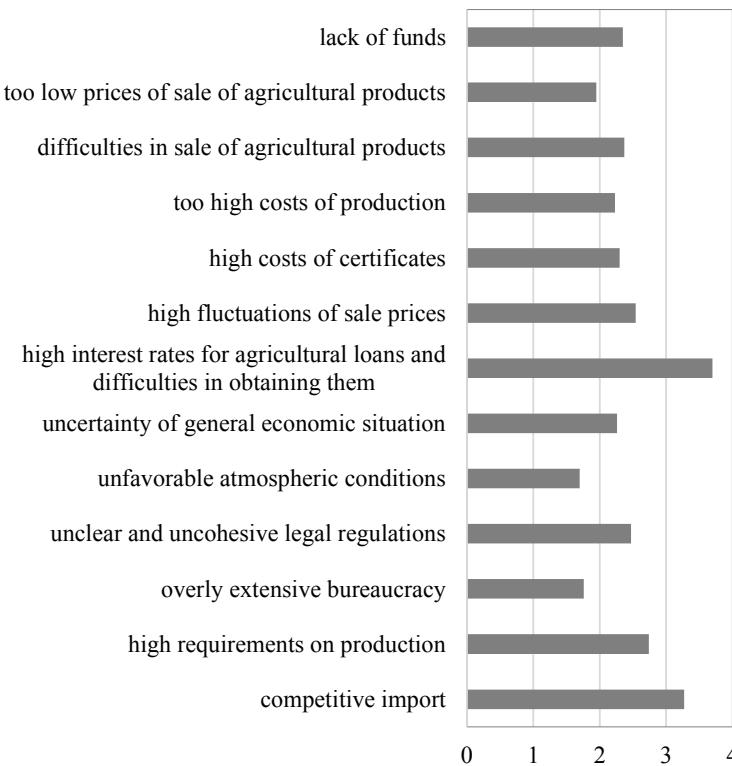


Figure 3. Factors limiting the development of organic holdings (graded in a 5-point system with 1 point denoting a factor of greatest significance and 5 – a factor of no significance)  
Source: own study based on the conducted survey

organic agricultural production, which is more difficult and labor-intensive and simultaneously that carries higher risks [IRWiR PAN 2017, p. 5].

According to the interviewed farmers, the most important factor affecting the development of their enterprises is availability of EU subsidies (fig. 2). This assessment correlates with motivations underlying the start-up of organic agricultural activities, where the possibility of obtaining subsidies was selected by almost 80% of respondents. These results also comply with those obtained by other authors [Grzelak 2011, Łuczka, Smoluk-Sikorska 2014, Mickiewicz 2011, Kisiel, Grabowska 2014]. However, this conclusion is not a positive one, since any changes in the system of subsidies for organic agriculture may lead to a closedown of many such holdings. In a way, this threat is already becoming a reality. Changes in access conditions to “fodder” subsidies and the introduction of the requirement of animal production has caused many holdings to withdraw from the organic production system [UMWP 2018b, s. 12].

On the other hand, among factors limiting the developmental potential of organic farms (fig. 3), key significance is ascribed to environmental factors, such as unfavorable atmospheric conditions (1.7 points) and institutional factors, particularly overly extensive bureaucracy. In both cases, these opinions are very common and well-founded [IRWiR PAN

2017, p. 126]. Another factor indicated by the respondents worth noting are low prices of sale of agricultural products. Such opinions may result from the fact that organic farmers frequently sell their products as conventional. This, in turn, may be caused by very limited access (or lack thereof) to organic processing plants or by selling products to wholesale intermediaries enforcing lower prices. Other factors such as costs of production or certification certainly affect the profitability of organic production, however, their impact is lower.

## CONCLUSIONS

Profitability of production (service) is one of the most important categories in the economy and the most basic factor driving any enterprise including agricultural production. Despite the social and environmental significance (quality of life, healthy food, care for ecosystems and biodiversity etc.) ascribed to organic agriculture, from a producer's perspective, it is profitability that holds most relevance. Research covering 101 organic agricultural holdings in the Podlaskie Voivodeship indicates that, in the opinion of the majority of farmers, the economic situation of their holdings is comparable to that of conventional farms. Only one in five considers their situation to be better. The most important factor positively affecting the profitability of organic agricultural production is – according to the respondents – subsidies from the European Union. On the other hand, from among the factors hindering profitability, respondents selected low sale prices, unfavorable atmospheric conditions, high costs of obtaining certificates, and overly extensive bureaucracy as those having greatest significance. The conclusions are, unfortunately, far from positive. This dependency on public support may greatly hamper the development of organic agriculture in the Podlaskie Voivodeship, should such support be reduced. Considering all of the above, search for alternative factors stimulating an increase in organic production profitability, such as support for agricultural product processing, improving the organization of sales and shortening of supply, appears to be of utmost importance.

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## UWARUNKOWANIA OPŁACALNOŚCI PRODUKCJI EKOLOGICZNEJ W OPINII ROLNIKÓW WOJEWÓDZTWA PODLASKIEGO

Słowa kluczowe: rolnictwo ekologiczne, opłacalność produkcji ekologicznej, uwarunkowania opłacalności, opinie rolników

### ABSTRAKT

Celem badań było scharakteryzowanie gospodarstw ekologicznych oraz identyfikacja czynników wpływających na opłacalność produkcji ekologicznej na podstawie opinii rolników prowadzących taką działalność. Obszarem badań było województwo podlaskie. Do realizacji celu wykorzystano takie metody badawcze, jak: studia literatury przedmiotu, sondaż opinii zrealizowany techniką ankietową przy wykorzystaniu kwestionariusza ankietowego skierowanego do właścicieli wylosowanych do badań (w sposób zapewniający reprezentatywność) 101 gospodarstw ekologicznych oraz metody statystyki opisowej. Z przeprowadzonych badań wynika, że statystyczny rolnik ekologiczny w województwie podlaskim ma 48 lat i 16 lat zarządza gospodarstwem, jest bardzo dobrze wykształcony (44% ma wykształcenie wyższe), posiada dobrą wiedzę na temat rolnictwa ekologicznego. Prawie 80% badanych gospodarstw posiadało certyfikat na kilka produktów, 51% produkowało głównie na potrzeby własne, a tylko co trzecie gospodarstwo głównie na rynek. W 55% badanych gospodarstw produkcja wyraźnie ukierunkowana była na produkcję roslinną, a w 35% miała charakter wielokierunkowy. W przeważającej ocenie rolników sytuacja ekonomiczna ich gospodarstw jest porównywalna do gospodarstw konwencjonalnych. Zaledwie co 5. badany rolnik uważa, że sytuacja ta jest korzystniejsza. Do najważniejszych czynników determinujących opłacalność produkcji ekologicznej ankietowani zaliczyli płatności unijne. Natomiast czynnikami negatywnie wpływającymi na opłacalność były ich zdaniem przede wszystkim: niskie ceny zbytu, niekorzystne warunki atmosferyczne, wysokie koszty certyfikacji i nadmierna biurokracja.

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