

Article

Organic Farming Support Policy in a Sustainable Development Context: A Polish Case Study

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Abstract: This paper assesses the extent, scope and importance of financial support for Polish organic farming from 2004 to 2019. The analysis focuses particularly on how the changes in the amount and structure of organic farming payments affected farmers' interest in specific organic crops during three financing periods: the 2004–2006 Rural Development Plan, the 2007–2013 Rural Development Programme (RDP) and the 2014–2020 Rural Development Programme. This paper aims to answer the question of whether and to what extent the organic farming support policy impacted the development trends followed by, and transformation processes affecting, this sector. It follows from this analysis that in the first decade after joining the European Union, Poland implemented a policy of making payments easily available. It was primarily focused on the quantitative growth of organic farming rather than on stimulating supply. As the payments were easily accessible and decoupled from production, subsidy-oriented farmers were additionally encouraged to seek political rent. This resulted in the instability of a large group of farms who discontinued their organic farming activity in 2014. That year, the policy was amended because of the need to improve the allocation efficiency of subsidies and to couple them with the provision not only of environmental public goods but also of private goods in the form of organic farming products. The current support policy opens up greater opportunities for leveraging the potential of organic farming while reaping environmental and socioeconomic benefits and contributing more than ever to sustainable development.

Keywords: agricultural policy; financial support; organic farming; sustainable development; Poland



Citation: Łuczka, W.; Kalinowski, S.; Shmygol, N. Organic Farming Support Policy in a Sustainable Development Context: A Polish Case Study. *Energies* **2021**, *14*, 4208. <https://doi.org/10.3390/en14144208>

Academic Editor: Abbas Mardani

Received: 30 May 2021

Accepted: 9 July 2021

Published: 12 July 2021

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1. Introduction

Implementing sustainable development requires a redefinition and reorientation of key goals and management methods of many sectors of the economy. This is of great importance in sectors where economic processes are heavily dependent on the natural environment. These sectors include agriculture, which plays a special environmental role due its direct impact on ecosystems, food safety and on the condition of rural areas [1]. Agricultural development has long been based on the maximization of economic benefits (profits or incomes) at the expense of the disequilibrium in the ecological and social system. In highly developed countries, this agricultural model was stimulated by an agricultural policy which supported the quantitative growth of agricultural production. This resulted in agricultural practices becoming more and more intensive, while also driving excessive supply of food and environmental degradation.

In order to reduce the environmental degradation, agriculture must be viewed as a sector which enables different methods of natural resource management, including not only those based on the primacy of economic efficiency criteria, but also alternative options underpinned by a rational use of natural resources. One of the key arguments for the

new model of agriculture, one which enables farming systems that differ in goals and characteristics, is the need to restrain the negative environmental impacts of industrial farming (pollution of groundwater, surface water and soil; deterioration of soil fertility and structure). Another important argument is the need to increase the role of agriculture as a sector that not only provides market goods but also public goods such as environmental wellbeing, biodiversity and rural viability [2–4]. This suggests there is need to reorient the agricultural development model based on the primacy of economic efficiency criteria towards a sustainable agriculture that has many functions to fulfill: economic functions (ensuring acceptable incomes to agricultural producers), social functions (ensuring employment, quality of living, landscape values) and environmental functions (preserving biodiversity, ensuring high quality of soil, air and water). Only a sustainable agriculture model based on the integrality of economic, social and environmental goals has the greatest capacity to deliver the desired public goods (external environmental benefits). Alternative agricultural systems that play an important role in implementing sustainable development include low-input farming, integrated crop management, precision agriculture and organic farming [5].

Organic farming is a comprehensive system where specific processes are employed to ensure a sustainable functioning of ecosystems, food safety, animal welfare and social justice. All of these aspects are of equal importance and contribute to meeting many goals of sustainable development [6–8]. Unlike in other alternative agricultural systems, organic farming practices are clearly defined and codified into legal regulations applicable to agricultural production, processing of agricultural produce and trading of organic farming products [9]. Organic farming is a management system for sustainable plant and animal production on a farm based on inputs of biological and mineral origin [10]. The basic principle is to make the food production process free of agricultural, veterinary and food chemicals.

The realisation of environmental goals in organic farming contributes not only to the increase (preservation) of soil fertility and plant and animal health but also induces positive external effects in biodiversity, energy, climate, and the environment. In addition, there are favorable externalities in terms of biodiversity, energy, climate and environment [11]. Organic farming tends to sequester greater quantities of carbon in soils, reduce soil erosion and demonstrate greater adaptability to changing conditions than conventional farming [12–14]. Emphasizing environmental aspects does not exhaust the list of all important dimensions of organic farming. Indeed, a broader dimension is implied by the need to comply with four key principles: health, ecology, equity and carefulness [15]. When based on these assumptions, organic farming is consistent with the “strong sustainability” paradigm of sustainable development [16].

It needs to be emphasized that the organic farming’s environmental impact may vary and sometimes give rise to doubt. The literature is not completely unanimous on the sustainability of organic farming practices. At the farm level, the contribution of organic farming to sustainable development depends on factors such as production, farm size, management and geographic location. Some farms pay little attention to organic principles and implement a small extent of agri-environmental practices, such as crop diversification, mulching or catch crops. Moreover, they rely on external financing from the conventional farming sector [17,18]. This is also true for nonlivestock farms that make little use of biodiversity [19]. Hodge [20] wonders whether practices employed in the organic sector can be deemed sustainable. The author uses several arguments to support that thesis, including soil erosion and the issue of long-term retention of potassium in the soil. He believes that discontinuing the use of agricultural chemicals is not a sufficient condition for sustainable farming. Hence, according to him, equating sustainable farming systems with organic farming is a mistake. Pretty [21] claims that while organic farming is generally a form of sustainable farming, it can also have adverse environmental impacts, including the leaching of nitrates from soils under legumes and the releasing of ammonia from manure.

Organic production methods play a double social role; on the one hand, they deliver goods to a specific market driven by demand for organic products; on the other, they ensure access to public goods, which contributes to environmental protection, animal welfare and rural development. As a consequence, organic farming is an important element in the implementation of sustainable development principles because it delivers not only private goods (such as high-quality organic food) but also environmental public goods, such as landscape, biodiversity and quality of natural resources [22]. The delivery of private goods is regulated by the free market, unlike public goods, which are not governed by market mechanisms. The market neither values nor produces public goods in sufficient quantities. In turn, the absence of the valuation of public goods results in a situation where no one is encouraged to deliver them. The above makes it reasonable to financially support organic farming with public funds [23–25]. In the European Union, the financial support policy plays a major role in stimulating organic farming [26–31]. It greatly contributes to strengthening the development processes of organic farming because the latter is under great socioeconomic pressure, which could threaten the important role it plays in sustainable development [32,33].

The key objective of this paper is to assess the extent, scope and importance of financial support for Polish organic farming from 2004 to 2019. In particular, it presents the changes in the amount and structure of organic farming payments and the way they affected the farmers' decisions regarding organic crops in three financing periods: the 2004–2006 Rural Development Plan [34], the 2007–2013 Rural Development Programme (RDP) [35] and the 2014–2020 Rural Development Programme [36]. This paper aims to answer the question of whether and to what extent the financial support policy for organic farming impacted the development trends followed by and transformation processes affecting that sector. It needs to be emphasized that the development of organic farming depends not only on the support policy but also on a series of other economic, social and technological factors. This paper is a case study of the Polish organic farming sector. The literature also describes other interesting cases of organic farming, placing focus on the importance of distribution channels (including short ones) whose development adds more economic and environmental value for consumers and producers [37].

The structure of the remaining part of this paper is presented as follows: after Section 1, which features introduction, we present in Section 2 the background for the problems of organic farming in Poland. In this part, we focus on the conditions of organic farming development. In Section 3 we complete discussions on research methods and material, and after that, we present in Section 4 our research results. Finally in Section 5, we discuss the presented results, and in Section 6 we show the conclusions that emanate from our study.

2. Background: Organic Farming in Poland

Poland has relatively good conditions for organic farming development. This is reflected by low environmental degradation in rural areas, the existence of a large group physically small family farms, and high levels of agricultural employment [38–41]. Other development drivers of organic farming are the growing awareness of the need for environmental protection and the need to preserve biodiversity in agricultural ecosystems. On top of that, there are changes in food consumption behavior and there is growing demand for organic food [42–46].

When Poland joined the European Union and thus became covered by Common Agricultural Policy support mechanisms, the national organic farming sector faced a breakthrough. Until 2004, organic farming had played a minor role in Poland. In 2003, compared to European Union countries, Poland was ranked 15th in terms of organic farming land (with 49,928 ha). In the first year following the accession to the European Union, there was, respectively, 66% and 64% growth in the area of organic farming land and in the number of organic farms against the 2003 baseline (with 3760 farms in 2003). From 2004 to 2013, Poland saw unprecedented growth in interest in organic farming; this is evidenced by the increase in the area of organic farming land from 50,000 ha in 2003 to

670,000 ha in 2013 (the peak year) [47]. As regards the area of organic farming land, Poland moved from rank 15 in 2003 to rank 9 in 2013.

Two subperiods can be identified based on the criterion of growth trends in the national organic farming sector after Poland joined the European Union: (1) 2004–2013, (2) 2014–2018. The first decade experienced a great (eightfold) increase in the area of organic farming land: from 82,700 ha in 2004 to 670,000 ha in 2013 (3.6% of the country's total agricultural land) (Figure 1).

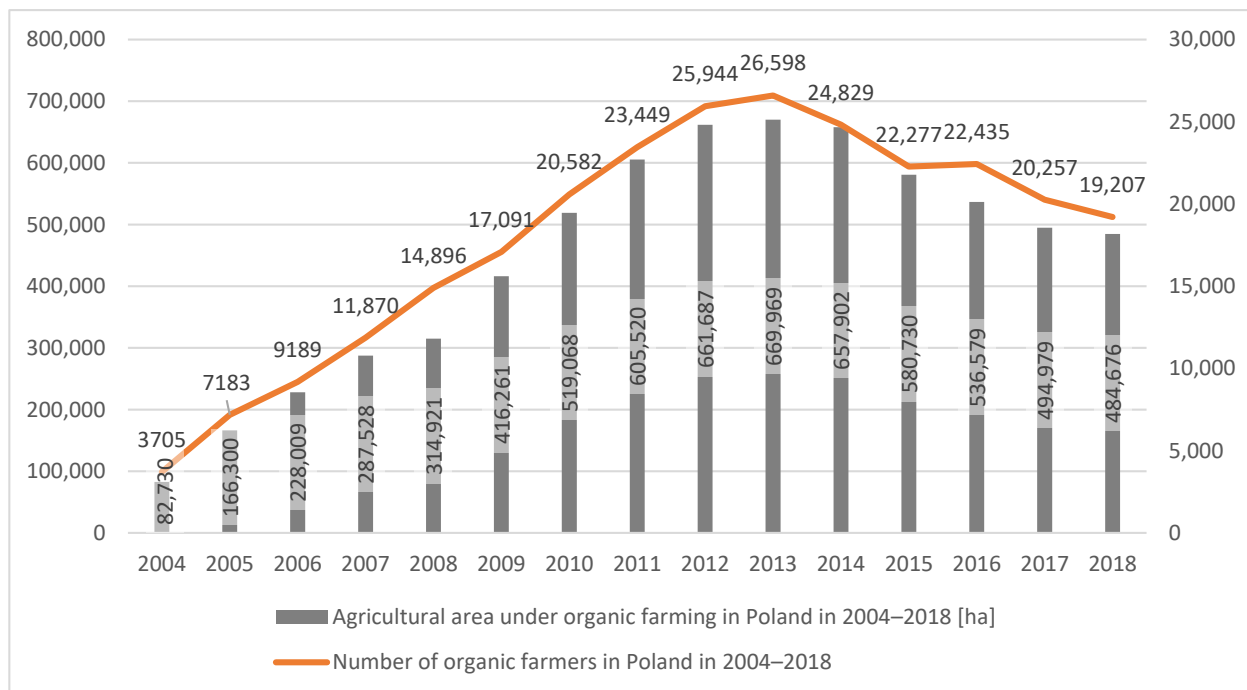


Figure 1. Organic agricultural land and the number of organic farms in Poland in 2004–2018. Source: own compilation based on [47].

This was the largest area of organic farming land in Poland since the accession to the European Union. The year 2014 saw a fall in growth and a shift away from organic farming. In the subsequent years, the number of farms discontinuing organic farming was greater than that of newcomers. Earlier, this was also the case for many European Union members, though to a varying degree. For instance, between 2007 and 2010, 1 in 11 German organic farms switched back to conventional practices [48]. A decline in the area of organic farmland was recorded in Finland (7.2%) and Denmark (4.3%) in 2004–2008 and in the UK (21.3%) and the Netherlands (4.8%) in 2009–2013. There are a variety of reasons behind these developments. Sometimes, these are external causes, such as the market condition in the country concerned. This was the case for Denmark which witnessed a 69% decline in the number of organic farms in 2004. These were mostly specialized milk farms because the surplus milk resulted in reducing the prices and production profitability. This entailed a drop in the price premium earned by the farmers which—in a context of market surplus—was the reason why farmers discontinued their organic practices. Although the shift away from organic farming was really intense in Poland, it was even more pronounced in the UK, with the area of organic farmland dropping by 233,000 ha between 2004 and 2018. In Poland, the area of organic farmland peaked at about 670 thous. ha in 2013 and went down to nearly 485 thous. ha in 2018 (by 185,000 ha), whereas the number of organic farms decreased from 26,600 to 19,200 (by 7400). In 2018, organic agricultural land accounted for 3.4% of the total agricultural land. Such a considerable decline in the area and number of organic farms was one of the symptoms of a crisis that has been affecting the Polish organic farming sector since 2014. Research on the reasons why farmers quit organic practices

is ongoing in many countries but fails to address all the problems involved [49–51]. In Poland, even less focus is given to this issue, and there is a research gap in this field [52,53].

The changes in Polish organic farming were mostly quantitative, as reflected in the growth of three basic indicators: the area of organic farming land; the number of organic farms; and the number of processing plants (due to lack of complete, comparable data this study does not take account of other indicators). The quantitative growth of organic farming failed to translate into a growing supply of organic food. Low supply volumes were the reason behind the persistent trend of relatively high prices and low consumption levels of organic food. The differences between organic and conventional product prices can be as much as 400–500%. According to estimations, in 2018, the organic food market was worth ca. PLN (polish zlotys) 1 billion and had a 0.3% share in the food market, compared to 4% for the European Union, 8.4% for Denmark and 6.5% for Austria. Average consumer spending on organic food did not exceed €7 per year and reached dramatically low levels compared to other European Union countries (€312 in Denmark, €231 in Sweden, €205 in Austria, €136 in France, €132 in Germany, €42 in Slovenia, €32 in Estonia, €12 in Czech Republic) [54]. This means that Polish consumers made little use of the outcomes of organic farming development, which means a growing supply and lower price levels of organic food [55]. Another conclusion is that the dedicated support policy failed to generate enough benefits to consumers viewed as taxpayers. In the Polish literature, research on that problem is scarce [52,53]. In particular, there is a dearth of studies on the development of organic farming in a context of the support policy and of changes in payment rates and in conditions for granting payments [56,57].

According to the Polish research literature, farmers who decide to shift to an organic production system are strictly motivated by subsidies [39,58,59]. Organic farms include a group of operators who combine organic production methods with the implementation of long-term environmental goals [60]. Most of them are farms with a long track record of using these methods. The farms also include a large group of operators who, encouraged by high organic payment rates, made short-term environmental commitments, with financial benefits as their sole motivation [56]. Findings from several surveys carried out with farmers confirmed that for most of them, financial incentives were the main reason for shifting to organic methods [61,62]. In some surveys, the farmers stated that they would never engage in organic production schemes if they could not access subsidies [63].

3. Method and Materials

This study will take a look at the changes in the Polish support policy for organic farming under the Agri-environmental Schemes (2004–2006 and 2007–2013) and the measure “Organic farming” (2014–2020). Specifically, the authors ask about the relationship between the support policy, on the one side, and the changes in the structure of organic crops, in the amounts of support, and in the beneficiaries, on the other. Did the beneficiaries’ production decisions depend on the changing financing conditions for particular groups of organic crops? If so, to what extent? The study investigated the relationships with institutional solutions, especially with the changes to requirements imposed on organic payment beneficiaries. This paper relies on a descriptive and comparative analysis based on statistical data, strategic documents, legal acts and the literature on the subject. A line of regression was calculated to illustrate the relationship between the levels of support and the area of organic farmland covered.

Materials underpinning this research consisted of data on area payments, as delivered by the Agency for Restructuring and Modernization of Agriculture, which allocates payments to organic farmers under the Rural Development Programmes. The time span for this data is from Poland’s accession to the European Union until 2019. This paper also relied on data retrieved from the Agricultural and Food Quality Inspection (AFQI), which publishes biannual reports on organic farming. The most recent one includes the 2017–2018 data. In this paper, the analysis of financial support for organic farming was limited to area payments in three programming periods: the Rural Development Plan (2004–2006 RDP),

the Rural Development Programme (2007–2013 RDP) and the 2014–2020 RDP. Delimiting these periods was a way to answer the question of whether and to what degree the changes in the conditions and amounts of payments affected organic farmers' decisions reflected in the transformation of the volume and structure of crops eligible for support.

4. Results

The organic farming support in place in Poland since it joined the European Union is compliant with community regulations. Since 2004, organic farming has been financed from the national and European Union budgets. Farmers or farming groups who voluntarily converted to or maintained organic farming practices and methods are eligible for organic farming support. In addition, each year, farmers can obtain a refund of transaction costs incurred due to organic farm inspections, provided that the conditions for granting organic payments under a specific package or option are complied with. Transaction costs mean additional costs, which, although involved in meeting environmental commitments, are not directly related to it or are not specified as costs or lost incomes compensated for directly. Such amounts can be calculated based on standard costs. The amount allocated to refunding transaction costs incurred due to organic farm inspections cannot exceed 20% of the organic payment.

In the first programming period, i.e., 2004–2006, Polish organic farming was supported under package 2: "Organic farming" of measure 4: "Support for agri-environmental projects and for improvements in animal welfare." The implementation of the package meant that during a five-year period, farmers undertook measures that were supposed to contribute to the widespread adoption of agricultural production systems that meet the requirements for environmental protection and for protecting the generic resources of farm animals. The main objective of the agri-environmental programme was to encourage farmers to employ farming practices leading to the greening of agricultural production in a way that goes beyond good agricultural practice. Organic farms received support allocated to (1) agricultural crops; (2) permanent grasslands; (3) vegetable crops; (4) fruit crops. Per-hectare payment rates differed depending on two criteria: type of organic crop and the production switch period (during or after the conversion period).

Under the 2004–2006 RDP, payment rates for organic farming varied from PLN 260 per hectare (for permanent pasture) to PLN 1800 per hectare for horticultural crops (Table 1). Generally, greater support was allocated to farms pending switching to organic methods; this can be explained by a greater risk caused by the decline in yields and incomes. The payment could amount to 120% of the base rate if the criteria met by the farm included a balanced mix of plant and animal production (the annual production volume of nitrogen in natural fertilizers was between 51 and 170 kg per hectare).

Table 1. Organic payment rates under the 2004–2006 RDP.

Option Name	Payment Rates (PLN per Hectare)	
	During the Conversion Period (1–2 Years)	After the Conversion Period (3–5 Years)
Agricultural crops	680	600
Permanent grasslands	330	260
Vegetable crops	980	940
Fruit crops and berries	1800	1540

Source: own compilation based on [34].

Support for organic farmers under the 2004–2006 RDP was disbursed for the last time in 2011. As it takes five years to implement the environmental commitments, the implementation of those reported in 2006 was completed in 2011. Between 2004 and 2011, over 54,000 farmers pursued their commitments on a total area of 1.3 million hectares under the Organic Farming package. The support was worth over PLN 872 million. According to the analysis of cash flows disbursed to farmers in 2004–2011 in relation to farm area

covered by the support, the average per-hectare financing was PLN 664. In that period, the growing number of beneficiaries of the Organic Farming package under the 2004–2006 RDP did not translate into greater supply because subsidy recipients were not required to sell or process their produce. This contributed to great interest in permanent grasslands, fruit crops and berries.

In the environmental commitment period covered by the 2004–2006 RDP, permanent grasslands accounted for the largest area covered by support (554,600 ha and a share of 42.2%), closely followed by agricultural crops (500,200 ha, i.e., 38.1%) and by fruit crops and berries (253,800 ha, i.e., 19.3%) (Table 2). Conversely, the largest amount of support was disbursed to farmers engaged in fruit crops and berries (PLN 417 million, i.e., 47.9%). Ranked second were agricultural crops (with over PLN 304 million and a share of 34.9%), whereas the smallest amount was allocated to vegetable crops (with ca. PLN 5.6 million, i.e., 0.6%).

Table 2. Area under and support allocated to organic farming by option provided for in the 2004–2006 RDP.

Options/Packages	Area Covered by Support		Amount of Support	
	Area (ha)	Structure (%)	Amount (PLN)	Structure (%)
Agricultural crops	500,226.2	38.1	304,535,349.4	34.9
Permanent grasslands	554,589.1	42.2	144,961,203.7	16.6
Vegetable crops	5903.6	0.4	5,574,233.5	0.6
Fruit crops and berries	253,757.8	19.3	417,471,752.9	47.8
Total	1,314,476.7	100.0	872,542,539.5	100.0

Source: own compilation based on [64].

In that period, farmers who accessed support for fruit crops and berries were the greatest beneficiaries. Compared to other options, the share of that support went up from 13.5% in 2004 to 65.4% in 2011, whereas that of agricultural crops declined from 59.2% to 20.6% (Figure 2). In the first RDP, the maximum payment rates of PLN 1800 per hectare were allocated to fruit crops and berries (and this was also the case under the second RDP). This triggered tremendous interest from farmers in these crops, especially including walnut trees, which continued for ten years until the amendment of the subsidy conditions in 2014. The amount of payments for organic walnut farming disbursed from 2005 to 2008 was ca. PLN 135,845,000, which accounted for 58% of total payments for organic fruit crops; this share grew from 8% in the 2005 campaign to 69% in the 2008 campaign [65]. By 2013, there was eightfold growth in the area of land under fruit crops. Most trees did not bear fruit because crop payments were granted to farmers without their being required to harvest crops during the five-year agri-environmental commitment period.

In the next programming period, organic farming was supported under the 2007–2013 Rural Development Programme (2007–2013 RDP) and was part of the implementation of the “Agri-environmental Schemes”. Two other measures were launched for eligible organic farmers: “Participation of farmers in food quality schemes” and “Information and promotion measures.” As one of nine packages covered by the “Agri-environmental Schemes”, organic farming was supported in its 12 options (both during and after the conversion period). The 2007–2013 RDP added herbs as an option and introduced a classification of fruit crops (with other fruit crops and berries identified as a separate item). The payment rates for herbs, offered for the first time, were relatively high even though herbs do not require great expenditure compared to other organic crops. Identified also were extensive fruit crops, which earned higher payment rates (PLN 1800 and PLN 1540 per hectare) than basic fruit crops and berries (PLN 800 and PLN 650 per hectare). Moreover, there was an increase in payment rates for organic vegetable crops. This was accompanied by additional requirements for the intended use of crops, performance of agri-technical

procedures and use quality of nursery stock. The payment rates varied from PLN 260 to PLN 1800 per hectare (Table 3).

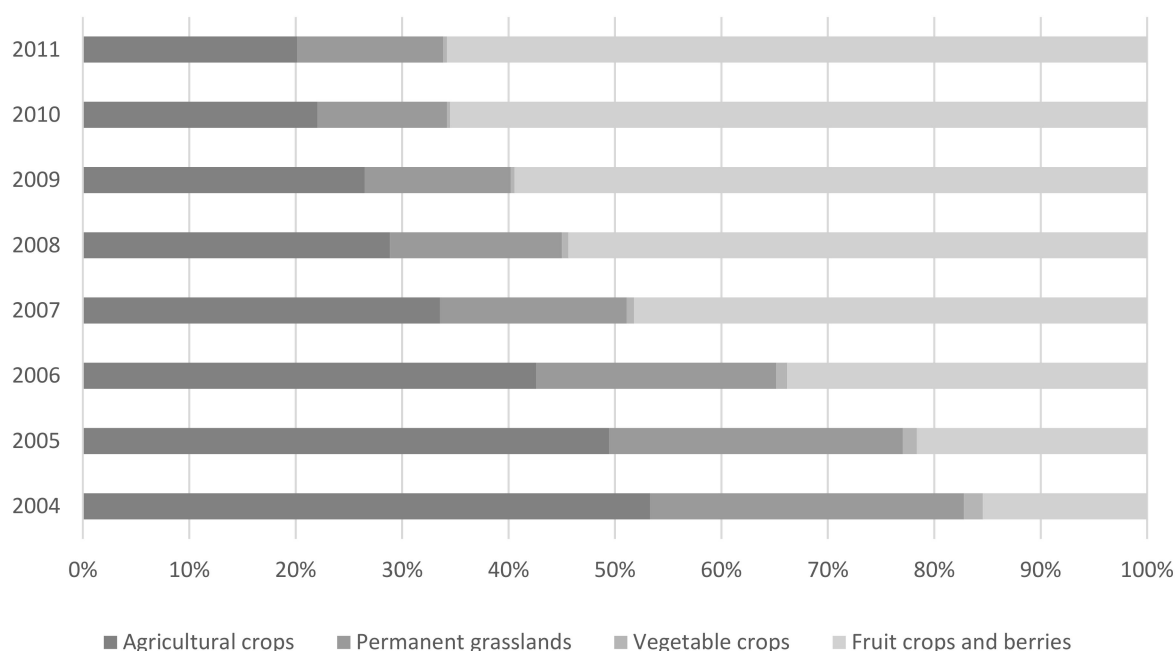


Figure 2. Payment amounts by organic farming option under the 2004–2006 RDP. Source: own compilation based on [64].

Table 3. Organic payment rates under the 2007–2013 RDP.

Option Name	Payment Rates (PLN per Hectare)	
	During the Conversion Period (1–2 Years)	After the Conversion Period (3–5 Years)
Agricultural crops	840	790
Permanent grasslands	330	260
Vegetable crops	1550	1300
Herbs	1150	1050
Fruit crops and berries	1800	1540
Other fruit crops and berries	800	650

Source: own compilation based on [35].

The payments for package 2, “Organic farming”, under the 2007–2013 RDP were discontinued in 2018. The budget for this package was €459 million, including €367 million from the EU budget and €92 million from the national budget. Over 162,000 farmers pursued their commitments on a total area of 3.4 million hectares under the package. Support granted under the 2007–2013 RDP exceeded PLN 2.5 million, which means a 193.7% increase over the 2004–2006 RDP. The amount of support per hectare of eligible area also grew compared to the previous RDP, reaching PLN 738.

Due to adjustments in the policy for organic farming support, this period saw considerable changes in the amounts and structure of funds allocated between different options of organic crops. This was mainly reflected by the increase in subsidy rates for vegetable crops and agricultural crops. The key weakness of the support policy applicable in this period consisted in maintaining the relatively high subsidy rates for fruit crops and berries without requiring the farmers to harvest them [66]. The fact that the farmers accessed payments for these crops means that this period witnessed the emergence of a political rent received by Polish farmers for nonproducing fruit crops [67]. The growth in area under, and support for, agricultural crops was a positive manifestation of the reorientation of organic farming support. Agricultural crops with an eligible area of 2.2 million hectares were

subsidized by ca. PLN 1.8 billion, which accounts for 69.5% of total support allocated to all organic farming options under the 2007–2013 RDP (Table 4). The second largest support (over PLN 404 million, or 15.8%) was allocated to fruit crops and berries. The increase in support for vegetable crops to a level of PLN 144 million (5.6%) was a positive change from the market perspective. The 2007–2013 RDP did not bring any essential changes to the conditions for granting financial support for fruit crops and berries, and therefore, many farmers continued to follow a strategy of accessing subsidies without being required to carry out any production activities. The amount of public spending on organic fruit crops and berries under the 2004–2006 RDP and the 2007–2013 RDP totaled PLN 708.7 million. However, it did not result in an increase in production and sales volumes of these crops. After 2004, there was a decline in yields from 15 tonnes of fruit per hectare in 2005 to 1 tonne of fruit per hectare in 2013 [68].

Table 4. Area under and support allocated to organic farming by option provided for in the 2007–2013 RDP.

Options/Packages	Area Covered by Support		Amount of Support	
	Area (ha)	Structure (%)	Amount (PLN)	Structure (%)
Agricultural crops	2,248,584.2	64.8	1,780,495,132.8	69.5
Permanent grasslands	850,172.0	24.5	217,367,261.6	8.4
Vegetable crops	105,703.4	3.0	144,130,269.7	5.6
Herbs	4116.7	0.1	4,159,112.7	0.2
Fruit crops and berries	245,072.5	7.1	404,659,940.1	15.8
Other fruit crops and berries	17,817.9	0.5	11,842,001.1	0.5
Total	3,471,466.7	100.0	2,562,653,718.0	100.0

Source: own compilation based on [64].

In the implementation period of the 2007–2013 RDP, there was a pronounced change in the amounts and structure of support for each option of organic crops (Figure 3). Compared to other options, the share of support allocated to agricultural crops rose from 65.7% in 2004 to 88.1% in 2018. At the same time, the share of permanent grasslands declined from 20.1% to 1.2%.

Market effects witnessed in the commitment period financed under the 2007–2013 RDP were similar to those experienced in the previous programme, which means there was a small impact on supply. This is because, rather than coupling organic payments with market-oriented requirements, the changes mainly consisted of revising the payment rates. The insufficient effect on the supply side is related to a broader issue of setting key goals for organic farming support. The main reasons for supporting organic farming are environmental concerns and the important role they play in delivering public goods. The second explanation is the fact that organic farming provides the market with high-quality organic products whose supply is limited by the lower yields of organic farming. The structural limitations of agriculture, on the one hand, and the growing market expectations, on the other, lead to excessive demand, which—combined with low levels of domestic production—puts greater pressure on organic food imports.

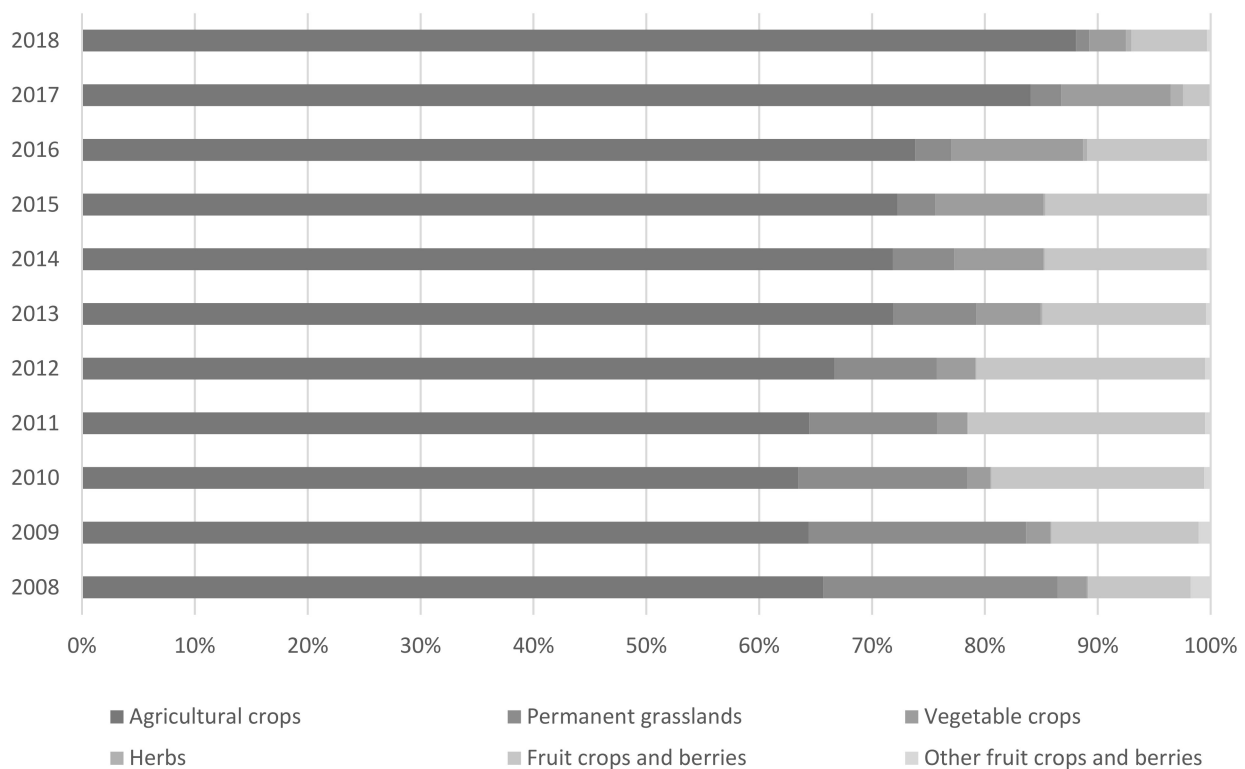


Figure 3. Payment amounts by organic farming option in the 2007–2013 RDP. Source: own compilation based on [64].

In the third programming period, organic farming was supported under the 2014–2020 Rural Development Programme (2014–2020 RDP), which identified “organic farming” (previously, a package) as a separate measure. Support for organic production was also provided for in the measure, “Quality schemes for agricultural products and foodstuffs”, which identified two submeasures: support for new members to quality schemes; and support for information and promotion measures taken by agricultural producer groups. Both of these submeasures were covered by the 2014–2020 RDP. In addition to being supported under the RDP, organic farmers were entitled to payments for agricultural practices beneficial for the climate and the environment (greening payments), as provided for in Regulation No. 1307/2008. This payment was automatically accessed by agricultural producers who complied with organic farming principles (this was applicable solely to the portion of the farm engaged in organic production).

A payment for forage crops was introduced for the first time by the “Organic farming” measure of the 2014–2020 RDP. Three options were identified in the “Horticultural crops” package: basic fruit crops during the conversion period, berries cultivated during the conversion period, and extensive fruit crops during the conversion period. In 2014, there was a major change in the organic farming support policy, namely the requirement to keep a minimum number of animals in the case of payments for forage crops and permanent grasslands. The rationale behind this was to make the farms’ vegetable production better coupled with animal production.

Compared to the previous RDP, payment rates went up, ranging from PLN 428 per hectare of permanent grasslands to PLN 1882 per hectare of fruit crops and berries (Table 5). The degressivity rule was introduced. Organic payments were allocated as follows: 100% of the payment rate for an area of 0.1 ha to 50 ha; 75% of the payment rate for an area of over 50 ha to 100 ha; and 60% of the payment rate for an area above 100 ha.

Table 5. Organic payment rates under the 2014–2020 RDP.

Packages	Options	Payment Rates (PLN per Hectare)	
		During the Conversion Period (1–2 Years)	After the Conversion Period (3–5 Years)
Agricultural crops		966	792
Permanent grasslands		428	428
Vegetable crops		1557	1310
Herbs		1325	1325
Fruit crops	Basic fruit crops	1882	1501
	Berries	1882	1501
	Extensive fruit crops	790	660
Fodder crops cultivated on arable land		787	559

Source: own compilation based on [36].

The planned budget for the “Organic farming” measure under the 2014–2020 RDP was ca. €700 million (ca. PLN 3 billion), including EUR 445 million from the Union budget and €255 from the national budget. This budget also takes account of the €198 million support resulting from the continued implementation of commitments covered by Package 2, “Organic farming”, of the 2007–2013 RDP. Support was planned to cover a total of ca. 540,000 ha of organic crops (together with the acreage of organic farms which continue implementing their commitments. Organic farming support disbursed in 2015–2019 under the 2014–2020 RDP reached a total of over PLN 1 billion. The amount of support per hectare of eligible area rose to PLN 850. In this period, both the area covered by subsidies and the amount paid followed a downward trend (Figure 4).

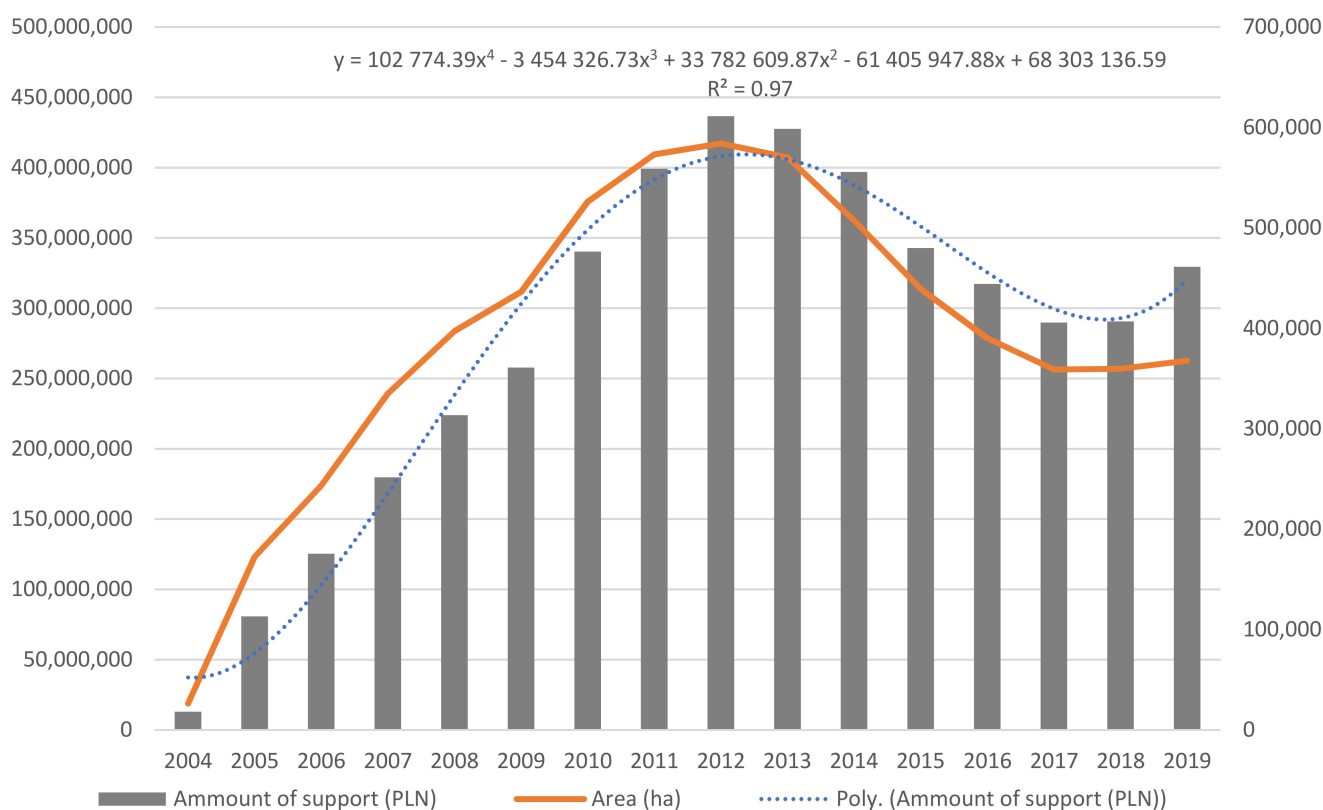


Figure 4. Amount of organic farming support and organic farming area covered by support under the 2004–2019. Source: own compilation based on [64].

In the study period, there was strong correlation between the amount of support for organic farming and the area covered by support (Figure 4). In three subperiods, the area and amount of support either grew together (in 2004–2012 and 2018–2019) or declined together (in 2013–2017). The value of the slope calculated for the polynomial trend used in this estimation is negative; this testifies to the existence of a negative development trend. The area of organic farmland covered by support can be expected to shrink in the near future. A high coefficient of determination (0.97) means the model is a good fit because it explains 97% of total variation in the variable referring to the area of organic farmland covered by support.

Changes in the amount paid and area covered by organic farming support under the 2014–2020 RDP testify to the emergence of a positive trend, where organic crops are supported depending on how important they are for the development of organic production and for market supply. This is reflected by the growing importance of agricultural crops and forage crops (Table 6). Agricultural crops account for both the largest area covered by support (over 500,000 ha) and for the greatest amount of support (ca. PLN 500 million). There was growth in the importance of support for forage crops, as manifested by a relatively large area covered (over 280,000 ha) and by the amount of support rising slightly above PLN 180 million. Particular focus should be placed on some minor changes in how vegetable crops are supported. Despite the increase in payment rates under the 2014–2020 RDP, the area of vegetable crops covered by support was similar to that recorded in the 2007–2013 RDP: 105,000 ha in the 2007–2014 RDP vs. 93,000 ha in the 2014–2020 RDP. Things look similar when it comes to the amounts of support allocated to vegetable crops, with PLN 144 million and PLN 124 million in each of these periods, respectively.

Table 6. Area under and support allocated to organic farming by package provided for in the 2014–2020 RDP.

Packages	Area Covered by Support		Amount of Support	
	Area (ha)	Structure (%)	Amount (PLN)	Structure (%)
Agricultural crops	574,927.4	48.1	485,380,065.4	47.8
Permanent grasslands	109,832.7	9.2	51,543,477.6	5.1
Vegetable crops	93,977.6	7.9	124,089,533.6	12.2
Herbs	67,942.5	5.7	85,999,617.1	8.5
Fruit crops and berries	58,774.6	4.9	86,072,765.8	8.5
Forage crops	289,499.7	24.2	182,245,057.0	17.9
Total	1,194,954.4	100.0	1,015,330,516.4	100.0

Source: own compilation based on [64].

In the first five years (2015–2019) of the 2014–2020 RDP organic commitment period, the share of support for forage crops, permanent grasslands and fruit crops showed some signs of stabilization. Conversely, there was a decline in the share of vegetable crops from 19.6% (2015) to 6.8% in 2019 (Figure 5).

In the whole study period (2004–2019), organic farming support offered under the three RDPs was over PLN 4.4 million and covered 6 million hectares of crops (Table 7). Over 50% of funds were allocated to support for agricultural crops whereas one zloty in five was spent on fruit crops and berries.

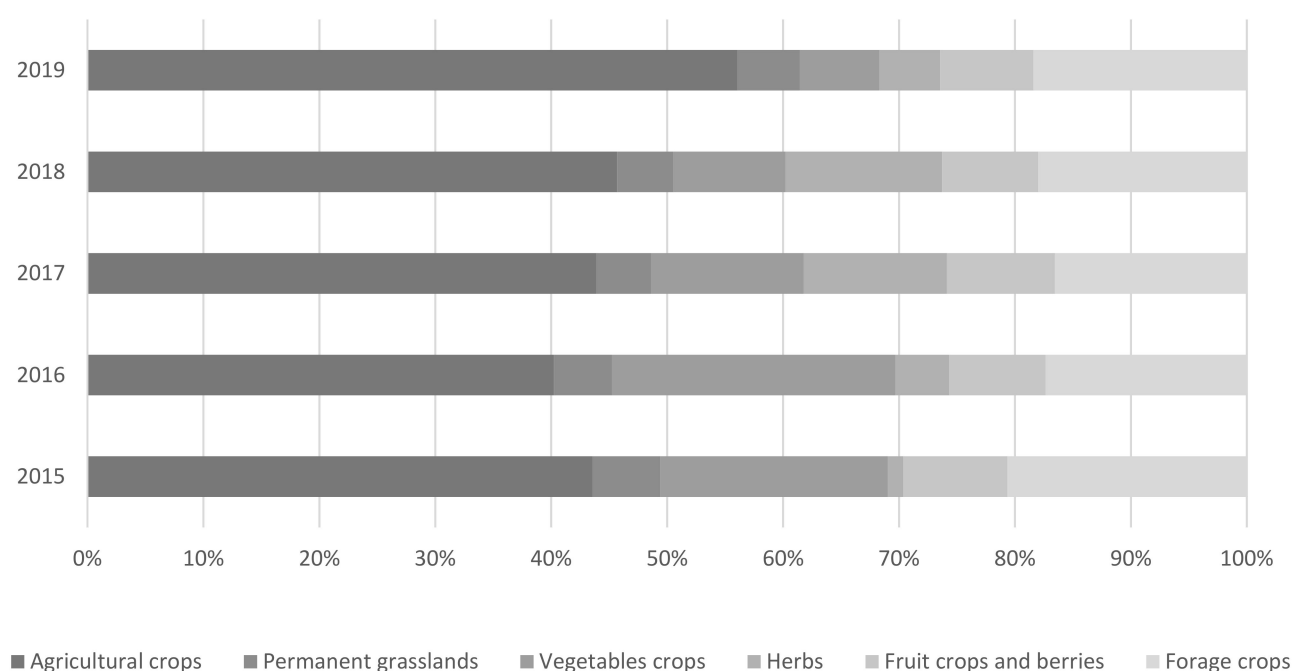


Figure 5. Payment amounts by organic farming package in the 2014–2020 RDP. Source: own compilation based on [64].

Table 7. Area under and support allocated to organic farming by option/package in 2004–2020.

Options/Packages	Area Covered by Support		Amount of Support	
	Area (ha)	Structure (%)	Amount (PLN)	Structure (%)
Agricultural crops	3,323,737.8	55.6	2,570,410,547.6	57.8
Permanent grasslands	1,514,593.9	25.3	413,871,942.9	9.3
Vegetable crops	205,584.6	3.4	273,794,036.7	6.1
Herbs	72,059.2	1.2	90,158,729.8	2.0
Fruit crops and berries	575,422.7	9.6	908,204,458.8	20.4
Forage crops	289,499.7	4.8	182,245,057.0	4.1
Total	5,980,897.8	100.0	4,450,526,773.8	100.0

Source: own compilation based on [64].

Throughout the study period, the support policy for organic farming had a varying impact on changes in the share of organic crops in agricultural land. During the operation period of the two first RDPs, minor amendments were made to the policy, mainly consisting of different growth in payment rates applicable to specific crops. At the end of the nine-year support period (2004–2013), this was reflected by a partial improvement in the share of organic crops in agricultural land. Payment rates for permanent grassland remained the same for 10 years; this resulted in losing their importance as an incentive. As a consequence, the share of meadows and pastures in agricultural crops went down from 51% in 2004 to 30% in 2013. The downward trend followed by permanent grassland continued under the 2014–2020 RDP, even though the payment rates grew by 30% (in the conversion period) and by 65% (after the conversion period) in 2014. However, in 2014, the requirement to keep livestock imposed on permanent grassland farmers proved to have had a stronger discouraging effect than the incentive provided by higher payment rates. This was reflected by the share of permanent grassland in agricultural land going down to 20% in 2018. The second change related to the support policy was the increase in the share of forage crops in agricultural land (reaching 26%). However, the authors believe this was not enough, considering the potential of the Polish organic farming sector and the organic farmers' demand for forage. The growing interest from farmers in forage production provides a

greater potential for domestic livestock production and contributes more to sustainable production models at the farm level. Another positive change in the structure of crops driven by growth in organic payment rates was the increase in the share of vegetable crops (from 1.2% in 2004 to 6.2% in 2018).

5. Discussion

Following Poland's accession to the European Union, the organic farming support scheme was the key driver of dynamic growth in the area and number of farms [69–71]. However, some doubts may arise as to whether and to what degree the support policy contributed to the sustainability of organic farms. This question pertains to the two first periods of organic farming support under the 2004–2006 RDP and the 2007–2013 RDP. At that time, Poland followed a policy of easy access to payments, with its key objective being to trigger a positive environmental impact through quantitative growth of the area under organic farming. However, no account was taken of production activities being poorly coupled to the market for organic food. The main driving force behind this period's policy was the commitment to quantitative growth of organic farming under the assumption that its main purpose was to implement sustainable development in rural areas. However, the amount and structure of support under the 2004–2006 RDP and the 2007–2013 RDP testify to the distortions that affected the organic farming support policy implemented in the first decade after Poland's accession to the European Union.

In the two initial RDP periods (2004–2006 and 2007–2013), the policy for easy access to organic farming payments was reflected in the fact that the eligibility criteria were easy for the applicants to meet. In the first period, it was extremely important that farmers were eligible for payments without being required to deliver organic produce. This attracted strong interest from people not directly related to organic farming and resulted in small quantities of organic food supplied to the market. In the second period, organic farming grew irrespective of the condition of the organic food market. That growth was not fully tapped into in order to increase the supply of organic food, even though the EU Regulation was in force, requiring organic farming to play a dual societal role, i.e., be environmentally-focused and contribute to meeting consumer demand. This is indicated in Council Regulation (EC) No. 834/2007: "The organic production method thus plays a dual societal role, where it on the one hand provides for a specific market responding to a consumer demand for organic products, and on the other hand delivers public goods contributing to the protection of the environment and animal welfare, as well as to rural development." [10].

The principles applicable for subsidy allocation had a considerable impact on the decisions and behavior of organic farmers. In this period, the organic commitment was undertaken by a large group of farmers referred to as subsidy consumers in the literature [72,73]. These were the Polish equivalent of pragmatic farmers, whose organic farming choices (according to what is usually believed in the international literature) are characteristically guided by financial incentives and benefits rather than by values and principles. Studies by different authors found payments to have had an important contribution to the economic performance of Polish organic farms and to have been an income-generating factor [56,74–77]. According to Nachtman [75] "...accessing payments while minimizing production inputs became the goal for many owners of organic farms discussed here. Between 2008 and 2010, the largest farms (with an average area of 120 ha to 125 ha) accessed an average amount of PLN 149,716 to PLN 198,646 of payments per farm, making them economically viable." In most farms, payments represented the main source of income. In small and medium-to-small farms, they accounted for 68.9–83.3% of incomes (compared to 89.6–124.3% in other farms).

Farmers who undertook organic commitments opted for crops with a high payment-to-labor input ratio. This was particularly reflected in the structure of payments disbursed under the 2004–2006 RDP where "fruit crops and berries" and "agricultural crops" accounted for the largest share of funds (48% and 35%, respectively) whereas vegetable crops

had the smallest (0.6%). In this period, farmers who engaged in fruit crops and berry cultivation were not required to grow trees that bore fruit. This contributed to abuses in the organic farming scheme. The area of land under organic fruit crops covered by payments grew each year, reaching 58,887 ha in 2008, including 35,850 ha (67.8%) of land under walnut trees. Due to these irregularities, the next programming period (2007–2013) introduced an option called “other fruit crops and berries” with less support for walnut orchards and some other ventures. As a consequence of these changes, the share of land under fruit crops gradually declined as farmers motivated by financial benefits discontinued walnut-growing.

In this period, the support policy made public funds available to subsidy seekers interested in payments rather than in organic production. Hence the policy became a tool for those in quest of a political rent, defined as an inappropriate benefit or reward not related to generating additional assets. The greater the political quest for rent, the harder it is to implement the principles of social cohesion because the part of assets which is not invested in production activities has a detrimental effect on the efficiency of asset allocation. The emergence and extent of this process depend on the organic farming policy, which affects the farmers’ decisions and defines the framework under which they function.

In the third RDP period (2014–2020), the amount and structure of organic farming support were a derivative of the then-applicable amendments to the conditions for granting payments. This followed from the need to adjust the support policy for organic farming in order to eliminate the irregularities. First, in the case of forage crops and permanent grasslands, a requirement was imposed to keep animal density at a minimum level of 0.3 LU/ha. Linking the support for these crops to a required level of animal density resulted in a decline in the area of permanent grassland in relation to the area covered by subsidies (from 42.2% in the first period to 24.5% and 9.2% in the second and third periods respectively). This also contributed to reducing the share of permanent grassland in the amount of support; of all European Union members, in 2018 Poland had the highest share (88.4%) of organic farms engaged solely in vegetable production.

The second amendment to the conditions for support was the obligation to deliver organic farming products and to process, deliver to other farms or sell no less than 30% of harvests (agricultural crops, vegetable crops, herbs, fruit crops). Regarding forage crops and permanent pasture, a requirement was introduced that the harvests must be fed to animals, or be delivered for sale or to other farms. The requirement to market part of the harvest was introduced to prevent a situation where measures financed with public funds supported a process referred to as self-supply; this means farmers whose production activity has no effect on the supply of organic products (their produce is not available to consumers). Another objective behind this requirement was to prevent farmers interested solely in accessing payments (rather than in production) from being covered by this measure. As a consequence of these changes, some farmers (mostly those not engaged in production) decided to discontinue their organic production and not to participate in the “Organic farming” measure financed under the 2014–2020 RDP. Meanwhile, the number of new organic farmers did not grow. The changes to the conditions for granting payments were a manifestation of how the support policy evolved towards linking organic farming growth with an increase in the supply of organic food rather than supporting quantitative growth processes.

The new requirements for granting organic payments had an essential impact on the downward trend that has affected organic farming since 2014. The decline in the area of organic farmland started in 2014 and then continued for many reasons. Undoubtedly, this process was related to the new support requirements listed above, but it was also definitely driven by the instability of legal regulations and of the institutional environment dealing with organic payments. An extreme example of the above is the rapid changes the Ministry of Agriculture and Rural Development made to the required uses of organic crops produced. For one year, from March 15, 2013, to March 14, 2014, there was a general provision that required the crops to be used as forage, delivered for direct consumption by

humans, delivered for processing or composting, or supplied to other farms. For seven and a half months, from March 15, 2014, to October 30, 2014, farmers were required to market no less than 50% of their crop, whereas since October 31, 2014, there have been no provisions governing the required use of crops.

There were seven amendments to the Regulation of the Ministry of Agriculture and Rural Development of March 13, 2015 on the detailed conditions and procedure for granting financial aid under the “Organic farming” measure. As a consequence, the Agency for Restructuring and Modernization of Agriculture had to make multiple changes to the procedure for organic farming support, resulting in delayed decisions regarding the grant and disbursement of funds. The reasons behind these changes include the new requirements for organic production, which the farming community urged should be less restrictive. Initially, the Ministry of Agriculture and Rural Development introduced a requirement that 80% of agricultural, vegetable and fruit crops and berries should be delivered, for processing, to other farms, or for sale. Later the same year (2015), as requested by farmers’ organizations, the ministry introduced the obligation that no less than 30% of crops produced be processed, marketed or delivered to other farms. The reduction in the proportion of marketable crops required under this measure was only an alleviation of a formal requirement; actually, it has no effect on the sales volumes of organic products delivered by farmers who intend to derive income from selling organic products.

Initiated in 2014, the adjustments to the support policy were driven by the need to stimulate growth in organic production in addition to a quantitative growth of the organic farming sector. In Poland, rapid growth in organic farming did not translate into a proportional increase in supply. The growth in production and the effect it had on volumes supplied turned out to be so small that the market continued to be imbalanced and considerably supplemented with imported goods (the share of imports is ca. 50–60%) whereas prices did not fall. While the support stimulated an increase in the area and number of organic farms, it failed to trigger production growth (according to estimations, only 800 organic farms market their produce). Additionally, over the recent years, organic food production has also been stimulated by a rapid growth in demand (which, however, did not have the expected effect on supply). This suggests that growth in organic production is hampered by the existence of many diverse obstacles, including not only institutional ones but also market, production and technical ones [52].

6. Conclusions

As shown by research findings, financial support is an important development driver for the Polish organic sector. In the study period, changes in the level and allocation principles of support were reflected in a changing development pace of the organic sector and in the varying structure of crops.

First, in the context of support, the development pace of the organic sector depends on a number of other factors, including regional socioeconomic conditions, but also on institutional and regulatory aspects. Therefore, the quality of the institutional and regulatory environment and a clearly defined goal, namely to generate growing environmental benefits, are important development drivers for the organic sector. It seems that the future Polish support policy should clearly define these goals in order for the future beneficiaries to make more informed decisions on whether to go organic and to better realize the value that organic farming provides for sustainable development.

Second, the fact that organic payments (the main development accelerator of the Polish organic sector) remained at a relatively high level for some time was a weakness of the support policy. Indeed, organic farming development cannot be primarily driven by an increase in the amount of support and by a high share of payments in farmers’ incomes. Otherwise, there would be growing risk of farmers becoming dependent upon government policy and upon how stable it is. Sometimes, an excessive level of institutional regulation involved in that policy can slow down organic farming growth and make it more vulnerable to external disruptions. Hence, while organic farming support should be

an additional income that compensates for higher costs of organic production, it cannot be the sole factor behind the decision to go organic.

Third, the study period also witnessed some positive changes in the support policy. This resulted in improvements to the structure of organic crops and promoted sustainable farming practices, as reflected by a number of developments, including the growing level of payments for forage and vegetable crops, and the resulting increase in their share in the structure of agricultural land.

This study provides new aspects of knowledge on organic farming support policy and on the effect it has on the sustainability of development processes experienced in this type of farming. This paper presents some aspects of the support policy, which do not exhaust the complex problem of how it affects the development of organic farming. It is recommended to continue research on various policy instruments in the area of production, processing, promotion and consumer education, and to analyze how efficient they are in attaining the defined goals. Further qualitative research on organic farming support is needed. It should focus on how it is viewed by farms who discontinued their organic practices. Such a study could help answer the question of how much the decision to quit organic farming depended on the dedicated support policy and to what extent it was driven by other factors.

Author Contributions: Conceptualization, W.L.; methodology, W.L. and S.K.; software, W.L. and S.K.; validation, W.L., S.K. and N.S.; formal analysis, W.L., S.K. and N.S.; investigation, W.L., S.K. and N.S.; resources, W.L., S.K. and N.S.; data curation, W.L., S.K. and N.S.; writing—original draft preparation, W.L. and S.K.; writing—review and editing, W.L., S.K. and N.S.; visualization, S.K.; supervision, W.L. and S.K.; project administration, S.K.; funding acquisition, W.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: ARMA. Data on organic farming in Poland (Unpublished data). Agency for Restructuring and Modernization of Agriculture: Warsaw, Poland, 2021. (In Polish); <https://www.gov.pl/web/rolnictwo/-program-rozwoju-obszarow-wiejskich-2014-2020-prow-2014-2020>, (accessed on 13 June 2021).

Conflicts of Interest: The authors declare no conflict of interest.

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