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Karolina Pawlak, Małgorzata Kołodziejczak**, Yumei Xie****

Horizontal Integration in the Agricultural Sector as a Factor Increasing Its Competitiveness – Experience from Poland

Abstract

The aim of this article is to present the process of the development of horizontal integration in the agricultural sector in Poland in relation to the increase in its competitiveness. The article uses the data of the National Cooperative Council in Poland, The Agency for Restructuring and Modernisation of Agriculture, as well as Central Statistical Office in Poland. The process of formation of agricultural producer groups accelerated considerably when Poland joined the EU, especially due to the possibility to receive support from public funds. In 2013, at the end of the first full financial framework 2007–2013, there were almost 1300 agricultural producer groups in Poland. The most of them functioned in central, western and north-western regions, where larger and specialised farms are prevalent and where farmers understand the need for joint activity and want to gain a possibility to generate both technological and cost and price advantages and to increase the profitability of production. So far Polish producers of cereals, oilseeds, pigs and poultry have been relatively best organised. In 2017 about 45% of all registered

* Department of Economics and Economic Policy in Agribusiness, Poznan University of Life Sciences
** Department of Economics and Economic Policy in Agribusiness, Poznan University of Life Sciences
*** Department of Finance, School of Business, Jiangnan University, Department of Finance, School of Business, Jiangnan University

groups of agricultural producers had the status of cooperatives. In pigs and beef cattle production the share of cooperatives in the total number of registered groups was even higher and amounted to 70% and 83%, respectively. Such groups are capable of helping farmers to solve the problems of how to sell their products, to ensure the appropriate quality of those products and to increase the cost-effectiveness of production. Cooperatives are often involved in social, educational and cultural activities provided to their members and rural community. Therefore, it can be said that very presence of cooperatives favours the development of agriculture in a particular region and in the entire country.

Keywords: agricultural producer groups, branch cooperatives, competitive advantage, cost and price advantages, agribusiness

Introduction

For more than 40 years, there has been intense research on the competitiveness of enterprises, sectors, regions and national economies. It is inextricably linked with the progressing processes of integration, internationalisation and globalisation, which enforce the identification and measurement of the factors implicating the level of competitiveness of entities operating on national and international markets and affecting the character of their economic policies. The competitiveness of the national economy on the international market is based on the competitiveness of different business entities (chiefly enterprises), which operate within its area. The higher the level of modernity and quality domestic business entities represent and the more effective their activity is, the greater the chance for the national economy to meet the requirements of international competition. This view can be found in the studies by Chesnais (1988), Lubiński, Michalski & Misala (1995), Gorynia (1996)[1], Jeliński (2003) and Stachowiak (2004). Concurrently, those authors believe that 'the competitiveness of economy (or its sector) is something more than the average competitiveness of enterprises' (Chesnais 1988) and it cannot be treated as a 'direct sum of international

[1] Gorynia (1996) stresses the fact that the competitive advantage of enterprises has primary character, whereas the competitive advantage of a country (region) has secondary character.

competitiveness of business entities operating within its area' (Lubiński, Michalski and Misala 1995; Gorynia 1996; Bombińska 2002). According to Chesnais (1988), the competitiveness of an enterprise reflects not only the successful management of a company but it also stems from the strength and effectiveness of the production structure of the national economy, from the technical infrastructure and other external factors which may be used by an enterprise. As results from that statement, the competitiveness of a national economy are influenced by the competitive strength of individual business entities operating within its area, but with the synergistic effect. Similar dependences can be observed when competitiveness is researched at the mesoeconomic level.

In a narrow sense, 'the competitiveness of an enterprise involves adjusting products to the requirements of the market and competition, especially in terms of the range of products, their quality, prices and the use of optimal sales channels and promotion methods' (Adamkiewicz-Drwiłło 2002 after *Business Encyclopaedia* 1995). This definition enhances the role of distribution channels in achieving a satisfactory level of competitiveness. However, more and more often microcompetitiveness is defined as 'the ability of an enterprise to offer the right commodities and services of appropriate quality and prices at the right time, which means that the consumer's needs are satisfied more effectively than by other entities on the market'. This is how the competitiveness of enterprises is understood by Edmonds (2000) and Olczyk (2008a), who follow the publications of the British government (*White Papers*). According to Buckley, Pass and Prescott (1988), the competitiveness of an enterprise is best described by the definition in '*The Report from the Select Committee of the House of Lords on Overseas Trade (The Aldington Report)*' of 1985, where competitiveness is defined as 'the ability to make products and services of better quality and at lower costs than the goods offered by domestic and foreign competitors, which results in the ability of an enterprise to generate a long-term profit, which is understood as the capacity to provide both adequate remunerations to the employees and higher profit to the owners than other entities can offer'. In general, we might say that microcompetitiveness is related with the costs and quality of products, which result in an appropriate level of effectiveness and profitability of products sold, whereas the products implicate the specific share of the enterprise on a particular market (Olczyk 2008a, 2008b).

The competitiveness of the national economy sector, with particular regards to the agri-food industry, is defined by Freebairn (1987), who writes that it is 'the ability to provide goods and services at the time, place and forms which consumers seek, where the prices are equal or lower than those offered by other suppliers, which at least guarantees the return on investments made'[2]. Several significant issues which need to be taken into consideration in the process of increasing the competitive advantages of the agri-food sector result from this concept. First of all, products must meet recipients' diversified and varying preferences, which cause the need of a marketing activity on target markets. Second of all, price competition concerns not only the costs of production but also the costs of distribution and marketing[3], which additionally should be treated as a relative category and they should be assessed in relation to the costs borne in other sectors of the national economy. Third of all, it is necessary to be aware of the fact that competitors constantly seek ways to improve the applied methods of production and marketing and they attempt to achieve technological advantage. Fourth of all, the competitiveness of exports is largely determined by the exchange rates of the currencies of competing countries, which points to the fact that the state's macroeconomic policy has influence on the level of competitiveness. Fifth of all, in view of the fact that most producers cannot exert influence either on the prices of products or factors of production, an increase in the effectiveness of production and reduction of production costs will directly influence improvement of the competitive position of the sector.

Generally speaking, according to Porter (1980), cost leadership and/or product diversification are the sources of competitiveness in agribusiness. Harrison and Kennedy (1997) are more precise in their definition of the factors which are decisive to the level of competitive advantages of the agri-food sector. They list the following elements: technology affecting the productivity of labour and capital, the quality of products, the prices and quality of factors of production, the quality and degree of diversification of products, the economies of scale of production, promotion, advertising and external factors (which exert influence from outside the sector), including

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[2] Sharples & Milham (1990) and Cook & Bredahl (1991) adopted this definition in their studies.

[3] Sharples (1990) and Frohberg & Hartmann (1997) make references to this issue.

the state's policy (fiscal, monetary, commercial, industrial, regional, research and development, employment, credit, revenue policies). In the publication Agriculture Canada (1993), with reference to Porter's (1990) concept of the diamond model of competitive advantage, this list is supplemented with the volume, structure and rate of increase in the domestic demand for agri-food products, the degree of development of related and supporting branches, such as those offering transport, financial services, equipment for food processing plants, supplying fertilisers, energetic materials, food additives, packages, etc. Other factors which are decisive to the competitiveness of the agri-food sector include the character of competition on the domestic market and the degree of its openness to the competition offered by importers, the advancement of the processes of horizontal and vertical integration as well as random factors, such as the formation of free trade areas, changes in the consumption model, the development of new methods of transport of easily perishable products, epidemics of animal diseases and weather changes. All those elements have influence on the costs of production and in consequence, they have influence on the level of profit generated and the volume of shares in the market[4].

In view of the increasing competitive pressure in the global economy, the ability to provide the client with sufficiently large batches of products of equal quality and at competitive prices becomes a sine qua non to gain competitive advantage on domestic and international agricultural markets. This condition is favoured by transformations in agrarian and productive structures, which consist in the territorial concentration of farms and greater specialisation of production. As a result, the effectiveness of production increases and it is possible to gain advantage on the scale of production and sales.

One of the methods increasing the competitiveness of farms is organising farmers into groups of producers. In view of the abovementioned facts, the aim of this article is to present the process of development of horizontal integration in the agricultural sector in Poland with regard to the increase in its competitiveness. The article uses the data of the National Cooperative Council in Poland, The Agency for Restructuring and Modernisation of Agriculture, as well as Central Statistical Office in Poland.

[4] More on the determinants of agri-food sector see Pawlak (2013).

The time scope of the research was determined by the availability of the data and covers the period 2004–2017, ie. since Poland became a member state of the European Union.

Cooperative movement and agricultural development: economic and sociological perspective

Cooperative groups of agricultural producers are a specific form of horizontal integration in the agricultural sector. A cooperative is an institution formed by a group of people in a society with a common motive to deal with their existing socio-economic problems (Nepal 2014). Although many types of cooperatives have been established worldwide to serve the interests of their members, they have been most extensively and successfully operating during the last centuries in North America and Europe, especially in the agricultural sector (Barton 2000). One development that probably had the greatest singular impact on defining operating principles for agricultural cooperatives was related with the formation of a consumer cooperative by the Rochdale Society of Equitable Pioneers, Ltd. in 1844. The cooperative's objectives were to address members' needs for better housing, employment, food, education and other social requirements (Ortmann and King 2007). Another milestone for the development of a modern cooperative society was connected with the establishment of the first savings and credit cooperative by Friedrich Wilhelm Raiffeisen in Germany in 1864, followed by the establishment of the International Cooperative Alliance (ICA) in 1895 (Nepal 2014).

In 19th century Poland, the development of the agricultural cooperative movement was hindered by the political and economic conditions and the legal situation of the former Polish territories during the partition period. This process was most dynamic in the Prussian partition, with its acts on cooperatives passed in the Kingdom of Prussia in 1867, followed by the Austrian partition, in which similar acts were passed in 1873, while the process was slowest in the Russian partition, in which such legal solutions were introduced as late as 1906. The diverse legal foundations for the establishment and operation of cooperatives were unified by the Parliament of the Second Polish Republic in the Act on Cooperatives of 1920, providing favourable legal and organisational conditions to promote the development of the cooperative movement (Nowak and Gorlach 2015). The attitude towards the concept of cooperatives changed in Poland in the 1950's with the attempts at forced collectivisation in agriculture, placing all independent social initiatives under the state control. Such a state policy resulted in the negative attitude of the rural population to the concept of cooperatives, which were perceived as an instrument of the state eliminating their autonomy, and led to a decline in farmers' interest in forms of collective farming. Consequently, cooperatives, which until 1989 purchased almost all produce and provided necessary production inputs, lost their market position; the only exceptions in this respect were dairy cooperatives and cooperative banks (Nowak and Gorlach 2015). After 1989 in Poland, we have been observing a decrease in the number of agricultural production cooperatives, the Samopomoc Chłopska supply and marketing cooperatives, as well as worker cooperatives and artisan cooperatives, while the number of social cooperatives has been increasing (See Kata 2016). Following Poland's accession to the EU farmers have been showing increased interest in collective operations within the framework of agricultural producers' groups5 (see further).

Agricultural cooperatives play an important role in the socio-economic development of agriculture and rural areas, both in more and less economically developed countries. Ortmann and King (2007) suggested that cooperatives have a role in the overall economic and social development by creating jobs, generating income to their members and reducing poverty. Ševarlić and Nikolić (2013) stated that contribution of cooperatives to solving the problem of rural (un)employment and poverty reduction is three-fold. Firstly, agricultural cooperatives enable direct employment and seasonal work, then they allow farmers to purchase inputs under favourable conditions and to sell the final products on the market, contributing to rural community development, and finally agricultural cooperatives provide income to the rural population, thus promoting additional development. Moreover, Kolin (2010) emphasised that agricultural cooperatives, as a form of social enterprises, have the potential to mitigate the social consequences of transition by employment of the rural population,

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[5] More on the genesis, development and future of rural and agricultural cooperatives see Brodziński (2014).

particularly its marginalized groups. In simple words, it can be said that agricultural cooperatives provide stability in farming. Benefits experienced by the local community from the cooperative from of farming include also improved quality of the social capital, fostering solidarity and enhancing democratic procedures and social activism in local communities, reducing social inequality (not only income discrepancy, but also social exclusion) as well as the development of technological and social infrastructure (Kawa and Kuźniar 2009; Kata 2016).

The role of cooperatives in agricultural development is explicitly highlighted in the World Bank report from 2008 on the development of agriculture. Additionally, the European Commission in many documents has emphasised that social economy and cooperatives contribute to the realisation of key EU objectives such as social policy and employment, regional development and agriculture (National Cooperative Council 2001). However, it is the increasing number of agricultural cooperatives in European countries that best confirms their importance. For example, in 2002–2007 the number of agricultural cooperatives in Finland, Moldova and Lithuania increased by about 30%, 12% and 10%, respectively, while in Denmark and the UK new cooperatives in the wind power generation sector have been established (ILO 2007). Agricultural cooperatives have a long history and a considerable practical role, as well as a very strong position on the agricultural markets in Western Europe. As was reported by Suchoń (2012) after Boguta, Gumkowski and Lachowski (2007), approximately. thirty thousand agricultural cooperatives are operating in the EU-15 countries, having nine million members and employing over 600 thousand people. The total turnover of these cooperatives exceeds two hundred billion euros, their share in the supply of production inputs exceeds 50%, while in the wholesale purchase, processing and marketing of agricultural produce it is 60%. Large numbers of cooperatives may be found first of all in Italy, Spain, France, Germany and Denmark. Ševarlić and Nikolić (2013) indicated that in Denmark they account for 36.4% of the consumer retail market, in France twenty-one thousand cooperatives provide over a million jobs, or employ 3.5% of the economically active population, while in New Zealand the cooperative sector accounts for 3% in gross domestic product and 95% of the dairy market. As far as other non-European countries are concerned, it may also be noticed that in the Philippines the dominant part of thirty thousand cooperatives are located in rural areas, where they provide over sixty-five thousand jobs through employment in cooperatives, while in India 67% of rural household needs are being met through cooperatives (ILO 2007).

The transition process in Central and Eastern Europe had a profound effect on how individuals interact. Economic and social institutions have changed, requiring an adaptation process by individuals in the move towards a market economy (Murray 2006). A study published by Murray (2006) shows that in the transition process from a planned to a market-oriented economy interpersonal associations and social networks, as well as the use of those networks (social capital) were becoming increasingly more important. Networks in Central and Eastern European countries were constantly changing, as their functions changed. In the former socialist systems, networks gave the individuals the opportunity to access privileged resources. Informal and family networks were also important, especially when goods and services were produced within the household. On the one hand, such structures could disturb the effective functioning of market mechanisms or enable the creation of black markets, but on the other hand, all the networks supported economic growth (Mateju 2002). Paldam and Svendsen (2001) argued that the socialist system tolerated and even needed these shady networks, and they did not disappear during the transition period in some Central and Eastern European countries. The transition process enabled some individuals to adapt and benefit from the emergence of new market opportunities. Gatzweiler and Hagedorn (2001) showed that certain cooperative managers fared well in the transition period due to the good business practices learnt from the cooperatives and collective farms, and having information due to their position. Networks provided a mechanism both for sharing resources in agricultural production, which was rational from an economic perspective, as well as transmitting information, knowledge and technology amongst its members, which enhanced their competitive position on an increasingly liberal market (cf. Murray 2006). Collectively, societies are better off when their members cooperate with one another to achieve common goals (Brehm and Rahn 1997). Individuals, however, face incentives to behave selfishly, seeking the benefits of cooperation without contributing to the process. Sociologists, economists and political scientists converge on the concept of social capital to explain why certain groups and communities are able to resolve collective action problems cooperatively, while others are not. Ostrom (2000) and

Annen (2002) showed that trust, reputation and effective communication amongst individuals are of a key importance to collective action problems and they increase the level of cooperation. Despite obvious economic benefits of collective farming, the distrust, bad experiences from the past and fear of losing one's independence, a lack of loyalty among members of agricultural producer groups, insufficient participation of farmers in the activity of the group and a lack of knowledge on the objectives, principles and legal conditions for cooperative farming are considered the most significant factors inhibiting cooperation processes among farmers in most Central and Eastern European countries, including Poland (See Foryś 2008; Nowak and Gorlach 2015). Apart from behavioural barriers for the development of cooperative operations, other crucial aspects include also the principal-agent problem, manifested e.g. in the low standard of democratic procedures in the management of cooperatives, excessive dependence of many cooperatives on financial support from the public sector and inefficient decision making processes (Kata 2016).

Ortmann and King (2007) argued that cooperatives are being formed to strengthen bargaining power, to maintain access to competitive markets, to capitalise on new market opportunities, to obtain needed products and services on a competitive basis, to improve income opportunities, to reduce costs, and to manage risk. Barton (2000) synthesised these arguments and indicated that farmers form cooperatives to generate greater profits by obtaining inputs and services at lower costs, by marketing their products at better prices or in markets that were previously not accessible.

In summary a characteristic feature of all cooperatives operating in the agricultural sector is their activity for the benefit of agricultural producers, promotion of mutual interests of their members through their participation in the economic activity as suppliers of agricultural produce or service consumers. Additionally, cooperatives participate in various stages of the food supply chain. They not only purchase products from farmers, store them and next market them at possibly the most advantageous terms, but they also try to provide inputs for agricultural production (seeds, fertilisers, pesticides, feeds) and cultivation and extension services, as well as participate in processing operations. As was observed by Suchoń (2012) after a French economist Charles Gide, „A cooperative is a business, but when it is only a business, it is bad business". A similar opinion was expressed by Mierzwa (2010), who stated that operations of cooperatives need to be based on economic principles and focus on their business importance, while at the same time cooperatives should not neglect their social functions, with this type of activity being specifically separated within market economy conditions. Many authors emphasise that a cooperative as a productive institutional tool to maximise farmers' participation in income generating activities and market coverage strongly assists the development of rural areas, resulting in diminishing poverty (Bernard and Spielman 2009; Markelova et al. 2009; Bernard and Taffesse 2012; Fisher and Qaim 2012). Nepal (2014) indicated that a cooperative is a vehicle for economic development which can break the vicious cycle of poverty and lead communities towards development. Hansmann (1999) explained that cooperatives represent a substantial share of the economy in more developed economics rather than less developed ones. However, in many developing countries, cooperatives are given a high priority in the economic policy and are considered as a major tool of development (Birchall 2003).

Factors stimulating and inhibiting the establishment and development of groups of agricultural producers

Individual farms in Poland are a very diversified group of entities in terms of their area, economic power, character of production and many other distinguishing factors (Prus 2008). In order to meet the requirements of increasingly competitive agricultural markets they should stop competing with each other and partake in the process of horizontal integration. It consists of integrating the business entities which belong to the same phase of production or distribution (Małysz 1996) into groups with a stronger market position. The establishment of groups of agricultural producers is an example of this process. According to the Polish legislation, it is a group of at least five members, who are guided by the same goal and attempt to achieve it. Above all, the aim is joint existence on the market and taking marketing actions. Additionally, an effectively managed group of producers can better use the information which is necessary to make decisions. This information concerns the reliability of merchants, competitors, distributors, offers of payment conditions, current prices and price forecasts, market trends and forces in the marketing environment (Prus 2008).

Organising farmers into groups of producers provide them with the following advantages (Boguta 2008; Prus 2006; Wiatrak 2002):

- the number of agents is reduced to the minimum,
- better prices of means of production and services and better sales prices of products can be negotiated,
- joint investments and better use of production assets,
- the costs of production can be reduced because of greater scale of production and reduced costs of storage and preparation of products for sale,
- an ability to offer sufficiently large and standardized batches of products gives an opportunity to enter new markets,
- members of the group can better manage the production in their farms to meet the requirements of the market,
- exchange of technological experience and market information,
- joint promotion of products,
- all members of the group share the risk of business activity,
- the group solves problems together and receives counselling,
- the group can apply for subsidies from public funds.

In 2009, the Department of Economics and Advising in Agribusiness, University of Technology and Life Sciences in Bydgoszcz, conducted research on 307 members of groups of agricultural producers from Kuyavian-Pomeranian Voivodeship and Lower Silesian Voivodeship. The research revealed that the desire to reduce the costs of supply of means of production and to generate savings by limiting the number of intermediaries were factors stimulating the formation of agricultural producer group for about 80% of the respondents. The farmers thought it was very important for them to have better conditions of sales of the products made on the farms belonging to the group members and to receive financial support from the EU. Nearly 90% and 70% of the respondents listed these aspects, respectively. When joining a group of agricultural producers nearly 85% of the respondents considered benefits resulting from joint trade and marketing actions, which allowed them to find new clients. Nearly 70% of the respondents gained better access to technological consultancy (Prus 2010b). The priority importance of the abovementioned factors encouraging the establishment of agricultural producer groups is also confirmed by Krzyżanowska and Trajer (2011), referring to the midterm evaluation of the Rural Development Programme 2007–2013. Considering these facts, we can say that the establishment of an agricultural producer groups resulted both in strengthening the cost and price advantages of the group members' farms and in effectiveness, technological and qualitative advantages, which were more difficult to retain but they guaranteed a more stable competitive position.

Despite the advantages of organising farmers into groups of producers there are also many factors inhibiting the establishment and development of groups of agricultural producers. The most important of them are (Boguta 2008; Gołaszewska 2004; Grzelak 2005; Prus 2006, Prus 2008; Nowak and Gorlach 2015):

- the fear of change,
- bad experiences from the past,
- insufficient economic knowledge (ignorance of the rules of the market),
- a distrust,
- impossibility to agree on common rules and procedures of conduct,
- the absence of a leader (or too many leaders who are unnecessarily competing with each other),
- a lack of financial assets and unwillingness to engage their own resources,
- the risk of loss,
- inability to cope with formal and legal barriers,
- insufficient knowledge to manage the group effectively,
- inability to standardize the production,
- problems in the field of finance and cash flows,
- a lack of long-run planning,
- a lack of loyalty among members of agricultural producer groups,
- incomplete engagement of farmers in the activity of the group,
- farmers' lack of discipline,
- a lack of effective communication.

According to the aforementioned questionnaire survey, the most significant factors inhibiting integration processes among farms in Poland were as follows: distrust, ignorance of the rules of the market and inability to cope with formal and legal barriers (Prus 2010a). These factors were listed by about 74%, 65% and 62% of the respondents, respectively. As nearly 62% of the respondents found that another important obstacle to the formation of groups of agricultural producers was the absence of a leader with an appropriate personality and a vision which would evoke interest in other potential members of the group. More than 35% of the farmers who took part in the survey found the lack of effective communication to be a factor inhibiting integration, whereas as much as 72% of members of agricultural producer groups complained about the resulting impossibility to agree on common rules and procedures of conduct. Respectively, more than 55% and 65% of the respondents indicated that integration processes were considerably inhibited due to farmers' lack of discipline and loyalty and their incomplete engagement in the activity of the group. It resulted from Polish farmers' strong sense of economic separateness and their apprehensions not to lose independence in making economic decisions about the functioning of their farms. In fact, this strong sense of separateness and independence was decisive to the retention of the traditional character of Polish agriculture in the form of individual family farms after World War II when the authorities were attempting to collectivise Polish agriculture (Wawrzyniak 2002).

The development of agricultural producer groups in Poland

The establishment of groups of agricultural producers in Poland was preceded by the idea to form groups of individual farmers, which was initialised by Resolution No.209/74 made by the Council of Ministers in 1974. According to the Resolution, a group of farmers needed to consists of at least three members, who (Prus and Wawrzyniak 2010):

- owned separate farms or farming estates,
- were inhabitants of the same or neighbouring villages,
- made an agreement on the establishment of a group and registered it at a commune council,
- worked together as a team,
- started joint activity in agricultural production, following agreements with state-owned companies.

The establishment of groups of individual farmers was supposed to promote the concentration of land and means of production. Apart from that, membership in a group guaranteed aid in the form of low interest credits, deductions from the land tax and lease fees, facilitations and discounts on veterinary services, facilitations in purchasing farming equipment, building materials and seeds and facilitations in the sales of products and services (Prus and Wawrzyniak 2010). Groups of individual farmers had the following basic tasks: group management of land and buildings provided by the state, enabling effective use of high-efficiency farming machinery and complex agritechnical solutions, making group investments enabling the introduction of modern production technology. Due to the fact that in the 1970s it was difficult to gain access to farming machinery and tools in Poland, the largest number of groups was established for joint use of farming machinery (nearly 60% of all groups established). This process was often stimulated by commune councils and agricultural services, whose duty was to promote the idea of mechanisation in agricultural production. Apart from the pursuit of mechanisation in production, there were also other aspects motivating farmers to establish groups of individual farmers: increased productivity, preferential credits and deductions from taxes and lease fees (Prus and Wawrzyniak 2010). It is noteworthy that membership in the group did not infringe the status of an individual farm or farmers' freedom to make decisions about production.

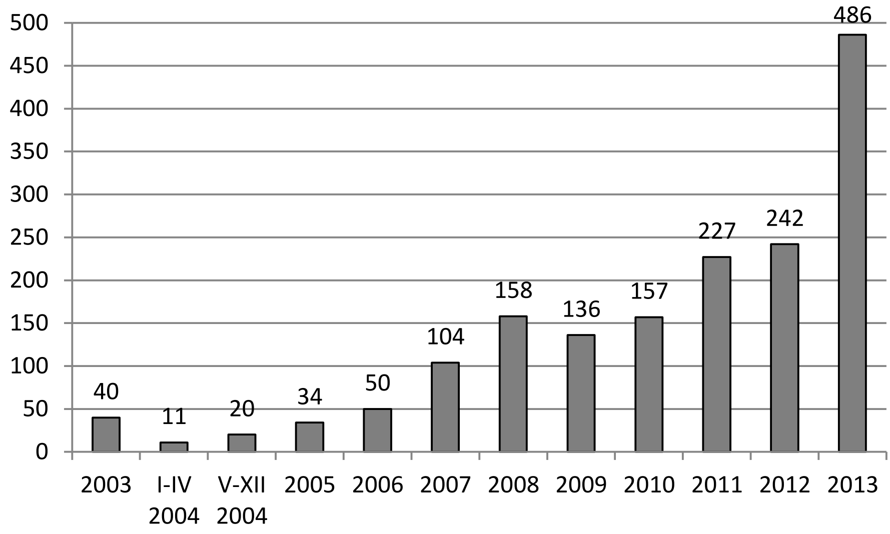
Groups of individual farmers can be regarded as the first attempts of farmers' team management in Poland. It preceded the process of formation of groups of agricultural producers, as defined by the Act on Groups of Agricultural Producers and Their Associations and on Amendments of Other Acts of 15 September 2000 (Official Journal of 2000, No. 88, Pos. 983 with later amendments). According to this law, the aim of groups of agricultural producers is to adjust agricultural production to market conditions, improve management efficiency, plan production with special focus on quality and quantity, concentrate supply, organise the sales of agricultural products and protect the natural environment. Groups of agricultural producers can consist of natural persons, organisational units without legal personality and legal persons whom manage a farm or run a business activity in special branches of agricultural production (e.g. greenhouse and polytunnel plantations, mushroom plantations, breeding meat poultry or egg-laying poultry, poultry hatcheries, breeding fur-bearing animals and beekeeping). The functioning of each group is based on a founding act, which defines the rules of admitting new members to the group and the rules of selling shares. According to the statutory regulations, during the first five years following the establishment, a group of agricultural producers may receive financial aid from public funds to start and support their administrative activity. The amount of funds is specified in the budget act.

After Poland's accession to the EU, new legal regulations concerning groups of agricultural producers began to be effective. The Council Regulation (EC) No. 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (OJ L 277, 21.10.2005 with later amendments) stresses the need to provide means of support to farmers' participation in food quality systems and to support groups of agricultural producers in informative and promotional activities. Details concerning the execution of this regulation can be found in the Commission's Regulation (EC) No. 1974/2006 of 15 December 2006 (OJ L 368, 23.12.2006). These two legal acts were used to prepare the Rural Development Programme 2007–2013. According to the programme, after the first year of operation a group of agricultural producers could receive financial aid for starting administrative activity and investments in the next 5 years. The amount of support was calculated according to the value of annual net income from the sales of products or groups of products for which the group was established, which were made on the farms belonging to the group members and sold to clients who were not members of the group. The goal of improvement in agricultural producers' competitiveness by formation of groups and associations of producers in the agricultural sector is also supported in the financial perspective of 2014–2020. The budget of the Rural Development Programme 2007–2013 included 146 million euros to support groups of agricultural producers, whereas the amount to be spent in the 2014–2020 period is 256 million euros.

The process of formation of agricultural producer groups strongly accelerated when Poland joined the EU. In 2005, 34 groups were recorded in voivodes'/marshals' registers; there were 104 groups in 2007, whereas in 2011 and 2012 there were 227 and 242 groups, respectively. The number of agricultural producer groups formed in 2013 reached 486 and it was two times higher than in 2011–2012 (Fig. 1). It is possible that the dynamic growth in the number of agricultural producer groups formed in 2013 resulted from the fact that it was the last year of the programming period 2007–2013 (Krzyżanowska & Trajer 2014).

On the one hand, the high dynamics of the processes of horizontal integration resulted from the fact that from 2005 to 2008 the National Cooperative Council implemented national projects promoting the formation of agricultural producer groups. On the other hand, it was caused by improved conditions of support provided to agricultural producers forming groups. The amendment to the Act on Groups of Agricultural Producers and Their Associations of 18 June 2004 (Official Journal of 2004, No. 162, Pos. 1694) enabled organisational units without legal personality and legal persons to become members of such groups. As a result, Agricultural Production Cooperatives and limited liability companies started forming groups. Higher rates of financial subsidies for groups and less strict rules of their use were significant elements stimulating the formation of groups. Apart from that, the amendment to the Act on Groups of Agricultural Producers and Their Associations of 15 December 2006 (Official Journal of 2006, No. 251, Pos. 1847) gave agricultural producers forming associations the privilege of exemption from income tax and property tax.

Figure 1. Dynamics of formation of agricultural producer groups recorded in voivodes'/ marshals' registers in 2003–2013



Source: *Promotion of the development of agricultural producer groups* (2011); National Rural Network Division (2015); own elaboration.

In 2017, there were 975 agricultural producer groups in Poland (Table 1). The largest number of such groups was in Greater Poland Voivodeship (298), Łódź Voivodeship (83), Opole Voivodeship (80), Masovian Voivodeship (77), Lower Silesian Voivodeship (76) and Kuyavian-Pomeranian Voivodeship (71), whereas the smallest number of those groups could be found in Świętokrzyskie Voivodeship (8), Lesser Poland Voivodeship (17) and Silesian Voivodeship (18). Thus, the process of formation of agricultural producer groups is successful in central, western and north-western Poland, where larger and specialised farms are prevalent, but it is less advanced in south-eastern regions of Poland.

Table 1. Number of agricultural producer groupsa in 2004–2017 by voivodeships

Voivodeships	2004	2005	2007	2009	2011	2013	2015	2017
Lower Silesia	7	8	32	74	104	122	130	76
Kuyavia--Pomerania	9	19	31	68	98	119	119	71
Lublin	8	10	11	17	21	27	33	26
Lubusz	1	3	12	29	43	68	69	41
Łódź	1	2	3	9	17	33	36	83
Lesser Poland	11	12	11	10	9	18	19	17
Masovia	6	9	10	17	26	66	76	77
Opole	6	9	22	53	76	82	87	80
Subcarpathia	8	9	11	13	24	38	43	38
Podlasie	5	5	3	12	22	40	43	25
Pomerania	3	4	23	28	48	64	72	40
Silesia	–	–	–	13	20	23	26	18
Świętokrzyskie	3	3	3	6	11	18	15	8
Warmia-Masuria	3	4	14	33	55	83	81	52
Greater Poland	13	20	46	90	189	386	412	298
West Pomerania	1	3	17	37	49	68	64	25
Total	**85**	**120**	**252**	**509**	**812**	**1 255**	**1 325**	**975**

a – excluding groups and organisations of producers of fruit and vegetables organised according to the separate provisions of the Common Organisation of Agricultural Markets

Source: Krzyżanowska & Trajer (2014); National Cooperative Council (2015); National Rural Network Division (2015); Czubak & Bajan (2016); ARMA (2018); own elaboration.

In 2017, around fifteen thousand agricultural producers were involved in the processes of horizontal integration. As far as the whole country is concerned and the voivodeships with the largest number of registered agricultural producer groups, from 4% to 9% of agricultural producers with farms with at least 10 ha of utilised agricultural area were members of the groups (Table 2). On average, there were 15 members in one group. Excluding Kuyavian-Pomeranian Voivodeship and Greater Poland Voivodeship, in the leading voivodeships with the largest numbers of registered groups there were not more than 10 members in one group. The greatest number of members could be found in Świętokrzyskie Voivodeship (112), Subcarpathian Voivodeship (52), Lesser Poland Voivodeship (49) and Lublin Voivodeship (47). As of 31 December 2017 in those voivodeships, there were few groups, but they associated a large number of members into a tobacco producer group (1 group associating nearly 847 producers in Świętokrzyskie Voivodeship, 4 groups associating 995 members in Lublin Voivodeship, 3 groups associating 613 members in Lesser Poland Voivodeship, 1 group integrating 1429 producers in Subcarpathian Voivodeship).

The tempo at which farmers formed organisations in individual branches was also diversified (Table 3). As of 31 December 2017, the most groups of agricultural producers were registered among pig producers (302), cereal and oilseed producers (293), and poultry producers (174). There were fewer groups associating milk producers (82), beef cattle producers (47), potato producers (17) and sugar beet producers (10).

In 2016, there were around 171.5 thousand producers in Poland growing cereals, rapeseed and turnip on farms with more than 10 ha of utilised agricultural area, where only 1.5% (2529) were associated in agricultural producer groups (Table 4). The main problem is fragmentation of production and in consequence – low value of marketable output on farms producing cereals. Most cereals are produced and consumed on small farms (1–5 ha) within so-called internal consumption, without market turnover. Small producers are less willing to take integrative actions enabling them to introduce large and qualitatively equal batches of grain, which could be accepted by the food industry and trade. In view of this fact, we can presume that the effectiveness of support received from public funds to form groups of cereal producers may be relatively poor without the stimulation of actions aimed at improvement of the agrarian structure. In view of the fact that progress in the processes of concentration of rapeseed production

Table 2. The advancement of the processes of formation of agricultural producer groupsa by voivodeships (as of 31 December 2017)

Voivodeships	Number of agricultural farms with at least 10 ha of utilised agricultural area	Number of agricultural producer groups		Number of members in agricultural producer groups	Average number of members in one group	Share of agricultural producers – members of agricultural producer groups in total number of agricultural producers – owners of agricultural farms with at least 10 ha of utilised agricultural area (%)
		Number	Structure			
Lower Silesia	16 120	76	7.8	651	9	4.0
Kuyavia-Pomerania	28 073	71	7.3	1 539	22	5.5
Lublin	34 394	26	2.7	1 214	47	3.5
Lubusz	6 801	41	4.2	359	9	5.3
Łódź	26 174	83	8.5	548	7	2.1
Lesser Poland	6 358	17	1.7	828	49	13.0
Masovia	56 415	77	7.9	950	12	1.7
Opole	9 788	80	8.2	526	7	5.4
Subcarpathia	6 878	38	3.9	1 984	52	28.8
Podlasie	36 657	25	2.6	272	11	0.7

Table 2. The advancement of the processes of formation of agricultural producer groupsa by voivodeships (as of 31 December 2017)

Pomerania	16 338	40	4.1	604	15	3.7
Silesia	6 910	18	1.8	131	7	1.9
Voivodeships	Number of agricultural farms with at least 10 ha of utilised agricultural area	Number of agricultural producer groups		Number of members in agricultural producer groups	Average number of members in one group	Share of agricultural producers – members of agricultural producer groups in total number of agricultural producers – owners of agricultural farms with at least 10 ha of utilised agricultural area (%)
		Number	Structure			
Świętokrzyskie	10 429	8	0.8	896	112	8.6
Warmia-Masuria	22 871	52	5.3	401	8	1.8
Greater Poland	43 715	298	30.6	3 899	13	8.9
West Pomerania	12 929	25	2.6	202	8	1.6
Total	**340 850**	**975**	**100.0**	**15 004**	**15**	**4.4**

a – excluding groups and organisations of producers of fruit and vegetables organised according to the separate provisions of the Common Organisation of Agricultural Markets

Source: ARMA (2018); Central Statistical Office of Poland (2017); own calculations.

is more rapid than in cereal production there might be greater chances for development of agricultural producer groups among rapeseed producers, as can be observed in Opole Voivodeship. So far the most groups of cereal and oilseed producers have been formed in Greater Poland Voivodeship, Lower Silesian Voivodeship, Opole Voivodeship and Kuyavian-Pomeranian Voivodeship (Table 3).

In 2017, 3557 members were associated in 302 groups of pig producers, i.e. there were nearly 11% of farm owners with herds of more than 50 animals. Those owners could be regarded as potential candidates who might form agricultural producer groups (Table 4). Almost half of all registered groups (125) functioned in Greater Poland Voivodeship (Table 3). On average, there were 12 members in one group. We can say that the processes of horizontal integration in pig production are going in the right direction in Poland. However, these actions still need to be supported in view of the need to compete with bigger and cheaper producers from Denmark, the Netherlands and Germany.

Poultry breeding can be assessed as a well-organised branch of agricultural production in Poland. In 2017 there were nearly 175 poultry producer groups associating 950 members, i.e. 20% of the total number of producers keeping larger flocks than 150 chickens (Table 4). Usually poultry producer groups are not very numerous (on average, there are 5 producers in one group). However, it was estimated that in 2011 the groups introduced 10% of poultry to the domestic market and this value is systematically increasing. In 2017, the most poultry producer groups functioned in Warmian-Masurian Voivodeship (23), Greater Poland Voivodeship (21), Lubusz Voivodeship (19) and Masovian Voivodeship (17). It was estimated that in Greater Poland Voivodeship, the groups provided as much as 25% of poultry, whereas in Warmian-Masurian Voivodeship they provided 20% of poultry. In view of those facts it is possible to conclude that poultry producers were relatively successful in receiving financial support resulting from the Act on Groups of Agricultural Producers and Their Associations and thus they increased their bargaining power.

At the end of 2017, there were 82 registered groups of milk producers. The most such groups were registered in Greater Poland Voivodeship (45) and in Masovian Voivodeship (12) (Table 3). There were almost 2000 members associated in those groups, i.e. nearly 3% of producers keeping dairy cattle in larger herds than 10 animals (Table IV). On average, there were

Table 3. Number of agricultural producer groups by branches[a] and voivodeships (as of 31 December 2017)

Voivodeships	Cereals and/ or oilseeds	Pigs	Poultry	Milk	Beef cattle	Other products	Total	
							Number	Structure
Lower Silesia	49	–	12	3	–	12	76	7.8
Kuyavia-Pomerania	30	19	6	1	6	9	71	7.3
Lublin	6	11	2	–	1	6	26	2.7
Lubusz	9	5	19	5	–	3	41	4.2
Łódź	5	62	9	3	1	3	83	8.5
Lesser Poland	6	2	3	–	–	6	17	1.7
Masovia	6	36	17	12	1	5	77	7.9
Opole	46	19	10	–	–	5	80	8.2
Subcarpathia	17	3	6	2	2	8	38	3.9
Podlasie	1	4	15	–	–	5	25	2.6
Pomerania	12	5	14	5	2	2	40	4.1
Silesia	2	2	10	3	–	1	18	1.8
Świętokrzyskie	–	1	6	–	–	1	8	0.8
Warmia-Masuria	19	7	23	1	2	–	52	5.3
Greater Poland	64	125	21	45	32	11	298	30.6
West Pomerania	21	1	1	2	–	–	25	2.6
Total	**293**	**302**	**174**	**82**	**47**	**77**	**975**	**100.0**

a – excluding groups and organisations of producers of fruit and vegetables organised according to the separa.0e provisions of the Common Organisation of Agricultural Markets

Source: ARMA (2018); own calculations.

Table 4. The advancement of the processes of formation of agricultural producer groups by branches (as of 31 December 2017)

Branches	Number of agricultural farms growing plants on area of more than 10 ha of utilised agricultural area or keeping larger herds than 10 animalsa in 2016	Number of agricultural producer groups	Number of members in agricultural producer groups	Average number of members in one group	Share of agricultural producers – members of agricultural producer groups in total number of agricultural producers growing plants on area of more than 10 ha of utilised agricultural area or keeping larger herds than 10 animalsa (%)
Cereals and oilseeds	171 432	293	2 592	9	1.5
Pigs	33 539	302	3 557	12	10.6
Poultry	4 719	174	950	5	20.1
Milk	74 486	82	1 998	24	2.7
Beef cattle	153 275	47	743	16	0.5
Potatoes	3 898	17	204	12	5.2
Sugar beet	3 525	10	83	8	2.4
Other products	x	50	4 870	97	x
Total	**x**	**975**	**15 004**	**15**	**x**

a – in pigs production herds of more than 50 animals and in poultry production only the farms with larger flocks than 150 chickens

Source: ARMA (2018); Central Statistical Office of Poland (2017); own calculations.

24 producers associated in one group. It is important to note that dairy cooperatives were involved in the process of formation of agricultural producer groups. The vast majority of milk producers in Poland are members of dairy cooperatives, so they stimulated the processes of concentration of milk production and processing. It seems to be justified that further actions should be taken and supported to concentrate milk production and processing, especially in view of the fact that the milk quotas were abolished in April 2015 and Polish producers might be threatened by larger producers from the other EU countries.

Of 47 groups of beef cattle producers which functioned in 2017, 32 groups were formed in Greater Poland Voivodeship and 6 groups were formed in Kuyavian-Pomeranian Voivodeship (Table 3). All groups of beef cattle producers associated 743 members, i.e. barely 0.5% of the producers keeping herds of more than 10 animals (Table 4). These figures point to the fact that the process of organisation of producers is progressing much below the potential in this branch. Some of the major causes of this situation include the fact that there is no tradition of beef production and consumption in Poland and that the income of a large part of society is limited. For this reason, we can assume that it seems to be more rational to channel the support from public funds to form groups of dairy producers, because this branch is more advanced in Poland.

The formation of groups of potato and sugar beet producers is slower than the formation of groups in the branches discussed above. In 2017, 17 and 10 groups associated only 204 and 83 members, respectively (Table 4).

In summary, we can say that so far the producers of cereals, oilseeds, pigs and poultry have been relatively well organised. In the other branches, including the dairy sector, the processes of horizontal integration have just begun and they need to be more advanced. Strong groups of agricultural producers are one of the ways to support the processes of concentration of production, to make investments contributing to the modernisation of fixed assets used in production and to generate cost and price advantages both on domestic and foreign markets.

Cooperative groups of agricultural producers in Poland

Cooperativeness plays an important role in the socioeconomic development of many countries. The first agricultural cooperatives were formed on Polish land in the second half of the 19th century. Beginning of the cooperative movement are typically associated with Stanisław Staszic, who in 1816 founded the Hrubieszowskie Towarzystwo Rolnicze Ratowania się Wspólnie w Nieszczęściach, an agricultural cooperative having many characteristics of present-day cooperatives (Nowak and Gorlach 2015). However, the lack of Poland's national independence in the partition period hindered the development of the cooperative movement in Polish territories and thus agricultural cooperatives became stronger only during the interwar period. At that time, the most popular types of agricultural cooperatives were savings and credit cooperatives, as well as agricultural and marketing cooperatives, dairy cooperatives and the Społem Consumers' Cooperative, still operating today. The popularity of the cooperative movement in Poland before WWII is indicated by the fact that in 1937 there were 12 860 cooperatives with over 2.9 million members, which accounted for over 11% Poland's population (Brzozowski 2008; Nowak and Gorlach 2015). Cooperatives survived the Nazi occupation and they were later classified as elements of socialised economy and included into the implementation of tasks specified in central and territorial economic plans of the People's Republic of Poland (National Cooperative Council 2015). Agribusiness cooperatives underwent major transformation with profound changes in organisation and regulations at the time of transition from centrally planned economy to market economy (Kawa and Kata 2006).

Table 5. Number of agribusiness cooperatives in Poland by branches in 1989–2011

Specification	1989	2000	2004	2008	2011	
	Number					1989=100
The Samopomoc Chłopska supply and marketing cooperatives	1 912	1 648	1 508	1 358	1 259	65.8
Dairy cooperatives	323	238	214	169	156	48.3

Table 5. Number of agribusiness cooperatives in Poland by branches in 1989–2011

Specification	1989	2000	2004	2008	2011	
	Number					1989=100
Gardening and beekeeping cooperatives	140	128	119	90	73	52.1
Agricultural production cooperatives	2 089	1 024	921	826	734	35.1
Farmers' circle cooperatives	2 006	1 063	879	652	570	28.4
Agribusiness cooperatives in total	**6 470**	**4 101**	**3 641**	**3 095**	**2 792**	**43.2**
Cooperative groups of agricultural producers	–	–	**15**	**100**	**192**	**x**

Source: Górka & Ruda (2012), Kawa & Kata (2006); National Cooperative Council (2015); The Agricultural Advisory Centre in Brwinów and its Branch Office in Cracow (2013); own calculations.

In 1989, there were 6470 cooperatives in agriculture and food economy in Poland, including 2089 agricultural production cooperatives and 2006 farmers' circle cooperatives. During the period of system transformations, the number of cooperatives decreased and there were about 4100 cooperatives in 2000, whereas in 2011 there were less than 2800 cooperatives (Table 5). The decrease was not only the effect of the difficult economic situation of cooperatives, which resulted from the rapid deterioration of the cost-effectiveness of agricultural production, but it was also the effect of the socio-political atmosphere. Another very important factor which accelerated the shrinkage of this sector was the crisis of cooperativeness as a socioeconomic movement with the related crisis of membership, which was manifested by the pursuit to maximise individual profit (Dzun and Adamski 2010). Due to the fact that cooperatives function in the environment of business entities oriented towards the maximisation of financial result they need to be equally effective and oriented to economic benefits (Górka and Ruda 2012). Poland's membership in the EU brought a chance to restore the cooperative movement in agribusiness and it gave agricultural producer groups a possibility to receive support from public funds within the Rural Development Programme. The agricultural producer groups which could receive support include the existing cooperatives or the cooperatives which are formed especially for that purpose.

In 2005, 28 of 120 registered agricultural producer groups, i.e. nearly a quarter, functioned as cooperatives (National Cooperative Council 2015). In 2008, there were 351 such groups in Poland, including 100 cooperative groups (Suchoń 2009), whereas nine years later, i.e. in December 2017, there were 975 such groups, including 441 groups (45%) with the cooperative status (Table 6). Another 51% of the groups functioned as limited liability companies and more than 2.5% functioned as societies or associations. Pig producers formed the most cooperative groups of agricultural producers. In December 2017, there were 209 such groups, i.e. nearly 70% of all the groups functioning in this branch. As far as groups of milk and beef cattle producers are concerned, more than 50% and 83% of their total number functioned as cooperatives, respectively. There were 44 and 39 such entities, respectively, as far as the absolute values are concerned. There were more cooperative groups of agricultural producers in the branch of cereal and oilseed production and sales – 107 cooperative groups amounted to 36.5% of the total number of producer groups in this branch of products.

Cooperative organisations play an important role in the organisation and functioning of the markets of individual agricultural products and services related with rural areas and agriculture. Above all, their economic strength results from the fact that they do not function individually but they form regional and national branch unions (Kawa & Kata 2006). Thus, organised cooperativeness in the production and sales of agricultural products is one of the factors favouring the concentration of production potential, increasing the effectiveness of its use and giving a possibility to benefit from the scale of production and sales. In consequence, this leads to strengthening the competitive advantages of individual branches in the agricultural sector, both in terms of costs and prices and in terms of quality. Note that importance of cooperative movement to agricultural and rural development, through increasing economic and social activity in rural areas in Poland was previously proved by Nowak, Jastrzębiec-Witowska and Gorlach (2016), while collective initiatives in Hungarian agriculture were investigated by Kelemen and Megyesi (2007).

Table 6. Number and structure of agricultural producer groups by legal form and product or product group (as of 31 December 2017)

Product groups	Limited liability companies	Cooperatives	Societies	Associations	Others	Total	Share of cooperatives in total number of producer groups (%)
Cereals and/ or oilseeds	180	107	2	–	4	293	36.5
Pigs	73	209	16	1	3	302	69.2
Poultry	148	26	–	–	–	174	14.9
Milk	37	44	1	–	–	82	53.7
Beef Cattle	8	39	–	–	–	47	83.0
Potatoes	12	5	–	–	–	17	29.4
Sugar beet	7	3	–	–	–	10	30.0
Other pro-ducts	33	8	6	–	3	50	16.0
Total	**498**	**441**	**25**	**1**	**10**	**975**	**45.2**
Structure (%)	**51.1**	**45.2**	**2.6**	**0.1**	**1.0**	**100.0**	**x**

Source: ARMA (2018); own calculations.

Concluding remarks

Polish agriculture has a considerable productive potential. When it is appropriately allocated and supported with price advantages, it can be effectively used to strengthen competitive advantages on the local, regional and global market. However, increasing the effectiveness of production and volume of production is a key issue to improve the competitiveness of the Polish agricultural sector. It should be accompanied by transformations in agrarian and productive structures, i.e. the territorial concentration of farms and greater specialisation of production. Organising farmers into producer groups is one of the methods to accelerate those transformations and to increase the competitiveness of farms and in consequence, to increase the competitiveness of the entire agricultural sector.

The process of formation of agricultural producer groups accelerated considerably when Poland joined the EU, especially due to the possibility of receiving support from public funds and from 2005 to 2008 due to the implementation of national projects promoting the formation of agricultural producer groups. In 2017 there were 975 agricultural producer groups in Poland. The most of them functioned in central, western and north-western regions, where larger and specialised farms are prevalent and where farmers understand the need of joint activity and notice the benefits of cooperation. So far Polish producers of cereals, oilseeds, pigs and poultry have been relatively best organised. Both on the national and regional markets they have to compete with strong producers from the other EU countries and from non-EU countries. About 45% of all registered groups of agricultural producers had the status of cooperatives. This fact is important because such groups are capable of helping farmers to solve the problems how to sell their products, to ensure the appropriate quality of those products and to increase the cost-effectiveness of production. Cooperatives are often involved in social, educational and cultural activities provided to their members and rural community. Thus, we can say that apart from the activities which strictly lead to increased competitiveness of business entities operating in agriculture the very presence of cooperatives favours the development of agriculture in a particular region and in the entire country.

The results of quoted questionnaire surveys confirmed the fact that agricultural producer groups play an important role in building competitive advantages in the agricultural sector. Financial factors are one of the most important premises encouraging farmers to form an agricultural producer group. The financial support enables group members to generate cost and price advantages and to increase the profitability of production. However, it is important to note that thanks to joint investments and modernisation of the production potential the establishment of an agricultural producer group enables farmers to gain effectiveness, technological and qualitative advantages, which will ensure a more stable competitive position.

Organising farmers into groups of producers is a prerequisite for meeting the requirements of increasingly competitive agricultural markets. It was proved that encouraging and developing the cooperation among individual farmers is a complex and long lasting process. It requires the involvement of all potential partners, mutual trust and support within the national agricultural policy. It is necessary to stress the fact that in order to retain and improve competitiveness producers not only need to be aware of the benefits and to be able to participate in horizontal and vertical integration but they also need to be active themselves, know the technology of production and marketing of individual products. Therefore, apart from information, promotion and financial support given to the process of horizontal integration in agriculture, it is also necessary to provide assistance to agricultural education and counselling.

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