



AgEcon SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

ECONOMIC AND SOCIAL IMPORTANCE OF AGRICULTURAL PRODUCTIVE COOPERATIVES IN POLAND*

Małgorzata Matyja

Wrocław University of Economics

Abstract. In the introduction, the article presents a brief reflection on collaborative farming in Poland and abroad. There is also a formulated objective of the study, which is to show the essence of agricultural productive cooperatives' activity and their role in the farmers' and local communities' protection. The following section presents used research methods and the subjective, spatial and temporal scope of own research. Subsequent parts of the article relate to the description of the history of APCs in Poland with an explanation of the causes of their foundation and liquidating, presentation the essence and the role of cooperative activities in agriculture with an indication of the advantages of collective farming and characteristics of agricultural, economic and social activities of Polish APCs. At the end of the article there is the summary of the undertaken considerations and conclusions.

Key words: agricultural productive cooperatives, agribusiness, social activity

INTRODUCTION

In the market economy in which there is a need for collective economic activities of individual farmers, agricultural cooperatives are an attractive form of farming. Many Western European countries, the United States and other countries, with well-developed agriculture and well-organized producers, have become convinced of this. The Polish accession to the European Union has strengthened the development of opportunities for

* The project was financed by the Polish National Science Center, nr N N112 389940.

agricultural production cooperatives (APCs) existing in our country for many years. However, practical observations point to significant difficulties in strengthening the activities of individual cooperatives. In the Polish realities, there is a need for changing the political climate regarding this form of management, the popularization of the achievements of prosperous cooperatives and raising the overall awareness, including cooperatives themselves, as to the validity and usefulness of agricultural cooperatives. Therefore, the aim of the article is to show the essence of agricultural productive cooperatives' activity and their role in the farmers' and local communities' protection.

THE RESEARCH METHODOLOGY

The following methods were used in order to accomplish the approved objective:

- the method of analysis and critique of literature and logical inference to carry out a historical trait of APCs, the description of the role and importance of cooperatives in agriculture, and also to discuss the agro-economic activities of APCs nowadays and social activities during the period of real socialism in Poland;
- the survey method of using a questionnaire to carry out a diagnostic survey of a selected group of agricultural cooperatives in determining the contemporary social activities of APCs.

A survey was conducted in 2011 in Opolskie Voivodeship. The time range of research covered the years 2008-2010. The research included a full sample consisting of 105 APCs actively operating in Opole region. Responses were somewhat limited, 33 cooperatives responded by returning the survey instruments, resulting in approximately 31.4 per cent response rate. In terms of the average area of agricultural land and the structure of existence, the sample is representative of the whole voivodeship. However, conclusions should not be generalized to the entire country. Survey results are therefore purely indicative.

THE HISTORY OF AGRICULTURAL CO-OPERATIVES IN POLAND

The beginnings of Polish Cooperative Movement date back to the early nineteenth century and are connected with the prominent Polish activist Staszic, who was believed to be the precursor of the team management. In subsequent years, the world's events significantly contributed to the development of cooperatives. The theory of Marxism became increasingly popular. There was the idea that peasant farms should be gradually transformed into farm cooperatives, maintaining the principle of freedom and the economic and organizational support of the socialist state [Mazurkiewicz 1988]. The Lenin's Theory was the basis for the agrarian policies of structural changes in Polish agriculture after the end of the First World War. In 1920 the first cooperative law was passed in Poland. It unified the legal bases for the establishment, operation and cooperative dissolution, the clarification of the definition of cooperatives. It also established the rights and obligations of members, introduced the principle of donating profits to fund resources and set the conditions for conducting the inspection. However, the country's economic and social situation, poverty, village overpopulation and the problem of infer-

tility of the land, influenced the limitation of cooperative societies during the interwar period.

During the Nazi occupation, cooperatives in the Polish lands were strictly determined by the occupying force of the population in the role of supplying the goods, buying products and distributing goods on trade allowances. This form of cooperative activity enabled them to organize aid for the underground, and the cooperatives themselves became the meeting place of clandestine movement and functioned as the centers of Polish science, history and literature. In the final years of the war, various political factions were preparing their programs of the reconstruction of Poland in the post-war period, including the assumptions of the role of cooperatives.

The first years of people's power in Poland were marked by massive parceling out of the possessions, and the organization of settlements in the Regained Territories. Thus, the process of introducing structural changes in agriculture began. In the socialist agricultural sector, many state farms (state-owned farms) and farms remaining in the hands of individuals socialized were created.

On the former German estates of the Western and Northern Territories, the first forms of group management began to appear in order to improve land use by means of the deficient amount of livestock and farm equipment. These truly agricultural cooperatives were parceling-settlement in nature, and were organized spontaneously, mainly by former employees of the manor and the farmers themselves [Bajan 1988]. The concept of a cooperative parceling settlement was supported by the political and administrative authorities, noting that this is not the way to the collectivization of private agriculture, and only a transitional stage in the development of the rural social structure. But due to numerous difficulties in the first period of the development of the Regained Territories, as well as the distrust of cooperative farmers, the quantitative development was small. Table 1 shows the basic organizational and economic data on Polish agricultural cooperatives since 1950.

The situation changed dramatically in 1949, when the plan of accelerated collectivization of all agriculture aiming to transform every Polish village cooperative system was adopted. The 6-year plan had its negative consequences in terms of not only the decline in agricultural productivity, but also in the formation of the atmosphere of hostility around cooperatives.

Years 1957-1970 were characterized by a focus on eliminating the mistakes made during collectivization. Initially, both well and poorly viable cooperatives were liquidated, properties were destroyed, farms devastated. On the other hand, a significant part of the cooperative members did not accept the dissolution of the cooperative and tried to return to the management team functioning, organizing anew. At the end of this evolutionary stage, the state aid was launched. It supported the newly formed APCs in particular. In the new conducive socio-political climate, the process of strengthening of individual cooperatives began.

However, since the early 1980's, farm cooperatives were forced to operate in a changing economic system of the country [Woś 1991]. As a result of the economic reform of 1982, the state aid to agriculture, including APCs was sharply reduced. The access to investment and sales credit was hindered, direct subsidies were dramatically reduced and the application of lower interest rates and significant loan remitting was prevented. In a word, in a short time co-operatives were deprived of everything, which to a great extent influenced their strength and development. However, economic and

Table 1. Data on agricultural productive cooperatives in Poland, 1950-2004
 Tabela 1. Dane dotyczące rolniczych spółdzielni produkcyjnych w Polsce w latach 1950-2004

Years Lata	1950	1955	1965	1975	1985	1990	2000	2004
Number APCs Liczba RSP	623	9 076	1 229	1 216	2 340	2 240	1 085	920
Number of members ('000) Liczba członków ('000)	25.3	205.2	30.8	57.5	170.4	183.7	55.0	47.0
Utilized agricultural area (thous. ha) Użytki rolne (tys. ha)	190	1 867	226	418	695	696	366	279
Arable land (thous. ha) Grunty orne (tys. ha)	ND	1 260	151	261	530	565	317	245.5
Cereal yields (dt/ha) Plony zbóż (dt/ha)	14.5	14.9	22.1	29.3	30.4	37.2	37.0	50.3
Crops: sugar beets (dt/ha) Plony – buraki cukrowe (dt/ha)	ND	163	245	291	341	360	427	429
Crops: rape (dt/ha) Plony – rzepak (dt/ha)	ND	ND	18.9	23.6	23.2	22.8	25.4	35.5
Cattle stock ('000) Bydło (tys. szt.)	42	577	96	234	264	188	65	56.3
Pigs stock ('000) Trzoda chlewna (tys. szt.)	57	874	123	318	785	972	580	389.0

ND – no data available.

Source: compiled by the author from: Rolnictwo... [2008, p. 8].

ND – brak danych.

Źródło: opracowanie własne na podstawie: Rolnictwo... [2008, s. 8].

social difficulties, emerging as a result of the introduction of new principles, did not lead to a significant scale collapse of APCs. Societies showed considerable ability to adapt to new management, offering its members a fairly good income situation and effectively strengthening their sense of shared ownership.

A serious blow to the agricultural co-operatives was caused by the political transformation in Poland in the early 1990s. The new system grew in strength and so did the widespread glorification of the individual economy. Agricultural cooperatives were associated with the forced collectivization of agriculture, which is why they were still perceived as a product of the disappearing system [Dzun 2009]. APCs were therefore in a difficult social situation, both external worsened by adverse legislation, as well as internal, which constituted the crisis of the cooperative as a form of management and membership crisis. All this was reflected in the decreasing number of cooperatives [Guzewicz et al. 2001]. The adjustment processes of agricultural production cooperatives to hard market economy requirements, forced upon them the need for restructuring and modernization. For this reason, cooperatives searched for various business ventures that would enable them to raise capital and modern technology, and larger market for their agricultural and food products. They entered the partnerships with different types

of companies, including the foreign companies. As a result, generally bigger, stronger and economically well managed cooperatives survived the adjustment period. On the eve of the Polish entry into the European Union, most of the APCs were well prepared to compete with both national and common agricultural market.

In 2004, the number of actively functioning APCs in the country was 920 (Fig. 1). In the next five years, it decreased by almost 10%. In 2009, there were 1108 APCs registered in Poland, but approximately 829 conducted business activity. Other cooperatives were undergoing liquidation and bankruptcy processes or led the suspended activity. Thus, the downward trend, which was observed since 1990s, has been slightly inhibited. Unfortunately, the phenomenon of the division of property and liquidation of cooperative by its members observed nowadays and also the lack of establishing new cooperatives will probably cause, that the number of APCs will continue to decrease. Therefore, there is a risk of destruction of idealistic assumptions of cooperative activities in the agro-economic reality.

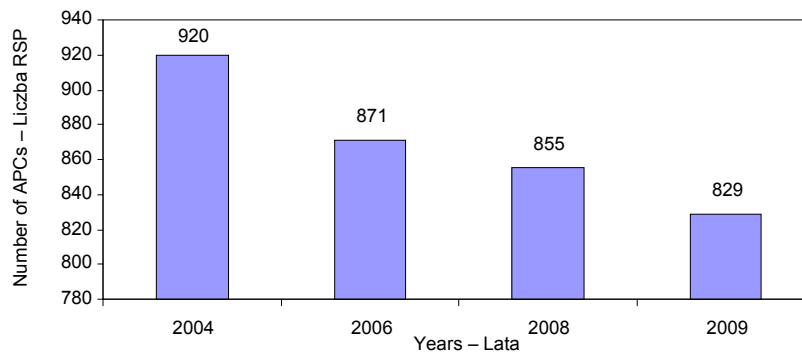


Fig. 1. Number of APCs in Poland in years 2004-2009

Source: compiled by the author from: Tomczak [2010, p. 31] and data from National Union of Agricultural Productive Cooperatives.

Rys. 1. Liczba RSP w Polsce w latach 2004-2009

Źródło: opracowanie własne na podstawie: Tomczak [2010, s. 31], dane Krajowego Związku Rewizyjnego Rolniczych Spółdzielni Produkcyjnych.

THE NATURE AND ROLE OF COOPERATIVES IN THE AGRICULTURAL INDUSTRY

The idea of agricultural cooperatives is known virtually worldwide. Agricultural cooperatives exist in all countries in which agriculture operates in the market economy, regardless of the degree of development of the country and its location [Mierzwa 2005]. Cooperative activity occupies an important position in the agricultural sectors of the economies of individual countries, because the population living in rural areas often leads certain types of their activities in the agricultural cooperatives.

Agricultural productive cooperatives are a special example of co-operative farming. They are an opportunity for the individual farmers to strengthen their market position and counteract the negative effects of a globalizing economy [Domagalski 2006].

The idea of joint action under the cooperative form of management is dictated by both the requirements of a globalizing market, as well as the specificity of agricultural production. An individual farm as a relatively small unit does not have sufficient bargaining power compared with input suppliers on the one hand and product consumers on the other. Due to the large dispersion of the agricultural producers' sector, these stakeholders do not have any difficulty in changing farmers, which whom they co-operate. For individual farmers, this means considerable uncertainty regarding the possibility of selling their products. What's more, the individual household does not have sufficient capacity of competing with larger agricultural producers, often organized in the forms of private enterprises. Therefore, individual farms, remaining the most numerous cooperatives in the whole sphere of food economy, are most often vulnerable to submit to the environment, and are forced to comply with the rules, which do not always concern correct functioning.

Agricultural cooperatives are a response to these and other problems of individual farming. Their idea is based on the interaction of small, dispersed agricultural producers within a strong and friendly organization with well-defined business rules. The strength of the agricultural cooperatives, resulting precisely from this collaboration, has to ensure the members-farmers such economic and social profits, which they are not able to obtain by acting alone. The fundamental arguments supporting the interaction of farmers under the agricultural cooperatives, are the following:

- the improvement of negotiating skills in dealing with external cooperatives,
- the access to cheaper means of production and essential services,
- strengthening their competitive position towards the large traders and processing producers,
- the ability to expand and open markets,
- providing their members with food products or services that are not commercially available (eg. in a situation where market mechanisms do not guarantee a satisfactory relationship),
- the possibility of adjusting production and supply to customers' requests,
- the improvement of market efficiency, affecting both the cooperatives themselves, as well as social and national economy,
- eliminating the risks and uncertainties associated with selling products,
- thanks to by pooling resources within the cooperative, a fuller understanding of the inevitable risks associated with natural and biological determinants of production (the impact of weather conditions, variation in the quality of products and geographic dispersion),
- a good chance of income increase for farmers – members of the cooperative and providing local communities with employment.

However, these obvious and frequently repeated advantages of cooperative farming, do not seem to be in Poland an effective way of encouraging farmers to take such actions. Therefore, the phenomenon of currently setting up new APCs cannot be observed. Nevertheless, agricultural cooperatives do not only perform the economic functions. An important element of their functioning is also conducting social activities for members and the local community.

AGRICULTURAL, ECONOMIC AND SOCIAL ACTIVITIES OF APCs

The object of agricultural productive cooperatives' performance, according to the Polish law [Ustawa... 1982], is to conduct common, multi-family farm and take activities for the members of individual farms. In addition to business activity, cooperatives also have the right to conduct any other ancillary activities, including social, educational and cultural activity for their members and their local community.

The perception of the farm in terms of factors of production (land, labor, capital) leads to the conclusion that the essential task of agricultural productive cooperatives, as an organized group of people, land and other resources, is first of all crops and livestock farming. Indeed, APCs in Poland are organizations dealing with plant production, including the cultivation of cereals, oilseed rape, sugar beet and fodder plants and livestock – farming and breeding pigs, slaughtering and laying poultry, and fattening and dairy cattle, and in order to supply their own animal farms also fodder production [Rolnictwo... 2008]. In addition, some cooperatives undertake activities in processing fruit and vegetables, meat, poultry and milk, producing at the same time in a large assortment of juices and juice drinks, meat products, cured meat and dairy products. Larger cooperatives even have their own retail sales network and through which they sell the manufactured products.

In today's APCs, the phenomenon of diversification can also be observed. It involves the extension of agricultural activities to non-agricultural areas of economic activity. These areas include, in particular, workshop activities, agricultural services, transportation, repair and construction services, building materials production and wood processing. Some cooperatives set up filling stations, vehicle and agricultural equipment diagnostics stations and provide services related to developing the infrastructure in rural areas. Many of them are going to participate in future private investments in renewable energy sources.

The social activity is the result of a specific social policy of local governments in APCs, preferences and the disposal of a social fund. It is an expression of aspirations in achieving equality and social justice, and socially desirable attitudes, patterns, norms and rules of conduct. At the same time it contributes to the development of interpersonal relationships, influencing the course of business activity of agricultural production cooperatives [Pudelkiewicz 1990].

The social side of the APCs was particularly developed in times when, on the one hand, the state power supported their operation, and on the other hand, there was a real need for this form of activity. Then, APCs undertook a number of projects aimed at improving the living conditions of both members and the local community. Examples of such actions are provided in Table 2.

The non-economic activity of APCs was expressed in particular in the implementation of social and cultural-educational functions. The purpose of social functions of APCs in the rural areas was mainly to improve housing conditions, including the construction of housing, supply construction materials, the recruitment of experts, the assistance in obtaining construction loans. The improvement of living conditions in rural areas concerned mainly organizing a network of retail stores and service outlets, and providing waterworks, gas fittings, the construction of roads, playgrounds etc.

Integrating cultural and educational activities consisted of helping to create a cooperative cultural infrastructure: community centers, clubs, libraries, etc., and then taking

Table 2. The examples of APCs non-economic activities before the transformation of the political system in Poland

Tabela 2. Przykłady pozaekonomicznej działalności RSP przed transformacją ustrojową w Polsce

Type of activity Rodzaj działalności	Examples of activity Przykłady działalności
Social and household Socjalno-bytowa	agricultural assistance for members (supply of agricultural products, support on farms) pomoc rolnicza dla członków (zaopatrywanie w produkty rolne, pomoc w gospodarstwie przyzakładowym) housing (construction, repairs, loans, allocation of building land, supply of materials) pomoc w sprawie mieszkaniowej (budowa, remonty, pożyczki, przydział gruntów budowlanych, zaopatrywanie w materiały) organizing holiday (holidays, tours, holiday pay) organizowanie wypoczynku (wczasy, wycieczki, dodatki urlopowe) medical assistance (construction of health centers, medical services fees, purchases of medicines) opieka medyczna (budowa ośrodków zdrowia, opłata za usługi medyczne, zakup leków) retirement pension dopłaty do emerytury special assistance grants zapomogi losowe child care (summer camps, kindergartens) opieka nad dziećmi (obozы wakacyjne, przedszkola) participation in the construction and development of social infrastructure in rural areas (playgrounds etc.) udział w budowie i rozbudowie wiejskiej infrastruktury społecznej (plac zabaw, boiska itp.)
Cultural and educational Kulturalno-oświatowa	popularization of literature and reading popularyzacja czytelnictwa literatury i prasy editing newspapers redagowanie gazetek ściennych organization of amateur folk dance, drama groups, orchestras, choirs organizowanie amatorskich zespołów tańca ludowego, zespołów dramatycznych, orkiestr, chórów organizing evenings of copyright and artistic performances and school assemblies organizowanie wieczorków autorskich i występów zespołów artystycznych i szkolnych dancing zabawy taneczne running cafes – places of social gatherings of rural residents prowadzenie kawiarni – miejsca spotkań towarzyskich mieszkańców wsi training activities, vocational courses działalność szkoleniowa, kursy zawodowe participation in sporting activities and supporting local sports clubs uczestnictwo w zajęciach sportowych i wspieranie lokalnych klubów sportowych

Source: compiled by the author from: Markuszewski and Olubiński [1988].

Źródło: opracowanie własne na podstawie: Markuszewski i Olubiński [1988].

over their patronage. It included the care for the appliances and equipment, the provision of specialist staff, financial aid that allowing the operation of these facilities at an appropriate level. APCs cultural influence on the environment took place also through cultural and educational events (exhibitions, performances, lectures, talks and dances.) APCs initiated an amateur artistic movement (choirs, theater, music, dance groups) and got the residents interested in organizing cultural trips to the theater, opera, exhibition halls and museums [Markuszewski and Olubiński 1988].

During the political transformation in Poland the functioning of the APCs dramatically changed. Cooperatives, confronted with the need to comply with the rules of market economy, got involved in achieving economic efficiency in the first place. At the same time, the range of social activities of APCs gradually decreased.

The research, based on the analysis of 33 APCs located in south-western Poland, revealed that those units are involved in social assistance to their members and their local community in varying degrees (Fig. 2). To a great extent, APCs provide financial and non-financial support to rural institutions such as schools, sports clubs and rural housewives circle. Besides, they are trying to assist in building and maintaining rural infrastructure (roads, fields, etc.). They offer their members assistance in agricultural household maintenance, organize trips and holidays, and sponsor occasional bonuses (such as vouchers for the holidays).

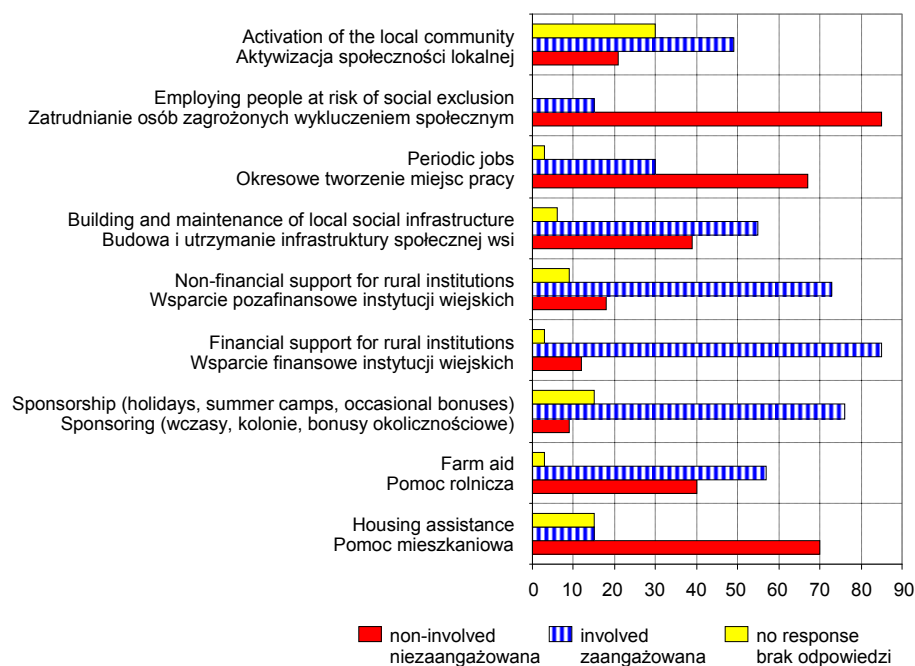


Fig. 2. The degree of APCs involvement in social activities nowadays (% of responses)

Source: own study.

Rys. 2. Stopień zaangażowania RSP w działalność społeczną współcześnie (% odpowiedzi)

Źródło: badania własne.

Although in the case of the APCs the integration of local community lost its importance with the advent of a new political and economic climate of the country, cooperatives continue trying, to a certain extent, to participate in village life. Many of them declare their willingness to help individuals or institutions that need it, and usually they meet these commitments.

CONCLUSION

Despite the turbulent history of the formation and development of agricultural production cooperatives in Poland, many of them still operate today. Their essence remains unchanged: they continue to integrate the farmers by maintaining joint, multi-family farms and undertake activities on behalf of their individual holdings. The interaction of small, dispersed agricultural producers within strong and friendly organizations with well-defined business rules, brings members economic and social profits, which they are not able to obtain by acting alone. In addition, APCs often perform other important functions in local community life, providing support for individuals and institutions in need and participating in social initiatives in the country side.

Many factors determine the current functioning of the agricultural production cooperatives. However, despite the noble objectives and outcomes of their existence, APCs face major problems, especially internal, which impede the continuation and development of business activity. Understanding these factors and identifying ways to mitigate the negative effects of their impact requires further study.

REFERENCES

- Bajan K., 1988. Niektóre problemy rolniczej spółdzielczości produkcyjnej. Społeczne i ekonomiczne warunki rozwoju RSP. In: Mater. konf. nauk. IERiGŻ, CZRSP, RKS Buszewko, 22-24. 09.1987. Wyd. Spółdzielcze CZS „Samopomoc Chłopska”, Warszawa, 113.
- Domagalski A., 2006. Spółdzielnie rolnicze – szansa czy konieczność. Wystąpienie na otwarcie konferencji spółdzielczości rolniczej. Spółdzielczość rolnicza w rozwoju wsi i rolnictwa. In: Mater. konf. 1-2.06.2006, Centrum Szkoleniowo-Konferencyjne KZRS „Samopomoc Chłopska” w Miedzeszynie. KRS, Warszawa, 13-16.
- Dzun W., 2009. Spółdzielnie produkcji rolnej w procesie przemian systemowych. Zagad. Ekon. Roln. 4, 74-87.
- Guzewicz W., Zdzieborska M., Żarska A., 2001. Rolnicze spółdzielnie produkcyjne w warunkach gospodarki rynkowej (lata 1989-2000). IERiGŻ, Warszawa.
- Markuszewski Z., Olubiński A., 1988. Oddziaływanie rolniczych spółdzielni produkcyjnych na środowisko wiejskie. W: Rolnicze spółdzielnie produkcyjne w Polsce Ludowej. Red. E. Mazurkiewicz. PWRiL, Warszawa, 302-303.
- Mazurkiewicz E., 1988. Polityczne i społeczne przesłanki tworzenia i rozwoju rolniczych spółdzielni produkcyjnych. W: Rolnicze spółdzielnie produkcyjne w Polsce Ludowej. Red. E. Mazurkiewicz. PWRiL, Warszawa, 8-9.
- Mierzwa D., 2005. W poszukiwaniu nowego modelu spółdzielczości rolniczej. Wyd. AR, Wrocław.
- Pudęlkiewicz E., 1990. Samorząd a efektywność ekonomiczna i społeczna w RSP. IERiGŻ, Warszawa.

- Rolnictwo w Polsce. Rolnicze spółdzielnie produkcyjne. 2008. Red. K. Stanisławski. Wyd. „Czarno-Biała”, Bydgoszcz.
- Tomczak P., 2010. Rolnicza spółdzielczość produkcyjna na Dolnym Śląsku po 1989 roku. Wyd. Uniwersytetu Wrocławskiego, Wrocław.
- Ustawa z dnia 16 września 1982 r. Prawo spółdzielcze. 1982. Dz.U. Nr 30, poz. 210, art. 138.
- Woś A., 1991. Kierunki i czynniki rozwoju rolnictwa i gospodarki żywnościowej. IERiGŻ, Warszawa.

EKONOMICZNE I SPOŁECZNE ZNACZENIE ROLNICZYCH SPÓŁDZIELNI PRODUKCYJNYCH W POLSCE

Streszczenie. W artykule zaprezentowano krótkie rozważania na temat grupowej działalności rolników w Polsce i na świecie. Celem opracowania jest ukazanie istoty działalności rolniczych spółdzielni produkcyjnych (RSP) w Polsce oraz ich roli w zakresie ochrony rolników i lokalnych społeczności. W dalszej części artykułu omówiono zastosowane metody badawcze oraz zakres podmiotowy, przestrzenny i czasowy badań własnych. Opiszano historię RSP w Polsce wyjaśniając przyczyny ich zakładania i likwidowania. Przedstawiono istotę i rolę spółdzielczej działalności w rolnictwie wraz ze wskazaniem zalet grupowego gospodarowania, a także scharakteryzowano rolniczą, gospodarczą i społeczną działalność polskich RSP.

Słowa kluczowe: rolnicze spółdzielnie produkcyjne, agrobiznes, działalność społeczna

Accepted for print – Zaakceptowano do druku: 27.06.2012

For citation – Do cytowania: Matyja M., 2012. Economic and social importance of agricultural productive cooperatives in Poland. J. Agribus. Rural Dev. 4(26), 57-67.