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INCOME INEQUALITY OF WIELKOPOLSKA PROVINCE COMMUNES IN 2005–2015

Abstract. The study aimed to evaluate income inequalities of the Wielkopolska province communes in 2005–2015 across to their administrative types. First, own income levels of the province communes were assessed against the national averages, followed by inequality estimated with the Gini, Theil, quintile share and decile ratio measures. Attention was also given to the Theil decomposition of the inequality into contributions associated with administrative types. Research drew on data published by the Central Statistical Office in the Local Data Bank (Public Finance).

Keywords: income inequality, Gini index, Theil index, quintile share ratio, communes

INTRODUCTION

Decentralization of local government entrusts specific areas of the public domain to particular levels of local administrative units (Wyszkowska and Wyszkowski, 2015). At the lowest level in the administrative hierarchy, the communes perform the widest range of tasks among all the tiers of local administration. This results from a better knowledge of the needs of local communities, from the range of competencies and from the freedom of pursuit of economic activities by the communes' local governments (Kotlińska, 2012; Surówka, 2004). The implementation of the tasks requires incurring expenses, so the communes have been equipped with specific sources of income along with strictly defined powers in order to shape and adjust some of these resources (Jastrzębska, 2012).

The high level of own income per capita (and its high share in total income) is of great importance for the communes' performance, especially for their own activities related to the satisfaction of inhabitants' needs, improvement of their living standards and promotion of a stable local development (Surówka, 2013). However, the communes' income potential, expressed in terms of their own income, can vary considerably. Kachniarz (2011) draws attention to the key role of the geographic rent, which can heavily influence the development of the local economy, regardless of the institutional merits of the commune itself, when it "becomes merely the beneficiary of this development" (in the form of increased income). Research by Głowicka-Wołoszyn et al. (2017b) conducted for the communes of Wielkopolska province and Kozera and Głowicka-Wołoszyn (2017) conducted for the four largest metropolitan areas in Poland confirm this thesis, pointing to the surrounding large urban metropolitan area as one of the main determinants of the high level of own income. Communes located in the

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first and second zone around a metropolis (regardless of their administrative type) form clusters of high values of own income. The study also points out the important role of spatial conditions, which arise with the geographical distribution of natural resources (e.g. coal or copper deposits), areas of natural beauty (e.g. mountains, lakes), and with sound economic growth related to these conditions. Another factor differentiating communes' income opportunities is their administrative type. Empirical studies (cf. Heller, 2006; Głowicka-Wołoszyn et al., 2017a; Głowicka-Wołoszyn et al., 2018) indicate that own income varies between these types and confirm the opinion that the level of own income in rural communes is the lowest. At the same time, however, they emphasize substantial diversity of income potential within rural communes – some of them are located in the sphere of influence of large urban centers and undergoing profound transformations towards a true multi-functionality; others are lingering on the periphery of this sphere and are still predominantly agricultural in character (cf. Głowicka-Wołoszyn et al., 2018; Heller, 2006; Stanisławska and Głowicka-Wołoszyn, 2017; Wołoszyn et al., 2016). Apart from endogenous or local factors, the income potential of communes and its distribution may also result from external factors such as the economic situation of the country (Patrzałek, 2010; Satoła, 2015).

The existing disproportions of own income related to the geographic location of communes or to their administrative type may lead to different performance capabilities and so hinder implementation of the cohesion policy and consequently the harmonious local development (Kańduła, 2016). Transfer income provided within the framework of the state redistribution policy in the form of grants and subsidies plays an important role in reducing inequalities in the distribution of communes' income potential. Targeted grants allocated mainly for outsourced activities are a source of financing for new activities received by communes' local governments. The role of the general subsidy is, on the other hand, to counteract territorial disproportions in the distribution of income (Jastrzębska, 2012).

The aim of this paper was to diagnose changes in income inequality of the Wielkopolska province communes in 2005–2015 against the national backdrop, and by administrative type. The analysis placed greater emphasis on own income of the communes, but total income was also reviewed to assess the role of redistribution in reducing income disparities. The study employed basic income inequality measures Gini and Theil indices, quintile share ratio, and the decile ratio. The Theil index was further decomposed between and within components of inequality by the administrative type of communes. The study drew on data from the Central Statistical Office (Local Data Bank).

DATA AND METHODS

The study considered two main variables: own income per capita and total income per capita in 222 the communes[1] of the Wielkopolskie voivodeship in 2005–2015 obtained from the Local Data Bank/Public Finance database published by the Central Statistical Office.

Income inequalities in Poland and the Wielkopolska province communes was assessed using:

- The Gini index (Cowell, 2009; Panek, 2011): the most commonly used measure of income inequality ranging between 0 (ideally egalitarian distribution) and 1 (one commune has the entire income); the Gini index can be defined as half of the averaged absolute differences between all pairs of incomes, normalized on the mean income normalized on the mean income;
- The Theil index (Shorrocks, 1980): a frequently used measure of income inequality, which due to its property of additive decomposability, makes it possible to establish how much a particular type of communes contributes to the total inequality and what the level of inequality between those types is;
- The Quintile Share Ratio (S80/S20) (Laeken…, 2003): a popular Laeken indicator developed as part of the Lisbon Strategy and calculated as a ratio of total income received by 20% of all units (communes) with the highest income (the top quintile) to that received by the 20% with the lowest income;
- The Decile Ratio (D9/D1): the ratio of the ninth decile to the first decile (Radziukiewicz, 2006), that is the ratio of the lowest income of the 10% of communes with the highest income (the top decile) to highest income received by the 10% with the lowest income.

[1] The study did not include four communes that were cities with country rights (Poznań, Leszno, Kalisz and Konin) due to their different scope of competence and other sources of financing.

RESULTS OF THE STUDY

Between 2005 and 2015, own income inequality in the Wielkopolska province declined (following the trend for the whole of Poland), but even towards the end of the period, it remained twice as high as total income inequality (Fig. 1). Throughout that time, own income inequality in the province showed values 0.03–0.04 lower than that in the entire country; the only exception being in 2007, when national own income inequality actually increased slightly from the previous level of 0.27 to 0.28, and the difference amounted to 0.05. The first half of the period saw a steady 0.23 value of own income inequality in the province, and somewhat a more variable 0.26–0.28 nationally, with a notable drop being recorded in 2008. That clear decrease coincided with the onset of an economic downturn and possibly resulted from its negative impact on communal finances, as exemplified by lower levels of financial self-sufficiency (Satoła, 2015). The communes first felt the impact in 2009 in the Wielkopolska province, when their income potential shrank sizably (Głowicka-Wołoszyn et al., 2018), but here the economic slowdown did not transform into a change of own income inequality (Fig. 1). A systematic and steady reduction of communes' own income inequality (both province and nationwide) began in 2011 and continued through to 2015, closing at 0.19 for the Wielkopolska province and 0.22 for the whole country.

Unlike own income inequality, the total income inequality was at a low and stable level of approximately 0.1 throughout the period of study (both province and nationwide). Consistently though, the figures reported by the province communes were slightly lower than those for communes of the whole country, the gap alternately stretching to 0.02 or closing to almost nothing (Fig. 1).

A marked difference between the levels of own and total income inequality may, on the one hand, testify to a perfect implementation of redistributive policies that aim to achieve local convergence by mitigating the gross income disproportions between communes. On the other hand, it is not certain that hefty external income transfers with ensuing low total income inequality are conducive to an accelerated growth in lagging communes (Gorzelak, 2010); nor is it obvious what levels of total income inequality signal a growing dependence of communes on central budget resources. A clear answer to these questions would require an in-depth study into the structure and volume of subsidies coupled with the dynamics of local development.

In order to better understand the changes shaping own income inequality and to identify processes that contributed to its decline, the D1, D5 (median), and D9 deciles of communes' own income distribution were calculated along with two popular inequality measures: the D9/D1 decile ratio (Table 1) and the S80/S20 quintile share ratio (Fig. 2). The analysis of these indicators

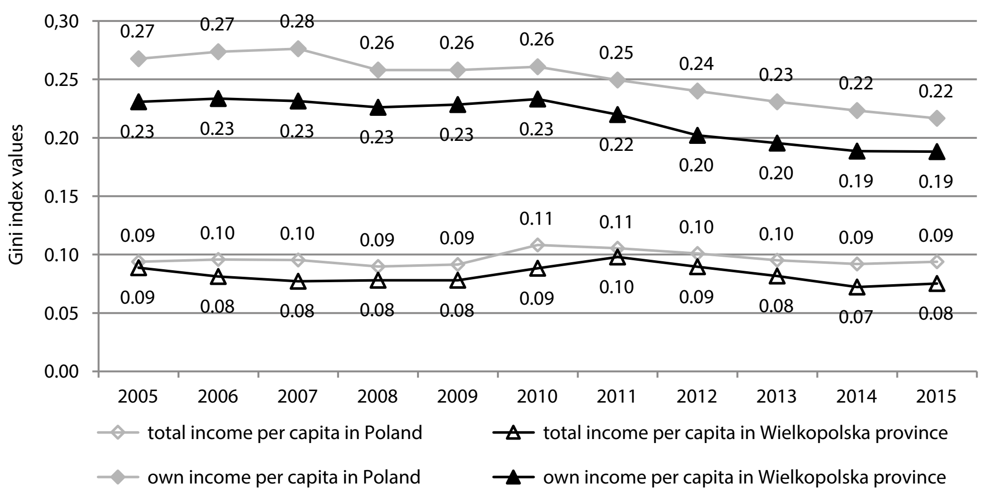

Fig. 1. Income inequality of communes of Wielkopolska province and Poland 2005–2015
Source: own compilation based on Local Data Bank/Public Finance.

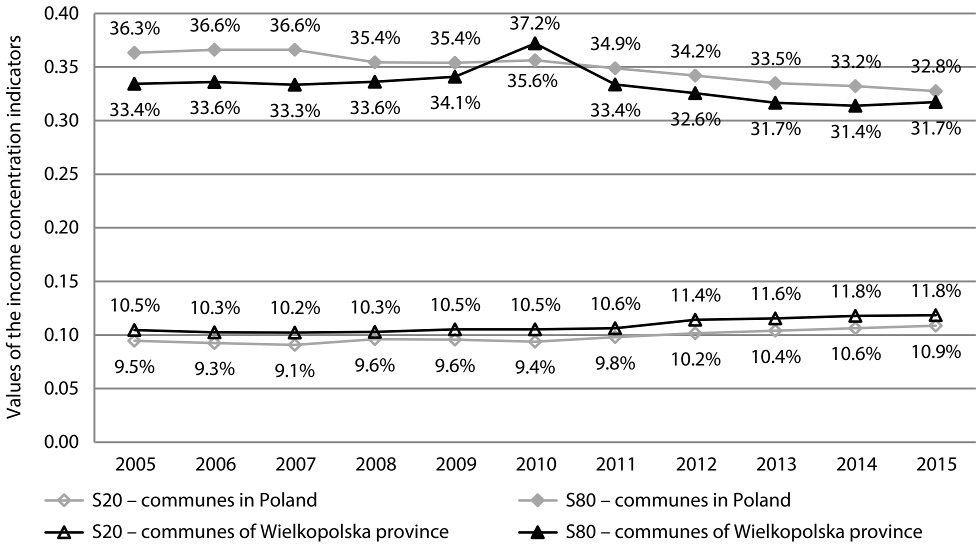

Fig. 2. Concentration indices of the own income distribution for the communes of Wielkopolska province and all Polish communes in 2005–2015
Source: own elaboration based on Local Data Bank/Public Finance.

enabled resolving the question as to whether it was the sluggish dynamics of income potential of the richer or rather more energetic growth of the poorer communes that contributed to the decline of own income inequality.

Simply by comparing the median values of own income (D5), the typical communes of Wielkopolska province can be shown to have been more affluent than the standard Polish communes, throughout the period of study. In 2005, the gap was 12% (PLN 817 vs. PLN 730 in real 2015 values), but closed to only 6% in 2015 (Table 1).

The D1 figures in Table 1 indicate that the highest level of own income among the least 10% affluent communes in Wielkopolska province was PLN 519 in 2005, 18% higher than the 440 nationally. The gap remained positive for the entire period of study, but it decreased to just 11% in 2015. In the upper part of the distribution, the D9 decile of the lowest income level among the 10% most affluent Wielkopolska province communes was only 3% higher in 2005 than in the whole country. This gap then became negative (–5%) in 2007 and all but disappeared from 2010 onwards.

As a consequence, the first inequality index, i.e. the D9/D1 ratio, decreased slightly in the period of study both in the province (from 2.7 to 2.4) and in the country as a whole (from 3.1 to 2.7). It remained consistently lower in the province than across the country, a fact that may very well be size dependent (Poland as a whole is much more varied than Wielkopolska, the latter being just one of its provinces).

Analyzing the average annual growth rate of D1 and D9, it was found that the own income level of the poorest communes increased faster than that of the most affluent, both in the voivodeship and the country. The respective figures were 6.2 and 6.9 for D1 and 4.7 and 5.1 for D9 (Table 1).

The values of the S80 concentration index of own income indicate that 20% of the most affluent Wielkopolska province communes (fifth quintile group) concentrated one third of the own income of all communes in that province in 2005, but the index dropped by 1.7 percentage points and amounted to 31.7% in 2015. At the same time, 20% of the poorest communes in Wielkopolska province (first quintile group) concentrated only 10.5% of total own income in 2005 (S20); the index increased by 1.3 percentage points to 11.8% in 2015. Over the period of study, similar but more pronounced changes in strength were observed for all communes in Poland, where the S80 index dropped by 3.5 percentage points from the level of 36,3% in 2005, and S20 rose by

Table 1. Real 2015 values of the D1, D5 (median), D9 deciles of own income per capita and D9/D5 ratio among communes of Wielkopolska province and the whole of Poland in 2005–2015

Year	Wielkopolska province communes				Communes in Poland			
	D1	median	D9	D9/D1	D1	median	D9	D9/D1
2005	519	817	1 424	2.7	440	730	1 381	3.1
2006	535	886	1 536	2.9	469	791	1 512	3.2
2007	621	993	1 640	2.6	526	894	1 721	3.3
2008	673	1 091	1 802	2.7	617	1 032	1 875	3.0
2009	618	1 033	1 746	2.8	572	963	1 784	3.1
2010	658	1 053	1 892	2.9	574	1 009	1 915	3.3
2011	731	1 180	1 964	2.7	613	1 061	1 938	3.2
2012	759	1 210	1 937	2.6	653	1 114	1 958	3.0
2013	815	1 249	1 965	2.4	713	1 186	2 005	2.8
2014	909	1 380	2 153	2.4	795	1 303	2 164	2.7
2015	949	1 468	2 246	2.4	855	1 384	2 267	2.7
Annual growth rate (%)	6.2	6.0	4.7	–1.5	6.9	6.6	5.1	–1.7

Source: own elaboration based on Local Data Bank/Public Finance.

1.4 percentage points from the initial 9.5%. This implies that while the inequality decline in Wielkopolska province was almost equally the result of the drop in the fifth and the rise in the first quintile group, the relative impoverishment of the most affluent for the whole country was more instrumental in bringing down the overall inequality level than the contribution of the income rise in the poorest communes. The observed inequality changes in the whole country are driven mostly by the upper part of the income distribution, while the communes of the province seem more equally affected in the lower and the upper part.

While the analysis of the lower and upper parts of own income distribution made it possible to determine whether the decrease in inequality was more attributable to the changes in the income concentration of the poorer or of the wealthier communes, the Theil decomposition helped to answer a similar question pertaining to the administrative types of communes. The Theil decomposition by administrative types in the Wielkopolska province and in Poland (Fig. 3) shows that the highest own income inequality was exhibited by rural communes (Theil index between 0.12 and 0.23), while the lowest was by urban communes (between 0.01 and 0.03).

Rural communes constituted the largest percentage of all communes: out of a total of 2,478 Polish communes in 2015, 1,563 or 63% were rural (Powierzchnia…, 2016), whereas in Wielkopolska there were 115 rural communes, which comprised 51% of the total number of communes in the province. Rural communes undertake various function. Among them are communes with predominance of their original functions i.e. agricultural ones, but also there are communes where, in the analyzed period, dynamic demographic and social changes related to suburbanization took place (Stanisławska and Głowicka-Wołoszyn, 2017). These changes resulted in the transformation of the functionality profile of rural communes located in the vicinity of large cities. Research conducted by Stanisławska and Głowicka-Wołoszyn (2017) shows that rural communes situated in the Poznań Metropolitan Area lose their agricultural nature and now have rather residential and service functions. As a result of the different functions carried out by rural communes, their income potential can

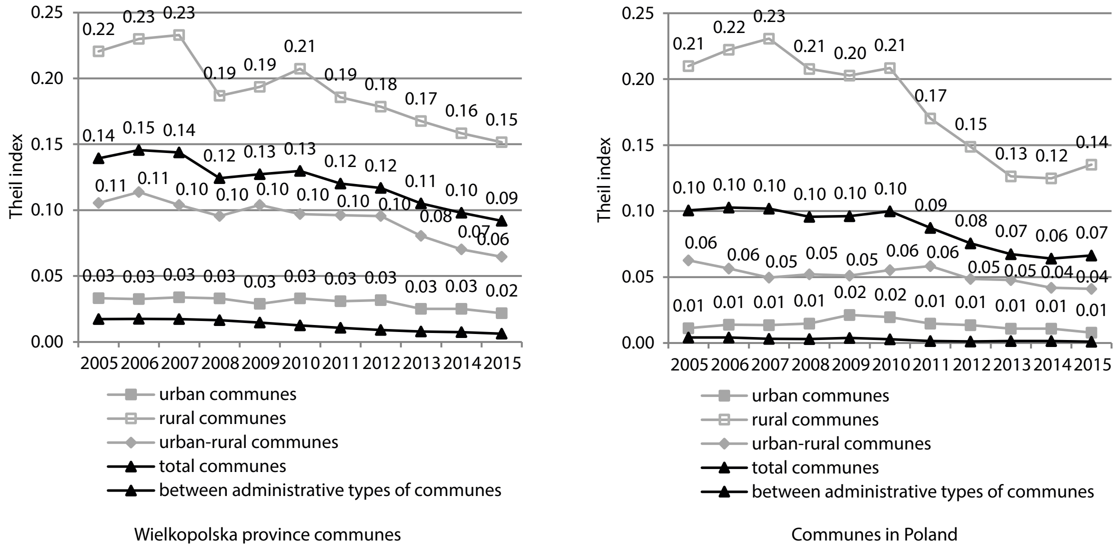

Fig. 3. Theil indices and decomposition of own income inequality with respect to administrative types for the communes of Wielkopolska province and all Polish communes in 2005–2015
Source: own elaboration based on Local Data Bank/Public Finance.

be highly unequal. Wołoszyn et al. (2016) demonstrate that own income inequalities between functional types of the Wielkopolska province communes in 2005–2009 were higher than inequalities within the distinguished types, a result that confirms the high degree of cohesion of the functional types. That relationship reversed in 2010–2015 when the communes started to exhibit more variability within and less between their functional types. The view of administrative types is quite different as they do not show such degree of cohesion as the functional types of communes.

Observing the changes in the Theil index for rural Wielkopolska province communes against all rural communes in Poland, a much smaller drop of own income inequality during the economic slowdown of 2008–2009 (to 0.21 in Wielkopolska and to 0.19 in Poland) can be noticed, but at the same time a far steeper plunge in the period 2010–2014 (from uniform 0.21 to 0.12 and 0.16, respectively). As for two other administrative types (urban-rural and urban), their own income inequality levels were smaller in Wielkopolska, roughly half of the same figures for Poland. Moreover, during the whole analyzed period, the between inequality component in Wielkopolska was only slightly above zero while nationally it reached 0.02 in 2005–2008, though then it decreased to below 0.01 in 2015.

CONCLUSIONS

The study has led to the following conclusions:

1. In 2005–2015, communes of Wielkopolska province were characterized by lower own income inequality than all communes of Poland, which indicates a more even distribution of own income in the province. Calculated values of concentration indices further confirmed this finding. Comparing the concentration of own income in the first and in the fifth quintile groups (the groups of 20% of the least and the most affluent communes, respectively) between the communes of the province and those of the country, it was found that in the Wielkopolska province the least affluent communes concentrated more own income and the most affluent less than the respective groups in Poland as a whole.
2. In the period from 2005 to 2015, communes of both the province and country witnessed decreasing levels of own income inequality, with the dynamics of these changes being slightly lower in the province than in the country. The phenomenon of income equalization could be observed both in the growing concentration of own income among the poorest communes, and in the decreasing concentration among the wealthiest. This growth trend and

equalizing income potential that boosts the chances of meeting the needs of local communities can only be positively assessed. It must be remembered though, that given the considerable imbalance of demographic potential and the unequal level of socio-economic development, equalization of communes' income potential may not be enough to ensure similar standards of living for the inhabitants, especially of rural communes and those located peripherally.

3. Total income inequality during the period of study was much lower than own income inequality, which indicates a well-performed regulatory function of transfer income, but may well foreshadow a growing dependence of communes' income potential on state financial resources. In-depth studies should be carried out in order to assess the pro-growth effectiveness of the use of transfer income and to make the redistributive policy evaluation more explicit.
4. The Theil decomposition of total inequality by administrative types of communes allowed to observe that the between component of inequality was negligible and that rural communes possessed the highest level of own income inequality, a fact that can be explained by the heterogeneity of their functional profiles.

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NIERÓWNOŚCI DOCHODOWE GMIN WOJEWÓDZTWA WIELKOPOLSKIEGO W LATACH 2005–2015

Abstrakt. Celem przeprowadzonych badań była diagnoza poziomu nierówności dochodowych gmin w województwie wielkopolskim w latach 2005–2015 z uwzględnieniem ich typów administracyjnych. Analizowano poziom dochodów własnych oraz dochodów ogółem *per capita* w gminach województwa wielkopolskiego na tle ogółu gmin w Polsce. W badaniu wykorzystano współczynniki nierówności dochodowych Giniego, Theila oraz wskaźniki zróżnicowania kwintylowego i decylowego. Za pomocą współczynnika Theila dokonano dekompozycji nierówności dochodowych ogółu gmin w województwie wielkopolskim względem ich typów administracyjnych. Podstawę informacyjną badań stanowiły dane pochodzące z baz danych publikowanych przez Główny Urząd Statystyczny [Bank Danych Lokalnych/Finanse publiczne].

Słowa kluczowe: nierówności dochodowe, wskaźnik Giniego, współczynnik Theila, współczynnik zróżnicowania kwintylowego, gminy

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A CONTRIBUTION TO RESEARCH ON THE SOCIO-ECONOMIC PROFILE OF FEMALE RESIDENTS OF RURAL FARMING AREAS IN POLAND

Abstract. The article is a contribution to the discussion on the perception of the roles of contemporary rural women, including heterogeneous images of their personal potential and social commitment. In a special way, it refers to the changes that took place in the period after the transformation of the Polish economy and entry into the European Union. For the achievement of that objective, a pilot survey was performed with the use of a proprietary diagnostic questionnaire. Today's rural women were found to efficiently modify their social and economic roles and to skillfully combine tradition and innovation. The study also revealed that the lack of involvement in social functions does not automatically mean the lack of contribution to the local community. Although women spend most of their spare time with their families, it does not contradict being open to innovation, searching for information, pursuing one's interests and staying socially active.

Keywords: rural areas, woman, socio-economic profile, social capital of rural areas

INTRODUCTION

In Poland, the economic transformation has been affecting all aspects of life since 1989. The changes concern the political, economical, social and cultural dimension. The transformation has had a particularly strong impact on rural areas which, in accordance with the Union's concept for the development of remote areas, fulfill new important functions (environmental, residential, recreational and socio-cultural) in addition to their traditional agricultural function. A large contribution to the development of the above functions was made by women who – encouraged by the initial impetus given by professional activation programs – quickly learned to tap into their own potential. The favorable external conditions redefined the value of their intellectual capital, experience and skills (Krzyżanowska, 2014; Sawicka, 2005). Meanwhile, the traditional concept of activation of rural women due to external factors has evolved towards women's internal motivation to support the work–family balance and to be an active participant in the civic and political life of their communities (Krzyszkowski, 2008).

However, the women's approach to (and efforts to keep pace with) the changing reality and their readiness to seize emerging opportunities are often the consequence of varying social, economic, family and social conditions affecting their lives (Tryfan, 2003). Following the transformation, these conditions, together with

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the evolution of the women's roles, positions and expectations in the rural community, became the subject of scientific research. However, according to Michalska (2013), the relevant studies are highly specialized and continue to address a narrow scope of specific social events, and therefore fail to provide a full picture of changes. It is worth emphasizing, that studies on related topics are conducted in various parts of the world, and the conclusions drawn almost unanimously indicate that initiatives and programs that support and empower women contribute to the empowering of individual families and entire communities (Dekens and Voora, 2014; The State of Food…, 2011; Women…, 2017).

The objective of this paper is to broaden the profile of today's rural women with data from the Wielkopolska region, taking into consideration the mixed picture of their personal potential and local community engagement. Particular attention was paid to the women's social functions and the way they pursue their non-business interests. Their activity in both dimensions plays an important role in shaping not only the attitudes of women themselves but also the reality of living and working in rural areas.

MATERIAL AND METHOD

For the achievement of the above objective, a pilot survey was performed with the use of a proprietary diagnostic questionnaire. In line with the assumptions of this method, the interviewees are anonymous. The organization of the survey is not complicated and does not involve considerable costs. The survey was developed to cover the following aspects: age, education, employment forms, and ways of using the Internet as a communication tool, allowing for the exchange of thoughts, views, gaining knowledge, etc. However, the essential part was focused on the forms of professional and non-business activity, including the types of leisure activities. The respondents were asked to answer a total of 30 multiple choice questions. The survey was carried out from September to December 2017 with randomly selected female residents of 5 rural farming areas, including the previously collectivized areas (2) of the Czarnków-Trzcianka district. The selection of the sample was purposeful and was associated with earlier studies on the activities of women from this region. Once collected, the source materials were subject to a statistical analysis in Statistica 13.1. The results were presented in narrative form, in tables and graphically.

DESCRIPTION OF THE RESPONDENTS

The survey covered 80 women from various age brackets. Women aged 55–64 (21%), 35–44 (20%) and 25–34 (20%) represented the largest group of respondents. Only 6% of the interviewees were aged up to 24 (Fig. 1).

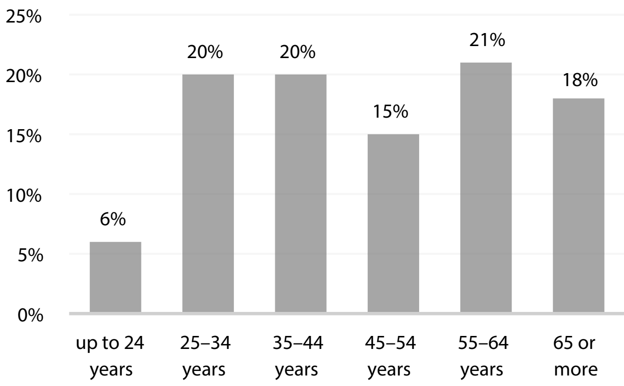

Fig. 1. Age of the respondents
Source: own elaboration.

The respondents had different education levels. The largest group were women with basic vocational education (29%) whereas junior secondary education was the least popular answer (2%) (Fig. 2).

The vast majority (92%) of women were residents of farming rural areas. Others resided in cities with

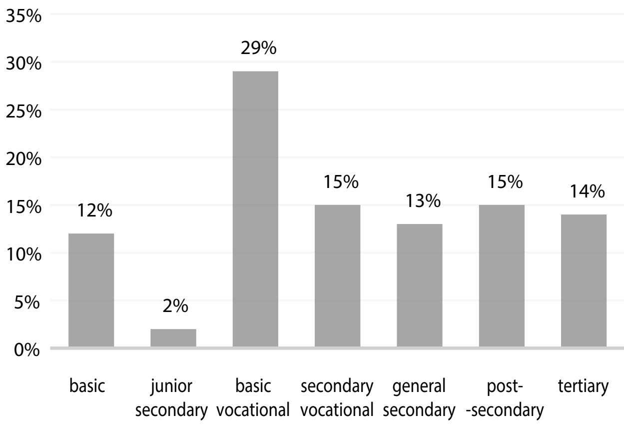

Fig. 2. Education level of the respondents
Source: own elaboration.

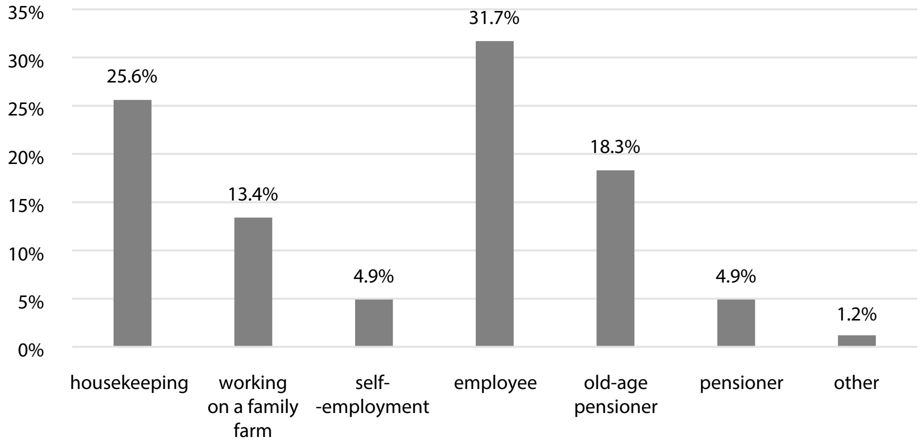

Fig. 3. The respondents' professional status
Source: own elaboration.

a population over 25,000 (4%), in non-farming rural areas or previously collectivized areas (3%), and in cities with a population of up to 5,000 (1 person). Note that urban dwellers were young women originating from (and strongly identifying with) rural communities. When filling the survey questionnaire, all interviewees were in rural areas. Another important thing is that most (87.3%) interviewees declared to have "always" lived in rural areas. As regards the other group (12.7%), they have resided in rural areas for 20 years, on average, including two women who have resided in rural areas for 2 years, and two more women who have resided in rural areas for 46 and 53 years, respectively.

About ⅓ of respondents indicated the status "employed" and professionally active (31.7%). Some women declared their professional status to be "housekeeping" (25.6%), "old-age pensioner" (18.3%) or "working on a family farm" (13.4%). Only 4.9% of rural dwellers were self-employed; others declared to be pensioners (4.9%). The interviewees included one university student, one unemployed person and one woman caring for a sick child. All of the above activities fall into the "other" category (Fig. 3).

RESULTS OF THE STUDY

Because of the evolution of rural areas, even defining the "rural woman" becomes quite challenging. As the migration between urban and rural areas is a bi-directional process, some women become rural residents because they decided so, even if born elsewhere. The picture of a rural woman, presented in the literature as a farmer of a farmer's wife, has seemed incomplete for a long time now (Michalska, 2015). As revealed by the literature review, female rural residents were burdened by long-held stereotypes of subordination, humility and misconceived loyalty to family, especially to husbands (but also to parents). Usually, their social activity was nothing more than customary membership of the farmer's wives' association or agricultural association (Michalska, 2015; Wrzochalska, 2015; Zajda, 2011). Economic and social changes taking place in the Polish economy since 1989, as well as those related to EU accession have contributed to many changes in the attitudes of rural women. Today's rural women increasingly often go beyond their traditional family roles and are more willing to face professional, educational and social challenges. They become active and enterprising, seek knowledge and are often better educated than men (Sytuacja kobiet..., 2012; Women's economic..., 2012; Wrzochalska, 2015). This is one of the reasons why women, with their exceptional capacity to adapt to changing social and economic conditions, are an interesting subject of study on the rural areas' potential and social capital. This research is a part of the discussion referred to in this paper, and points the need for a further in-depth analysis of the situation of rural women.

The conducted research also included self-assessment of the wealth of rural women. By choosing the answers proposed in the questionnaire, the respondents declared that while they usually had enough money, they could not afford extra expenses (48.75%). However, 30% of the interviewees believed to have enough funds to afford extra expenses or investments. There was an equal share (8.75%) of women who believed they needed to avoid many expenses in order to address their most urgent needs and of those considering themselves to be rich. Only 3.75% of respondents admitted not to have enough money to address their most pressing needs. On the one hand, the distribution of answers suggests an improvement in the financial situation of rural women. But on the other hand, it means that the rural population continues to experience intense poverty or to be at risk of poverty, as confirmed by other research (Górniak, 2015; Kalinowski, 2015; Kozera-Kowalska and Kalinowski, 2017).

Another interesting thing is the distribution of the women's education and financial situation revealed by the survey. While the respondents' general financial situation is relatively good (as much as 87.5% believe not to have any problems in addressing their most urgent needs), their wealth is not clearly related to their education. The group of 7 women declaring to be wealthy does not include anyone with a university degree. Women who claim to have enough funds to afford extra expenses or investments also have different education backgrounds. Meanwhile, in the group of respondents who picked the answer "I cannot afford extra expenses", the share of women with basic vocational qualifications (12 persons) is comparable to that of women with post-secondary or tertiary education (11 persons). The interviewees included three women who found themselves in difficult circumstances; two of them had basic vocational qualifications and one had basic schooling (Table 1).

The results of the research indicate a low interest of women in performing social functions. The Farmer's Wives' Association (FWA) remains the most popular organization among the surveyed women (13 persons). Social activity, defined as initiating measures for the benefit of the rural community, was declared by 6 respondents. This could suggest a shortage of local leaders to stimulate further transformation of rural areas. Those socially active held the positions of mayor, councilor and FWA president. The remaining part of the respondents included one association member and one women active in the Local Action Group (LAG). It should be emphasized, however, that these activities were displayed only by individuals.

An analysis was performed of the distribution of social involvement by age of the women surveyed. The conclusion is that while the group of FWA members included women of a different age (from 25 to 65 and more), women aged 25–34 prevailed in the group of non-members. All councilors and mayors covered by the survey are women aged 35–44. The FWA president was in the 45–54 age bracket. Those who declare not to

Table 1. The respondents' education vs. financial status

Education/Financial status	I am wealthy	I have enough money to afford extra expenses or investments	I usually have enough money but cannot afford extra expenses	I need to avoid many expenses in order to address my most urgent needs	I do not have enough money to address my most urgent needs	Total
Basic	0	1	6	2	1	10
Junior secondary	0	0	2	0	0	2
Basic vocational	1	6	12	2	2	23
Secondary vocational	3	5	3	1	0	12
General secondary	2	2	5	1	0	10
Post-secondary	1	5	5	1	0	12
Tertiary	0	5	6	0	0	11
Total	7	24	39	7	3	80

Source: own elaboration.

be active in the local community include women of all age brackets considered. However, the largest groups were young women aged 25–34 (11 persons) and those ending their professional activity, i.e. women aged 55–64 (13 persons). Because this group demonstrates a great variation in age, the activities offered to promote social integration and involvement in measures for the benefit of rural areas should take that fact, and the needs of women of different ages, into consideration. The offering should also be supported with appropriate tools of the government's social and employment policy.

The conclusion from the research on the Polish population's engagement in voluntary work is that the experience in voluntary work for the community depends on selected socio-demographic characteristics. "Volunteering potential and engagement in voluntary work," a 2016 report of the Center for Public Opinion Research, states that the higher the education level and the greater the religious involvement, the more likely a person is to get involved in solving the community problems on a voluntary, unpaid basis. Such activities are taken more often by people with the highest per capita income, respondents aged 45–54 and rural residents. However, the above results are not corroborated by the group of women surveyed which includes a small share of socially active people aged 45–54. Further in-depth research should address the reasons for this discrepancy, including by attempting to capture the specificity of activities taken by rural women of that age bracket. The research on civic activity in rural areas also revealed that while rural residents are very attached to their place of residence, it does not always translate into the sense of belonging to (and identifying with) the local community (Żak, 2013, p. 164–179). The above suggests that social initiatives taken to boost the activity of rural women playing the role of local leaders and organizers of social life are a highly important and highly topical issue. The success of such initiatives can be measured by the fact that rural women become more willing to engage in social activity and see it as a way to transform their towns. By developing networks of mutual support, they attend trainings, florist workshops, healthy lifestyle meetings or charity events they organize themselves. The activity of rural women also depends on support from local government representatives and on positive feedback from other residents of towns concerned (Sawicka and Skwara, 2015).

The analysis of activity forms and non-business interests, as resulting from this study, showed that in most cases women spend their spare time with their family (55 persons) or friends (46 persons). Also, the respondents are rather inactive in their spare time as they watch TV (28 persons), access the Internet (9 persons) and read (18 persons). In turn, active forms of leisure cited by the women include: gardening (20 persons), sports (14 persons), shopping (12 persons) or going to the cinema, museum of theatre (9 persons). By far the smallest group of respondents visit a hairdresser or beautician (6 persons) and make handicraft (3 persons) in their spare time. Only 5 persons sleep or choose a passive form of leisure in their spare time whereas 3 claimed not to have any spare time at all. One the one hand, this suggests a broader access to various forms of culture and leisure, but on the other it consistently informs that women have little spare time or are unable to manage it.

Based on the information on the way they spend their time, the respondents were asked about their interests. "Gardening" was found to be the prevailing area of interest for rural women (30 persons). "Cooking and baking" was also popular (23 persons). Only 5 persons specified crocheting as their area of interest. "Reading books" was picked by 3 persons while 3 other opted for "automotive or traveling." The least popular areas of interest were "music" (2 persons), "sports" (1 person), "fashion" (1 person), "IT" (1 person) and "hiking" (1 person). Note that interests are an important part of lifestyle which, in turn, provides a direct marketing tool for customer identification and typology. The use of AIO (Activities, Interests, Opinions) and of the lifestyle criterion allows to capture the differences between various consumer groups. The differences determine the customers' market behavior, their response to marketing activities and their purchasing power and habits (Sowa, 2016, p. 134–137). According to Sowa (2016), lifestyle means consumption patterns of a social class or consumer group dependent on the preferred forms of spending time and money. In economic terms, this primarily means the ways of spending money and the types of goods and services purchased. Therefore, the rural women's areas of interest are an important area of research from the perspective of diagnosing their demand for specific goods and services, too.

To summarize this part of study, a reference needs to be made to a paper by Lipko (2013) on the rural population's lifestyle. The author believes the rural residents' lifestyle has considerably changed, and rural living conditions themselves highly differ from one region to another. The offering of leisure activities and the possible ways of exploring the interests and passions are also diversified. Residents of rural areas located in the vicinity of urban agglomerations are usually provided with broader access to various forms of entertainment compared to those living in remote areas (Lipko, 2013).

Note that the ways of spending spare time may include self-learning, attending various trainings and workshops or even pursuing studies. The commitment to personal development and education may be considered as seeking a financial advantage and empowerment in order to improve one's professional, social and family life. Women covered by the survey were asked about their previous motivations and future preferences for training or upskilling options. For some of them, the direct incentive to attend previous trainings was the intent to enhance their knowledge (22 persons) and gain new qualifications and skills. Others (11 persons) could attend trainings only because they were delivered for free. The commitment to broaden their horizons and pursue their interests was a motivation to attend a training for 9 women; other 9 regarded the training session as a social event; and 6 persons were encouraged by relatives or friends to attend a training. When asked about training topics of potential interest to them, the respondents cited health, beauty, styling, cosmetics and cuisine (16 persons). Personal development (coping activities, communications, motivation) was important to 13 women. Ten persons declared interest in handicraft and applied arts. Another group of 10 respondents found it important to learn how to start their own business (including how to establish a business plan and access funds). Only 6 women would like to attend a training on the promotion of their region, while 2 would be interested in learning how to set up an organization (e.g. foundation, club, association). This result indicates that the respondents attach importance primarily to the rational aspect of self-education - they focus on themselves, on the individual benefits they can obtain, and they do not feel the need to engage in the life of the local community.

A shortage of spare time was a problem for rural women irrespective of the type of interests declared. As regards rural women, their spare time is often marginalized by their professional and caretaking activities; their objectives and priorities are largely related to the family life model which defines their roles, sets limits on freedom and restricts the time spent on the pursuit of personal plans and needs (Radziewicz, 2012). Meanwhile, there is a noticeable tension between traditional roles of rural women and new trends for projecting the image of rural women that are independent, entrepreneurial and make well-informed choices regarding their personal development (Rorat et al., 2016).

The purpose of the next questions of the diagnostic sheet was to determine the online activity of the population surveyed. A vast majority of the respondents proved to be active Internet users. Even if they do not post any information themselves, they are eager to browse the Internet (28 person). 26 women browse and comment while other 26 browse and "like." Browsing posts and pictures was declared by 15 women; 10 respondents post pictures, mottos and words of wisdom.

Irrespective of the form of (and involvement in) online activities, note that being an Internet user considerably contributes to overcoming many barriers, including expanding ones' mindset to go beyond the local community. In addition to providing enhanced options for information retrieving and processing, Internet is the medium that drives the transformation of lifestyles, e.g. the ways of spending spare time, social and professional communication, nature of work, and attitudes towards values or social matters (Łodziana-Grabowska, 2016). Interestingly, when browsing the Internet, women covered by this study mostly look for information related to cuisine (38 persons) and gardening (31 persons). These are very universal issues that often form part of everyday life. However, considered in the context of social activity of rural women, they can be a starting point for establishing new relationships and an accidental exchange of opinions. The information obtained in this way can be shared with others at workshops, and stimulate participation in a variety of competitions, etc.

Also, surveyed rural women rely on the Internet as a source of knowledge on healthy lifestyle (27 persons), interior design (26 persons) and weather (23 persons). Conversely, local news (including the schedule of events etc.) and international, national and regional news was searched for less often (20 and 14 answers, respectively). Also, 16 respondents declared to look for travel information (places of interest, monuments, tourism) online; 9 women found the Internet to be a valuable source of knowledge on how to access funds in support of entrepreneurship; 7 respondents looked for stories of other women as an inspiration for day-to-day life; 7 other interviewees searched for legal and financial information or for information on traditions and customs. Online psychological advice was sought by the smallest group (3 women); this could be explained by various reasons. Members of relatively small communities (like rural ones) may be considerably influenced by stereotypes resulting in a misperception of the role of psychologists. Therefore, they may believe that only people suffering from mental or borderline personality disorders should seek psychological assistance. As a consequence, some women believe they would experience discrimination or even social rejection if they revealed their intent to use that kind of support. Another reason could be the image of the Polish Mother still engraved in the minds of many rural women. This term refers to a resourceful person who bravely faces the challenges of everyday life and does not rely on help from others. Thus, psychological advice does not match the picture of the unshakeable protector of the home.

SUMMARY

As the socio-economic realities of Polish rural areas change, so does the perception and fulfillment of women's social roles. However, this is a highly complex transformation which depends on many endogenous and exogenous factors. The objective of the pilot survey was to provide an updated profile of rural women while partially closing the cognitive gap. Both the results and the attempts to interpret them on the fly suggest there is a need to continue and broaden the relevant research. Although the respondents demonstrated low levels of social involvement, it does not mean they did not participate in local community activities. They were spending their spare time with family and friends, which is consistent with their traditional roles. However, they became more open to information from external sources, accessed with the use of traditional or electronic media. Traditionally interested in cooking, baking and gardening, they look for new options that require them to actively seek information on funds or technical solutions (even when it comes to simple decorative art such as crocheting, decoupage etc.). The pursuit of interests drives an increased demand for trainings, even if the attendees regard it as an opportunity to socialize rather than a way to enhance their knowledge.

The socio-economic profile of today's female residents of Polish rural areas, as revealed by this study, seems heterogeneous. However, the survey provides a picture of an "average" woman who is increasingly more aware of her needs and of her importance to the family and local community. This demonstrates the positive side of rural transformation. However, it is regrettable that the youngest rural residents are the least active group among those surveyed.

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SPOŁECZNO-EKONOMICZNY PROFIL MIESZKANEK WSI ROLNICZYCH W POLSCE – PRZYCZYNEK DO BADAŃ

Abstrakt. Artykuł stanowi przyczynek do dyskusji nad postrzeganiem ról współczesnych kobiet wiejskich, z uwzględnieniem niejednorodnych obrazów ich potencjału osobistego i zaangażowania społecznego. W sposób szczególny nawiązuje do zmian, jakie nastąpiły w okresie po transformacji polskiej gospodarki oraz wejściu do Unii Europejskiej. Dla realizacji celu przeprowadzono pilotażowe badania ankietowe z wykorzystaniem autorskiego kwestionariusza diagnostycznego. Stwierdzono, że współczesne mieszkanki wsi to kobiety sprawnie modyfikujące swoje role społeczne i ekonomiczne, a przy tym umiejętnie łączące tradycję z nowoczesnością. Z badań wynika ponadto, że brak zaangażowania w pełnienie funkcji społecznych nie jest jednoznaczny z brakiem działalności na rzecz społeczności lokalnej. Przeznaczanie czasu wolnego kobiet głównie na kontakt z rodziną nie wyklucza otwartości na nowości, poszukiwania informacji, rozwoju zainteresowań i kontaktów społecznych.

Słowa kluczowe: wieś, kobieta, profil społeczno-ekonomiczny, kapitał społeczny wsi

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APPLICATION OF A FAIR-DIVISION ALGORITHM TO EU RURAL DEVELOPMENT FUNDS ALLOCATION IN POLAND

Abstract. The allocation of rural development budgets remains problematic due to multiple political measures, diversified groups of potential beneficiaries and difficulties in quantifying the effects of rural development policy. The emerging question is how to support the decision-makers in allocating rural development budgets so as to minimize conflicts of interest among stakeholders and ensure a fair allocation of resources. Therefore, the objective of this paper was to demonstrate that a fair-division algorithm proposed by Moulin (2003) may be effectively applied to allocate rural development budgets, as illustrated by the example of the Polish Rural Development Program. The results show that the procedure allocates the total budget among the program's measures in a reasonable way. It reflects importance of measures, as rated by the beneficiaries, and the options for fund absorption. Moreover, as the procedure objectifies the decision process, it should improve the programs' acceptance among stakeholders.

Keywords: fair division, rural development, budget allocation

INTRODUCTION

The concepts associated with fairness have recently received considerable attention among political scientists and economists. The importance of fairness in resource allocation decisions was discussed extensively by Baumol (1986), Elster (1992), Fleurbaey (2008) and Le Grand (1991). According to Hougaard (2009), the need for fair allocation is a key rationale behind the theoretical investigation of allocation rules.

Brams and Taylor (1996) provide several definitions of fairness, based on properties such as proportionality, envy-freeness, equity, and efficiency. Moreover, they prove that tradeoffs between these notions are inevitable in constructive fair-division schemes[1]. According to Linder and Rothe (2016), fairness valuation criteria also include exactness, equitability, super envy-freeness, and super-proportionality. Moulin (2003) provides the following four principles of fairness, not exclusive of one another: compensation, reward, exogenous rights and fitness.

Based on the above properties, a vast number of fair-division algorithms were developed to enable the allocation of different types of (both divisible and indivisible) goods, as well as homogenous and heterogeneous goods. Cooper et al. (2006) argue that adding fairness

[1] Some conflicts between fairness conditions are presented in Brams et al. (2000) and Brams (2011).

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to interactions between policymakers and households is a way of encouraging citizen participation in policy programs. Thus, the use of fair-division algorithms to solve real-life policy problems seems to be most suitable for policy programs which require participation from the public. This is the case for the EU rural development policy where potential beneficiaries apply for coverage under different measures of rural development programs, and the outcomes depend entirely on the beneficiaries' commitment.

This issue was already considered by Kiryluk-Dryjska (2014) and Fragnelli and Kiryluk-Dryjska (2017). They analyzed the applicability of Brams and Taylor's fair-division algorithm, bankruptcy rules and relevance factor measures in the budgeting procedure of rural development programs, using the 2007–2013 Polish Rural Development Program (2007–2013 PRDP) as an example[2].

Poland is one of the greatest beneficiaries of the rural development policy covered by the EU Common Agricultural Policy. In 2004–2013, the total structural support for Polish Rural Development Programs went beyond EUR 22 billion, while the budget for the current PRDP (2014–2020) amounts to EUR 13.5 billion. The budget is allocated at national level among political programs (measures). However, because it is difficult to quantify the effects of rural development policies, budget allocation remains a problematic issue.

The main objective of this paper is to show how the uniform gains procedure – a fair-division scheme presented by Moulin (2003) – can be constructively applied in the allocation of development policy budgets. For reasons of comparability with earlier studies, the example of 2007–2013 PRDP is also used.

The outline of this paper is as follows. First, a general methodological framework for the uniform gains procedure is provided, and a method is proposed to adjust it to the allocation of rural development resources. Next, the solution is applied to solve a practical problem of budget allocation under a rural development policy in Poland. Finally, this paper concludes with a discussion on potential limitations and practical problems that may arise in the application of fair-division procedures, and compares this approach to those previously described in the literature.

METHODOLOGY

In the simple model of fair distribution, there is a given amount t of a commodity to be divided among a given set of agents, and each agent i is endowed with a claim x. The problem is that the available resource t differs from the total x of claims.

$$\mathrm{t} \neq x_N = \sum_i x_i$$

If t is smaller than x_N, there is a deficit; otherwise, an excess exists[3]. The normal rules of the *uniform gains procedure* for deficit specify that agent i receives either a common share λ or his claim x, whichever is smaller[4]. The common share is computed by solving the equation below:

$$\sum_N \min\{\lambda, x_i\} = \mathrm{t}$$

The Moulin's algorithm (Moulin, 2003) to compute the uniform gains solution works as follows:

Divide t in equal shares and identify agents whose claims are on the 'wrong' side of t/n (if a deficit exists, this means agents with $x_i \leq t/n$). Satisfy these agents' claims x_i, decrease the resources accordingly, and repeat the same computation for the remaining agents using the remaining resources.

In the case of a deficit, the algorithm for computing the uniform gains solution reveals that the share of agent i must be at least t/n or x_i, whichever is smaller: $y_i \geq min\ \{x_i, t/n\}$. Indeed, an agent who is on the 'wrong' side of the t'/n', at any stage of the algorithm where t' units remain to be shared among n' agents, receives $y_i = x_i$. Moreover, the sequence of per capita shares t/n, t'/n', t''/n'' is nondecreasing. This is because at each step, the claims of the agents who are dropped are below the per capita share. Therefore, an agent who always remains on the right side of t'/n' receives no less than t/n.

In this paper, the above algorithm is adjusted and applied for the allocation of funds under the 2007–2013 Polish Rural Development Program. The Program was composed of 18 measures with a total budget of EUR 15,723.8 million. In order to divide the total budget among program measures with the uniform gains procedure, it was assumed that – with regard to upper and lower bounds for each measure – the claims reported under

[2] The literature also indicates linear programming as another approach to supporting the budgeting process for rural development programs (Kirschke and Jechlitschka, 2002; 2003 and Schmid et al., 2010).

[3] Because the budget allocation is a deficit problem, this paper uses the deficit case scheme.

[4] The procedure for excess is simply a reverse of that used for the deficit problem.

Table 1. Lower and upper bounds for measures under the 2007–2013 PRDP (EUR million)

Measure	Lower bound	Upper bound
Training for persons employed in agriculture and forestry	4.8	48.0
Setting up of young farmers	52.0	520.0
Early retirement	1,880.0	4,800.0
Advisory services for farmers and forest owners	50.0	500.0
Modernization of agricultural holdings	460.8	4,608.0
Increasing the added value to basic agricultural production	150.0	1500.0
Improvement of infrastructure related to the development of agriculture	76.5	765.0
Participation of farmers in food quality schemes	20.7	207.0
Information and publicity	3.6	36.0
Producer groups	16.8	168.0
Less-favored areas (LFA)	2,448.8	2,448.8
Agri-environmental program	1,240.0	3,860.0
Afforestation of agricultural and non-agricultural land	237.0	660.0
Restoring forestry production potential damaged by natural disasters	14.0	140.0
Diversification into non-agricultural activities	50.7	506.9
Establishment and development of micro-enterprises	210.0	2,100.0
Basic services for the economy and rural population	430.0	4,300.0
Village renewal and development	123.0	1,230.0
Total	7,468.7	28,397.1

Source: own elaboration based on Fragnelli and Kiryluk-Dryjska, 2017.

different RDP measures are calculated based on the farmers' assessment of the importance of political programs.

The farmers are the primary beneficiaries of rural development measures and are directly impacted by the budget allocation. The farmer population was assessed using a questionnaire-based survey with 2,900 representative PRDP beneficiaries sampled for the purpose of the Program's mid-term evaluation[5]. In the survey, the responders were asked to assess the contribution of different measures to rural and agricultural development on a scale from one (low impact) to nine (high impact).

The upper bounds for each measure (the maximum amount of money which can be allocated to a policy program) reflect all the options of fund absorption, including liabilities under previous programs. This paper used the same method for calculating the upper and lower bound as that discussed by Fragnelli and Kiryluk-Dryjska (2017). The upper bound is calculated under the assumption that all eligible beneficiaries would apply for a specific measure, taking two variables into account: (1) the unit support for each measure, and (2) the size of the target group of beneficiaries who meet the program's eligibility criteria. To ensure that every measure receives financial support, lower bounds are defined either as the amount of liabilities under previous rural development programs, or as 10% of the relevant measure's upper bound, whichever is higher. The upper and lower bounds are provided in Table 1. The linkage between the farmers' assessments and upper and lower bounds is based on the method proposed by Kiryluk-Dryjska (2014).

Considering that beneficiaries rate a given measure on a scale, the pay-off scheme must associate each rating with a specific payment amount. For this purpose, the beneficiaries' ratings were grouped into intervals. The intervals

[5] A questionnaire-based survey was conducted in 2010. The survey only covered farmers who had applied for the PRDP measures. A stratified random sampling scheme was used to guarantee adequate representation of all geographic regions and to account for differences in the population density of Polish rural areas. A total of 2,400 individual farmer questionnaires were completed and included in the analysis.

Table 2. Pay-off table linking the farmers' rating intervals with a fixed share of upper bounds for all measures

Decile (i)	Farmers' rating intervals defined by deciles		Fixed share of upper bound (i/10)
1	3.852	4.103	0.1
2	4.104	4.242	0.2
3	4.243	4.427	0.3
4	4.428	4.461	0.4
5	4.462	4.698	0.5
6	4.696	4.815	0.6
7	4.816	5.059	0.7
8	5.060	5.910	0.8
9	5.911	6.222	0.9
10	6.223	7.567	1

Source: own elaboration based on Kiryluk-Dryjska, 2014.

are then linked with a fixed share of the upper bound for a measure. Given that K is the total number of intervals and the beneficiaries' mean rating for a given measure falls within an interval i, $i \in \langle 1,K \rangle$, the fixed share of the upper bound for this measure is i/K. In order to calculate the actual amount of money to be allocated to this measure, the above share is multiplied by the measure's upper bound. For example, for the measure with the highest ratings, $i = K$; therefore, the measure is financed at its upper bound. Conversely, a measure with the lowest ratings is financed at a fraction of $1/K$ of its upper bound.

The pay-offs linking farmers' rating intervals with a fixed share of the upper bounds for all measures are presented in Table 2.

It is assumed that a fixed share of the upper bound for a measure (Table 2) multiplied by its upper bounds (Table 1) constitutes a *claim* (Table 3). For example, *Training for persons employed in agriculture and forestry*, with a rating of 4.674, falls in the fifth interval (4.462–4.698); 50% of the corresponding upper bound is assigned to it (a claim of EUR 24 million). Similarly,

Table 3. Farmers' rating, % of the upper bound, claims reported under different measures

	Farmers' rating	Share of the upper bound (%)	Claims (EUR million)
Training for persons employed in agriculture and forestry	4.674	50	24
Setting up of young farmers	6.082	90	468
Early retirement	4.425	30	1 440
Advisory services for farmers and forest owners	4.461	40	200
Modernization of agricultural holdings	7.567	100	4 608
Increasing the added value to basic agricultural production	4.091	10	150
Improvement of infrastructure related to the development of agriculture	4.911	70	535.5
Participation of farmers in food quality schemes	4.109	20	41.4
Information and publicity	3.852	10	3.6
Producer groups	4.461	40	67.2
Less-favored areas (LFA)	6.07	90	2 203.92
Agri-environmental program	6.55	100	3 860
Afforestation of agricultural and non-agricultural land	4.717	60	396
Restoring forestry production potential damaged by natural disasters	4.25	30	42
Diversification into non-agricultural activities	5.672	80	405.52
Establishment and development of micro-enterprises	5.076	80	1 680
Basic services for the economy and rural population	4.238	20	860
Village renewal and development	4.792	60	738

Source: own calculations.

Table 4. Allocation of the PRDP budget based on the adjusted uniform gains algorithm

Measure	Uniform gains procedure allocation (EUR million)	Share of the total budget (%)
Training for persons employed in agriculture and forestry	24.0	0.2
Setting up of young farmers	468.0	3.0
Early retirement	1 880.0	12.0
Advisory services for farmers and forest owners	200.0	1.3
Modernization of agricultural holdings	2 891.9	18.4
Increasing the added value to basic agricultural production	150.0	1.0
Improvement of infrastructure related to the development of agriculture	535.5	3.4
Participation of farmers in food quality schemes	41.4	0.3
Information and publicity	3.6	0.0
Producer groups	67.2	0.4
Less-favored areas (LFA)	2 448.8	15.6
Agri-environmental program	2 891.9	18.4
Afforestation of agricultural and non-agricultural land	396.0	2.5
Restoring forestry production potential damaged by natural disasters	42.0	0.3
Diversification into non-agricultural activities	405.5	2.6
Establishment and development of micro-enterprises	1 680.0	10.7
Basic services for the economy and rural population	860.0	5.5
Village renewal and development	738.0	4.7
Total and average	15 723.8	100.0

Source: own calculations.

100% of the corresponding upper bound is assigned to the *Modernization of agricultural holdings* with an average rating of 7.567 (a claim of EUR 4,608 million). In the case of *Early retirement* and *LFA*, the lower bounds (Table 1) were higher than the claims resulting from the pay-off table (Table 3). Thus, lower bounds are considered as claims in the allocation procedure.

Because the claims amount to a total of EUR 18,384.02 million – which is more than the total budget of EUR 15,723.8 million – it is reasonable to use the uniform gains procedure for a deficit.

RESULTS

According to the Moulin's (2003) algorithm, in order to obtain a common share λ, the total budget *t* (EUR 15,723.8 million) is divided into *n* (18) political measures of the 2007–2013 PRDP. Then, all the claims below that value – as reported under different measures – may be fully satisfied. The claims reported under 13 measures are fulfilled in the first step of the procedure. Afterwards, the remaining budget of EUR 11,792.6 million is divided by the number of remaining claims. Again, the claims lower than the common share are satisfied (*Establishment and development of micro-enterprises* and *Early retirement*). Next, in accordance with the procedure, *LFA* funds are disbursed, and the remaining budget of EUR 5,783.8 million is divided evenly between the two measures with the highest claims[6]. Table 4 shows the final allocation resulting from the algorithm, and the distribution of the total budget.

Out of the total budget of EUR 15,723.8 million, 18.4% would be allocated evenly to *Modernization of agricultural holdings* and *Agri-environmental program.*

[6] Another approach to the fair-division procedure could be that the bids above the egalitarian share simply receive equal parts of the remaining budget (constrained by the upper and lower bounds) or the amount claimed by the beneficiaries, whichever is lower. However, this one-step procedure fails to differentiate the pay-offs for measures with bids above the egalitarian level.

These are the measures with the highest claims reported by beneficiaries; 15.6% and 12% would eventually go to *LFA* and *Early retirement*, respectively. However, as regards these measures, the algorithm is strongly restricted by their lower bounds and does not reflect the farmers' ratings. Around 11% is allocated to *Establishment and development of micro-enterprises.* The remaining measures obtain less than 10% of the budget. In turn, some measures are provided with a small portion of the total budget which, however, represents a high percentage of their upper bound. For example, while *Setting up of young farmers* receives only 3% of the total budget, it amounts to 90% of its upper bound which guarantees the support for 90% of potential beneficiaries of this measure (Table 3). This is because the measure was highly rated by the farmers.

Figure 1 presents the difference between the uniform gains procedure allocation and the actual budget allocated by the Ministry of Agriculture and Rural Development. The comparison between the proposed and the ministerial budget demonstrates that the outcome of the procedure remains within a reasonable interval. However, the uniform gains procedure assigns more funds to measures highly rated by farmers, such as *Setting up of young farmers*, *Modernization of agricultural holdings*, *Agri-environmental program, Diversification into non--agricultural activities, Establishment and development of micro-enterprises, Village renewal and development*. As a result, all other measures are provided with less funds. Assigning more resources to measures highly rated by beneficiaries should improve program acceptance and encourage farmers to apply for the program's measures.

DISCUSSION

The application of fair-division algorithms to real-life political cases remains troublesome for several reasons. First, in order to apply the algorithms, the stakeholders need to reveal their preferences. In the case of political programs, collecting the stakeholders' feedback might be a costly and time-consuming process which therefore is difficult to put in practice. Second, each fair-division algorithm needs to be adjusted to a specific allocation problem. This requires some additional procedures and rules which need to liaise with the original algorithm.

The proposed approach is alternative to an earlier one proposed by Kiryluk-Dryjska (2014) and Fragnelli and Kiryluk-Dryjska (2017). While all of them emphasize

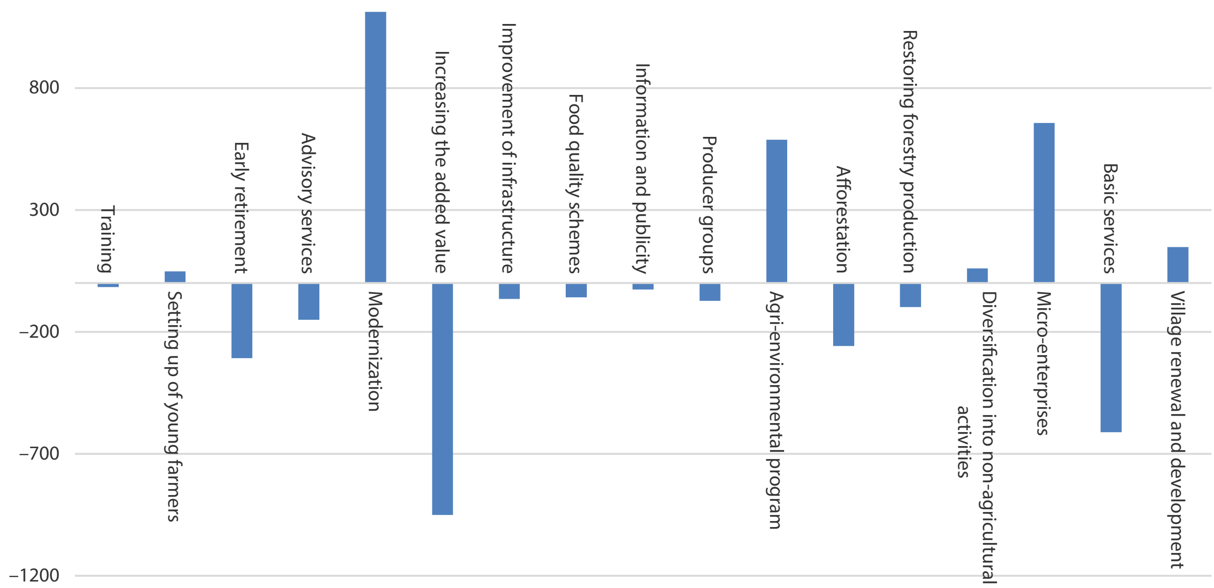

Fig. 1. Difference between the uniform gains procedure allocation and the actual budget allocated by the Ministry of Agriculture and Rural Development (EUR million)
Source: own calculations.

the criterion of fairness in the distribution of rural funds, they are underpinned by different algorithms. In the Brams and Taylor's algorithm used by Kiryluk-Dryjska (2014), the basis for budget allocation is the average difference in policy programs' ratings between different groups of key stakeholders with respect to predefined upper and lower bounds of financing for each program. The algorithm yields the egalitarian outcome as a result of unique bids left after the iterated elimination of weakly dominated strategies used by different groups of stakeholders. In this paper, the claims are based directly on ratings of just one group of beneficiaries. Thus, although there is a unique pay-off table linking the farmers' rating intervals to a fixed share of the upper bounds for all measures in both approaches, the allocation procedures differ significantly; both of them could be potentially used to allocate the policy budget. From a practical standpoint, the approach adopted in this paper is more feasible as it requires assessing only one group of stakeholders. Thus, it takes less effort and money to collect the data[7].

This method also differs from the approach presented by Fragnelli and Kiryluk-Dryjska (2017). The fair measure proposed by the authors is based on calculating the relevance of factors affecting a repetitive event, taking into account their occurrence frequency. The results depend only on the index computed based on expert opinions and is not impacted at all by the lower and upper bounds. The bounds are considered as constraints but are not included in the computation of amounts assigned to each program. Conversely, in the approach proposed in this paper, upper and lower bounds have a significant impact on claims and, consequently, on the allocation of the total budget.

CONCLUSIONS

This paper showed how the uniform gains procedure could be adjusted to, and used in, a real-life allocation problem: the allocation of rural development funds in Poland. To discover the stakeholders' preferences, a questionnaire was used where the farmers could rate the programs' importance. The algorithm was adjusted to the allocation of funds under the 2007–2013 PRDP by setting upper and lower bounds for the measures concerned, and using a pay-off table which respects the farmers' ratings. The results showed that the procedure allocates the total budget among the program measures in a reasonable way. The outcomes are similar to the actual allocation of funds. Moreover, it reflects the importance of measures, as rated by the beneficiaries, and the options for fund absorption. As a formal and structured method, it also objectifies the decision-making process, and should therefore improve the programs' acceptance among stakeholders. Naturally, a greater acceptance of a program motivates the beneficiaries to implement the relevant measures and attain the desired outcomes.

This paper presents the feasibility of a solution which is an alternative to algorithms presented earlier in the literature and emphasizes the importance of fairness as a key criterion of public choice. Though based on the 2007–2013 Polish Rural Development Program, the approach presented in this paper is a universal tool which could be used in any structural policy program.

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[7] On the other hand, considering only one group of beneficiaries can be regarded as a limitation of the approach. Thus, pros and cons of these methods need to be carefully analyzed before potential use.

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ZASTOSOWANIE ALGORYTMU SPRAWIEDLIWEGO PODZIAŁU DO ALOKACJI FUNDUSZY ROZWOJU OBSZARÓW WIEJSKICH UE W POLSCE

Abstrakt. Ze względu na zróżnicowanie wprowadzanych działań, dużą liczbę potencjalnych beneficjentów oraz brak jednoznacznych mierników efektów wprowadzanych programów alokacja budżetu rozwoju obszarów wiejskich jest niezwykle trudnym zadaniem. Celem artykułu jest zbadanie możliwości zastosowania algorytmu sprawiedliwego podziału zaproponowanego przez Moulina (2003) do alokacji budżetu rozwoju obszarów wiejskich na przykładzie Programu Rozwoju Obszarów Wiejskich 2007–2013. Wyniki alokacji, uzyskanej przy wykorzystaniu zaprezentowanej procedury, uwzględniają oceny skuteczności działań nadane przez beneficjentów oraz możliwości absorpcji środków. Ponadto zastosowanie algorytmu obiektywizuje proces decyzyjny, co powinno pozytywnie wpłynąć na akceptację programu wśród beneficjentów.

Słowa kluczowe: podział sprawiedliwy, rozwój obszarów wiejskich, rozdysponowanie budżetu

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THE PLACE OF THE BRANCH PRESS IN THE KNOWLEDGE TRANSFER TO AGRICULTURE

Abstract. The study attempts at analysing the notions of knowledge transfer in agriculture. It also pointed on their increasing absorption in rural areas and as the result necessity of adapting of information channels to receiver's needs. Increasing number of knowledge network users open new area for entities defined as knowledge brokers. They are actively intermediate in knowledge offeror-consumer contacts. Carry on in this article analysis, was tried to proof that agricultural press, especially its commercialised part, with well effect repossess role of knowledge broker, to comply with this traditional education and informative role in the country. Was underline, that publishers of agricultural press, mostly acting on commercial basis, not only realised informative-education function, but also effectively go into role of knowledge brokers of transactions concluded on knowledge market.

Keywords: agriculture, knowledge transfer, knowledge broker, agricultural press, balanced development

INTRODUCTION

Agriculture is a field in agribusiness traditionally and quite precipitately viewed as a branch with relatively low knowledge absorption. This opinion is justified only when base agricultural activity (i.e. vegetative and animal raw material production) is compared, for instance, with entities based on biotechnology, genetic advancement or Information Technology development, which can be found in the vicinity of agriculture and work to its advantage. Regarding to country dwellers improvement of education level and inclination to learn lifetime, causing increased investment activity (purchase of equipment and technology), the postulate of low knowledge absorption in agriculture is not accurate. Such opinion share entities providing production means for agriculture, which beside traditional assortment more often offer to cultivators' knowledge and information too. From pragmatic perspective, agriculture constitutes the demand side of knowledge market and is characterised by considerable potential. The problem is however such organization of knowledge supply that the offer to reach the fragmented and diversified addresses. The entities described as knowledge brokers have a particularly significant role to play in this field. To their aims belong activities such as knowledge sourcing, knowledge promotion and knowledge transfer, what predestine to this role, between others, agricultural press which in polish market reality realise similar or the same tasks (Solon, 2014, p. 273).

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The following study attempts to analysing the being in creation networks of knowledge transfer in agriculture, pointing to the necessity of broadening the existing communications channels of new related to IT technologies development. Regarding to overplus of informations in environment, was underlined necessity to reinforce of education-informative charge of transferred content. Formulated the thesis, that agricultural press, particularly connected with commercial publishers, acting in conditions of competitive market, is especially predisposed to will take over broker knowledge function and solidify role in knowledge transfer network.

The following analysis is based on a review of branch literature using desk research method. Was analysed of papers concerned with knowledge transfer in agriculture and in rural areas and especially plans and concepts of building an optimal network for knowledge transfer for the whole sector. Used accessible branch information including from The Ministry of Agriculture and Rural Areas Development and The Press Distribution Control Union. Emerging conclusions are basis for discussion about functioning of effective knowledge transfer network in polish agriculture, using agricultural press as a medium of information and the role that commercial entities play in this process.

KNOWLEDGE TRANSFER TO AGRICULTURE

The issue of knowledge transfer to agriculture is one of the major notions as well as challenges which institutions responsible for agricultural development have to face nowadays. The Ministry of Agriculture and Rural Development as well as broadly understood agricultural consulting, are traditionally perceived as leaders in the area. More and more frequently, however, such responsibility is also delegated to scientific and research entities and institutions, non-governmental organizations as well as municipal government entities (Chyłek et al., 2017, p. 99–113). It point to the increasing awareness of the complex character of modern knowledge market and optimising the mechanisms of knowledge transfer. Belong they unquestionably to difficult and demand using diversified tools and measures, but also new method of formulation the very informative messages.

The relationships between entities functioning within the area of agriculture are connected to the essential scheme of science/research – agricultural practice. The cultivator is a centre and the addressee of the message, however, it is difficult to point to concrete media for message transfer as well as feedback.

In market conditions, the relations are considerably modified by processes of knowledge commercialisation including increase their prices, which directly translates to dynamic development of consulting services sector. In consequence, increase in knowledge absorption in agriculture can also be observed. Pointed is also even, on socio-economic aftermath of this process, enumerated between others:

- weakening connections in the scope of knowledge exchange for agriculture, both, between entities offering the know-how and the cultivators themselves (knowledge transfer becomes a one-off impulse),
- gradual redirection of consulting services to large farms with simultaneous weakening of cooperation with smaller cultivators (high prices for consulting services discourage knowledge transfer),
- manipulation of knowledge transfer by entities seeking benefit in speculative dealing (selling the know-how to whoever pays the highest price),
- lowering the pressure on the information connected to public good (also, the principles of balanced development) (Chyłek et al., 2017, pp. 99–113).

The result of pursuit after optimisation of the flow path of knowledge to the realm of agriculture are discussions about creation common and unified networks. It concern also participation of Polish cultivators in the European System of Knowledge and Agricultural Information (i.e. AKIS)[1], as well as creating Network for Innovation in Agriculture and Rural Areas (SIR)[2] in Poland. In the presented schemes, The Centre for Agricultural Consulting constitutes the major link supported by institutions realising agricultural policies in Poland with The Ministry of Agriculture and Rural Areas Development on the head and The Ministry of Environment, The Ministry of Education, etc. In networks are considered also entities for agricultural and food processing, knowledge source units, including: state research institutes and higher education institutions as well as units called brokers (Fig. 1). It is assumed in the framework of the projects organised by the networks, that a lot of their

[1] PROAKSIS Perspective for support in Agriculture: Consulting Institutions in European System of Knowledge and Agricultural Information – AKIS, access on-line: www.proakis.eu

[2] More information on: http://www.cdr.gov.pl/component/content/article?id=1744:czym-jest-sir, Retrieved 28th Apr 2017.

aims will be realised utilising the existing organizational agricultural consulting structures. This practice has its justification in foregoing activity and achievements of these units employed staff experienced in work with cultivators and enterprises, as well as municipal authorities, non-governmental organisations and scientific and research units.

The networks (AKIS and SIR) are, by assumption, meant to facilitate the process of communication between the cultivators and other interested entities, as well as increase the efficiency of knowledge transfer. It is also assumed that ordering information transfer in this manner, will enable at least partial balance of transfer in the market of knowledge for agriculture through stimulation of cultivators demand and offers broaden by supply side i.e. commercial entities, research institutions etc. The processes of stimulation for both sides have to be diversified due to distinct character of entities participating in them. This, especially, concerns cultivators as knowledge recipients. The group is not only scattered and polarised, but also has varied needs depending on the character of their agricultural activity. This prepare the offer as well as directly reaching the target recipient becomes more difficult. The situations opens a relatively new space for entities called as knowledge brokers, simultaneously create a risk of existing on market also knowledge speculators, pursuing to maximisation of own profit e.g. through increasing knowledge transfer costs.

Entities engaged in agricultural and rural development which represent knowledge for both agriculture market sides, can become knowledge brokers. Amongst them, particular predispositions have publisher of branch press addressed to cultivators.

Knowledge and innovation diffusion according to E. M. Rogers' model proceeds from innovators to early imitators, then to early majority and late imitators to, eventually, reach stragglers (Kasperkiewicz, 2009; Kijek and Kijek, 2010, p. 53–68). The model is supplemented by G. Moore's description of the gap between the two first groups (i.e. innovators and early imitators) and the other participants of the process. The gap, in turn, adheres to the actual situation in agriculture (Batorski,

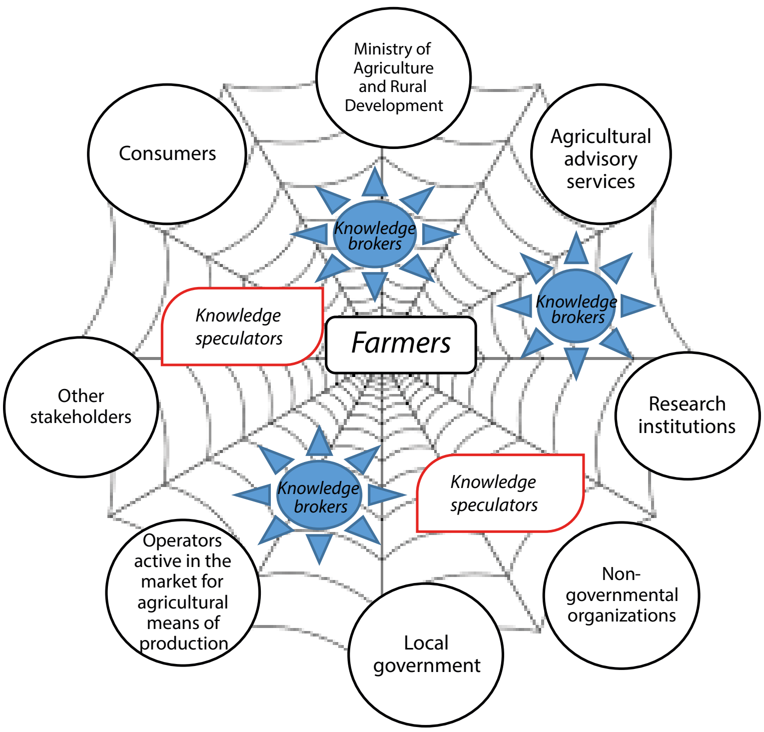

Fig. 1. The concept of knowledge transfer to agriculture
Source: own elaboration.

2013, p. 82). It is explained by the quality of human capital (knowledge, experience, skills) which, has impact on the inclination to make costly and – not infrequently – risky investment decisions (Kozera, 2013, pp. 35–43; Mazurkiewicz, 2010). Innovators and early imitators are courageous people who tend to be risk-takers as well. Their economic situation is stable and satisfying and they have the financial capacity to invest. The group is also characterised by high levels of integration with the local community and – most frequently – higher education. In consequence, innovators and early imitators become leaders in opinion formation processes amongst communities they belong to. Adopting a stance that according to the model these two integrated groups constitute about 16% to 18% of all the participants of knowledge transfer, it can also be stated that in this case, the economic rule of Pareto i.e. 80% of effects are generated by 20% of causes, applies. This highlights the necessity to intensify activities connected to knowledge transfer and diffusion to these particular target groups. Separate subject for discussion is popularisation of achieved results (i.e. implementations, innovations, changes in technology, etc.) on the basis of promotion of good practice for agriculture, where modern information channels could be useful i.e. internet.

AGRICULTURAL PRESS AS KNOWLEDGE BROKER

The very term “broker” undergoes various interpretations i.e. it can be a person or an organisation which facilitates and supports the creation, exchange and exploitation of knowledge on its way between the producers and the users. Knowledge broker (information broker, cyberian, freelance librarian, researcher, data dealer) it is a job connected to commissioned search for and sharing of information. In the research process broker takes account specific criteria, which allows precisely satisfy the needs of the ordering party. For their tasks belongs, not only gain the necessary information, but also evaluation, analyse and compile it. Broker, as a natural mediator between the demand and supply sides of the market, becomes warrant of the quality of the information they undertake to distribute.

Nowadays, brokers are consultants, analysts and customers’ partners. The consulting function requires utilisation of specialist broker’s knowledge in the field of client’s primary interest in order to prepare reliable information and/or offer. The analytical function is connected to risk evaluation in the context of activity or investment. Furthermore, partnership it is building long-time lasting relations of entities based on mutual trust (Jeżyńska, 2016). „Side effect“, often not being made aware by applied for broker‘s role entities, is taking some of the responsibility for decisions made by the client. In this present understanding of agent for knowledge attain, with well effect fit in agricultural press with centuries-old tradition in Poland (Solon, 2014, p. 277). Practice shows, that because of high level of reliability of agricultural press, play it role similar or identical with knowledge broker.

Although the history of agricultural press in Poland has its sources in the 19th century, it is rather hard to univocally define the role and the coverage of agricultural press on the Polish market. It could be estimated with the help of information provided by The Ministry of Agriculture and Rural Development, as its webpage (which has not been updated since 2009) contains a list of 66 titles of agricultural periodicals. However, from the perspective of knowledge-based economy such information becomes unreliable due to passing time. Especially in the light of dealing with an entity as prone to change as branch press what is connected with phenomena so-called durability of journal, which for periodic dedicated to agriculture is differ. Amongst them, we can find periodicals which marked their existence, however, did not manage to survive the test of time as well as the competition and existed on the market for a year of a few years. There are also periodicals which have lasted for 20 and more years (Solon, 2014, p. 277). Most periodicals with a steady position on the market as well as in the awareness of the cultivators are monthly magazines. There are also weekly magazines, fortnightly magazines, bi-monthly journals, quarterly magazines and journals which are published once or twice a year. All these magazines are different in terms of their circulation and volume, which is usually in strict relation with their characters (e.g. strictly branch magazines usually have lower circulation and smaller volume in contrast to agricultural press with a more general character). More and more often their publisher use modern information channels i.e. try to reach customer by the Internet creating information portals and e-versions of magazines available on-line.

Interesting in cognition, and reliable source of information about journals market, including for agriculture, are rankings carried on by The Press Control and Distribution Union Analysing especially Top-114

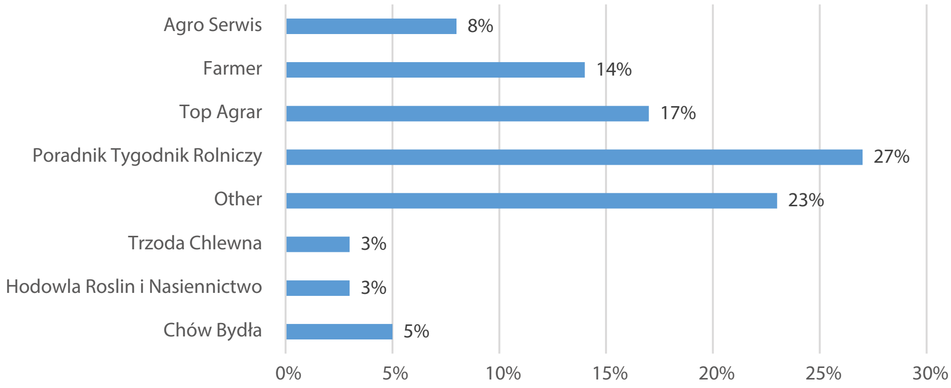

Fig. 2. Share of leading titles in agricultural branch press in Poland in 2016
Source: own calculation on the basis of 2016 Polish Agriculture Report.

and Top-150[3] rankings, among others can find six titles dedicated to broadly understood agriculture amongst the lead. They are: "Top Agrar Polska" (43th and 47th place with circulation rate of 49 thousand units), "Farmer" (98th and 125th place with circulation rate of 17 thousand units), "Sad Nowoczesny" (128th and 102th with circulation rate of 8 thousand units), "Miesięcznik Praktycznego Sadownictwa Sad" (129th and 103th with circulation rate 6 thousand units), "Warzywa i Owoce Miękkie" (132th and 106th with circulation rate 8 thousand units), "Hasło ogrodnicze" (134th and 106th with circulation rate 8 thousand units). The ranking, however, does not take into consideration weekly magazines, amongst which we can find a very popular "Tygodnik Poradnik Rolniczy" (created from the merger of two pre-existing magazines, i.e. "Tygodnik" and "Poradnik Rolniczy"). The circulation of this magazine is over 77 thousand units. Do not also consider local magazines very popular in cultivators. Nevertheless, it can be assumed, that mentioned titels belong to the leaders of agricultural press market in Poland. It also should be pointed to the fact that the very estimation of the scale of the titles reaching their addressees is tremendous. Taking into consideration only the circulation on the cumulative level of 175 thousand units and the amount of farms in Poland estimated at the level of 1,2 million, it transpires that every seventh cultivator in Poland is a reader of agricultural branch press. Information contained in the "2016 Polish Agriculture" report also verifies the role of agricultural press. According to this research, almost 60% of cultivators point to branch press as one of the three most important sources connected to changes in rural areas and in agriculture.

The overwiew of the aforementioned titles points to the leading role of periodicals which are characterised by general profile, relating to changes in the whole sector. The cumulative share of the two most prominent periodicals is 44% (Fig. 2). This also emphasises the role of press as the transmitter of knowledge and information importand from point of view Polish rural areas and agriculture functioning.

However, also should to be taken under consideration in studies, information about readers possible to gain by Polish Readers Researches platform (www.pbc.pl). Arise from them, that purchase of branch journal is conditioned by its price and buyers are the persons described as a walth. Simultanously is pointed to culture conditions determinig purchase of journal and furthermore that it is the indicator of status and social position. The last observation is important especially as concern agriculture, where reading of journals is often a kind of family tradition.

CONCLUSIONS

Building of knowledge transfer network for agriculture in theory cause no problems. In practice, however, exist the diverse manners in which information in agriculture reaches the target recipient and changing number of entities competing against each other for exclusively reach to the client. Changing also content of transfer

[3] Years 2015 and 2016 respectively. Compare: Wirtualnemedia.pl

from education-informative to informative-comercial. As a result, in environment of agriculture activated commercial entities – brokers, offering factoring service in transaction on knowledge market. Their aim is to full up arising gap in this area. Differentiation of receivers and their needs in the era of accessible IT channels cause no obstacles for them. Conforming faster than non-commercial institutional surround, in principle acting as information and knowledge provider (i.e. state research institutes and higher education institutions etc.). Regarding to absence of entities, which in complete way would carried on monitoring of cultivators needs, acquiring and purposeful delivery of knowledge and, at least, making easier contacts between sides – brokers can monopolise market, leading to full commercialisation. It could be mean the situation with inhibition knowledge absorption, which one be payable only. Regarding this is important to underline role of agricultural press have to play. From one side publishers are more and more commercial entities, compete for market share, from the other – entities cultivate agricultural press tradition with education-informative service. Bounded with this function cultivator's trust make them acting as knowledge broker easier, especially in terms of being intermediary in knowledge finding. It is important task, because from point of view sectors served agriculture, the agriculture is demand side with high potential.

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MIEJSCE PRASY BRANŻOWEJ W TRANSFERZE WIEDZY DO ROLNICTWA

Abstrakt. W opracowaniu analizowano zagadnienie transferu wiedzy w rolnictwie. Wskazano na coraz większą jej absorbcję na terenach wiejskich oraz wynikającą z tego konieczność dostosowania kanałów dystrybucji do potrzeb odbiorcy. Rosnąca liczba uczestników sieci wiedzy otwiera nową przestrzeń dla podmiotów nazywanych brokerami. Są to podmioty aktywnie pośredniczące w kontaktach oferent – nabywca wiedzy. Podczas analiz wykazano, że czasopiśmiennictwo rolnicze, zwłaszcza jego skomercjalizowana część, z dobrym skutkiem przejmuje rolę brokera wiedzy, spełniając przy tym tradycyjne role edukacyjno-informacyjne na wsi. Podkreślono, że wydawcy prasy rolniczej, w większości działający na zasadach komercyjnych, nie tylko realizują funkcję informacyjno-edukacyjną, ale również sprawnie wchodzą w rolę pośredników transakcji zawieranych na rynku wiedzy.

Słowa kluczowe: rolnictwo, transfer wiedzy, broker wiedzy, czasopiśmiennictwo rolnicze

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WOOD BY-PRODUCTS AND THEIR USE IN POLAND IN A CONTEXT OF THE DIRECT SURVEY OF WOOD PRODUCERS

Abstract. In recent years, environmental protection has been prioritized, including through a rational use of natural raw materials, waste minimization and maximization of waste reuse. It is of great importance especially in the wood sector where by-products, i.e. non-waste post-production residues from consecutive stages of wood processing in the production of wood materials and products, create an additional market for raw and other materials. Nevertheless, the resources and possible uses of by-products have not been fully defined in practical terms. Therefore, this paper presents the results of a survey carried out by the Wood Technology Institute in 2016 to broaden and validate the knowledge of Polish resources of wood by-products, taking into consideration their sources, types, functional properties and uses. The survey was based on 2015 data and targeted 477 wood companies. It revealed that the volumes and shares of by-products generated in the wood industry were highly diverse. In 2015, the largest amount of wood by-products was generated in the process of plywood and window production while the production of wet-process hardboards and dry-process LDFs generated the smallest volumes of by-products. In turn, the production of wet-process porous fiberboards was a zero-waste process in the companies surveyed.

Keywords: wood by-products, sources of wood by-products, types of wood by-products, uses of wood by-products

INTRODUCTION

In Poland, for many years, wood by-products (i.e. post-production products, non-waste residues from consecutive stages of roundwood processing in the production of wood materials and products) have been a source of raw wood material alternative to forests. By-products become especially important during periodical shortages of raw wood materials. Post-production products, such as pieces, sawdust, chips, wood dust and bark, are mainly used onsite by wood producers for both secondary material processing and energy purposes, and are also an important source of renewable energy for the power sector.

Rational management of wood by-products/post-production wood products is of consequence for the industrial, economic and social development. Renewable natural reserves strengthen long-term ecological,

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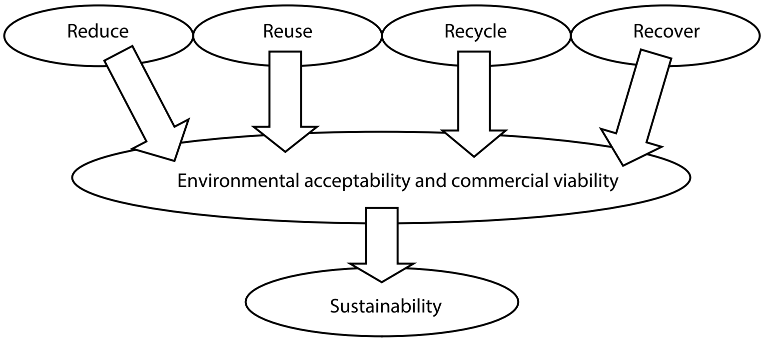

Fig. 1. The concept of "sustainability" based on wood by-products
Source: own elaboration based on Mohanty et al., 2002; Ratajczak et al., 2017.

economic and social balance. Wood by-products create an additional market for raw and other materials, and bring considerable economic and ecological benefits (such as reduction of water, soil and air contamination, and minimization of storage and collection losses). These aspects are conducive to environmental protection and improvement of human life quality – which underpin the idea of sustainable development – and are in line with the new resource consumption approach presented in the circular economy model, i.e. a closed-loop zero-waste economy that assumes waste minimization and making humans less dependent on natural reserves.

Recently, the fact that natural reserves wear thin has become a growing reality, and therefore implementing the concept of cascade use of wood and the 4Rs (Reduce, Reuse, Recycle, Recover) are a major concern for any sector's operation, including the forestry-based sectors (Fig. 1).

The model above presents a situation which, tough simplified and ideal, could be the result of the processing of raw wood material and of related input-output flows (Ratajczak, 2013). During the processing of raw material into wood materials, and then into final goods, wood by-products/post-production wood products are created which are either reused in the technological process or are burnt to recover energy. Specific wood industries/branches generate, and at the same time create demand for, by-product resources. This is an important factor for the direction of flows of wood by-products between industries; note that the flows' intensity is the result of demand and supply created by each industry (Bachorz, 2016; Ratajczak, 2013).

Although the management of wood by-products in Poland may be considered rational and compliant with the concept of cascade use of wood and the 4Rs (the market for wood by-products in Poland has already been studied by various scientific institutions, including the Wood Technology Institute), there is still a deficiency of knowledge on their actual resources and applications. Also, there are not enough methods and research tools which would enable assessing the actual supply of, and current demand for, wood by-products (Cichy and Prądzyński, 1999; Ratajczak and Szostak, 1994; Szostak, 1997; Szostak and Ratajczak, 2003).

This paper presents the results of a 2016 survey carried out by the Wood Technology Institute as a part of research on the market for wood by-products/post-production wood products generated in the Polish wood sector (Szostak et al., 2016). The survey was especially important as a way to verify the underpinning assumptions of models for assessing the potential and usability of wood by-products. Also, it provided an opportunity to deepen and validate the knowledge of their sources, types, functional properties and uses. The survey's aim was to depict the actual condition of wood by-products management in wood companies in 2015.

SURVEY METHODOLOGY

The survey of wood producers was a two-stage procedure. The first stage (preparation) included drawing up the questionnaire and selecting the respondents. The questionnaires contained closed and semi-open single- or multiple-choice questions. Aspects covered by the survey include:

- the amount of wood by-products/post-production wood products generated by wood companies,
- the type and structure of wood by-products/post-production wood products generated during the production process of wood materials and products,
- uses of wood by-products/post-production wood products.

The second stage (execution) included data collection and assessment, analysis of the results and drawing conclusions from the survey. The survey covered operators active in the wood sector, i.e. the sawmilling industry (35.6%), furniture industry (35.6%), pulp and paper industry (wood pulp producers, 0.6%), wood-based panel industry (manufacturers of particleboards, OSBs, wet-process and dry-process fiberboards, plywood, veneers and LVL panels, 9.6%), packaging industry (pallet producers, 6.7%), and builders' carpentry and joinery industry (producers of windows and doors, 11.3%), and outside the wood sector: the chemical industry (manufacturers of matches, 0.6%). The survey was based on 2015 data.

The respondents were not selected randomly (non-probability selection[1]) but purposefully, by taking into consideration the features of relevance for this survey. The main sampling criterion was the type of business run by the respondents. The operators were identified based on the Polish Classification of Activities (PKD, 2007); 477 respondents were selected for the survey (based on "Drzewnictwo"[2] and other databanks), following an additional verification through an Internet search query.

The respondents were e-mailed two reminders. After ca. 3 months from the survey delivery date, the response rate was over 13%.

RESULTS OF THE SURVEY

The survey helped broaden the existing knowledge on sources and types of, and the market for, wood by-products created in the Polish wood sector. Also, it allowed the author to assess the volume of wood by-products/post-production wood products generated in wood industries, and to discover their uses.

Volume and types of wood by-products generated in the wood sector

As revealed by the survey, in 2015, the processing of roundwood into sawnwood generated 37% (on average) of by-products/post-production products (in relation to the sawnwood volume; see Table 1). The by-products were mostly pieces (55%); in turn, sawdust and

Table 1. Wood by-products in wood companies surveyed in 2015

Wood by-products	Percentage
In relation to the amount of raw wood material processed into:	
sawnwood	37
wood pulp	14
In relation to wood materials used for the production of:	
furniture	15
other products* (e.g. flooring materials, laminated elements)	26
In relation to the production volume of:	
wood-based panels:	
plywood	80
veneer	40
MDFs	17
LDFs	2
particleboards	25
hardboards	3
porous boards	0
LVL	15
matches	45
wooden windows and doors:	
windows	69
door leaves	22
frames	17
door leaves with frames	19
pallets	43

*Result of further processing of sawnwood in sawmills.
Source: own elaboration based on survey results.

[1] The condition for using the non-probability selection is the availability of knowledge of the surveyed population. It may be more useful for research purposes than random models. See: Babbie, 2005; Frankfort-Nachmias and Nachmias, 2001; Kaczmarczyk, 1995; Szreder, 2010 and other authors.

[2] "Drzewnictwo" databank stores data on the forestry sector and is kept by the Wood Industry Economics Department of the Wood Technology Institute in Poznań.

chips dominated (47%) at further stages of sawnwood processing into final products (Table 2). In 2015, in the surveyed wood-based panel companies, most wood by-products were generated during the production of plywood (80% in relation to the production volume) and veneers (40%). The production of other panel types was characterized by a relatively low volume of by-products, most of which were post-production products in the form of pieces which accounted for more than 50% of the total production volume in the case of plywood, MDFs, veneer and hardboard production. The main by-products of LVL panels and particleboards were bark and wood dust, respectively.

Table 2. Types of wood by-products generated in the production process of wood materials and products in wood companies surveyed in 2015

Wood materials and products	Type of wood by-products			
	pieces	sawdust and chips	wood dust	bark
	%			
Sawnwood	55	37	0	8
Final products (of sawnwood processing)	42	47	2	9
Wood-based panels:				
plywood:				
during roundwood processing	66	11	–	23
at further stages of the technological process	69	28	3	–
veneer	70	10	5	15
MDFs	53	–	30	17
particleboards	21	–	79	–
hardboards	100	–	–	–
LVL	30	–	10	60
Matches	73	7	0	20
Wood pulp	–	14	–	86
Wooden windows and doors:				
windows	48	24	28	–
door leaves	48	24	28	–
frames	48	24	28	–
door leaves with frames	51	32	17	–
Pallets:				
during roundwood processing	43	44	–	13
at further stages of the technological process	53	47	–	–
Furniture:				
waste from solid elements	53	35	12	–
waste from elements of wood-based panels	67	17	16	–

Source: own elaboration based on survey results.

According to respondents, in 2015, the percentage of wood by-products in wood pulp production was 14% (in relation to the amount of raw material processed), of which 86% was bark, and 14% sawdust and chips. On the other hand, as regards the production of matches, by-products accounted for 45%, of which 73% were pieces, 20% was bark, and 7% were sawdust and chips.

In this survey, the manufacturers of wooden windows and doors responded that the largest amount of wood by-products was generated during the production of windows (69% in relation to the production volume), whereas door production generated smaller amounts of by-products, accounting for 22% (doors without frames) or 19% (doors with frames). In this industry, pieces were the dominant form (accounting for almost 50% of the total volume) of wood by-products.

According to the survey, in 2015, the average ratio of wood by-products created by pallet producers was 43% (in relation to the pallet production volume); note that ¾ of the wood by-product volume was created during roundwood processing into sawnwood. When it comes to pallet production, most by-products were pieces and sawdust and chips, with some small amounts of bark.

In 2015, the ratio of wood by-products generated by the furniture industry was ca. 15% in relation to wood materials used for furniture production. The responses suggested that almost 2/3 of by-products were generated during the processing of wood-based panel elements. Furniture production is mostly responsible for by-products in the form of pieces (53% of the total amount of solid elements and 67% of the total amount of wood-based panel elements), sawdust (35% and 17%, respectively) and wood dust (12% and 16%, respectively).

Management of wood by-products generated in the wood sector

The results of the survey suggested that in 2015, 62% of by-products generated in the wood sector were intended to be used onsite and 38% were intended for sale (Fig. 2). In both cases, by-products were intended primarily for energy purposes (57% and 90%, respectively).

According to the survey, in 2015, sawnwood producers used ¼ of wood by-products/post-production wood products for their own purposes, and sold the remaining three quarters (Table 3). They declared that by-products in the form of pieces (88% of the by-product volume intended for the company's own production purposes) were the main by-products used for direct material processing (17% of by-products used onsite) while sawdust and chips (78% of the volume of by-products intended for onsite energy use) were the primary materials used for the company's own energy purposes (83% of by-products used for the company's own purposes). 53% of marketable by-products generated in the sawmilling industry were by-products used for energy purposes (sawdust and chips prevailed in this group, with a share of 52%) while 45% of by-products sold were intended for production purposes (65% of them were by-products in the

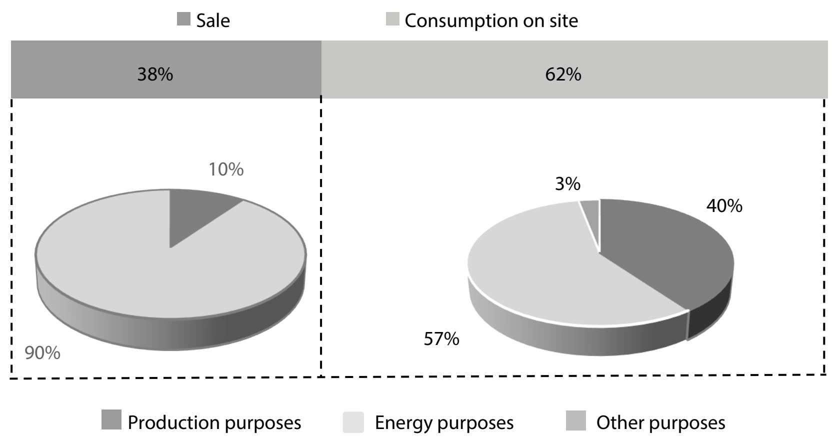

Fig. 2. Management of wood by-products generated in wood companies surveyed in 2015
Source: based on survey results.

Table 3. Uses of wood by-products generated in wood companies surveyed in 2015 (%)

Wood materials and products	Wood by-products used for:						
	onsite use			sale			
	total	production	energy	total	production	energy	other1
Sawnwood	27	17	83	73	45	53	2
Wood-based panels	60	3	97	40	58	37	5
Wood pulp	100	0	100	0	0	0	0
Matches	100	0	100	0	0	0	0
Wooden windows and doors	49	0	100	51	7	93	0
Pallets	49	38	62	51	58	40	2
Furniture	48	13	87	52	31	61	8

[1]E.g.: agriculture, horticulture, tanning, wooden accessories etc.
Source: based on survey results.

form of pieces). The share of by-products intended for other purposes (e.g. agriculture or horticulture) was 2%.

The group of consumers of by-products sold for energy purposes was dominated by individual consumers (52%; e.g. households), while corporate customers accounted for 48% (e.g. schools, hospitals, field boiler houses, CHP plants) (Fig. 3).

According to respondents, wood by-products generated in the wood-based panel industry in 2015 were primarily used for their companies' own purposes (60% of the total amount of wood by-products in the wood-based panel industry), mostly for energy purposes (97%, including 43% of by-products in the form of pieces). The ratio of by-products sold by the respondents was

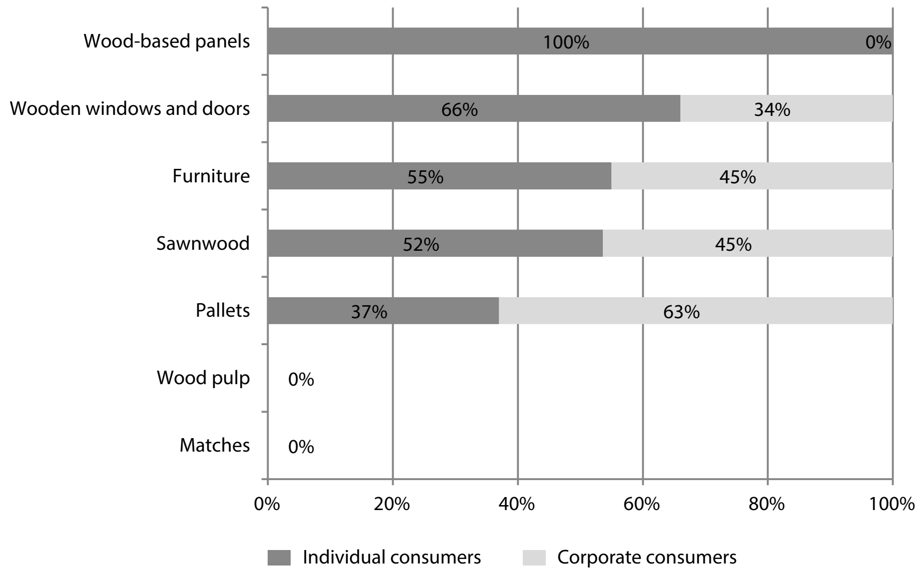

Fig. 3. Shares of consumers of wood by-products sold for energy purposes and generated in wood companies surveyed in 2015
Source: own elaboration based on the survey results.

approximately 40%, of which 58% was intended for production purposes. Those were mainly by-products in the form of pieces (60% of by-products sold for production purposes) and wood dust (33%). Also, 37% of by-products sold were intended for energy purposes (mostly by-products in the form of pieces and bark, with a share of 69% and 31%, respectively). Wood-based panel by-products sold for energy purposes were purchased by individual consumers only.

According to the survey, wood pulp and match manufacturers used their own by-products/post-production products solely for their own energy purposes. In the case of wood pulp producers, 85% of those by-products were bark; in the case of match producers, 73% were by-products in the form of pieces.

Wooden window and door manufacturers covered by this study used wood by-products generated in 2015 primarily for energy purposes: 100% of the volume used onsite (49% of the total amount of wood by-products) and 93% of the volume sold (51%). For their own energy purposes, the companies mostly used sawdust and chips (65%). By-products sold for energy purposes were those in the form of pieces (48%) and sawdust and chips (44%). According to respondents, 66% of window and door by-products sold for energy purposes were purchased by individual consumers, and 34% by corporate consumers.

On the other hand, pallet producers surveyed declared that in 2015 by-products generated during pallet production were used for their companies' own purposes (49% of the total volume) or sold (51%). If used for the company's own purposes, by-products were mainly used for energy purposes (62%) as sawdust and chips (67%). Marketed wood by-products were primarily intended for production purposes (58%) and were sold in the form of pieces (55%) or as sawdust and chips (45%). By-products sold for energy purposes (40%), mainly in the form of sawdust and chips (78%), were primarily purchased by corporate customers (63%).

According to the survey, wood by-products generated in furniture companies in 2015 were sold (52% of the total volume) or used for the company's own purposes (48%). In both cases, energy purposes prevailed; 87% of by-products used for the company's own energy purposes were used onsite; 61% of by-products sold were used for energy purposes. The materials were mostly wood by-products in the form of pieces or sawdust and chips (ca. 40% each). By-products intended for energy purposes were sold to individual consumers (55%) and corporate customers (45%).

CONCLUSIONS

Having in mind the lack of complete, consistent and reliable data on the market for by-products/post-production products generated in the Polish wood sector, the survey contributed to narrowing that cognitive gap, and to broadening and validating the knowledge on the sources, types and uses of by-products concerned.

The generation of wood by-products is closely connected to the production process of wood materials and products; however, quantities of by-products generated largely vary from one wood industry to another. In 2015, the following was reported by the companies surveyed:

- the largest quantities of by-products resulted from the production of windows (69% in relation to the production volume), plywood (80%), and veneers (40%),
- the smallest quantities of by-products resulted from the production of dry-process LDFs (2% in relation to the production volume) and wet-process hardboards (3%),
- the production of wet-process porous fiberboards was a zero-waste process.

According to the survey, in 2015, wood by-products generated in the Polish wood sector were mostly by-products in the form of pieces; this type of by-products accounted for more than 50% of all types of by-products generated. Sawdust and chips were also important, with a share ranging from 7% (production of matches) to 47% of the total volume of by-products generated (production of final products in the sawmilling industry, and production of pallets). On the other hand, wood dust amounted to a significant percentage of by-products generated in the production of particleboards (79%) while bark was an important by-product in the production of wood pulp (86%) and LVL panels (60%).

Wood by-products were mainly used onsite. In 2015, the companies surveyed used 62% of by-products for their own purposes (38% was sold). Whether used onsite or sold, by-products were primarily used for energy purposes (57% and 90%, respectively).

The survey revealed that wood by-products in the form of pieces were mainly used for own production purposes while sawdust and chips were primarily used for own energy purposes. According to respondents, as much as 100% of wood by-products in the form of pieces was used onsite for secondary material processing (production of furniture and wood-based panels); up to 78% of sawdust and chips were used for energy purposes (sawnwood producers).

The respondents indicated that wood by-products in the form of pieces were mainly sold for production and energy purposes. The respondents sold primarily wood by-products in the form of pieces or as sawdust and chips. In 2015, producers of wooden windows and doors sold 100% of their total by-product volume for material processing. For furniture manufacturers, that ratio was 78%. The highest percentage of wood by-products in the form of pieces sold for energy purposes originated from the production of wood-based panels (69%). In turn, the highest percentage of sawdust and chips sold for that purpose originated from pallet production (78%).

As revealed by the survey, the demand for wood by-products from individual consumers (households) was relatively higher. In 2015, wood-based panel producers and wooden windows and doors producers sold the largest amount of by-products to consumers (100% and 66%, respectively). In turn, corporate customers (hospitals, schools, CHP plants etc.) purchased a share ranging from 34% to 63% of by-products sold. In this case, by-products were supplied primarily by pallet producers (63% of by-products sold by those producers) and sawnwood manufacturers (48%).

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DRZEWNE PRODUKTY UBOCZNE I ICH ZAGOSPODAROWANIE W POLSCE – W ŚWIETLE BADANIA BEZPOŚREDNIEGO PRODUCENTÓW DRZEWNYCH

Abstrakt. W ostatnich latach priorytetem staje się ochrona środowiska naturalnego, w tym racjonalne wykorzystanie surowców naturalnych, minimalizacja powstających odpadów i maksymalizacja ich wtórnego zagospodarowania. Ma to duże znaczenie zwłaszcza w sektorze drzewnym, gdzie produkty uboczne, tj. pozostałości poprodukcyjne (niebędące odpadami) z kolejnych faz przerobu drewna w procesie produkcji materiałów i wyrobów drzewnych, kreują dodatkowy rynek surowcowo-materiałowy. Jednak w praktyce ich zasoby oraz kierunki zagospodarowania nie są nadal w pełni określone. W artykule przedstawiono wyniki badania ankietowego, przeprowadzonego w Instytucie Technologii Drewna w 2016 roku, którego celem było poszerzenie i zweryfikowanie wiedzy o zasobach drzewnych produktów ubocznych w Polsce, z uwzględnieniem miejsc ich powstawania, rodzajów i cech użytkowych oraz kierunków zagospodarowania. Badanie dotyczyło 2015 roku i skierowane było do 477 firm z sektora drzewnego. Wykazało, że wolumen i struktura produktów ubocznych powstających w branżach drzewnych były bardzo zróżnicowane. W 2015 roku najwięcej powstało ich przy produkcji sklejki oraz okien. Najmniej – w produkcji płyt pilśniowych mokroformowanych twardych i suchoformowanych LDF. Natomiast w badanych firmach produkcja płyt pilśniowych mokroformowanych porowatych była bezodpadowa.

Słowa kluczowe: drzewne produkty uboczne, miejsca powstawania drzewnych produktów ubocznych, rodzaje drzewnych produktów ubocznych, kierunki zagospodarowania drzewnych produktów ubocznych

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AGRITOURISM AS A FORM OF SUSTAINABLE TOURISM

Abstract. Sustainable development is the key component of policies or strategies established at international, domestic, local and industrial levels. The tourism industry has decided to meet the challenge of sustainable development and established sustainable tourism which may take the form of agritourism. Therefore, the main objective of this paper is to describe the essence of agritourism as a form of sustainable tourism in the countryside. The main objective is reflected in the structure of this paper. It describes the essence of sustainable tourism aimed at adjusting tourism to the needs and resources of naturally valuable areas, in order to meet the needs of local communities as well as the needs of tourists and the tourism industry. Furthermore, the functioning of sustainable tourism in the countryside is described as such areas are naturally predestined to develop according to the principles and objectives of sustainable development. It also refers to their tourist and the recreation functions. In addition, agritourism is described as a form of sustainable development because its main principle eliminates intensive tourist traffic and additionally does not exert any excessive pressure on the natural and cultural environment.

Keywords: agritourism, sustainable development, sustainable tourism

INTRODUCTION

Tourism is one of the most thriving sectors of the economy, its share in GDP is at 5–6% (Goodwin and Chaudhary, 2017). It affects many aspects of human life: economic, social and environmental, and may either harm them or contribute to their development. As in the other social and economic spheres, it is crucial that tourism complies with sustainable development principles that are based on the equal existence of three pillars: economic, social and environmental, and where particular attention is paid to the fact that meeting the basic needs of certain communities or citizens of both present and future generations is guaranteed.

Currently, it is crucial to make tourism more sustainable taking into account the international and domestic requirements. When the tourism industry started to follow the principles of sustainable development, it resulted in establishing the sustainable tourism concept. Sustainable tourism may occur in a number of forms. Agritourism is one of them and may be an example of sustainable development measures adopted in rural areas.

Therefore, the main objective of this paper is to describe the essence of agritourism as a form of sustainable tourism in the countryside. This paper is conceptual in its nature and is based on the relevant literature as well as on other documents, reports and statistical data.

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SUSTAINABLE TOURISM

The concept of sustainable tourism was established when the tourism sector began to implement the principles of sustainable development. It started in 1995 at the World Conference on Sustainable Tourism held on the island of Lanzarote (Spain) when the Charter for Suitable Tourism was adopted by the World Tourism Organization, United Nations Environment Program, UNECSO and the European Commission. Article 1 stipulates that tourism development shall be based on the criteria of sustainability which means that it must be economically bearable in the long term, economically viable, as well as ethically and socially equitable for the local communities. All the parties involved in tourism have to respect each other and cooperate closely in order to meet the above requirements, which means that it is important that local, regional, domestic and international authorities and institutions cooperate as well (Dudek and Kowalczyk, 2003).

The definitions and principles of sustainable tourism were adopted one year later and were included in the "Agenda 21 for the Travel & Tourism Industry: Towards Environmentally Sustainable Development" prepared by the World Tourism Organization and the Earth Council.

It was agreed upon that any tourist activity should be within the sustainable development framework and should contribute to the economic, social and environmental development. Sardianou et al. (2016) remind that sustainable tourism development must focus on the four areas of economic, environmental, social and cultural sustainability. Therefore, such activities would be aimed at (Panfiluk, 2012):

- complete integration with the natural, cultural and social environment,
- cooperation at all the necessary levels: local, national and international, both vertically and horizontally,
- improving the quality of life of local communities,
- enhancing the cultural experience in each tourist destination,
- restoring the balance in the environment through technical cooperation and financial assistance,
- strengthening and increasing the promotion of environmentally friendly tourism management,
- implementing measures to minimize the adverse effects of transport on the environment,
- implementing measures to minimize resource consumption by the tourism industry.

"Sustainable tourism" is a term widely used in the literature and yet there is no generally accepted definition of it (Breakey and Breakey, 2015, p. 87; Kowalczyk, 2010a). An abundant number and variety of its definitions result in a number of interpretations. Therefore, many views exist on sustainable tourism, and they are often contradicting (cf.: Niezgoda, 2006).

An additional difficulty in interpreting the term is making sustainable tourism equal to ecotourism, alternative tourism, responsible tourism, environmentally friendly tourism or green tourism which is not accepted by all the authors. More often, the authors agree that sustainable tourism is completely opposite to mass tourism, but in the case concerned different opinions are also expressed (Niezgoda, 2006). For the purpose of meeting the paper's objective, the definition of sustainable tourism formulated by the European Council (Rada Europy Komitet Ministrów, 1995) will be used, namely: sustainable tourism is any form of tourist development or activity which respects the environment, ensures long-term conservation of natural and cultural resources, and is socially and economically acceptable and equitable.

The characteristics of sustainable tourism are as follows (Kowalczyk, 2010b following Inskeep, 1991): the necessity to take natural and cultural aspects into account; involvement of host communities; including the cost and profit analysis (not only the current situation but the future consequences), paying particular attention to equal distribution of costs and profits between tourists and host communities, striving to protect the nature for future generations, integrating tourism with other economy sectors; assessing the environmental and cultural impact of tourism; and taking any relevant steps to make such impact positive.

Governance for sustainable tourism must focus on ethics, justice and its functioning within the global and local community (Dangi and Jamal, 2016). This requires challenging societal values of growth and consumerism and the current industry's pro-economic growth dogma (Higgins-Desbiolles, 2009).

Hence, sustainable tourism is based on striving to reach the balance between the needs of tourists, the natural environment and local communities. Sustainable tourist activity, understood as above, should be beneficial to local communities by strengthening the local economy, employing local workforce, using local materials and agricultural produce as well as traditional skills (Cottrell et al., 2013). Thus, implementing sustainable development principles in tourism at the local level means economic development of municipalities in an ecological manner and establishing the instruments for making economic functions more ecological (Nitkiewicz-Jankowska and Szromek, 2010).

In practice, sustainable tourism may be reflected by certain behaviors of tourist providers e.g. saving natural resources, waste segregation, reducing the amount of exhaust gases in transport, staff training, using ecological office supplies or using eco-friendly heating systems, whereas tourists should use mass transport, save natural resources, and limit and segregate waste (Dembińska-Cyran, 2005).

SUSTAINABLE TOURISM IN THE COUNTRYSIDE

The transformation in Poland at the beginning of the 1990s also took place in rural areas and resulted in altering their function. More non-agricultural functions emerged (industry and services, including tourism and recreation); however, local natural resources continued to be used. It was already in the 1980s that the function of tourism and recreation in the country was considered as "the one for the future" or the "dynamically developing one" (Drzewiecki, 1985).

At present, the change in the nature of rural areas has been visible. Local production has nothing to do with food processing. More and more often, the countryside plays the residential role for people working in the city but living in the country because it is quieter there and residing is simply cheaper. Also, the countryside has tourism and recreation functions. In 2016, rural areas represented 93.1% of the total Polish territory and were inhabited by 39.2% of Poles.

Rural areas are naturally predestined to develop on the basis of sustainable development principles; this is also true for their tourist and recreation role.

The tourist and recreation role in the countryside results from its tourist attractiveness (places of interest to tourists), an uncontaminated natural environment, measures taken to protect the natural environment as well as the ways of access. These are factors important to tourists. The interest of investors has to be taken into account as well as the condition of the technical and service infrastructure (Long and Thanh-Lam, 2018). Human relationships and the local financial situation are the determinants of tourist attractiveness (Gołembski, 1999).

Sustainable tourism may develop successfully in rural areas. It should provide extensive opportunities for changes in the aspects of living in the countryside (Table 1).

Table 1. Opportunities for changes in the aspects of living in the countryside caused by the development of sustainable tourism

Aspect	Objective of sustainable tourism
1	2
Economic	• making the economy more diverse rather than replacing agriculture with tourism, • result: restricting the dependence on a single type of activity and avoiding destroying tourist values by transforming the countryside into typical holiday destinations
Environmental and cultural	• combining tourism with the values of rural areas, namely peace and quietness, opportunity to relax in the fresh air, participating in farm life and local culture, • on the one hand, tourism is an economic development tool in a region; on the other hand, it contributes to the region's environmental and cultural protection (major tourism values in the countryside)
Social	• establishing sustainable tourism, • local community benefits from sustainable tourism (it is their income); rural tourism preserves the specific nature of rural areas
Land management	• sustainable tourism and its scale should be adjusted to the local specificities, • usually, agritourism is a small-scale business; this allows to remove (or limit) the negative effects of tourism development

Table 1 – cont.

1	2
Tourism management	• sustainable tourism should encourage the local community to become active and business-oriented, and should enable learning new skills
Tourist behavior	• tourists should be aware of any risks they may cause and should behave so as not to have any negative impact on regional environment or culture, • tourists should be aware of their needs, prepared for a trip, focused on an active stay and contact with the local community

Source: Majewski and Lane, 2003.

Sustainable tourism takes a number of forms, such as (Sanagustin-Fons et al., 2018) rural tourism, including all the tourist activities performed in the country; agritourism, i.e. providing tourists with services on the farm; eco-agritourism, providing tourists with services on a farm where organic food is produced; ecotourism i.e. tourism in a naturally valuable area. The above breakdown is not "fixed" because certain types of tourism overlap each other. This is especially true for agritourism which may also take place in naturally valuable areas and sometimes is not related to any actual farm (many facilities in the country advertise themselves as agricultural ones although they have never run any agricultural activity). Rural tourism constitutes a valuable tool for the sustainable development of many rural areas (Scaglione and Mendola, 2017).

AGRITOURISM AS A FORM OF SUSTAINABLE TOURISM IN THE COUNTRYSIDE

Agritourism is a tourism form aligned with the concepts of sustainable tourism and sustainable development because, according to its underlying principles, it eliminates intensive tourist traffic and additionally does not exert any excessive pressure on the natural and cultural environment. It includes providing tourists with a service by a family living in a real-life farm (Majewski and Lane, 2003); taking part in the family life on a farm is the most important attraction. Additionally, such agritourism activity is based on environmental and cultural values of a given area.

Despite the relevance of agritourism around the world, an agreed upon definition of this phenomenon does not exist in international tourism research. There are many definitions of agritourism. Professionals and researchers have many perspectives in defining agritourism as follows: agritourism means "farming-related activities carried out on a working farm or other agricultural settings for entertainment or education purposes" (Arroyo et al., 2013); agritourism is "any practice developed on a working farm with the purpose of attracting visitors" (Barbieri and Mshenga, 2008). Agritourism is practiced in rural areas and involves rural local people and all activities connected with festivals, craft, museums, cultural events, farm events and farm products (Roberts and Hall, 2001). Agritourism activities are initially provided by farmers and a group of local farm producers in a rural area (Ohe and Ciani, 2014).

The main distinguishing feature is the fact that agritourism providers reside permanently in the countryside, their services are an additional activity and they receive remuneration for providing such services (Łazarek and Łazarek, 2002). At the same time, agritourism allows to protect the environmental and cultural heritage and forces people to improve and develop the infrastructure. This is why there are no significant changes in the natural environment and in the way in which local communities operate in the area visited by tourists, which allows to ascribe certain features to agritourism (aimed mainly at the environmental protection) (Fig. 1).

An increased interest in agritourism has been observed since the beginning of the 21st century. The literature provides a description of a few groups of factors affecting its development, namely (cf. Lijewski et al., 1998):

- landscape/nature: surface water (e.g. lakes, rivers), land (forests, meadows and grazing land, wasteland, hills etc.); environmental protection (e.g. national parks); level of air/water/soil pollution, pollution zones etc.

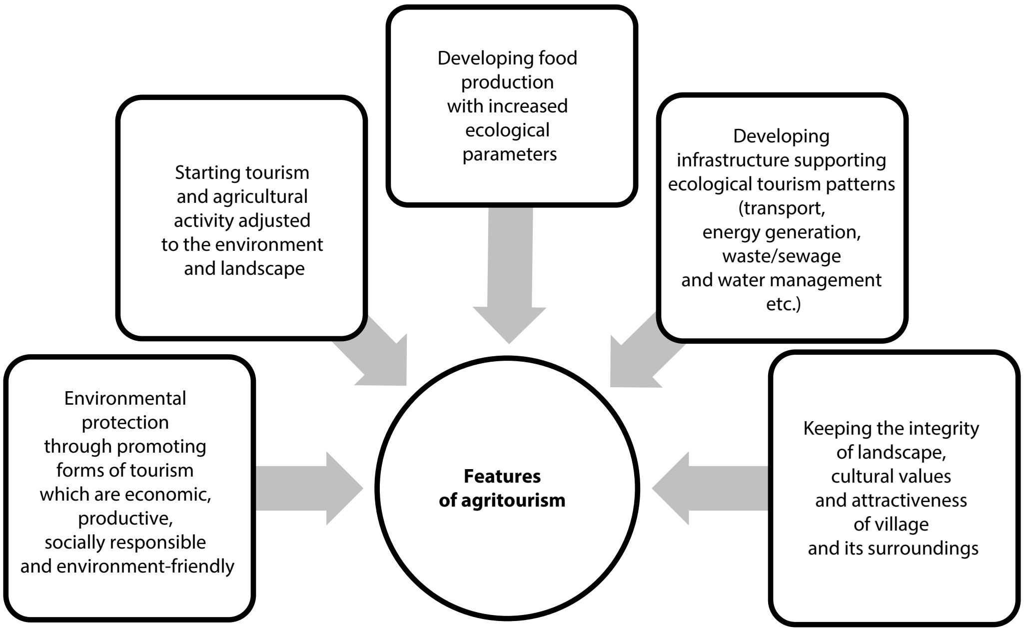

Fig. 1. Features of agritourism
Source: Niedziółka and Kowalska, 2006.

- social and cultural: density of the rural population, average size of a village, cultural attractions, architectural attractions, local and regional leaders etc.,
- economic: intensity of using the countryside (population density); income level of the rural population; share of population living on non-agricultural activities, level of urbanization, living conditions, infrastructure and services etc.,
- organizational and legal: activity coordination among municipalities, districts and voivodeships; operation of associates, organization and legal provisions of law.

Due to its nature (e.g. low concentration of agritourism farms, small number of tourists visiting such farms), agritourism does not have any negative impact on the local environment or culture. It is an environmentally friendly form of tourism and one of the methods for sustainable development of naturally valuable areas. It is an opportunity to develop areas which, though naturally attractive, do not offer such standard tourist attractions as sea, lake or mountains. Agritourism may support rural transformation through an alternative use of farms and by providing farmers with an opportunity to earn extra incomes (Sumantra et al., 2017). Moreover, agritourism development may contribute to making such areas more active economically without the need to make considerable investments (Kiryluk, 2005; cf. Tew and Barbieri, 2012).

The number of agritourist farms and available accommodation has been increased over the past years. Because the studies on tourism have to be adjusted to European Union legislation, the Central Statistical Office of Poland (GUS) expanded the scope of relevant research to include individual accommodation providers offering 10 or more beds. Therefore, from 2012 onwards, the data provided by GUS also includes information on guest rooms and agritourism accommodation (GUS, 2017). This is why Table 2 includes data starting from 2012.

The following voivodeships are the leaders of agritourism accommodation: Małopolskie, Warmińsko-Mazurskie and Pomorskie, whereas Opolskie, Lubuskie and Łódzkie voivodeships have the smallest number of agritourist accommodation providers.

Table 2. Distribution of agritourism farms in Polish voivodeships

Voivodeships	2012		2014		2016	
	n.a.a.	n.b.	n.a.a.	n.b.	n.a.a.	n.b.
Dolnośląskie	62	1,036	64	1,110	71	1,247
Kujawsko-Pomorskie	13	245	19	580	24	477
Lubelskie	21	304	28	1,544	33	528
Lubuskie	22	392	22	293	26	439
Łódzkie	21	295	26	222	26	473
Małopolskie	67	1,111	100	1,520	89	1,466
Mazowieckie	39	609	40	824	44	764
Opolskie	5	70	16	453	16	216
Podkarpackie	56	842	72	2,028	66	1,120
Podlaskie	54	722	56	204	51	757
Pomorskie	87	1,613	89	1,183	85	1,481
Śląskie	37	709	42	1,031	42	798
Świętokrzyskie	28	377	36	711	38	539
Warmińsko-Mazurskie	72	1,082	89	1,656	88	1,366
Wielkopolskie	64	1,060	71	1,718	68	1,248
Zachodniopomorskie	35	657	34	1,573	35	607
Total	683	11,124	804	12,810	802	13,526

n.a.a. – number of agritourism accommodation providers, n.b. – number of beds
Source: own compilation based on data provided by GUS (2013, 2015, 2017).

RURAL TOURISM: AGRITOURISM IN ZACHODNIOPOMORSKIE VOIVODESHIP

The level of agritourism development in the Zachodniopomorskie voivodeship is moderate, though it has access to the Baltic Sea, lakes and naturally valuable areas. There are active agritourism associations in the voivodeship, namely the Koszalińskie Stowarzyszenie Agroturystyczne "KOSA", Stowarzyszenie Czaplineckie Gospodarstwa Agroturystyczne "CzaGA", Barwickie Gospodarstwa Agroturystyczne, Szczecińskie Stowarzyszenie Agroturystyczne, Stowarzyszenie Agroturystyczne "Wiatrak", Nowogardzkie Stowarzyszenie Agroturystyczne „Strzecha", Drawieńskie Stowarzyszenie Agroturystyczne, and Wolińskie Stowarzyszenie Agroturystyczne. The crucial role in rural tourism, including agritourism, is played by Wsie Turystyczne Pomorza Zachodniego (Tourist Villages of West Pomerania). Therefore, in 2010, having noticed the activity of rural communities and their focus on developing rural tourism services and agritourism products, the Marshal's Office of the Zachodniopomorskie voivodeship, together with the West Pomerania Regional Tourist Organization, initiated the annual certifying competition called "West Pomerania Tourist Village." Its main objective is to enhance the image of rural tourism in the Zachodniopomorskie voivodeship by finding the most interesting tourist villages.

The 2013 tourism audit of the Zachodniepomorskie voivodeship addressed the strengths and weaknesses of rural tourism as well as the opportunities and risks involved in its development. Other agritourism aspects were also covered (Audyt turystyczny…, 2013) (Table 3).

A general conclusion may be drawn based on the example of Zachodniopomorskie voivodeship: rural tourism, including agritourism, mainly suffers from the lack of well-promoted, comprehensive information

Table 3. SWOT analysis for the Zachodniopomorskie voivodeship

Strengths	Weaknesses
• favorable and diverse natural conditions, numerous lakes, ponds, forests and natural landscape parks etc. • cultural heritage: interesting architectural monuments, a number of cultural attractions in the region, • folk art in municipalities, • active farms (mostly using near-organic methods) and people performing traditional jobs, • customized services offered (baking bread, pig roasting, making own butter or cheese), • numerous historical places of interest and tourist routes linked to certain European routes, • good cooperation between active agritourist farms (well-organized association)	• underdeveloped technical infrastructure in some municipalities, especially as regards quality of drinking water and sewage treatment plants, • unsatisfactory sanitary condition of some farms and entire villages, • not enough compartmentalized agritourism farms in the province, • poor additional tourist offer (farms often offer accommodation and full board only), • the rural population's insufficient awareness of available funds and alternative ways of earning money (including agritourism activity) is a barrier to the development of rural tourism services, • lack of any distinctive features in the regional agritourism offer, • scarce offers targeted at certain types of tourists, e.g. weekend tourists, families with children or the elderly, • lack of a coherent system for the promotion and distribution of offerings in the voivodeship (including participation and fairs and similar events), • lack of a comprehensive catalog of agritourism services provided in the voivodeship
Opportunities	Threats
• EU accession: increased amounts and accessibility of rural development funding, • growing demand from tourists for visiting a clean and "healthy" environment, • increasing interest in alternative tourism, including cultural tourism, active tourism and agritourism, • increased interest of foreign tourists in agri- and ecotourism, • increasing number of weekend trips, • healthy/organic food becomes trendy, • rural population becomes increasingly aware of the tourists' needs and of how to use the existing facilities	• growing impoverishment of the Polish countryside, • delayed and unstable EU funding, • intergenerational transmission of poverty, especially in the former state farms; social exclusion may become more pronounced; the rural population may become more passive, • the rural municipalities' limited financial potential is a barrier to necessary public investments (e.g. sewage treatment plants, local roads etc.), • relatively low profits from agritourism discourage from investing in upgrading the facilities in order to meet the growing needs of tourists

Source: own compilation based on: Audyt turystyczny…, 2013.

campaigns targeted at a large tourist audience. Additionally, catering issues need to be resolved as well. Though the Zachodniopomorskie voivodeship boasts significant natural values, it is unable to leverage them.

It should be noted that small facilities with up to 9 beds represent an important share in the structure of accommodation providers (cf. Uglis and Jęczmyk, 2015). In 2016, the number of accommodation facilities with up to 9 beds amounted to 7512 (7876 in 2014), including 3276 in agritourism lodgings (3538 in 2014). Small facilities offered a total of 58,300 beds (61,600 in 2014), while agritourism lodgings offered 24,900 beds (26,000 in 2014).

CONCLUSIONS

The common framework for sustainable development and tourism operates in parallel in the economic, social and environmental dimension. It will result in developing tourism based on the concept of sustainable development. Sustainable tourism was established when the tourist industry started to implement the principles of sustainable development. Agritourism, as a form of tourism, is particularly important due to the high share of rural areas in the total territory of Poland. The promotion of agritourism makes tourism development an environmentally friendly process which is impacted by, and provides benefits to, the rural population. Hence, agritourism contributes both to the development of sustainable tourism and to implementing the concept of sustainable rural development.

An increase in the number of agritourism farms and accommodation facilities has been observed in Poland in this century. The leaders of agritourism accommodation are the following voivodeships: Małopolskie, Warmińsko-Mazurskie and Pomorskie, whereas Opolskie, Lubuskie, and Łódzkie voivodeships have the smallest number of agritourism accommodation facilities.

The development of agritourism should be taken care of as it makes the economically neglected rural areas thrive through increasing entrepreneurship and boosting the activity of the rural population. Also, it is a way to improve the physical appearance of farms and surrounding facilities, to develop the local infrastructure and to preserve local culture. It is an opportunity to develop areas which, though naturally attractive, do not offer such standard tourist attractions as sea, lake or mountains.

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AGROTURYSTYKA JAKO FORMA ZRÓWNOWAŻONEJ TURYSTYKI

Abstrakt. Zrównoważony rozwój stanowi podstawowy element uwzględniany przy formułowaniu polityk i strategii, tak w wymiarze międzynarodowym, krajowym, lokalnym, jak i branżowym. Odpowiedzią turystyki na wyzwania związane z koncepcją zrównoważonego rozwoju jest rozwój turystyki zrównoważonej, w tym jednej z form – agroturystyki. Wobec powyższego za cel artykułu przyjęto ukazanie istoty agroturystyki jako jednej z form turystyki zrównoważonej na obszarach wiejskich. Jego realizacji podporządkowano poszczególne części artykułu. Przybliżono istotę turystyki zrównoważonej, wskazując, że ma ona być zgodna z potrzebami i zasobami naturalnymi obszarów przyrodniczo cennych, potrzebami miejscowej ludności, a także z potrzebami turystów i sektora turystycznego. Następnie przedstawiono funkcjonowanie turystyki zrównoważonej na obszarach wiejskich, gdyż są one naturalnie predestynowane do tego, aby rozwijały się zgodnie z założeniami i zasadami zrównoważonego rozwoju – dotyczy to także pełnionej przez nie funkcji turystyczno-rekreacyjnej. Następnie ukazano agroturystykę jest formę turystyki zrównoważonej. Z założenia wyklucza ona intensywny ruch turystyczny, a poza tym nie powoduje nadmiernej presji na środowisko przyrodnicze i kulturowe.

Słowa kluczowe: agroturystyka, zrównoważony rozwój, turystyka zrównoważona

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CONSUMER PERCEPTION REGARDING CERTIFIED PRODUCTS

Abstract. The European Union initiated a scheme for product certification with three important categories: Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Specialty Guaranteed (TSG). The present study aims to analyze the perception of people from Cluj-Napoca, Romania regarding certified products. Secondary objectives of the research are: to determine the socio-demographic profile of the population; consumers' knowledge related to certified products, recognition of the label and the logos of certified products; and consumer behavior in respect of certified products. A research was conducted among the population of Cluj-Napoca, Cluj County (Romania) on a sample of 102 respondents using the method of convenience sampling and the questionnaire as an instrument for data collection. The results of research indicate a high level of certified products consumption. The most purchased certified products include the organic category and traditional products.

Keywords: organic products, traditional products, food attributes

INTRODUCTION

Nowadays, food has become a very sensitive subject because of the risks associated to the chain of production, transport, selling and consumption and due to the need to assure the necessary food products for the entire global population. The European Union initiated a scheme for product certification with three important categories: Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Specialty Guaranteed (TSG). The system protects and promotes trade names of European agricultural products and traditional food. Work of thousands of farmers and food producers ensure the preservation and development of the European Union rural heritage. The system also guarantees consumers that they can trust labeled food providers. Once the trade name of a traditional agricultural product or foodstuff is registered under one of the three quality brands (TSG, PDO, PGI), the EU ensures that the same name is not used by other manufacturers. In the EU, there are 1,452 protected products, mostly coming from Italy, France, Spain and Germany. Romania has currently three products recognized at a European level: Sibiu Salami as a product with geographical indication (PGI), cheese from Ibănești as a product with protected designation of origin (PDO) and marmalade

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plums from Topoloveni, a product registered as a protected geographical indication. Also, according to European quality product systems, the documentation for the registration of "Novac smoked from Bârsa" (TSG) is pending analysis at the European Commission. At present, according to Gazeta de Agricultura, the documentation for two other Romanian products, namely "Cheese of Saveni" (Botoșani county) and "Plescoi Sausages" (Buzău county), have been submitted to the Ministry of Agriculture and Rural Development (MARD) for consideration and submission to the European Commission.

STUDIES ON CERTIFIED PRODUCTS

A study conducted in Thailand (Sangkumchaliang and Huang, 2012) with 390 respondents concluded that the main reason why people purchase organic food products is related to their expectations for healthier and environmentally friendly means of production. The main barrier to increasing the market share of organic food products is considered to be the lack of consumer information on this food category. Buyers of organic products are older and more educated than non-buyers. Padilla et al. (2007) analyzed the consumers' preference and willingness to pay for a certified product. The study was conducted in Chile with 234 persons from cities like Santiago and Talca. The results indicated that the officially certificated quality label is the most important attribute influencing the consumers' choice. Consumers are willing to pay more for a traditional product with a certificated quality label than for a product without one. Menapace et al. (2009) stated that the willingness to pay varies; the consumers are more willing to pay a higher price for a GI-labeled product than for a non-GI-labeled product. Also, there is a stronger willingness to pay for PDO products than for PGI products. In Serbia, Zaric et al. (2009) observed that while the promotion of traditional food is not satisfactory, the customers are willing to buy traditional products in the future. Consumers believe that home-made products have a high quality and are produced in an environmentally friendly way. The Italian consumers' ability to recognize and distinguish the denomination of PDO and PGI origin trademarks was analyzed by Vecchio and Annunziata (2011). They concluded that PGI and PDO were the most frequently purchased products, and that consumers who did not recognize the European origin trademarks tend to buy products at a lower price. The most important attribute chosen by respondents when distinguishing a typical product from a conventional one was the indication of origin. Bozga (2013) analyzed the Romanian consumer perception on the price of organic products. The Romanian young and middle-aged population is willing to pay extra for organic products while people well informed about organic products are not willing to do so. The main motive behind purchasing such products are health aspects. A study conducted in China by Xia and Zeng (2005) was aimed to identify consumer attitudes towards and perceptions on green-labeled milk; according to the results, the labeling logo plays an important role in enhancing the consumer knowledge of green food.

MATHERIAL AND METHODS

The purpose of this study is to analyze the perception of residents of Cluj-Napoca, Romania regarding certificated products. Secondary objectives of the research are:

- to determine the socio-demographic profile of the population,
- to explore the consumer knowledge of certified products, recognition of the label and the logos of certified products,
- to analyze consumer behavior in respect of certified products.

The research was conducted among the population of Cluj-Napoca, Cluj County (Romania) on a sample of 102 respondents, using the method of convenience sampling and the questionnaire as an instrument for data collection.

RESULTS AND DISCUSSIONS

As regards the consumers' socio-demographical profile, it can be stated that 76.46% of the respondents are urban residents and 23.53% come from rural areas. Of the respondents, 29.41% are male and 70.59% are female. Because most of the respondents (38.23%) are aged between 25–29, the sample consists of young people. The sample is also highly educated: 70.68% of the respondents are graduates of a bachelor's or master's program; 25.49% of the sample population are pupils/students while 60.78% are employees. The marital status of respondents indicates that 71.57% persons are single and 26.47% are married.

One of the objectives was to identify the respondents' level of knowledge of certified products. Generally, most consumers (50.60%) associate them with products based on traditional raw materials. For instance, the consumers associate organic food with healthiness and safety (Oroian et al., 2017; Żakowska-Biemans, 2011). The same percentage of consumers believe that these types of products are free from additives being obtained using modern techniques. A smaller percentage of 31.37% associate certified products with homemade products. The low level of awareness regarding certified products is similar to that of Greek consumers; according to Botonaki et al. (2006), this is due to inadequate product promotion and market availability.

An important issue related to the consumers' awareness is the recognizability of labels and logos. The organic product label was the most widely known (recognized by 44.12% of the respondents), followed by protected designation of origin (27.45%), protected geographic indication (29.41%), traditional specialty guaranteed (25.49%) and mountain products (29.41%).

As regards logos, the organic product logo was recognized by 58.82% of the respondents, followed by traditional specialty guaranteed (48.04%), mountain product (37.25%), and protected geographic indication (33.33%). The protected designation of origin (recognized only by 29.41% of the respondents) was the least familiar logo to the interviewees. The popularity of the organic and traditional logos can be explained by the large availability of products in the Romanian food market compared to other ones which are not so easy to find. Moreover, in Romania, the European certification process is at an early stage.

The results of this research indicate a high consumption level of certified products: 60.78% of the respondents declared to consume this type of products, while 39.22% declared they do not. The highest percentage of respondents (45.1%) buy organic products while a smaller group (16.67%) buys mountain products (Fig. 1).

The most purchased category of certified products are fruits and vegetables (42.16%), followed by milk and milk products (35.29%) and meat and meat products (34.31%), ranked nearly equally. Comparing the results with the best-selling label (organic product), it can be stated that consumers usually associate organic products with this category of food. The least preferred category of certified products are alcoholic beverages (10.78%) (Fig. 2).

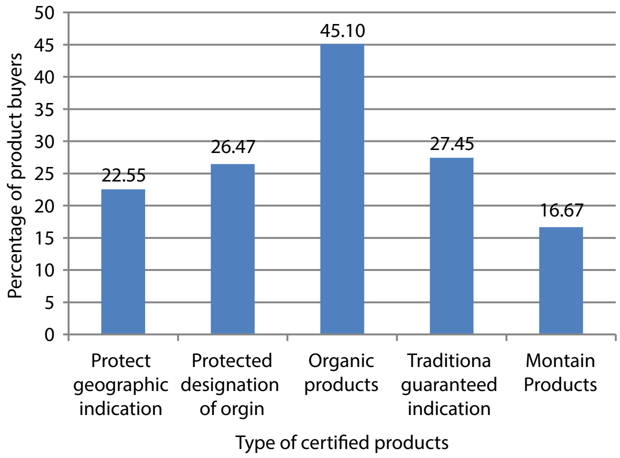

Fig. 1. Types of certified products consumed

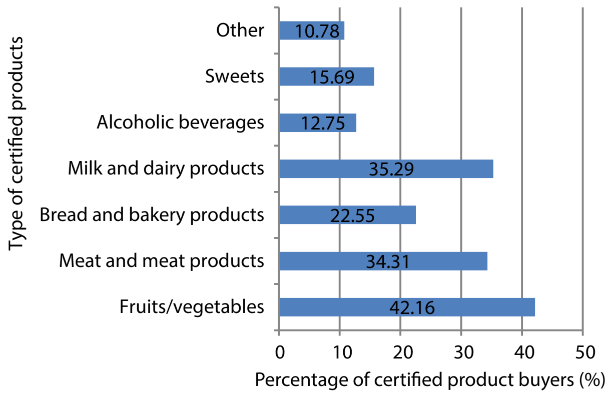

Fig. 2. Categories of certified products purchased

The frequency of purchasing certificated products is as follows: 37.25% of respondents buy fruits and vegetables weekly, 11.76% do so daily, 5.885% buy it a few times a year, 0.98% do not buy it and 2.94% do not know. For the category of meat and meat products, the highest percentage of respondents buy weekly (32.35%), 13.73% buy monthly, 6.86% do not buy, 2.94% do not know and 1.96% buy daily. In the case of bread and bakery products, 22.5% of respondents are weekly buyers, 21.57% are daily buyers, and 3.92% do not buy it at all. Milk and milk products are bought weekly by 36.27% of respondents; 7.84% are daily buyers, 5.84% are monthly buyers and 1.96% do not buy such products at all.

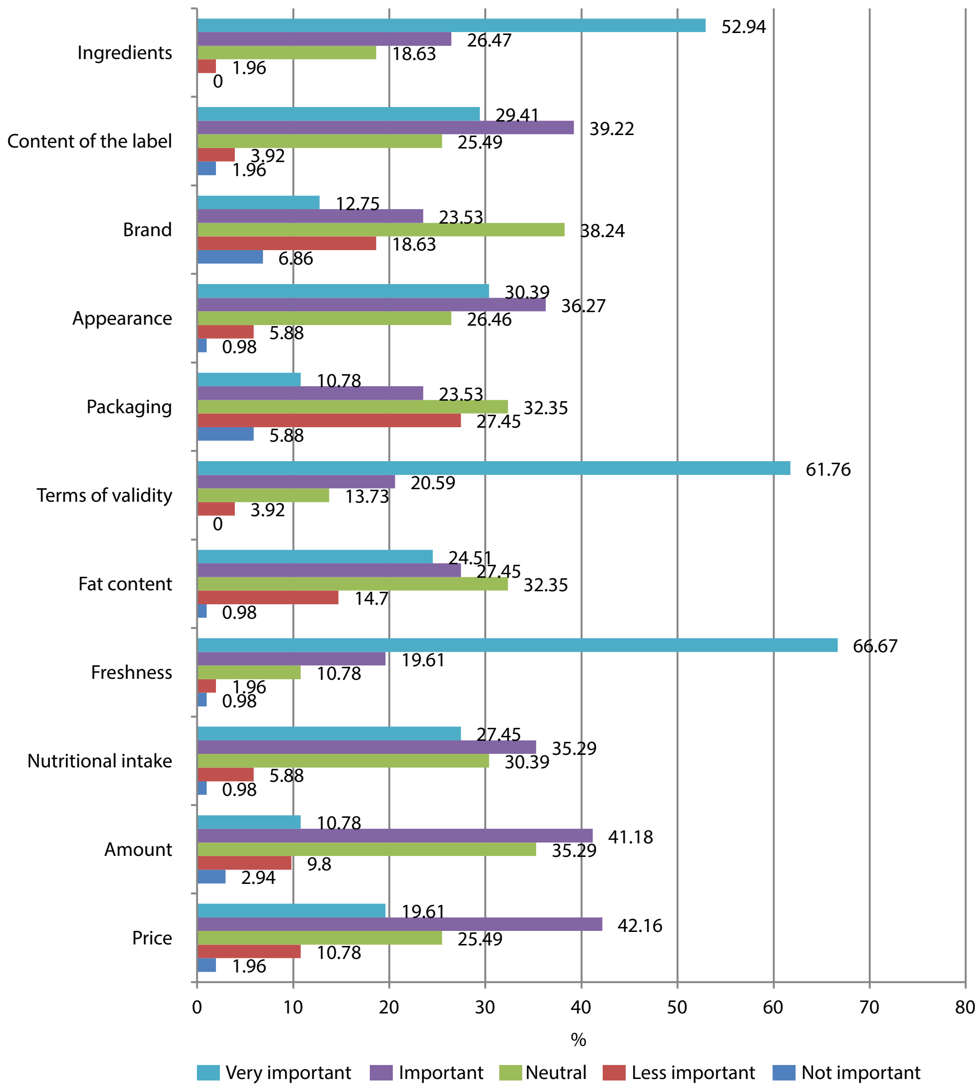

Fig. 3. Importance of attributes

Another specific objective of this research was to determine the attributes considered important for the consumers when purchasing food products. For 66.67% of the respondents, freshness is a very important attribute, followed by a short expiry date (61.76%) and ingredients used (52.94%). Extrinsic attributes of food, such as packaging and brand, are the least important ones (Fig. 3).

Another important aspect refers to places where certified products are purchased. Super- and hypermarkets are the preferred option for 39.22% of the respondents, closely followed by 35.29% of the respondents who choose to buy at food markets. A significant percentage of 25.49% buy directly from producers, while 23.53% buy at specialized shops. The least preferred option is online shopping (5.88%). Zaric et al. (2009) obtained similar results after analyzing the Serbian market.

When analyzing the perception regarding the products' characteristics, it can be stated that the Romanian origin of the product is a very important attribute. Similar results were obtained by Aprile et al. (2010) in Italy where 96% of respondents used to purchase local products. Consumers give less importance to attributes

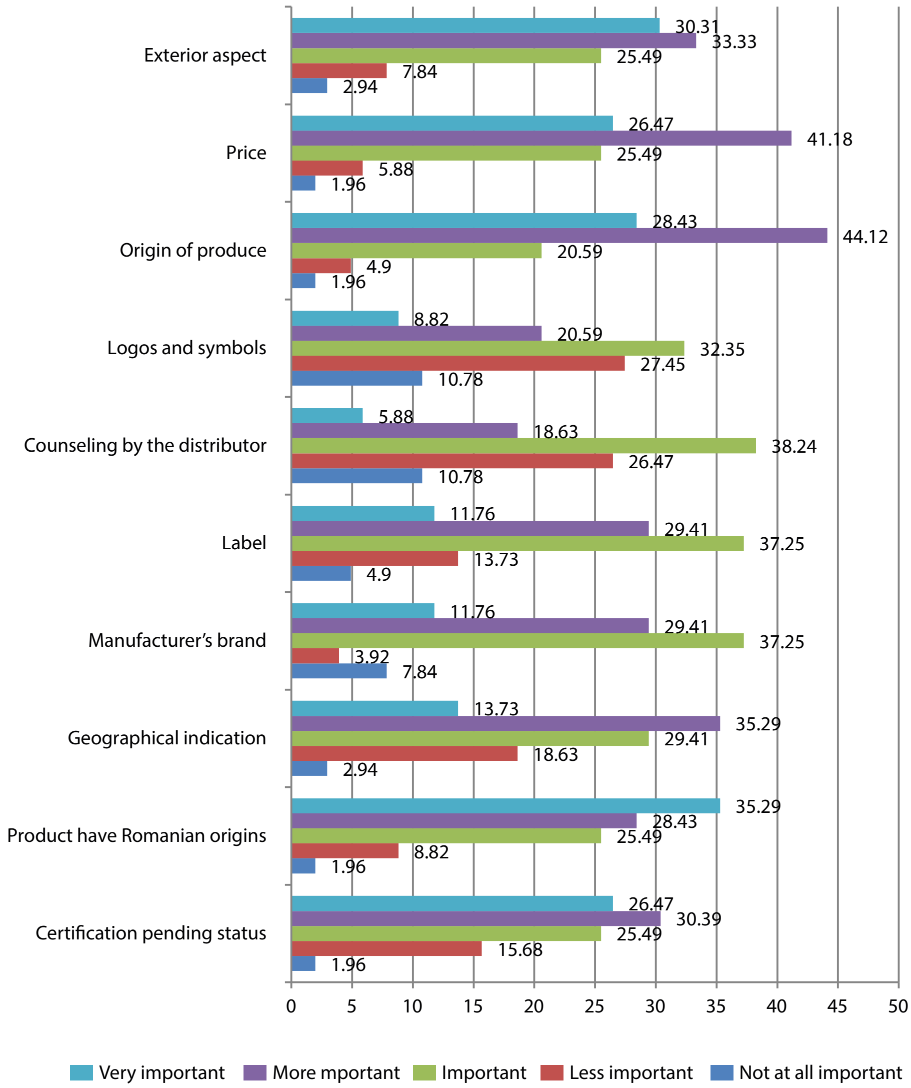

Fig. 4. Perception of product characteristics

such as "product origin" or "price," a surprising finding given the relatively low incomes of the Romanian population compared to European Union citizens. Another interesting aspect is the Romanian consumers' indifference towards "logos," "counseling," "label" and "brand". It was quite the contrary for Chilean consumers who found quality labels to be the most important attribute which influences the buying decision (Padilla et al., 2007) (Fig. 4).

The respondents were asked about the perceived quality of certified products. Only 16.67% consider such products to be of a high quality while 47.06% appreciate them as being of quality. Also, 33% of the respondents believe that this product category is of an average quality (Fig. 5).

The most important sources of information on certified products used by consumers are the shops (supermarkets and hypermarkets) (51.96%). For a group of 48.04%, it is a family tradition to purchase this food category. Other important sources are festivals and newspapers, while friends' opinion and mass media are less important (Fig. 6).

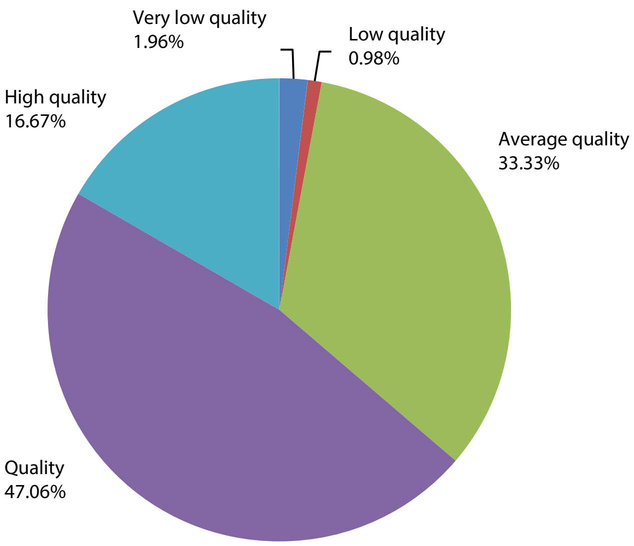

Fig. 5. Consumers' perception regarding the quality of certified products

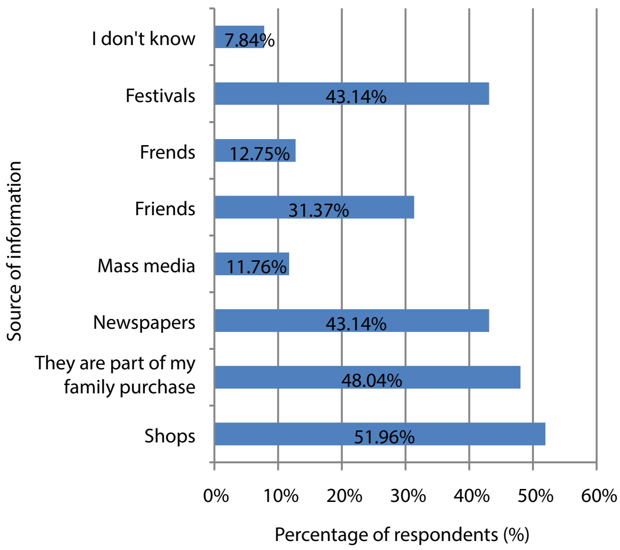

Fig. 6. Sources of information of certified products

CONCLUSIONS

At the European level, a number of product categories were developed to protect the producers and to highlight their superior quality. The most common are traditional products, geographical products, mountain products and organic products. The results of the present study indicate that in the category of certified products, organic products are the most commonly consumed ones. The reasons are related to their perceived attributes such as better nutritive values, safety and better taste compared to conventional food. The respondents find it very important for the products to be of Romanian origin which means made from local raw materials. Local food is usually fresher, more tasteful, ripe, and seasonal. Buying local food means living in tune with the seasons because not everything is available all year round. Based on the findings, it can be recommended that certified products be more promoted, mainly during fairs and festivals, in order for the consumers to become more aware of their importance among foodstuffs. The producers should focus on attributes like "Romanian products" or should indicate the place of manufacturing which, unlike logos or brands, is an important aspect for the consumers.

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PERCEPCJA KONSUMENTA DOTYCZĄCA PRODUKTÓW CERTYFIKOWANYCH

Abstrakt. Unia Europejska uruchomiła system certyfikacji produktów, w którym uwzględniono trzy ważne kategorie: chronioną nazwę pochodzenia (PDO), chronione oznaczenie geograficzne (PGI) i gwarantowaną tradycyjną specjalność (TSG). Na potrzeby niniejszego artykułu zbadano, w jaki sposób mieszkańcy Klużu-Napoki postrzegają produkty opatrzone certyfikatem. Ponadto wyznaczono następujące cele dodatkowe: ustalić społeczno-demograficzny profil badanej ludności; zbadać wiedzę konsumentów na temat produktów opatrzonych certyfikatem oraz rozpoznawalność etykiet i logo tych produktów; a także zbadać, w jaki sposób zachowują się wobec nich konsumenci. Badanie przeprowadzono wśród mieszkańców Klużu-Napoki w rumuńskim okręgu Kluż. Oparta na doborze wygodnym próba objęła 102 respondentów, przy czym dane zebrano za pomocą kwestionariusza. Wyniki badania wskazują na wysoki poziom konsumpcji produktów opatrzonych certyfikatem. Do najczęściej kupowanych produktów z tej kategorii zaliczają się artykuły ekologiczne i tradycyjne.

Słowa kluczowe: produkty ekologiczne, produkty tradycyjne, atrybuty żywności

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SINGLE AREA PAYMENTS AS AN INSTRUMENT TO MONITOR AGRARIAN CHANGES IN POLAND (IN 2004–2013)

Abstract. This paper discusses the results of a spatial analysis of single area payments (SAP) in Poland. Using the changing payment rates per hectare of agricultural land (ranging from PLN 210.53 in 2004 to PLN 830.30 in 2013) as a basis, the research focused on assessing the changes in the number and area of agricultural holdings in 2004–2013, including the impact of natural, urban and historical conditions. It was concluded that the ongoing agrarian changes are characterized by the fact that the number of agricultural holdings decreases faster (at a rate of 8%) than their area (at a rate of 2%). Also, the average size of farms started to follow an upward trend, growing from 9.8 ha in 2004 to 10.2 ha in 2013. The elements of the agrarian structure covered by this study were found to differ strongly across regions, mostly due to identified historical factors. The SAP was confirmed to be a valuable instrument to monitor the agrarian changes.

Keywords: Single Area Payment (SAP), number of agricultural holdings, area of agricultural holdings, changes in agrarian structure, Poland

INTRODUCTION

The agrarian structure is an important part of research on spatial aspects of agriculture. It focuses mostly on the distribution of agricultural holdings by their numbers and area, and on changes in the average size of agricultural holdings. The latter aspect indirectly affects workforce expenses and delivery of technical production equipment to agricultural holdings. Also, it has an impact on agricultural productivity. This problem is particularly important for Polish agriculture which – compared to the average European Union (EU) standards – is characterized by strong fragmentation of agricultural land (Dugiel, 2007; Dzun and Jóźwiak, 2009). The relevant studies are usually based on results of national agricultural censuses[1] (cf. Głębocki, 2005, 2014; Rudnicki, 2013a, 2013b, 2016a). As the censuses are conducted relatively rarely (most recently in 2010 and 2002), they are not suitable for an ongoing monitoring of agrarian changes: the key issue for the development of agriculture as a whole. In this regard, new research opportunities are brought by Poland's membership in the EU and the coverage of the Single Area Payment (SAP) which extends to Polish agricultural holdings.

[1] The authors of this paper have also made an attempt to analyze agrarian changes based on agricultural tax (Wiśniewski and Rudnicki, 2016).

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SAPs are an important instrument supporting agriculture in Community countries (Krzyżanowski, 2004; Żmija, 2011). Owing to the payments, farmers enjoy higher incomes without the need to increase consumer prices of agricultural produce. The research conducted by a team headed by Zawadzka et al. (2013) indicates that direct payments considerably contribute to commercial farming income. In 2004–2011, the average ratio of these subsidies in the agricultural sector exceeded 50%[2]. It should be noted that when submitting the appropriate SAP application, the farmers do not declare any specific purpose for the funds; once granted, the payment may be spent on anything they want, even if not related to farm modernization. For example, the research by Kisiel et al. (2008) showed that a large part (ca. 50%) of farmers surveyed used the funds to cover daily expenses, i.e. pay bills and purchase materials and consumption goods related neither to farming activities nor to agriculture itself. On the other hand, according to a study performed by Czubak and Jędrzejak (2011), direct payments were used mostly to finance the ongoing costs of production (most farmers allocated all or part of the subsidies to fertilizers).

Direct payments were introduced as a part the McSharry reform of the Common Agricultural Policy in 1992, and were maintained at the 1999 Berlin summit (Kołoszko-Chomentowska, 2006, p. 91). Milestones in the evolution of direct payments include the 2003 CAP reform (e.g. decoupling) and the 2008 Health Check (separation of all forms of direct support from production until 2012; Żmija, 2011). Pursuant to the Treaty of Accession of Poland to the European Union, and according to arrangements made at the 2002 Copenhagen summit, Polish farmers became covered by the simplified system of agricultural land payments (Single Area Payment Scheme, SAPS). It means that financial support is provided pro rata to agricultural land area. The support is intended for users of agricultural holdings, including land plots (no smaller than 10 ares) with a total area of no less than 1 ha, and applies to farmers registered as agricultural producers with the Agency for Restructuring and Modernization of Agriculture (ARMA), i.e. assigned with an identification number in the Integrated Administration and Control System (IACS) which is operational in all EU member states. The system collects annual data on SAPs disbursed and on the number of projects implemented as per the relevant application. Combined with the payment rate per hectare of agricultural land effective in the year concerned, this information enables monitoring the agrarian changes.

[2] The percentage ranged from 15% in 2004 to 81% in 2009 (Zawadzka et al., 2013).

The purpose of this paper is a spatial analysis of consistent area payments. This will enable determining the direction and pace of changes in the number and area of agricultural holdings in Poland. Also, this paper is intended to show the methods for the analysis of agrarian changes based on aforesaid data.

MATERIALS AND RESEARCH METHODS

The geographic scope of this research is the territory of Poland, considered at the level of voivodeships, and 314 district offices of the Agency for Restructuring and Modernization of Agriculture, the main organization in charge of the disbursement of European funds in Poland (cf. characteristics of the ARMA's organizational structure composed of regional branches and district offices: Rudnicki, 2016a, pp. 10–11).

The analysis was based on a spatial data matrix for 2004–2013 (two financial periods of the EU combined together: 2004–2006 – cf. Rudnicki, 2010, pp. 93–98 – and 2007–2013). For every ARMA district office across the country, a set of original (unpublished) features was defined to characterize the number of agricultural holdings (SAP beneficiaries) and the amount of SAPs disbursed (data was aggregated by registered address of the beneficiary), which, in turn, enabled defining the area of agricultural land covered by SAP (as the following ratio: SAP in the year considered/payment rate per hectare of agricultural land in the year considered) and the average size of agricultural holdings (as the following ratio: agricultural land covered by SAP in the year considered/number of agricultural holdings, i.e. SAP beneficiaries in the year considered). At this point, it should be emphasized that according to the terms and conditions of the Accession Treaty, the level of payments per hectare of agricultural land was steadily rising[3] compared to 'old Union' member states.

[3] In accordance with the accepted principle of phasing-in, there is steady progress towards an equal level of payments effective in the EU-15. In 2004, the level of payments was as follows: 25%, 30%, 35%, 40%, 50%, 60%, 70%, 80%, 90%. In 2013, for the first time, it amounted to 100% of payments disbursed to EU member states on April 30, 2004 (website of the Ministry of Agriculture and Rural Development).

The research also addressed the problem of assessing the pace and direction of changes in the abovementioned agrarian features. For these purposes, scores were assigned to identify the changes (initial year = 100 points). The analysis was based on two approaches: for the biennial periods (2004–2005, 2006–2007, 2008–2009, 2010–2011, 2012–2013) and for the overall period of 2004–2013.

This paper also deals with the assessment of the spatial diversification of the indices proposed. For this purpose there was made the dichotomous division of data, completed in the system of ARMA poviat offices, taking into consideration undermentioned determinants:

- natural: based on the agricultural production area quality index (APAQI) developed by the Institute of Soil Science and Plant Cultivation, and the accepted LFA classification criterion (which is therefore the criterion of eligibility for support), including: 234 districts with unfavorable conditions (APAQI up to 72.5), and 80 districts with favorable conditions (APAQI above 72.5) (Waloryzacja…, 2000);
- urban: based on the administrative division into units with country districts (261) and townships (53);
- historical: based on a simplified classification of districts referring to the era of partitions (with the following milestones marking the boundaries between historical periods: 1815 – the political division of the Polish territory was upheld by the Congress of Vienna; and 1919 – the state of Poland was created by the Treaty of Versailles), i.e.: 149 districts located within the historical Prussian Partition (referred to as 'Western Poland') and 165 districts located within the historical Austrian and Russian Partitions (referred to as 'Eastern Poland').

In order to assess the impact of the abovementioned determinants, the standardization procedure was used which consists in replacing the original value with the difference between the value of the feature considered and its mean value divided by its standard deviation (Racine and Reymond, 1977, pp. 110–116). The features processed that way were set aside the bipartite division based on natural, urban and historical determinants. The absolute values of differences of these standardized values were used as a basis to define the index showing the impact of specific aspects on the condition of agricultural holdings and on changes in their numbers and area (cf. Rudnicki, 2016b, pp. 9–21).

RESULTS

In 2004–2013, Polish agricultural holdings were subsidized with a total of PLN 65.4 billion granted under the SAP scheme. The amount itself allows for concluding that these payments are an important income-generating factor for the Polish agriculture (Chećko and Grochowska, 2007, p. 77). However, the funds may contribute to agricultural development only if invested rather than spent on consumption. As shown by relevant studies, the impact of direct payments on the farms' economic situation largely depends on acreage. As a rule, in small agricultural holdings, direct payments supplement the income spent on daily consumption and production, making the farm completely dependent on public aid. In turn, as regards larger farms, direct payments considerably improve the farmers' investment capacity. However, it must be reinforced with funds obtained under other support measures of the Common Agricultural Policy, organizational changes in agricultural production and improved economic situation in agriculture (Bartkiewicz, 2005; Marcysiak, 2007; Wąs, 2004).

Based on the analysis of SAP data from 2004–2013, several changes were identified, including the number of SAP beneficiaries (rising from 1,384,300 to 1,347,800), the amounts of SAP disbursed (rising from PLN 2.9 billion to PLN 11.5 billion), annual SAP rates per hectare of agricultural land (rising from PLN 210.53 to PLN 830.3) and the area covered by SAP (rising from 13.5 million ha to 13.8 million ha). This resulted in an increased average size of agricultural holdings (SAP beneficiaries) (rising from 9.79 ha in 2004 to 10.24 ha in 2013; cf. Table 1).

The example of SAP shows that the process of integrating Polish agricultural holdings into the Common Agricultural Policy runs smoothly. As early as in the first year of EU membership (2004) 1,400,400 SAP applications were submitted, out of which 1,384,300 (98.9%) resulted in duly implemented projects covering 13,552,200 ha of agricultural land, which means a total support of PLN 2,853.1 million (cf. Table 1). The fact that within such a short time frame so many farms holding such a large area of land became covered by the aid scheme, and that such substantial amounts were disbursed, should be considered a success of the Polish agriculture in general and of ARMA, the authority in charge of the disbursement of funds, in particular.

However, the analysis of biennial periods demonstrated that in the initial stages of the Polish membership

Table 1. Single Area Payments (SAP) as a determinant of agrarian changes in Polish agriculture in 2004–2013: selected aspects of assessment, including the changes index for biennial periods (relative scores, initial year = 100)

Year	Number of SAP beneficiaries		Amount of SAP delivered		SAP rate		Area covered by SAP		Average size of agricultural holding (SAP beneficiary)	
	farms (thous.)	change index	PLN mln	change index	PLN/ha agricultural land	change index	thous.	change index	ha	change index
2004	1,384.3	106.0	2,853.1	110.7	210.53	106.9	13,552.2	103.6	9.79	97.7
2005	1,467.9		3,159.8		225.00		14,043.7		9.57	
2006	1,455.4	98.7	3,880.1	109.5	276.28	109.1	14,044.1	100.3	9.65	101.6
2007	1,437.1		4,247.4		301.54		14,085.7		9.80	
2008	1,407.3	98.3	4,766.5	148.3	339.31	149.4	14,047.6	99.2	9.98	101.0
2009	1,383.0		7,068.4		506.98		13,942.1		10.08	
2010	1,363.1	99.0	7,823.8	126.4	562.09	126.4	13,919.1	100.0	10.21	101.0
2011	1,349.1		9,889.0		710.57		13,917.0		10.32	
2012	1,351.8	99.7	10,222.6	126.4	732.06	113.4	13,964.1	98.8	10.33	99.1
2013	1,347.8		11,459.1		830.30		13,801.2		10.24	

Source: own elaboration based on data delivered by ARMA.

in the EU, problems emerged with SAP implementation. This can be deduced from the large difference in the number of agricultural holdings (SAP beneficiaries) between 2004 and 2005. In 2004 96.5% of payment from 2005 was realized (the least in Podkarpackie voivodeship – 90.7%). This is why the biennium of 2004–2005 demonstrates an outstanding increase in the number of SAP beneficiaries (by 6%), of payments disbursed (by 10.7%; 6.9% as a result of the increased payment rate) and of the area covered by SAP (by 3.6%; cf. Table 1).

Because of the problem related to the information on the SAP in the first year of the Polish membership in the EU, the period of 2005–2013 was covered by the analysis of SAP as an instrument used in agrarian studies. All in all, in this period, Polish agricultural holdings were subsidized with PLN 62.5 billion under the SAP scheme (from PLN 1.5 billion in the Śląskie voivodeship to PLN 8.3 billion in the Mazowieckie voivodeship). This means an average annual payment of PLN 5,0000 per farm. The sheer amount shows that SAPs are an important element of European support for agricultural holdings, intended both for modernization (e.g. purchase of operating assets) and for social life improvement (e.g. higher standards of equipment); the amount also varied widely across regions (from PLN 1,900 in the Małopolskie voivodeship to PLN 14,400 per farm in the Zachodniopomorskie voivodeship; cf. Table 2) and, first and foremost, across districts (from PLN 1,200 in Sucha Beskidzka district, Małopolskie voivodeship to PLN 21,500 in Łobez district, Zachodniopomorskie voivodeship). The results presented in this paper corroborate the studies on regional diversification of direct payments (Teszbir and Gołaś, 2013; Zawadzka et al., 2013), according to which the amount of aid (per farm holding or application) is determined by the historically conditioned Polish agrarian structure.

The analysis of the number of SAP beneficiaries in 2005–2013 demonstrated a positive trend towards a decrease in the number of agricultural holdings (SAP beneficiaries) in Poland by 8.2% (index value = 92). This trend featured in all voivodeships and was most noticeable (an index value below 90) in the stretch of southern voivodeships: Dolnośląskie, Małopolskie, Podkarpackie, Śląskie and Świętokrzyskie (cf. Table 2). When it comes to district offices, an increase in the number of agricultural holdings was recorded in 20 cases only (6.4% of all ARMA's district offices).

Table 2. Single Area Payments (SAP) as an instrument used in agrarian studies: selected aspects of assessment by regions and specific determinants in Poland (2013 and changes between 2005 and 2013)

Specification		Total SAP in 2005–2013		Number of farms (SAP beneficiaries)		Agricultural land covered by SAP		Average farm area	
		PLN mln	average annual payment (PLN thous. per farm)	thous. per farm in 2013	change index (number of farms in 2005 = 100)	thousand ha of agricultural land in 2013	change index (agricultural land in 2005 = 100)	ha of agricultural land in 2013	change index (average in 2005 = 100)
Poland		62,516.7	5.0	1,347.8	92	13,801.2	98	10.2	107
Including the voivodeships									
Dolnośląskie		3,901.9	7.4	55.9	89	856.8	98	15.3	109
Kujawsko-Pomorskie		4,572.5	7.6	64.8	93	1,007.2	98	15.5	105
Lubelskie		5,967.3	3.7	175.5	95	1,324.7	100	7.5	105
Lubuskie		1,722.0	9.4	19.7	93	380.8	100	19.3	108
Łódzkie		4,260.8	3.7	121.3	91	936.9	96	7.7	106
Małopolskie		2,205.2	1.9	120.0	85	485.4	94	4.0	110
Mazowieckie		8,335.8	4.4	204.5	93	1,836.8	97	9.0	105
Opolskie		2,220.9	8.7	27.3	90	490.5	98	17.9	109
Podkarpackie		2,343.3	2.1	115.6	89	519.2	96	4.5	108
Podlaskie		4,651.1	6.2	82.5	98	1,033.6	102	12.5	104
Pomorskie		3,108.1	8.9	38.1	95	685.1	97	18.0	102
Śląskie		1,497.6	3.3	46.8	84	333.2	97	7.1	115
Świętokrzyskie		2,158.4	2.7	84.4	88	474.6	95	5.6	108
Warmińsko-Mazurskie		4,257.3	11.0	42.8	98	935.5	98	21.8	99
Wielkopolskie		7,638.0	7.0	120.3	96	1,686.8	99	14.0	103
Zachodniopomorskie		3,676.4	14.4	28.3	95	814.0	103	28.8	108
By determinants*									
Natural	LFA	46,537.3	5.1	984.2	92	10,266.1	98	10.4	107
	non-LFA	15,979.4	4.7	363.6	91	3,535.1	98	9.7	108
	difference**	x	0.09	x	0.18	x	0.01	0.09	0.23
Urban	T	15,017.5	4.5	358.0	93	3,341.6	101	9.3	109
	CD	47,499.3	5.1	989.8	91	10,459.5	97	10.6	107
	difference**	x	0.15	x	0.18	x	0.41	0.15	0.27
Historical	Eastern Poland	33,769.4	3.6	1,002.7	91	7,459.1	98	7.4	107
	Western Poland	28,747.4	9.1	345.1	94	6,342.1	99	18.4	105
	difference**	x	1.36	x	0.34	x	0.12	1.37	0.31

*Determinants:
- natural: LFA (unfavorable natural conditions) means districts meeting the natural criteria of LFA classification, with an APAQI below 72.5; favorable natural conditions means non-LFA districts (those which do not meet the natural criteria of LFA classification, with an APAQI above 72.5),
- urban: highly urbanized units – T (with townships); poorly urbanized units – CD (with country districts),
- historical: Eastern Poland – land located within the historical Russian and Austrian Partitions; Western Poland – land located within the historical Prussian Partition.

**Difference: absolute difference between indices expressed as standardized values.
Source: own elaboration.

The last year of this analysis (2013) saw the implementation of 1,347,800 projects covered by SAP applications. The number of agricultural holdings (agricultural producers registered with ARMA) ranged from 19,700 in the Lubuskie voivodeship to 204,500 in the Mazowieckie voivodeship (cf. Table 2). At the level of ARMA's district offices, a low number of agricultural holdings was characteristic of districts with a high percentage of large farms, usually located in northern and western Poland (e.g. 866 farms in the Łobez district, Zachodniopomorskie voivodeship, and 829 farms in the Słubice district, Lubuskie voivodeship). On the other hand, a high number of agricultural holdings was typical of districts with the highest fragmentation of agricultural land, usually located in southeast Poland (maximum value: 20,748 agricultural holdings in the Lublin district, Lubelskie voivodeship).

A much slower pace of changes was characteristic of agricultural holdings covered by SAP. In 2005–2014, their area decreased by 243,000 ha which is 1.7% of the acreage recorded in 2005 (a change index of 98). The most pronounced increase was recorded in the Podlaskie voivodeship (a change index of 102) and Zachodniopomorskie voivodeship (a change index of 103). An increase was also reported by 87 (27.7%) district offices of ARMA.

The analysis of changes in the number and area of agricultural holdings (SAP beneficiaries) showed that some highly urbanized areas are gaining in importance. This is exemplified by the ARMA's district office in Warsaw (township of Warsaw together with the West Warsaw district) where the period under analysis saw a growth in the number of SAP beneficiaries (by 937 agricultural holdings, reaching 8,054 agricultural holdings in 2013) and in the area covered by SAP (by 16,5000 ha, reaching 105,900 ha in 2013).

In 2013, the Polish territory covered by SAP was 13.8 million ha. Regionally, the figures ranged from 333,300 ha in the Śląskie voivodeship to 1,836,800 ha in the Mazowieckie voivodeship. According to ARMA's district offices, the smallest area covered by SAP was reported in the Skarżysko-Kamienna district, Świętokrzyskie voivodeship (2,400 ha). On the other hand, the largest areas, beyond the threshold of 140,000 ha, were registered in the Poznań district, Wielkopolskie voivodeship (144,100 ha) and in the Biała Podlaska district (145,100 ha), Lubelskie voivodeship.

The measurements described above (area of agricultural land and number of SAP applications) helped calculating the average acreage of agricultural holdings registered as agricultural producers with the ARMA. It was demonstrated that the changes in agrarian structure occurring in Poland between 2005 and 2013 were characterized by the following pattern: the number of agricultural holdings was declining faster than their area; thus, their average size grew (from 9.6 ha in 2005 to 10.2 ha in 2013; a change index of 107). The direction of these changes can be considered positive, though their pace is insufficient. Moreover, the analysis of data on SAPs proved these changes to be regionally highly differentiated, both at voivodeship level (a change index ranging from 99 in the Warmińsko-Mazurskie voivodeship to 115 in the Śląskie voivodeship, cf. Table 2) and at the level of ARMA's district offices (ranging from 42 units in districts reporting a reduction in the average farm size – with a change index below 100 – to 34 units in districts with a change index above 115; cf. Fig. 1).

As a result of the abovementioned changes in the number and area of agricultural holdings, their average size reached 10.2 ha in 2013. The index was regionally highly differentiated (mostly due to historical conditions)

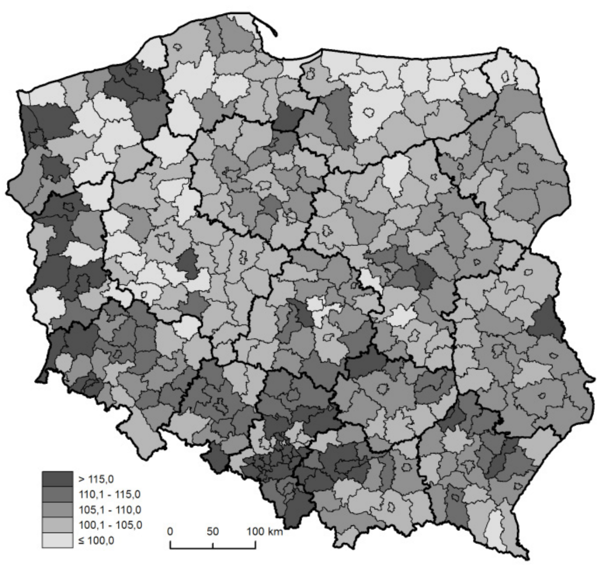

Fig. 1. Changes in the average area of agricultural holdings (agricultural producers) recorded by ARMA in 2005–2013 (area recorded in 2005 = 100)
Source: own elaboration based on data delivered by ARMA.

across both voivodeships (cf. Table 2) and districts (cf. Fig. 2), ranging from 4.0 ha in the Małopolskie voivodeship to 28.8 ha in the Zachodniopomorskie voivodeship and (according to data delivered by ARMA's district offices) from 2.3 ha in the Sucha Beskidzka district, Małopolskie voivodeship, to 41.2 ha in the Łobez district, Zachodniopomorskie voivodeship. As far as agricultural development is concerned, a particularly unfavorable situation was faced in areas where the average size of farms did not exceed 5 ha of agricultural land. It was the case in 49 districts, mostly concentrated in the two voivodeships of southeast Poland: Małopolskie (17 districts) and Podkarpackie (16 districts; cf. Fig. 2).

The analysis showed that the best development opportunities for agriculture – based on large, economically strong farms – exist in regions with an average farm size above 20 ha. Farms with an area comparable to that of their Western European counterparts may enjoy a sharper competitive edge in the European Union market. According to data delivered by ARMA, the threshold was exceeded only in 51 (16%) districts, located mostly in northern and western voivodeships, with the largest number (16) found in the Zachodniopomorskie voivodeship.

The SAPs and the concomitant agrarian changes were also analyzed from the perspective of regional diversification, as reported by ARMA's district offices,

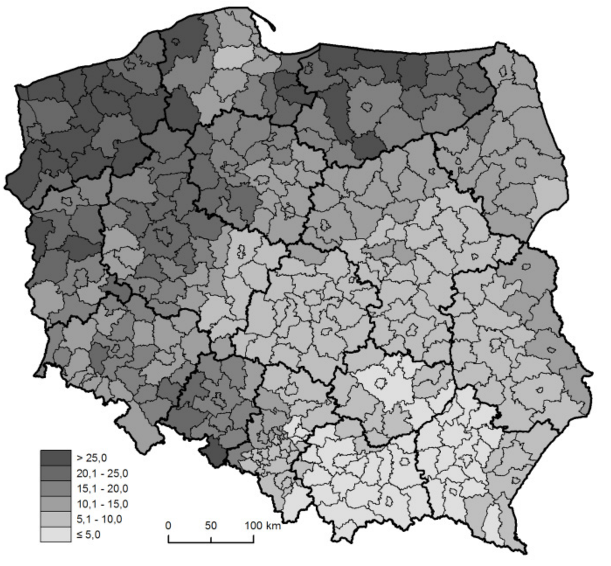

Fig. 2. Average area of agricultural holdings (agricultural producers) (in ha) recorded by ARMA, as of 2013
Source: own elaboration based on data delivered by ARMA.

based on the bipartite approach to natural, urban and historical conditions. The historical factor was demonstrated to have a particularly strong impact (impact assessment index = 1.37), as reflected by considerable differences in the average size of agricultural holdings between districts of Eastern Poland (7.4 ha) and Western Poland (18.4 ha). The evolution of this index over the period 2005–2013 shows that the progress in narrowing the gap is low. The spatial pattern of the agrarian structure was not so much affected by the urbanization context. As regards this issue, the highest value of the impact assessment index was 0.41. This resulted, on the one hand, from the growing area covered by SAP in units with townships (a score of 101 is the effect of the urban population's greater eagerness to take over agricultural land) and, on the other hand, from a decrease in the area covered by SAP in units with country districts (a score of 97). The spatial pattern of the agrarian structure in 2013 and the changes it underwent in 2005–2013 are by far the least affected by natural conditions. The peak value of the index was 0.23 and resulted from a higher level of the change index in areas with favorable natural conditions (a score of 108; 107 points in the group of districts subject to less favorable natural conditions; cf. Table 2).

CONCLUSIONS

As shown in this paper, 2005–2013 was a period characterized by a strong upward trend in the SAP, mostly due to a higher rate of payments per hectare of agricultural land. The above period saw a steady decrease in the number of agricultural holdings (SAP beneficiaries) which – in the context of negligible changes in the area covered by SAP – meant a growth trend in the average size of agricultural holdings.

It was demonstrated that of all the determinants of the Polish agrarian structure, a particularly important role is played by historical factors, which is reflected by the high average size of agricultural holdings located within the territory of the historical Prussian Partition.

The analysis of 2004–2013 data at the level of ARMA's district offices proves that SAPs are perfectly suited to monitor the agrarian changes. Since 2008, it has been possible to analyze this data at municipality, village or even farm level. This is because the Act of January 26, 2007 on payments to agricultural land and sugar payments (Journal of Laws No. 35, item 217, as amended) requires ARMA to establish and publish the list of farmers who received area payments. The list is available at the website of the Ministry of Agriculture and Rural Development; it specifies the farmers' full name or company name (in the case of legal persons), address of residence or registered address of the business, and the amount of payment granted based on applications submitted in the year concerned.

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JEDNOLITE PŁATNOŚCI OBSZAROWE JAKO NARZĘDZIE MONITORINGU PRZEMIAN AGRARNYCH W POLSCE (LATA 2004–2013)

Abstrakt. Artykuł dotyczy wyników analizy przestrzennej jednolitych płatności obszarowych (JPO) w Polsce. Uwzględniając zmieniającą się stawkę tych płatności za 1 ha użytków rolnych (od 210,53 zł w 2004 r. do 830,30 zł w 2013 r.), badania ukierunkowano na ocenę przemian liczby i powierzchni gospodarstw rolnych w latach 2004–2013, z uwzględnieniem oceny oddziaływania uwarunkowań przyrodniczych, urbanizacyjnych i historycznych. Stwierdzono, że zachodzące przemiany agrarne charakteryzują się wyższym tempem ubytku liczby gospodarstw rolnych (ubyło 8%) w porównaniu do ich powierzchni (ubyło 2%), co uruchomiło tendencję do wzrostu ich przeciętnej wielkości z 9,8 ha w 2004 r. do 10,2 ha w 2013 r. Wykazano, że badane elementy struktury agrarnej wyróżniają się dużym zróżnicowaniem przestrzennym, głównie uwarunkowanym historycznie. Potwierdzono duże walory JPO jako narzędzia monitoringu przemian agrarnych.

Słowa kluczowe: jednolita płatność obszarowa (JPO), liczba gospodarstw rolnych, powierzchnia gospodarstw rolnych, zmiany struktury agrarnej, Polska

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RATING THE RELEVANCE OF SPECIFIC AREAS OF ALLERGEN CONTROL PROCEDURES IN POLISH AND BRITISH POULTRY MEAT PROCESSING PLANTS

Abstract. This paper illustrates the importance of allergen monitoring and control in ten identified areas that should be addressed by allergen management. The paper deals with legal and standardization requirements. The study was conducted with poultry meat processing companies. In order to know how to approach companies' to allergen monitoring, BRC certified companies operating in Poland and UK were selected for the study. As a result of the study, Polish and British enterprises were found to differ significantly in several areas of allergen control. They also differed in their perception of the significance of identified areas of allergen control. British companies believe the significance of the "consumer information label" area to be moderately important while some of them do not take it into account in their allergen management system at all.

Keywords: allergen monitoring and supervision, relevance assessment

INTRODUCTION

Food allergens and allergies become more and more important to the consumer. Therefore, allergen management at the food production and storage stage becomes increasingly important for the producers. The consumption of certain raw materials or compounds may cause an allergic reaction inducing unwanted gastrointestinal symptoms or, sometimes, a serious illness and even a life-threatening condition (Mortimore and Wallace, 2013). While there are pharmacological methods and ways of alleviating allergy symptoms, allergy sufferers usually need to prevent the symptoms of allergies by completely eliminating the sensitizer from their diet (Zimny et al., 2016). Therefore, in order to enable consumers to make an informed choice of products safe for their health, it is necessary to label the products appropriately.

This issue is governed by the requirements of food law. Substances and products causing allergies or intolerances are specified in Annex II to Regulation (EU) No. 1169/2011 of the European Parliament and of the Council of October 21, 2011 on the provision of food information to consumers. The list contains 14 products/substances and their derivatives. Under the regulation, there is an obligation to designate substances that cause

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allergies or intolerances in food labels. This is achieved by using distinct typefaces to highlight the items concerned and distinguish them from other ingredients listed. For instance, a different font type, style and color, or a distinctive background color may be used. Usually, this information is written in bold characters. It is important to declare the allergens which are naturally occurring constituents of the product as well as those which may appear unintentionally, e.g. due to cross-contamination (Crevel and Cochrane, 2014).

When selling bulk food manufactured with the use of substances listed in Annex II, the information on allergens and intolerances must be delivered at the place of sale (Bogusz-Kaliś, 2013). Such information must be readily available in order for the consumer to be aware that bulk food is not free from the allergen problem. Therefore, it is an unacceptable practice to provide information on allergens and intolerances only if requested by the consumer. Because the European Union law does not define the "trace level" of allergenic substances, it is allowed to include "may contain...," "possible presence of..." or similar wording. Producers may not abuse such expressions with respect to products which have not been exposed to allergenic substances (Inspectorate of Commercial Quality of Agri-Food Products).

The current legal framework does not prescribe any procedures for preventing the cross-contamination during the production of allergen-containing food. The companies who follow the GMP (Good Manufacturing Practices) and GHP (Good Hygiene Practices) must develop the safest production practice (Stein, 2015; Rita et al., 2016; Górna and Sikora, 2016). Over the last decade, a number of guidebooks have been published in the UK and Poland, accompanied by many seminars and courses that help the companies in monitoring and controlling allergens. The manufacturers of retail branded products are also required to introduce comprehensive systems for the monitoring and control of allergenic substances. The effectiveness of these operations shall be verified during unannounced inspections by specially trained auditors mandated by the commercial network. However, despite enormous expenditure on investigation of allergens, the incidence of allergic reactions and the withdrawal of products from the market as a result of allergens being present keeps increasing, and the abovementioned projects still do not result in identifying allergen-containing products (Górna and Sikora, 2016).

The standards for Food Safety Management Systems such as HACCP, BRC, IFS, FSSC 22000 and SQF regulate the implementation of effective allergen management systems in BRC-compliant manufacturing processes (Dzwolak, 2015; Junchao and Xiao-Hui, 2014; Orris and Whitehead, 2000). BRC is a certified standard implemented voluntarily by food industry companies to meet customer requirements, reduce the number of customer audits and maintain an appropriate GMP/GHP level. An entire chapter of the standard is dedicated to allergen control, considered to be a basic requirement; this means that a company who fails to comply with the relevant guidelines is declared incompatible with the standard's critical provisions. According to requirements set out in Section 5.3 "Management of allergens," the manufacturing plant must use an allergen control management system to minimize the risk of contamination of allergen products and must ensure compliance with labeling requirements in the country of sale. This section consists of eight clauses which include specific requirements for the activities that the company must take:

- Assessment of raw materials to establish the presence and likelihood of contamination by allergens,
- Identification of allergen-containing materials handled on site; this shall include raw materials, processing aids, intermediate and finished products, and any new product development,
- Risk assessment carried out to identify routes of contamination,
- Establishment of procedures to ensure the effective management of allergenic materials to prevent cross-contamination into products not containing the allergen,
- Where a claim is made regarding the suitability of a good for allergy or food sensitivity sufferers, the site shall ensure that the production process is fully validated to meet the stated claim and the effectiveness of the process is routinely verified,
- The cleaning methods shall be validated; cleaning equipment used to clean allergenic materials shall be clearly labeled and intended for the BRC Global Standard for Food Safety 2015.

Companies are still struggling with that problem, and many of them are unable to effectively monitor and supervise allergens despite many dedicated guidelines such as:

- Food Standard Agency, 2004, Guidance on Allergen Management and Consumer Information – Best Practice Guidance on Managing Food Allergens with Particular Reference to Avoiding Cross-Contamination and Using Appropriate Advisory Labeling,
- University of Nebraska's Food Allergy Research and Resource Program – Components of an Effective Allergen Control Plan – A framework for food processors,
- Guidance on Food Allergen Management for Food Manufacturers, 2013, FoodDrinkEurope,
- Food Allergen Handbook, 2014, Neogen Europe Ltd. in cooperation with the University of Nebraska.

Therefore, the purpose of this study was to identify the relevant areas of allergen monitoring and control in the meat manufacturing process.

MATERIALS AND METHODS

The survey was carried out in the meat industry and covered poultry producers. For the purposes of this study, ten Polish and British companies were selected, all of them BRC certified. The selection of the sample resulted from the approach to allergen surveillance adopted in the companies surveyed, in order to decide whether this issue needs to be studied in more detail. As of April 4, 2018, in Poland and in the UK, there were (respectively) 97 and 6 establishments compliant with the BRC Global Standard For Food Safety Version 7. According to the BRC Global Standard For Food Safety Issue 7, the companies identified are covered by the following audit categories: 02-Raw Poultry and 03-Raw prepared products (meat and vegetarian). However, their certification may extend to other categories.

The Polish companies covered by the investigation were located in the following voivodeships:

- Podkarpackie (20%),
- Warmińsko-Mazurskie (20%),
- Opolskie (20%),
- Podlaskie (20%),
- Wielkopolskie (20%).

In turn, the distribution of British regions was as follows:

- Norfolk/Suffolk (20%),
- Suffolk (40%),
- Norfolk (20%),
- Northern Ireland (20%).

RESULTS AND DISCUSSION

The study identified the types of allergens used by the companies (Fig. 1). All the Polish companies covered by this study use allergens such as cereals containing gluten, milk and derived products. However, all British companies indicated the presence of sulfur dioxide and sulfites. The presence of other allergens varied from one country to another; i.e. soybeans and products thereof were indicated by 80% of Polish establishments and by 40% of British establishments (Fig. 1).

Based on the preliminary study, in-depth interviews (IDI) were conducted with 10 experts.

In the establishments covered by this study, allergen control extends to the following areas:

- Supervision of raw material suppliers,
- Supervision of raw materials and auxiliary production materials,
- Supervision of machinery and additional equipment,
- Production supervision,
- Consumer information provided on the product label,
- New product designing,
- Changes to existing products,
- Personnel,
- Documentation,
- Hygiene process.

It was then verified which of these areas were addressed by the allergen control process implemented in the companies surveyed (Fig. 2).

All areas of allergen control listed above are taken into consideration in all of the Polish plants. In contrast, UK-based manufactures address such areas as "supervision of raw material suppliers," "supervision of raw materials..." and "new product designing," as indicated by 80% of the companies surveyed. Only 40% take into account the "consumer information provided on the product label" in their allergen verification and control routine. Strangely, although all guides, standards and scientific and research literature emphasize the role of the abovementioned areas in the allergen control process, some of the manufacturing plant fail to address them in their allergen management system.

Later in this survey, the respondents were asked to assess the significance of different areas of the allergen control process on a scale of one to five, with: 5 – definitely significant, 4 – rather significant, 3 – medium

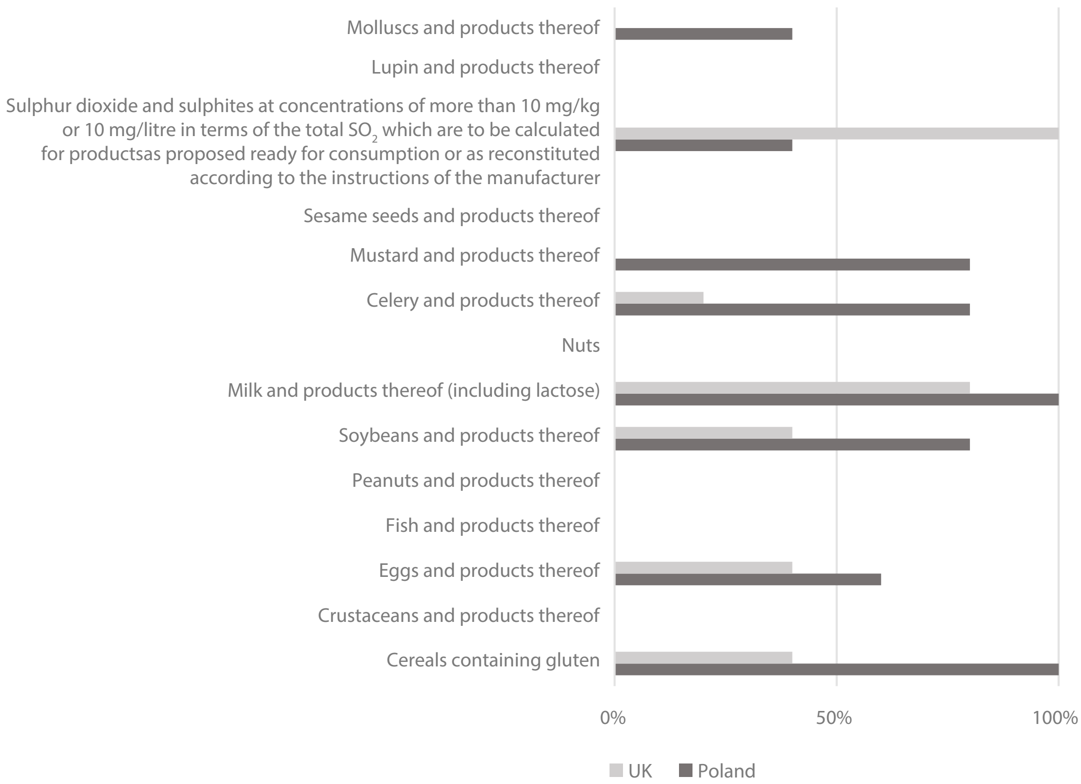

Fig. 1. Types of allergens found in companies surveyed
Source: own elaboration.

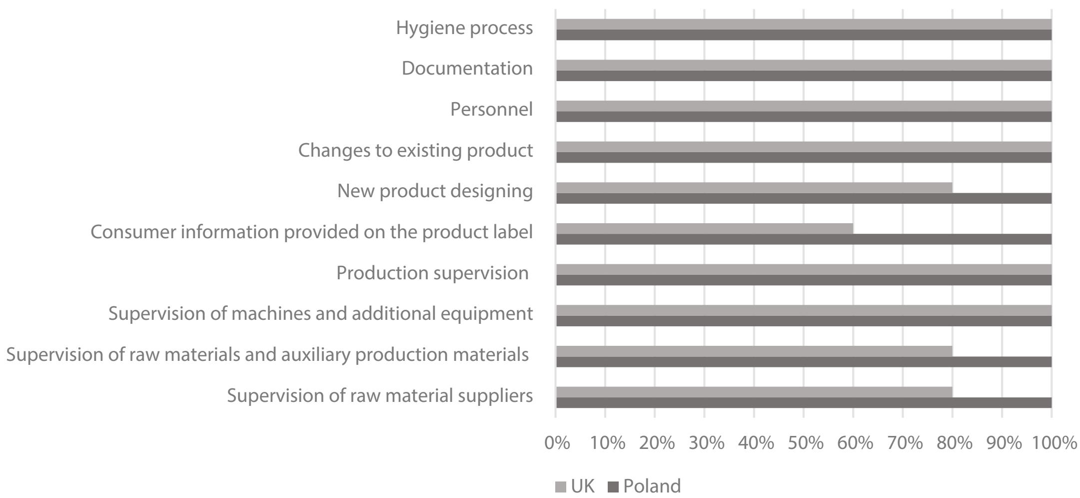

Fig. 2. Areas addressed by the allergen control process implemented in the companies surveyed
Source: own elaboration.

Table 1. Assessing the significance of different areas of the allergen control process

Allergen control areas		Significance of the area in the allergen monitoring process				
		1	2	3	4	5
Supervision of raw material suppliers	Poland					100%
	UK				80%	
Supervision of raw materials and auxiliary production materials	Poland					100%
	UK				80%	
Supervision of machinery and additional equipment	Poland					100%
	UK					100%
Production supervision	Poland					100%
	UK					100%
Consumer information provided on the product label	Poland					100%
	UK			60%		
New product designing	Poland					100%
	UK				80%	
Changes to the existing product	Poland					100%
	UK					100%
Personnel	Poland					100%
	UK					100%
Documentation	Poland					100%
	UK					100%
Hygiene process	Poland					100%
	UK					100%

Source: own elaboration.

significant, 2 – rather insignificant, 1 – definitely insignificant (Table 1).

All the Polish companies surveyed found the identified areas to be highly relevant for the allergen control process (a score of 5). However, some differences can be seen between the UK-based companies; in this part of the sample, allergen control areas such as "supervision of raw material suppliers," "supervision of raw materials and auxiliary production materials" and "new product designing" were found to be rather relevant by 80% of companies surveyed (a score of 4). On the other hand, 60% of British companies considered the "consumer information provided on the product label" to be an area of medium significance (a score of 3). Other areas of allergen control were assessed as significant by the British companies (a score of 5).

CONCLUSIONS

Properly implemented and maintained allergen control systems, backed up by operational procedures and processes, must be designed so as to help effectively eliminate the risk of cross-contamination by allergens present inside the plant. During the analysis of allergen management systems (within BRC) in the Polish and British poultry meat processing enterprises, a wide variation in approach to this issue was noticeable. UK-based companies have a considerably different approach to consumer information provided on the product label. Because they found such labels to be insignificant, only 40% of manufacturing companies take this matter into account when planning their allergen control procedures. Regardless of the location of the sites, the correct identification of allergens in raw materials and finished products, preventing cross-contamination or designing separate processing lines for allergen-free food is crucial. However, it is ultimately the consumer who decides to purchase a given product and can effectively protect his/her health only based on the manufacturer's information and declarations.

If errors on the part of the manufacturer are encountered in this area, nothing will protect the consumer from the dangers of food consumption with undeclared allergens. On the basis of the exploratory tests, it appears appropriate to conduct in-depth studies in companies located in Poland and the United Kingdom in order to discover the mechanisms of allergen monitoring and control.

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OCENA ISTOTNOŚCI WYBRANYCH OBSZARÓW NADZOROWANIA ALERGENÓW W ZAKŁADACH PRZETWÓRSTWA MIĘSA DROBIOWEGO ZLOKALIZOWANYCH W POLSCE I WIELKIEJ BRYTANII

Abstrakt. W niniejszym artykule przedstawiono znaczenie monitorowania i nadzorowania alergenów w zidentyfikowanych dziesięciu obszarach, które powinny być brane pod uwagę w zarządzaniu alergenami. Odniesiono się do wymagań prawnych oraz normalizacyjnych. Badanie przeprowadzono wśród przedsiębiorstw przetwórstwa mięsa drobiowego. Aby zbadać podejście firm do nadzorowania alergenów, do badania wytypowano przedsiębiorstwa z certyfikatem BRC działające w Polsce i Wielkiej Brytanii. W wyniku przeprowadzonego badania w kilku obszarach nadzorowania alergenów stwierdzono istotne różnice między krajami. Dotyczyły one również postrzegania istotności zidentyfikowanych obszarów nadzorowania alergenów. Przedsiębiorstwa z Wielkiej Brytanii oceniły m.in. istotność obszaru „Informacje podawane konsumentowi na etykiecie produktu" jako średnio istotny obszar, a część z tych przedsiębiorstw w ogóle nie bierze go pod uwagę w swoim systemie zarządzania alergenami.

Słowa kluczowe: monitorowanie i nadzorowanie alergenów, ocena istotności

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THE FUNCTIONING AND SUPPORT OF AGRICULTURAL PRODUCER GROUPS IN POLAND IN THE PERSPECTIVE OF THE RDP FOR 2007–2013

Abstract. The establishment of agricultural producer groups (APG) is an important form of organisation which facilitates the proper restructuring of agriculture. Market analyses and scientific publications indicate that presently, one of the most vital methods of achieving competitive advantage of a farm is a form of teamwork, i.e. membership in a producer group. This article presents the state of organisation of agricultural producer groups in Poland. Their numerical development, spatial arrangement and sector structure are discussed and the level of EU support for respective provincial groups is also presented.

Keywords: agricultural producers, agricultural producer groups, financial support, European funds

INTRODUCTION

Aside from the progressing integration of the agri-food market and the increasing competitiveness of the agri-food business entities, the horizontal integration of farmers plays an important role in the process of reinforcing the position of farms in the food chain. The analysis of economic and social aspects of rural areas indicates numerous weak points and a lack of organisation resulting in producers forming groups. In the years 1949–1956, due to a political imperative, farmers were forced to work as a group, which left a profound negative mark in the subconscious of agricultural producers. To this day, upon hearing the words "agricultural co-operation", the farmers react impulsively. Groups of individual farmers and cross-sector cooperation established between the farmers and the state in the years 1973–1989 were a milder form of cooperation. Such forms of rural activity were to a large degree sustained by financial support, although as the support began to diminish, these forms of group work began to disappear (Mickiewicz and Mickiewicz, 2015).

In western Europe, for many years there has been a system of organisation aimed at uniting processors, agricultural producers and traders into groups, cooperatives, partnerships or teams (Michalek et al., 2013). Community funds had a major impact on the significance of groups and resulted in them playing a vital role in the areas of production, processing, sales, marketing and trade (Kania and Bogusz, 2009). Numerous researchers claim that the emerging agricultural organisations reshape the value systems in the rural environment, thus restoring

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meaning to the words: "group", "trust", "team", and "loyalty" (Markantoni et al., 2013). According to Czapiewska (2013), Krzyżanowski (2013), Boguta et al. (2012), what is advantageous in such agricultural communities is that they generate an added value without the necessity to change titles of ownership or contribute land.

The accession of Poland into structures of the European Union created a necessity to compete with new entities on the market, which had a major impact on the legal status of farmers and farming in general (Wojcieszak and Wojcieszak, 2017). High competitiveness and the free market are a significant impediment to Polish farmers, who tend to work individually as a rule. Joint activities, which constitute the foundation of bygone farming, are currently rejected (Wiatrak, 2015). Polish farmers are convinced of their own individual independence, which leads them to thinking they can protect their own interest by themselves, while that is not the case (Karwat-Woźniak, 2013). In consideration of the above, it seem reasonable to point Polish farmers towards cooperation with others, leading to the establishment of groups, which could improve their position of the market (Majewska and Klibisz, 2012). The necessity of producer groups is also dictated by the current state of the market, i.e. the surplus of food in Europe. As the economic and political regime in Poland changed, the country opened itself to foreign products and the reality of highly competitive world economy. This situation resulted in the necessity to predict market needs and compete not only locally, as it had been thus far, but also internationally. High competitiveness, further intensified by the influx of foreign products, and a long production time encumbered with considerable risk force individual agricultural producers to change their farming methods, allowing them to adjust themselves to market requirements (Domagalska-Grędyś, 2014). The data presented below may constitute a source of information for further analysis and as a reference point for comparison with similar studies. The aim of the article was to present the level of EU support granted to particular groups within the voivodeships, taking into account their product interaction.

METHODOLOGY OF RESEARCH

The materials used in the present study consist of unpublished data on the course of implementation of the Rural Development Programme (RDP) for 2007–2013 as a part of "Agricultural producer groups (APG)" operation accessed via the IT system of the Greater Poland Regional Office of the Agency for Restructuring and Modernisation of Agriculture (ARMA) (date of access: 7th November 2017). The APG implementation was analysed based on the number of applications filed from respective voivodeships. Regional analysis consisted in simple grouping (Wysocki and Lira, 2005) and resulted in class ranges for each respective voivodeship based on average amount of funding granted to the producer groups which filed an application for the "agricultural producer groups" operation within RDP for 2007–2013. As a result of grouping, class ranges were obtained into which voivodeships were allocated according to the average value of support per 1 group (taking into account the number of entities associated within a given group), which applied for financial means in this measure. This grouping made it possible to assess the distribution of voivodeships in terms of the EU funds granted. The study was prepared with the use of the desk research method and it consists an analysis whose purpose is to approach the question of EU funds in the development of agricultural producer groups within RDP for 2007–2013. Both legacy and strategic documents were submitted to a classic analysis in order to establish facts, verifications and presentations. The choice of methodology was determined by the accessibility of source materials, partially secondary (reports, public statistics documents, literature on APG funding and funding issues) and, as stated above, original documents (unpublished ARMA data). The analysis conducted herein may serve as a reference point for further analysis and comparisons of agricultural producer groups. The results are presented in the form of descriptions, tables and graphics.

CHARACTERISTICS OF AGRICULTURAL PRODUCER GROUPS IN POLAND AND POSSIBILITIES OF THEIR FINANCING

Agricultural producer groups may differ from one another with respect to, among others, their size, organisational structure, or scope of activities. In line with the classification of agricultural producer groups accepted by International Federation of Agricultural Producers, it is possible to distinguish unions, agricultural producer marketing groups, federations, associations and agrarian chambers (IFAP, 1992). The rendering of the services expected by the farmers is the main task of agricultural producer groups, as it constitutes an incentive to join the organisation. Among the aforementioned services there are: economic and technical services (e.g.: joint sales, production planning), defence of the farmers' interest (e.g.: lobbing) and local development (e.g.: courses, trainings) (Chlebicka et al., 2009). The act of the 15th September 2000 on agricultural producer groups and their relations defines a producer group as a legal entity established by agricultural producers whose main aim is to improve the economic effectiveness of its constituents by adjusting its production and sale to the market demand (Dz. U. 2000 nr 88, poz. 983). The process of establishing agricultural producer groups in Poland is relatively slow (Ziętara, 2010). Although 15 years have passed since passing the law which allows for the establishment of such organisations, the farmers' self-organisation leaves much to be desired. Currently, every 50th agricultural producer in Poland is a member of a producer group. In the age of free market and growing competition, the meaning of groups will gradually increase, as it is increasingly more difficult for individual agricultural producers to meet the expectations of their consumers (Korczak and Tomaszewski, 2016).

TERRITORIAL DISTRIBUTION OF APG AND THE LEVEL OF EU FUNDING SUPPORTING THEM

The EU has been financially supporting producer groups for many years, as they constitute a vital element in the restrucuring of the agricultural sector. The farmers' cooperation in the western Europe is a long-lived tradition with numerous achievements proven in practice (Krzyżanowska, 2003, p. 12). The process of establishing producer groups began in Poland in the year 2000, when the legal regulations stipulating the establishment, functioning and support of agricultural producer groups were implemented. The integration of producers, both horizontal and vertical, cuts the supply chain by eliminating the intermediaries. Cooperation and integration within producer groups allowed numerous farmers to reinforce their market position by arriving at the economies of scale. It also contributes to establishing a stable market position and increasing the income of agricultural producers and the profitability of their production. Uniting the farmers allows for delivering large, uniform batches of product, while also ensuring its high quality (RDP for 2014–2020, p. 105). Moreover, it provides access to modern channels of distribution, production contracting and the realisation of functions from the subsequent links of the food chain (including processing). Within the Rural Development Programme for 2007–2013, 1338 producer groups (which applied for support) were established in Poland (Domagalska--Grędys, 2010). The total sum of public funding provided to PLN 755,171,216.52. In 2015, 27.6 thousand farmers were associated in producer groups. The analyses indicate that a group consisted of 12 members on average.

The number of producer groups and their participation in delivering agricultural product to the market differed with regard to product type. Most producers cooperating in groups, excluding the fruit and vegetable sector, operated in production of pigs, milk, cereal grains

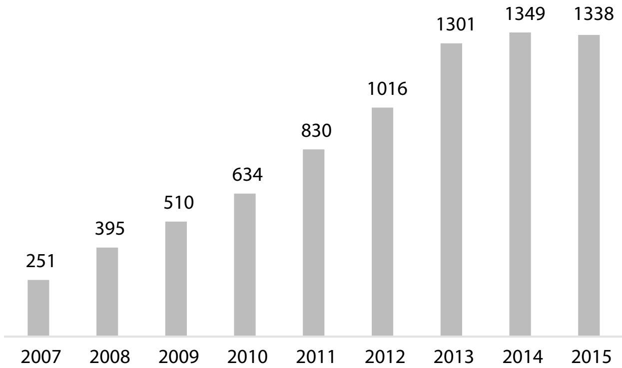

Fig. 1. Number of producer groups in Poland in the years 2007–2015
Source: own elaboration based on data from the Ministry of Agriculture and Rural Development (date of access: Nov 19th 2017).

and oil plants. Most producer groups were established in Wielkopolskie, Dolnośląskie, and Kujawsko-Pomorskie, while fewest in Małopolskie and the Świętokrzyskie voivodeship.

According to ARMA data, there were 1,258 producer groups (the fruit and vegetable sector was not included in the present study) which received a total sum of PLN 755,171,216.52 (as at 17 November 2017).

Fig. 3 indicates that the Wielkopolskie (26.45% – the Union funds allocated) is the dominant beneficiary of financial support under operation 142, followed by Dolnośląskie (10.48%), Opolskie (9.29%), Kujawsko-Pomorskie (8.91%), Warmińsko-Mazurskie (7.56%).

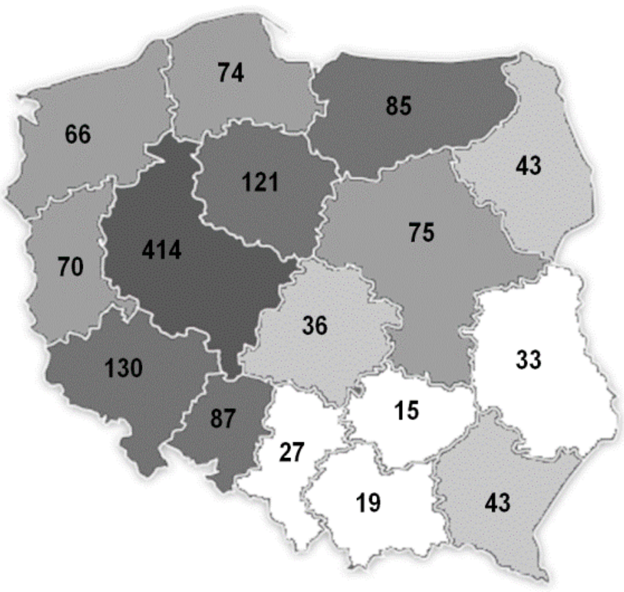

Fig. 2. Number of agricultural producer groups (APG) in respective voivodeships in May 2015
Source: own elaboration based on data from the Ministry of Agriculture and Rural Development (date of access: Nov 19th 2017).

Fewest APG, amounting to just 0.50%, were established in Małopolskie. As has been mentioned, as a part of RDP for 2007–2013, support was provided to 1,285 agricultural producer groups (Table 1). The area of integration for members from respective groups was a crucial aspect. During the analyses it was noted that farmers in Poland were most willing to cooperate in the category *Live pigs, piglets, pork: fresh, chilled, frozen* (these groups constituted 41% of all AGP), followed by *Milk (cow, sheep or goat)* at 19% and *Cereal grains and oil plant seeds* (14.9%). Data in table 1 present the area of integration of AGP in Poland and the level of support provided by EU funds within a given category.

There were differences in the amount of funds provided to the groups with regard to voivodeships (Table 2). The highest amount of funds was provided to class 1 APG, i.e. groups from Małopolskie, Podkarpackie, Lubelskie and Pomorskie voivodeship. The average sum per group in these voivodeships ranged from PLN 312,606.94 (Małopolska) to PLN 456,657.95 (Pomorze). Large sums of financial support were also provided to class 2 APG, i.e. Wielkopolskie, Kujawsko-Pomorskie, Dolnośląskie, Mazowieckie, Łódzkie, Opolskie, Zachodniopomorskie and

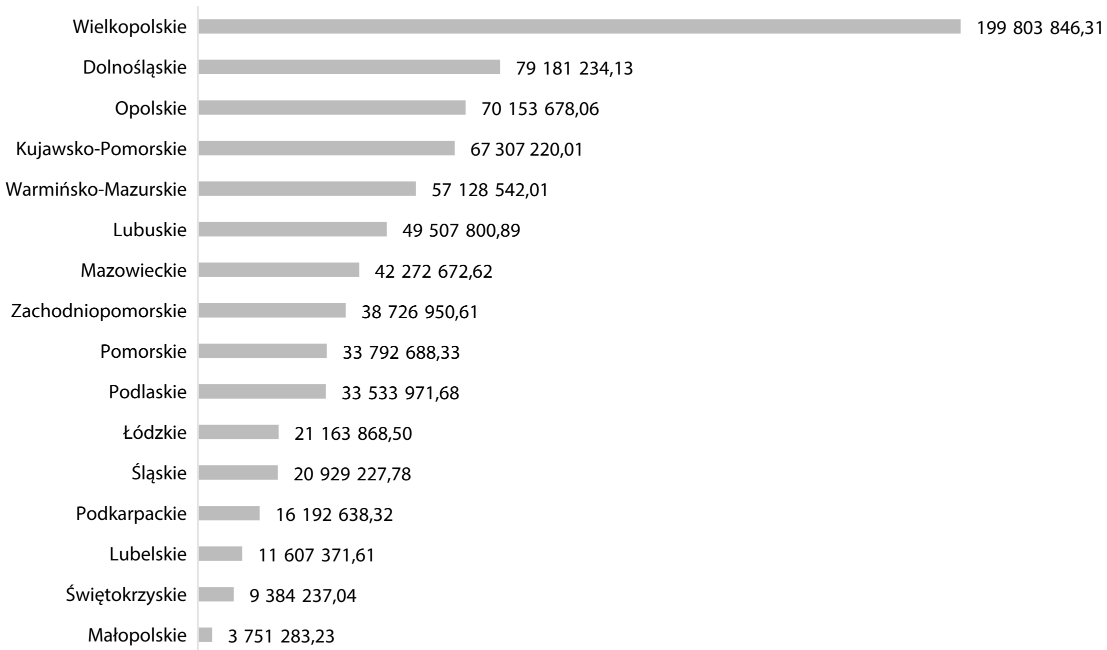

Fig. 3. Level of financial support provided to APG in Poland in the perspective of RDP for 2007–2013 (PLN)
Source: own elaboration based on unpublished ARMA data.

Table 1. Areas of integration of producer groups in Poland under RDP for 2007–2013

Product category	Number of groups within the division according to products or product groups	%	Financial support provided (PLN)	%
Live pigs, piglets, pork: fresh, chilled, frozen	527	41.0	321,702,938.,24	42.6
Live cattle: slaughter or breeding animals, beef: fresh, chilled, frozen	112	8.7	21,144,794.,06	2.8
Milk (cow, sheep or goat)	251	19.5	128,379,106.,80	17.0
Cereal grains	59	4.6	33,227,533.,52	4.4
Cereal grains and oil plant seeds	191	14.9	98,927,429.,36	13.1
Live rabbit, rabbit meat or edible rabbit offal: fresh, chilled, frozen	6	0.5	8,306,883.,38	1.1
Live poultry (regardless of age), meat or edible poultry offal: fresh, chilled, frozen	6	0.5	36,248,218.39	4.8
Live poultry (regardless of age), meat or edible poultry offal: fresh, chilled, frozen	6	0.5	4,531,027.,30	0.6
Live poultry (regardless of age), meat or edible poultry offal: fresh, chilled, frozen	86	6.7	74,761,950.,44	9.9
Sugar beets	13	1.0	9,062,054.60	1.2
Seed or seed potatoes	2	0.2	4,531,027.,30	0.6
Plants intended for herbal or pharmaceutical production	6	0.5	755,171.,22	0.1
Potatoes, fresh or chilled	6	0.5	11,327,568.25	1.5
Bird eggs	13	1.0	2,265,513.,66	0.3
Total:	1285	100	755,171,216.52,	100

Source: own elaboration based on unpublished ARMA data.

Table 2. Average amount of funding provided to groups under operation 142 of the RDP for 2007–2013

Class	Group range (PLN)	Number of voivodeships	Voivodeship
1	312,606.94– – 456,657.95	4	Małopolskie Podkarpackie Lubelskie Pomorskie
2	456,657.96– – 688,295.69	8	Wielkopolskie Kujawsko-Pomorskie Dolnośląskie Mazowieckie Łódzkie Opolskie Zachodniopomorskie Warmińsko-Mazurskie
3	688,295.70– – 853,582.77	4	Śląskie Świętokrzyskie Podlaskie Lubuskie

Source: own elaboration based on unpublished ARMA data.

Warmińsko-Mazurskie voivodeships. Provided funding ranged from PLN 456,657.96 to PLN 688,295.69.

Class 3 voivodeships were characterised by a low average sum per group ranging from PLN 688,295.70 to PLN 853,582.77 (in the case of Lubuskie voivodeship). It needs to be emphasised, however, that despite differences in received sums of EU funds, agricultural producers make an effort to cooperate on the market, as it is extremely important to use the instruments supporting the establishment and the functioning of agricultural producer groups.

CONCLUSIONS

The accession of Poland into the EU forced the necessity to reshape agriculture in order to adjust its norms to the norms of Common Agricultural Policy. The stages of integrating Polish agriculture with European agriculture had a major impact on the dynamics of establishing producer groups. Currently, the idea of cooperation is realised by so-called agricultural producer groups. In line with the law in force in Poland, agricultural producers may unite as agricultural producer groups in order to adjust their production to market standards, plan production with consideration of its quality and quantity, improve the effectiveness of farming, organise sales channels for agricultural products as well as protect the environment and enforce the rules of rational farming. The thriving development of agricultural groups resulting in their increased participation in the food market, had greatly improved the financial condition of farms. This impact may also be observed in the modernisation of farms which give in to the necessity of vertical integration in farming. Currently, agricultural producer organisations play a major role on the agricultural product market. The cooperation of farmers under agricultural producer groups is undoubtedly encouraged through the operations of RDP as well as tax allowances offered by the state. According to data from 2007–2013, under operation 142, 1,285 groups received EU funds amounting to PLN 755,171,216.52, There were differences in the use of support provided to the APG applying for financial means under the analysed operation. Largest sums were provided to class 1 APG, i.e. groups from Małopolskie, Podkarpackie, Lubelskie, Pomorskie, which may tie into their development, investments and entrepreneurship.

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FUNKCJONOWANIE I POZIOM WSPARCIA GRUP PRODUCENTÓW ROLNYCH W POLSCE W PERSPEKTYWIE PROW 2007−2013

Abstrakt. Ważną formą organizacyjną, która sprzyja właściwej restrukturyzacji rolnictwa, jest powstawanie rolniczych grup producenckich. Analizy rynkowe oraz publikacje naukowe wskazują, że aktualnie jedną z ważniejszych dróg uzyskania przewagi konkurencyjnej gospodarstwa rolnego jest forma zespołowego działania, a więc uczestniczenie w grupie producenckiej. Celem artykułu było przedstawienie stanu zorganizowania grup producentów rolnych w Polsce. Zaprezentowano ich rozwój liczbowy, układ przestrzenny oraz strukturę branżową. Przedstawiono także poziom udzielonego wsparcia z funduszy UE dla poszczególnych grup obszaru integracji w obrębie województw.

Słowa kluczowe: producenci rolni, grupy producentów rolnych, wsparcie finansowe, Fundusze Europejskie

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ATTITUDE OF THE POLISH SOCIETY TOWARDS RENEWABLE ENERGY SOURCES. SEGMENTATION BY GENDER

Abstract. The concept of sustainable development has been transferred to the energy sector, resulting in defining a new term: the sustainable energy development. Its underlying principle is the efficient use of energy, human, economic and natural resources. Renewable energy sources (RES) play an increasingly important role in the energy mix and in the functioning of local communities. The purpose of this study was to discover the attitude of Polish society towards renewable energy sources, disaggregating the data by gender. Efforts were also made to determine the importance of renewable energy sources for the functioning of a modern society. A diagnostic survey method was used in this study. The survey was conducted with a representative sample of 1067 respondents. The statistical analyses were performed with Statistica 10.1 PL, and were based on the discriminant function with an analysis of the classification function. The respondents declared to save energy by turning off the light when leaving a room, and that they would prefer to use the solar collectors as an alternative future source of energy. In the opinion of respondents, investments in energy significantly contribute to environmental protection. The biggest barriers to the use of renewable energy sources are: the lack of mechanisms supporting the reduction of energy consumption across the economy; the increase in energy prices because of a lack of competition on the wholesale market; and the lack of a coherent policy for sustainable development addressing air protection issues. The respondents were found to significantly differ by gender in their approach to renewable energy sources.

Keywords: sustainable development, Polish households, preferences, benefits of investing

INTRODUCTION

Across the globe, climate changes have brought the need to reduce greenhouse gas emissions, making the global community look for new renewable energy sources that would not involve direct emissions of carbon dioxide into the atmosphere. Currently, the leading environmentally-friendly and the most cost-effective way to reduce CO_2 emissions is the use of solar energy which meets to the greatest extent the growing demand for energy (Sener and Fthenakis, 2014). Over the last 30 years, solar energy costs have consistently decreased (Vartiainen et al., 2015). Today, renewable energy (including solar energy) benefits from large tax relieves and is therefore even more demanded (Timilsina et al., 2012). The growing number of different solutions for the use

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of renewable energy sources provides financial benefits associated with the reduction of CO_2 emissions (Breyer et al., 2015) while also affecting energy security, production diversification and job creation. Renewable energy can also be a way to improve the supply of electricity to rural areas and to reduce the number of power cuts, and thus could contribute to reducing economic losses (Sener and Fthenakis, 2014). Renewable energy has been recognized as an ideal way to balance the energy supply mix required for a growing population (González et al., 2016).

The primary goal of a sustainable energy policy is to limit the adverse impact of energy on the atmosphere by: supporting measures and initiatives taken to promote the use of energy from unconventional renewable sources in a way which is both environmentally safe and cost effective for the economy; implementing less harmful and more efficient systems for energy production, transmission, distribution and use; and maintaining a balance between energy security, social needs, economic competitiveness and environmental protection (Pultowicz, 2009).

In the last decade, a rapid development of different renewable energy solutions has been observed (Del Rio and Burguillo, 2009). Considering that most renewable energy solutions are implemented in rural areas (OECD), it has undoubtedly a positive impact on the development of rural communities (Cuellar, 2009; Del Rio and Burguillo, 2008). As shown by some studies, introducing renewable energy solutions can increase local budget revenues and reduce rural unemployment (Cebotari and Benedek, 2017). Also, RES projects have a positive impact on demography, agricultural development and social capital levels (Dincer, 2000; Faulin et al., 2009; Kammen et al., 2004; McKendry, 2002).

Poland – just like Ireland, Portugal, Finland, Greece, Romania and other countries who joined the European Union – is regarded as a European developing country in the relevant research (Amri, 2017). For this group of countries, a strong correlation was demonstrated between the introduction of RES solutions and GDP growth. Also, the energy sector offers employment opportunities for the local population (Arellano and Bond, 1991; Wojciechowska-Solis and Soroka, 2018).

The purpose of the study was to determine the attitude of Polish society towards renewable energy sources. The respondents' gender was a determinant that helped emphasizing the importance of renewable sources of energy in the functioning of the Polish society. The analysis covered the Polish households' electricity saving methods; preferences for the use of renewable energy sources in the future; and benefits of investing in renewable energy sources. Also, the barriers affecting the use of renewable energy sources in Poland were identified.

METHODOLOGY

This study relied on a diagnostic survey method. The research tool was a questionnaire with 5 closed-ended questions. Following the construction and validation process, a five-point Likert scale was applied to measure the attitudes.

The sample was selected from the whole adult population of Poland which is 31,532,048 people[1]. The index of scale reliability was calculated with the Cronbach's alpha set at 0.84. The methodological procedure enabled calculating the size of the research sample with a confidence level set at 0.95, the estimated size of fraction set at 0.50 and the maximum error set at 0.03. The sample size was set at 1067, and the following criteria were considered when choosing the respondents: place of residence (village; town with a population of up to 30,000; town with a population over 30,000), age (up to 25 years; 26 to 40 years; 41 to 55 years; 56 years and more), gender, and 6 regions of Poland. The number of respondents was representative for the following regions: central (220), southern (222), eastern (188), southwestern (109), northwestern (164) and northern (164). The study was conducted in September and October 2016. The respondents' gender was a determinant used to disaggregate the research sample; the share of women and men in the total sample was 51.6% and 48.4%, respectively.

The statistical analysis was performed with Statistica 10.1 PL, and involved the analysis of the discriminant function. The classification function was used, and consisted in calculating the coefficients for each of the groups created. Prior to the analysis, multivariate normality was examined by testing each variable for normality of distribution. Variance matrices were assumed to be homogeneous across groups. Standard deviation was not covered due to a large number of respondents in each group. The differences in means were considered

[1] As at June 30, 2016, according to a publication of the Central Statistical Office: "Population. Size and territorial distribution," Warsaw, 2016. Available online at www.gov.pl.

statistically significant if the probability of randomness was less than $p < 0.05$.

STUDY RESULTS

The most popular way to save electricity was to turn off the light when leaving the room. The value of the classification function for women (who paid more attention to that practice) and men was 3.577 and 3.304, respectively, with a statistically significant difference at $p < 0.001$. Additionally, women made more efforts to avoid the use of standby mode in audio-video and household equipment. In this case, the difference was statistically significant at $p = 0.016$, with the mean values for women and men being 1.084 and 0.928, respectively. Both genders reached similar values of the classification function when it comes to using energy-efficient electricity (1.723 and 1.620 for men and women, respectively). The energy efficiency labeling of audio-video and household equipment was less important for the respondents. Men were more interested in this information (0.269) at a significantly higher level (at $p = 0.032$) than women (0.133) (Table 1).

Both groups of respondents found solar energy to be the most promising solution for the future. The mean value of the classification function for women (4.833) was significantly higher, at $p < 0.001$, than the mean value for men (4.492). Also included in the model, geothermal sources of energy were significantly more often (at $p < 0.001$) mentioned by men (1.257) than by women (0.890) who were significantly more interested (at $p < 0.001$) in obtaining energy from water: the value of the classification function for women and men was 1.248 and 1.006, respectively (Table 2).

Table 1. Energy saving practices of Polish households

Energy saving practices	Wilks' lambda: 0.687 $F = 5.139$, $p < 0.001$*			Gender of respondents	
	Wilks' lambda	*F* value	*p* value	woman	man
I always turn off the light when leaving the room	0.678	12.113	0.001*	3.577	3.304
I pay attention to energy efficiency labels when buying audio-video and household equipment	0.658	4.561	0.032*	0.133	0.269
I avoid using standby mode in audio-video and household equipment	0.649	5.767	0.016*	1.084	0.928
I use energy-efficient electricity	0.688	2.256	0.133	1.620	1.723
Constant				12.604	13.139

*Significant difference at $p < 0.050$.
Source: own analysis based on research material.

Table 2. Preferences for the future use of different renewable energies

Type of energy source	Wilks' lambda: 0.662 $F = 13.675$, $p < 0.001$*			Gender of respondents	
	Wilks' lambda	*F* value	*p* value	woman	man
Solar	0.638	18.198	0.001*	4.833	4.492
Geothermal	0.650	21.259	0.001*	0.890	1.257
Water	0.698	12.390	0.001*	1.248	1.006
Constant				13.640	13.481

*Significant difference at $p < 0.050$.
Source: own analysis based on research material.

Of all renewable energy sources, solar collectors were the most popular among the respondents, thus confirming their interest in using solar energy. The value of he classification function for women (2.951) was significantly higher (at $p < 0.001$) than the corresponding value for men (2.468). Men (1.255), unlike women (0.833), were more interested in heat pumps; the difference was significant at $p < 0.001$. Also, photovoltaic panels were more popular among men than women; the values of the classification function were 0.990 and 0.577, respectively, at $p < 0.001$. Less attention was paid to the use of biomass furnaces. The classification function reached a higher value for women (0.630) than men (0.400). The difference was significant at $p = 0.002$ (Table 3).

Both groups of respondents agree that environmental protection is the greatest benefit from renewable energy sources. This was mentioned more often by men than women, as reflected by the values of the classification function, reaching 5.014 and 4.739, respectively (statistically different at $p = 0.012$). An important aspect of renewable energies was the assurance of energy security and gradual independence from external energy sources. This issue, too, attracted more attention from men (at $p = 0.005$), with a mean value of the classification function of 2.015 (compared to 1.747 for women). Additionally, men saw a much greater potential (at $p <$ 0.001) in investing in renewable energy sources in order to become independent from fossil fuels and to reduce greenhouse gas emissions. As regards these aspects, the

Table 3. Interest of Polish society in using renewable energy sources

Type of energy source	Wilks' lambda: 0.673 *F* = 19.287, *p* < 0.001*			Gender of respondents	
	Wilks' lambda	*F* value	*p* value	woman	man
Heat pumps	0.638	30.573	0.001*	0.833	1.255
Solar panels	0.650	34.501	0.001*	2.951	2.468
Photovoltaic panels	0.698	31.428	0.001*	0.577	0.990
Biomass boilers	0.684	9.198	0.002*	0.630	0.400
Constant				9.823	11.047

*Significant difference at $p < 0.050$.
Source: own analysis based on study material.

Table 4. Benefits of investing in renewable energy sources

Type of benefit	Wilks' lambda: 0.696 *F* = 13.011, *p* < 0.001*			Gender of respondents	
	Wilks' lambda	*F* value	*p* value	woman	man
Local/regional development	0.672	32.865	0.001*	1.250	0.732
Independence from fossil fuels	0.702	12.789	0.001*	1.402	1.716
Reduction of greenhouse gas emissions	0.721	13.387	0.001*	0.351	0.678
Energy security and gradual independence from external sources	0.698	7.762	0.005*	1.747	2.015
Environmental protection	0.731	6.256	0.012*	4.739	5.014
Constant				17.816	19.029

*Significant difference at $p < 0.050$.
Source: own analysis based on research material.

Table 5. Barriers affecting the use of renewable energy sources

Type of barrier	Wilks' lambda: 0.632 $F = 6.923$, $p < 0.001$*			Gender of respondents	
	Wilks' lambda	*F* value	*p* value	woman	man
Excessively complicated permit procedures and energy accounting methods	0.677	65.872	0.001*	0.966	1.650
Lack of a coherent sustainable development policy focused on air protection	0.752	29.178	0.001*	2.286	1.802
Increase in energy prices resulting from the lack of competition on the wholesale market	0.727	28.478	0.001*	2.117	1.645
Lack of a stable policy to promote RES (energy market monopoly)	0.693	1.187	0.276	0.782	0.889
Lack of mechanisms supporting the phasing-out of energy-intensive economic sectors	0.735	1.462	0.226	2.442	2.551
End-of-life power network infrastructure	0.692	1.427	0.233	1.218	1.330
Constant				19.819	19.028

*Significant difference at $p < 0.050$.
Source: own analysis based on research material.

mean values of the classification function were 1.716 and 0.678, respectively, compared to 1.402 and 0.351 calculated for women. The model also addressed the benefits related to local or regional development which were significantly more often (at $p < 0.001$) emphasized by women (1.250) than men (0.732) (Table 4).

The most commonly mentioned barrier to renewable energy sources was the absence of mechanisms supporting the phasing-out of energy-intensive economic sectors. This barrier was cited with a similar frequency, reaching a level of 2.551 for men and 2.442 for women. The increase in energy prices resulting from the lack of competition on the wholesale market was mentioned significantly more often (at $p < 0.001$) by women (2.117) than men (1.645). Similarly, the respondents identified some problems related to the lack of a coherent sustainable development policy focused on air protection. The replies were also significantly different (at $p < 0.001$), with the values of the classification function reaching 2.286 for women and 1.802 for men. The excessively complicated permit procedures and energy accounting methods were significantly more important (at $p < 0.001$) for men (1.650) than women (0.966). The model also covered the barriers that give rise to problems with the power network infrastructure, and the lack of a stable policy promoting renewable energy sources. These issues are related to the monopoly on the energy market. The value of the classification function for women and men was similar for both barriers (Table 5).

DISCUSSION

The purpose pursued and achieved by this study was to determine the attitude of Polish society towards renewable energy sources. The paper points to the readiness of the Polish society to protect the environment by using renewable energies, which is consistent with the recommendations of the European Union (Paska and Surma, 2014; Igliński et al., 2016). The recommendations of the European Community play a key role in ensuring access to affordable, reliable, sustainable and modern energy: the main goal of the new global program for sustainable development (United Nations, 2015).

This study corroborates the results of Romanian research according to which more than half of the population surveyed was interested in installing dedicated equipment to access energy from renewable sources; such solutions are associated with innovative attitudes among the local community (Cebotari and Benedek 2017).

In Germany, just as in Poland, the construction of renewable energy facilities has impacted regional development through job creation, as emphasized by Ulrich et al. (2012). Regional self-sufficiency in energy was very important, and so were the effects on fiscal policy. According to a study by Gamel et al. (2017) on the preferences of renewable energy consumers, gender is not important in terms of motives behind, or barriers to, the use of renewable energies. Both populations surveyed were aware of environmental issues and willing to invest in RES solutions.

As confirmed by studies, the Polish population finds it important to become less reliant on fossil fuels, energy secure and gradually independent from external sources of energy (Lund et al., 2015). Moving away from traditional fossil fuels to renewable energy sources, Europe is also able to eliminate nuclear power plants which significantly damage the environment (Conolly et al., 2016).

Italian researchers emphasize the importance of shifting to a low-carbon economy, which has brought measurable economic benefits in Italy. Also, an increase in employment and earnings was observed (Raitano et al., 2017).

This study, the analysis of its results and the relevant literature emphasize the great importance of energy policies implemented by different countries of the European Union. A suggestion is made that the future of energy depends on the political will and the ability of societies to implement appropriate technologies related to renewable energies (Lund and Hvelplund, 2012).

CONCLUSIONS

The promotion of renewable electricity, especially based on social collectors, should have an even greater impact on the use of RES, which could become a leading sector of the energy industry.

The environmental motivation behind the use of renewable energies should be coupled with other factors affecting the protection of natural resources.

A sustainable development policy focusing on air protection should be implemented, and adequate mechanisms should be deployed to support the phasing-out of energy-intensive economic sectors.

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STOSUNEK POLSKIEGO SPOŁECZEŃSTWA DO ODNAWIALNYCH ŹRÓDEŁ ENERGII. SEGMENTACJA WEDŁUG PŁCI

Abstrakt. Idea zrównoważonego rozwoju została przeniesiona na grunt energetyki, dlatego powstał termin: zrównoważony rozwój energetyczny. Jego fundamentalną zasadą jest efektywne wykorzystanie zasobów energetycznych, ludzkich, ekonomicznych i naturalnych. Odnawialne źródła energii (OZE) odgrywają coraz większą rolę w strukturze dostaw energii oraz w funkcjonowaniu społeczności lokalnej. Celem artykułu jest określenie stosunku polskiego społeczeństwa do odnawialnych źródeł energii z uwzględnieniem determinanty, jaką jest płeć. Starano się również wskazać znaczenie odnawialnych źródeł energii w funkcjonowaniu współczesnego społeczeństwa. W badaniach zastosowano metodę sondażu diagnostycznego. Przeprowadzono je na grupie reprezentatywnej liczącej 1067 respondentów. Do analiz statystycznych wykorzystano program Statistica 10.1 PL, w szczególności analizę funkcji dyskryminacyjnej z analizą funkcji klasyfikacyjnej. Respondenci deklarowali, że oszczędzając energię elektryczną, zawsze wyłączają światło, opuszczając pomieszczenia, a najchętniej skorzystaliby z kolektorów słonecznych jako alternatywnego i przyszłościowego źródła energii. W opinii ankietowanych inwestycje ukierunkowane na pozyskiwanie energii istotnie wpływają na ochronę środowiska naturalnego. Największe bariery w wykorzystaniu odnawialnych źródeł energii to: brak mechanizmów wspierających obniżenie energochłonności gospodarki, wzrost cen energii wynikający z braku konkurencji na rynku hurtowym oraz brak spójnej polityki zrównoważonego rozwoju w kwestii ochrony powietrza. Stwierdzono istotne różnice w podejściu do problemu odnawialnych źródeł energii, przy uwzględnieniu płci badanych.

Słowa kluczowe: rozwój zrównoważony, polskie gospodarstwa domowe, preferencje, korzyści inwestowania

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THE IMPORTANCE OF TRADITION AND FOLK CUSTOMS IN CULINARY TOURISM

Abstract. Culinary tourism enjoys a growing popularity worldwide. In each country, the gastronomy culture affects the whole society, because national traditions and culinary customs are independent from the level of income. The so-called "international cuisine" is also based on, and consists of, the distinctive dishes of separate and easily recognizable national gastronomy traditions. As a result, the general taste of people worldwide is also affected by local traditions, culinary heritage and region-specific recipes. In global tourism, there is a growing need for novelty, and culinary tourism has a huge potential to address that demand. Similarly to other types of tourism, culinary tourists seek unique experiences and custom-made services. With regard to the aspects of gastronomy, until now, mass tourism has mainly focused on universal solutions like international "fast food" franchise systems or – as an opposite – international "fine dining" catering. The participants of culinary tourism have their own preferences that are clearly distinctive from the processes of mass tourism and may also be impacted by other forms of tourism. In countries with a developed tourism industry, culinary tourism plays an important role in complementing heritage and rural tourism, offering an enhanced experience to visitors. In countries with developing tourism, unique gastronomy offerings can contribute to a deliberate introduction of local customs and traditions, and – with targeted marketing – can easily be developed into independent tourism offerings.

Keywords: culinary tourism, tradition, customer behavior, tourism marketing

INTRODUCTION

Tourist motivation is defined as the travelers' drive to seek new experiences, a motivation that is constantly widening the area of the tourism industry. Beyond the preservation of culture and traditions, new culinary experiences and fashionable gastronomy trends provide an infinite resource of opportunities in tourism. Millions of tourists are willing to travel to return to their roots, experience their traditions and re-discover their family values and gastronomy heritage (UNWTO, 2012).

The stakeholders of the tourism industry need to take into account that, in accordance with the new trends, tourists seek experiences that stimulate all of their five senses. Beyond acquiring knowledge, seeking new experiences has become the key incentive for tourists. In the past decades, within the frameworks of classic mass tourism, tourists mainly used their sight, hearing

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and touch whilst sightseeing; their smell and taste were used rarely. However, modern tourists enjoy using all of their five senses, which enhances the importance of gastronomy in tourism.

Given that the international standards ensure safety of local gastronomy offers, global tourists like to try local food and drink specialties. Of the different dimensions of culinary tourism, uniqueness and specificity are the basic requirements which can be determinant for the tourists' decision making process. As a matter of fact, the number of culinary tourists follows a downward trend within the tourism industry (Hall and Sharples, 2008). The main reason for this can be traced back to the general lack of trust in the non-transparent processes of global tourism. In tourism, the question of trust is of crucial importance; without trust, there can be no real relationship between the offer and demand side of the industry. The general human interest in food and beverages is a basic stimulus that can largely contribute to gaining new experiences while getting to know the local culture of a given destination.

Culinary tourism is focused on discovering the gastronomy values of a given destination whilst traveling. Culinary tourists get acquainted with local traditions, folk customs, folk art and craftsmanship. This type of tourism takes many forms; ethnographic tourism focuses on different traditions of geographically distinctive regions. Unlike in the case of geographic regions, urban and rural tourism areas have different characteristics. Together, the spaces of rural and urban regions create a rich tourism market that can provide a permanent tourism offer and at the same time, is able to address specific individual gastronomy needs of tourists. Providing a clear definition of the demand side of culinary tourism is not easy because basically every individual interested in gastronomy can fit the culinary tourist category. Of course, there are huge differences between fashionable trendsetting urban places and traditional rural catering facilities; based on their purpose and environment, they provide their visitors with a totally different experience.

The role of local producers becomes increasingly important in the culinary tourism market. Buyers are not necessarily choosing specific products because of their freshness or health properties, but rather out of a sense of trust. Buyers know the origin of the product, which is a kind of quality guarantee for them; they find it even more important than freshness and healthiness (Tóth-Kaszás et al., 2017).

Urban gastronomy trends are in constant development including pubs, Michelin-starred restaurants, street food bistros, artisan cafés and apartment restaurants. In rural areas, the most recent trends are thematic gastronomy festivals organized in authentic rustic environments far from urbanized centers. Culinary tourism – and its contribution to the perception of local people and culture – is predicted to gain an increased importance in global tourism. Its significance should not be overlooked: the visitors' culinary experience is a key component of the overall image of the whole nation.

RESEARCH METHOD

Culinary tourism provides huge opportunities within the global tourism industry. The uniqueness of different local and national gastronomies in each destination lies in the fact that local people live together with their gastronomy traditions, use their specific ingredients and consume their own traditional meals and drinks. Beyond the enjoyment of local specialties, tourists are often attracted by getting to know the different lifestyle of the local people who live at the destination, and gastronomy is an integral part of this experience. It is the philosophy of slow tourism as well; in this case, the tourist becomes a quasi-resident of the destination and can sense the atmosphere of the place (Ernszt, 2016; Ernszt and Lőrincz, 2017).

The author's current research aims to introduce the factors that affect culinary tourism, and their mutual relationships, through a questionnaire survey among tourists and few interviews with professionals working in the field. Gastronomy, the key influence factor in culinary tourism, is continuously changing (mainly because of the global trends), and therefore the results will probably suggest the need for further research. The research hypothesis was based on the diversity of culinary tourism and of services available to culinary tourists. The analysis emphasized the tradition-impacted special features of consumer behavior and resulted in an interesting finding that domestic and international tourists often have different preferences towards the same gastronomy tourism offer. Therefore, this research aims to explore the demands of domestic and international tourists from a new perspective, because the perception of culinary tourism offerings is not only impacted by service quality but also by the values, traditions and expectations of culinary tourists.

The importance of culinary tourism in domestic tourism

There are several different approaches to defining culinary tourism. One commonly used terminology describes its as studying the cuisine and the eating, drinking and wine tasting habits of other nations and cultures (Long, 1998). Another widely acknowledged definition focuses on the consumption of gastronomy products of other regions' destinations, and includes travel motivation into the term. Culinary tourism is closely related to gastronomy experiences and travel motivation. According to the author's professional experience, culinary tourism means changing one's location based on a gastronomy-related motivation, which results in traveling to another destination.

As a process, culinary tourism is a holistic activity which, due to its characteristics, can affect other types of tourism, such as cultural, rural or health tourism (Zsarnoczky, 2016). The cultural traditions related to eating and drinking vary in their importance to the tourism industry of different nations. In some countries, gastronomy traditions are closely related to other social habits, which the tourists are recommended to familiarize with. These customs diversify the spectrum of culinary tourism and can provide a wide range of experiences for those interested.

When developing the tourism systems of regions of national or ethnographic significance, special attention needs to be paid to the quality of the destination's gastronomy offerings. Tradition-based gastronomy offerings should be organized carefully. When professionally designed and implemented, culinary tourism goes beyond the gastronomy traditions of the given destination. Thematic routes, gastronomy events, exhibitions and international gastronomy competitions, gastronomy tourism attractions (restaurants and culinary places) and unique gastronomy-related events are all parts of the culinary tourism sector. In modern museums, folklore exhibitions are often paired with gastronomy traditions, and in many cases, they have display kitchens where traditional meals and culinary products are prepared for the visitors.

Gastronomy is especially important in the case of national minorities; as of today, more and more ethnic groups put themselves on the national tourism map thanks to their gastronomy and local traditions. These gastronomy destinations all have their own distinctive offers, based on their location and characteristics. Just like the permanent gastronomy events organized in large cities enjoy a continuous popularity, these rural festivals can also attract a large number of tourists because of their special features. In urban areas, the most important gastronomy destinations are fine restaurants, gastronomy museums and exhibitions, farm markets, gastronomy weeks and festivals. Other popular culinary tourism attractions include thematic gastronomy offers of fashionable quarters in large cities, or the gastronomy events at international music festivals, where people can try local and artisan products. Unlike in large cities, the most popular forms of rural culinary tourism are thematic local festivals, religious festivities, traditional holidays or thematic travels to different gastronomy destinations.

An emerging trend in culinary tourism is the growing popularity of high-quality rural restaurants that offer seasonal specialties[1] made from local ingredients. The fact that such restaurants work exclusively with local ingredients represents an important paradigm shift in the culinary tourism: the materials guarantee the local origin and authenticity[2] of meals served in these facilities.

The system of tradition-based gastronomy events

Gastronomy events held by ethnic minorities usually focus on traditional characteristics, folk arts, folk customs and local traditions. These events are often complemented with performances of local folklore groups and exhibitions of traditional craftsmanship. Also, they are usually organized by local and regional stakeholders who make sure local characteristics are taken into account during the event (e.g. village days).

Large-scale gastronomy events of national importance are usually organized by professional event planners or governmental bodies, and in most cases consist of a so-called product mix, including a wide variety of themes and various other elements that can be connected to the event. These events often have uniform characteristics, and in some cases, a series of the same event is held at different locations in the country.

Based on the above, a clear distinction can be made between different types of events with regard to the aspects of culinary tourism. It is also important to note

[1] A good example for that are harvesting events, e.g.: asparagus, tomato or watermelon harvest.

[2] Note: in this context, authenticity refers to the fact that the ingredients come from trustworthy resources.

that the themes of public national events and government-funded events are not necessarily interrelated.

As clearly shown in Table 1, governmental funding can be available for almost any type of events. Using the opportunities shown in the Table, governmental bodies can even have an impact on the popular taste of the public. From this aspect, maintaining the quality of gastronomy and culinary tourism can be regarded as a public affair where the monitoring process and the analysis of results are important professional duties.

Table 1. Hungarian gastronomy events classified by financing scheme

Type of event	Governmental funding	Private funding
Type A Public national event	**X**	–
Type B Municipal event	**X**	–
Type C Open audience event	**X**	X
Type D Events with compulsory registration and attendance fee	**X**	X
Type E Private event	**X**	X

Source: own elaboration.

Romantic ideals are an important part of folk customs and traditions. In many cultures, "traditional life" is closely associated with a lifestyle where everyday objects, goods and products were developed to perfection by generations, and are manufactured locally in accordance with the region's historic traditions. Beyond their functionality, these objects were often associated with the ideals of legends and folk tales, and the social status of their owner was reflected by their decoration.

By reflecting the local traditions, history and ideals of the region, folk art has always been a way of expressing the identity and passing on the history of a distinctive group of people, and thus, a way of communication between different groups. Of course, gastronomy is also an integral part of every cultural community; when they meet and mix, the 'competition' between different cultures and folk arts often result in improved quality of products, including the cuisine of each ethnicity.

Today's tradition-based gastronomy offerings reflect the roots of traditions, local folklore, history and culture of the country or region. The "culinary essence of a nation" attracts tourist both from the domestic and the international market. Ideally, the tourists, the tourism professionals and the local population should be equally satisfied with the local culinary culture. The success of a local culinary culture is evident when – mostly in rural destinations – the local population consumes the same gastronomy products that it offers to the visitors. Such a conscious use of products guarantees a balanced quality and the "homemade" taste that are expected in global culinary tourism, and serve as a regional "brand" of the ethnic group.

Culinary marketing and brands

Advertising and branding are of key importance in culinary tourism. Generally, advertising is effective when its mechanism works well in all four phases during the processes of attracting attention, awakening the interest and desire of the consumers and motivating them to action (Sándorné, 1991).

In tourism advertising, potential travelers are receiving an enormous load of stimuli simultaneously, hence it is crucial to be able to capture their attention in a targeted way. Another important challenge for the tourism advertising industry is to be able to provide content that will stand out and create a true motivation.

Products with strong brands enjoy a huge advantage in the culinary tourism industry. Creating a good brand is closely connected to the planning and design processes of culinary tourism products: the most common examples are brand-like events and regional brands attached to the product's geographical location. Map brands (Bauer and Berács, 2002) or destination brands (i.e.: New York, Serrano, Tokaji etc.) can give the product an easily identifiable geo-brand. There are many theories and methods for brand development based on the product's place of origin, all of them focusing on the distinctive function of the geographical location.

The geographical branding of gastronomy events and festivals works quite similarly: these events offer the visitors the opportunity to get to know the local values and traditions by experiencing the local gastronomy. It is important to note that tourism entrepreneurs who offer local specialties are also responsible for the image of the traditions and gastronomy habits of the destination. With the right and professional approach, the personal interaction between demand and supply can create a deeper attachment to local values, traditions and culture of the destination. The interaction is successful when the tourist becomes emotionally attached to the destination and its 'brand'.

RESULTS

The system of gastronomy consumption differs from country to country across the world. In accordance with traditions and culinary habits, food and alcoholic beverages can play a different role in each nation's gastronomy. In countries like Hungary or Belarus, the consumption of alcoholic drinks is traditionally important (Economist, 2013), while in other European countries – or in the case of nations of different religions – a gastronomy festival focusing on alcoholic drinks might not be a successful tourism motivation.

The various forms of culinary tourism represent a huge growth potential for national tourism, because these gastronomy products can be easily attached to different existing local tourism attractions. With regard to tourism marketing, government bodies and local stakeholders both play an important role in redefining the national gastronomy image. When the image of local gastronomy is created in line with other development activities taken by tourism destination management organizations, the various elements of local traditions beyond food and drinks can also become a part of culinary tourism.

The most common spaces of culinary tourism are usually national-level events, programs and festivals. During this research, the author conducted a survey at a national festival which took place in Budapest and was visited both by domestic and international tourists. According to the author's hypothesis, domestic and international tourists have a different image of culinary tourism because of their different knowledge about local traditions and history. In general, both domestic and international tourists prefer events that offer local gastronomy products, and it is important that the 'local' characteristics be clearly marked on the products.

In the vast majority of the examined programs, products sold at the event were manufactured locally, with the use of traditional tools and methods. It is clear that in the case of these 'local' events, there is always a close connection between producers and consumers, and that this closeness is a unique feature of culinary tourism which plays a significant role among the positive effects of tourism (Zsarnoczky, 2017b).

Culinary tourism harmonizes the unique characteristics and the simplicity of national and local cuisines. Sometimes, other nations' cuisines are also introduced at some events. Popular culinary tourism programs not only offer a great opportunity for local businesses to introduce the local characteristics to visitors (Zsarnoczky, 2017a); these events also represent long-term opportunities for all local stakeholders in terms of economic, social, health sector, infrastructural and environmental protection development (Buck et al., 2007).

Although the direct impacts of culinary tourism are difficult to measure, there are different abstract aspects that need to be taken into account. According to a certain definition, the image of a landscape and its habitat is created by historical, geographical, ethical, socio-psychological, religious, cultural, economic and individual factors. Combined together, they induce the consumers to make a rational and emotional judgment (Dávid et al., 2016).

This research was based on the results of a questionnaire survey taken at the 2017 Gourmet Festival in Budapest, with particular attention paid to the special characteristics of international gastronomy and culinary tourism. Out of a total of 117, the results of 100 completed questionnaires were analyzed. Due to a small number of questionnaires, the research results are not representative. Whilst choosing the respondents, efforts were made to keep the 50–50% ratio between domestic and international visitors.

Facts and figures:

- There were 100 properly completed questionnaires (85.5% of the total number). The ratio between domestic and international tourists was 50–50%. Local citizens were excluded from the sample.
- Gender ratio of respondents: 63% were female and 37% were male.
- Place of origin of respondents by ranking (1–5):
- International tourists: Germany, Austria, Poland, Slovakia, Serbia.
- Domestic tourists: Debrecen, Szeged, Kecskemét, Békéscsaba, Nagykanizsa.
- Age: most respondents were from the 51–61 age bracket (51%), followed by the age brackets of 36–50 (26%), 21–35 (13%), 6–20 (4%) and 65+(6%).

- Education: 1% of the respondents had a Ph.D. or equivalent degree, 18% had a tertiary education degree, 46% had a secondary education degree, 19% were holders of VAT certification and 16% had finished primary education.
- Marital status: 52% were married, 20% were divorced and in a relationship, 13% were not married in a relationship, 11% were single and 4% were widowed.

Analysis of the results

The research focused on different aspects of domestic and international tourists. The results are shown in the tables below.

The results shown in Table 2 indicate a significant difference in the number of gastronomy events visited in Budapest: while international tourists usually participate in one or two programs a year, domestic tourists tend to visit the programs more frequently (three or four times a year).

Table 2. Number of gastronomy events visited per year by domestic and international tourists

Gastronomy event visited per year	International tourists %	Domestic tourists %
One	**40**	5
Two	**28**	10
Three	15	**48**
Four	15	**31**
Five or more	2	6

Source: own elaboration.

Table 3 indicates that there is no significant difference between the eating and drinking habits of domestic and international tourists as long as they stay in their home countries. However, international tourists tend to try more of the local drinks than local food when traveling abroad. It is interesting that based on the answers, when traveling internationally, Hungarian tourists also seem to try more of the local drinks than local food of their destination.

In light of the results, it seems that the Hungarians' own cultural traditions (i.e. the popularity of alcoholic drinks in Hungary) impact the culinary habits

Table 3. Consumption preferences of international and domestic tourists at international and domestic gastronomy events (%)

Consuming traditional local food and drinks / travel	International tourists	Domestic tourists
Prefers eating during domestic travel	71	62
Prefers drinking during domestic travel	29	38
Total	100	100
Prefers eating during international travel	20	39
Prefers drinking during international travel	**80**	**61**
Total	100	100

Source: own elaboration.

of Hungarian tourists at international destinations, and they are likely to consume alcoholic beverages in other counties, too. As for international tourists, instead of food, they tend to consume more alcohol during their stay in Hungary at gastronomy programs that are also visited by domestic tourists.

To refine the results, some additional questions were asked to get a clearer understanding of this phenomenon and to find out if the drinking/eating ratio can be balanced. When answering these additional questions, there were no significant differences between the replies from domestic and international tourists. All of them claimed that when visiting a place abroad for the first time, they tend to be more cautious about local meals and prefer trying the local drinks instead. The ratio of local drinks and food consumed will be balanced at the second visit because of the trust that had been built towards the local hospitality services at the first time.

CONCLUSIONS

Culinary tourism is an emerging type of tourism. While all tourists like to eat and drink, there are differences depending on whether the gastronomy event takes place at home or abroad. Together with local stakeholders, governmental incentives also play an important role in redefining the culinary tourism image of national-level gastronomy events.

Trust is a crucial factor in culinary tourism; beyond a uniform cultural background, adequate legislation is also required to guarantee that the tourists have a positive experience during their culinary tourism interactions. The two most important elements of successful culinary tourism are gastronomy marketing and sufficient local and/or regional branding.

Having new experiences and getting to know novel gastronomy products are of key importance for the tourists' motivation; thus, local traditions and gastronomy products represent excellent opportunities for tourism service providers.

With the emergence of culinary tourism, there is a dynamic expansion of local trademarks in the EU, including local product labeling. According to the global culinary tourism trends, it is important to note that during their first travel, tourists are usually cautious about local products. However, once their trust is gained, they tend to consume more of the local meals during their subsequent visits.

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ZNACZENIE TRADYCJI I OBYCZAJÓW LUDOWYCH W GASTROTURYSTYCE

Abstrakt. Gastroturystyka cieszy się rosnącą popularnością na całym świecie. Kultura gastronomiczna danego kraju oddziałuje na całe społeczeństwo, ponieważ tradycje narodowe i obyczaje kulinarne są niezależne od poziomu dochodów. Nawet tak zwana kuchnia międzynarodowa stanowi zbiór charakterystycznych dań wywodzących się z odrębnych, łatwo rozpoznawalnych narodowych tradycji gastronomicznych. W efekcie ogólne upodobania smakowe mieszkańców całego świata kształtują się pod wpływem lokalnych tradycji, dziedzictwa kulinarnego i regionalnych przepisów. Obecnie na światowym rynku turystycznym wzrasta zapotrzebowanie na nowości, a w gastroturystyce tkwi ogromny potencjał w zakresie zaspokajania tego popytu. Podobnie jak w przypadku innych rodzajów turystyki, gastroturyści poszukują niepowtarzalnych wrażeń oraz usług dostosowanych do ich potrzeb. Jeśli chodzi o ofertę gastronomiczną sektora turystyki masowej, dotąd korzystano przede wszystkim z rozwiązań uniwersalnych, takich jak oparte na franczyzie międzynarodowe sieci fast food lub stanowiące ich przeciwieństwo wykwintne dania kuchni międzynarodowej. Tymczasem preferencje gastroturystów po pierwsze wyraźnie odbiegają od wzorców znanych z turystyki masowej, a po drugie mogą się kształtować pod wpływem innych form turystyki. W krajach z rozwiniętym sektorem turystycznym gastroturystyka odgrywa ważną rolę jako uzupełnienie agroturystyki i turystyki ukierunkowanej na dziedzictwo, oferując zwiedzającym szerszy zakres wrażeń. Z kolei w krajach, gdzie turystyka jest sektorem rozwijającym się, niepowtarzalna oferta gastronomiczna może służyć dobrze przemyślanemu zapoznawaniu zwiedzających z lokalnymi zwyczajami i tradycjami. Ponadto dzięki ukierunkowanym działaniom marketingowym atuty kulinarne można łatwo przekształcić w niezależne oferty turystyczne.

Słowa kluczowe: gastroturystyka, tradycja, zachowanie klienta, marketing w turystyce

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