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**SOCIAL FACTORS IN THE IMPLEMENTATION OF AGRICULTURAL DEVELOPMENT
(ON THE EXAMPLE OF LOWER SILESIA)**

Abstract

The scientific objective of the research conducted on Lower Silesia in 2013 was to identify social factors that influence the implementation process of agricultural development in agricultural holdings. The processes of land concentration proceed very slowly and the agricultural structure is dominated by small farms with low economic viability where income from farming is not sufficient to maintain the family, and surely does not provide any possibilities for development of such farms. To increase the productivity and efficiency of agriculture, it is necessary and essential to speed up the absorption of progress in agricultural holdings of 5 to 50 ha in area.

Key words

Agricultural development, Lower Silesia, individual farm

Introduction

The research focused on agricultural development in the Polish research tradition concentrates on two areas: research on modernization [1-3] and research on the diffusion of innovation to agricultural holdings [4-8]. One of the objectives of the conducted research was to find out - empirically - to what extent the process of state-forced modernisation has been disseminated and accepted by farmers. The research shows that the owners of agricultural holdings adopted technological development interpreted as agricultural engineering (substitution of human labour) to the greatest degree, the development in chemicalisation interpreted as correct use of fertilisers and pesticides to a lesser degree, and the biological development to the smallest degree. There is a gap in the research because the researchers had little interest in the process of agricultural development absorption in the 1980s and during the subsequent political transformation until the accession of Poland to the EU. Of course, there is a number of studies concerning the impact of agricultural advisory services, but this institution is one of many entities that actively implement agricultural progress in agricultural holdings.

In the general awareness, agricultural development is connected with innovations in agriculture. The claim that everything new is innovative is a threat. On the other hand, innovation cannot be reserved only to a small circle of specialists and institutions. The issue of definitions is an important one because agricultural innovations appear in key EU documents. Agricultural development is a term that has several definitions developed by the representatives of agricultural and social sciences [7, 9, 10: 193].

In the studies conducted, the concept of agricultural development has taken into account biological development, technical development (including mechanical and chemical development) and technological development [10: 202-203].

In the conditions of industrial agriculture, the fulfilment of economic, environmental and social objectives was difficult to reconcile. The concept of multi-functional agriculture - sustainable in theory and implemented in practice under CAP - is to enable the reconciliation of such objectives. The anticipated effect is high productivity of agriculture with simultaneous respect for the environment, preservation of biodiversity, and maintenance of cultural heritage of rural areas. It can be assumed that the best way to increase the yield produced by agricultural holdings is the implementation of agriculture development.

The goal of the project was to obtain knowledge on how the implementation mechanisms in the scope of agricultural development look at present, especially of biological development whose dissemination is particularly emphasised in the concept of sustainable development of agriculture and rural areas.

There are certain social factors that influence the implementation of agricultural development. The scientific objective of the project was to identify social factors that influence the implementation process of agricultural development in agricultural holdings 5 to 300 ha in area.

It is difficult to define clear boundaries between development and innovation. The greatest number of studies in the field of diffusion of agricultural innovations is provided by rural sociology. A large part of the work on this subject was created based on American rural sociology and concerned the mechanism of assimilating and spreading innovations in the practice of farms. Works by B. Ryan and M.C. Grossa, on the dissemination of corn hybrids among farmers in two Iowa villages, is, according to B. Gałęski, a classic study that has led to the development of diffusion theory of innovation [5: 71]. Ryan and Gross found that the statistical distribution of innovation adaptation is similar to a normal distribution.

In the 1950s, there was a rapid increase in research conducted on the diffusion of innovation. The classic work of E.M. Rogers, *Diffusion of Innovations*, was published in 1962. For E.M. Rogers, innovation is an idea perceived by the individual as new [4: 70]. According to J. Styk, it is irrelevant whether the objectively given idea is old or has arisen relatively recently. The most important thing is whether in a particular community it is considered as new. The author draws attention to the experience of members of a particular community [11: 43-58]. Rogers distinguished five categories of innovation users: innovators, early adopters, "early majority", "late majority" and marauders. The proposed division is an ideal type that does not necessarily correspond to the actual distribution of innovation users.

In the work *Chłop i zawód rolnika* from 1963, B. Gałęski analyzes the phenomenon of professionalisation of the farmers in connection with the industrialization of the country and agricultural policy of the state. The work concludes that with the increase in specialization of farms, the pace and scope of the innovations adopted increased because of methods of production, agrotechnical treatments as well as new tools of work [12].

Polish researchers pointed out that factors that strongly influenced the phenomenon of assimilation were the professional position of the individual, its prestige and the scope of non-environmental contacts. More elements of agricultural progress have been adapted by farmers who are socially active in different organizations and have more contacts with non-governmental organizations [13: 178-179].

J. Turowski and a group of sociologists from the Catholic University of Lublin conducted a study in which pairs of villages were selected from one region of the voivodeship Lubelskie with similar objective conditions, and differing significantly in the degree of socio-economic development. A total of 8 villages was analyzed in terms of productivity, degree of mechanization, level of institutionalization of public life and number of "common facilities" that were available to the general population. The results published in *Drogi modernizacji wsi. Przenikanie innowacji do rolnictwa i wsi województwa lubelskiego* [1] concerned the differences between modernized and less developed villages, innovation information channels and the conditions for dissemination of innovation. The author presents the role of social factors and local communities in the process of modernization, innovative farmers and leading farms, and the exchange of attitudes and patterns of behavior. Attention has also been paid to the importance of neighbors and families in the process of diffusion of innovation. The role of these informal groups is very large, even one can talk about the phenomenon of a kind of reintegration of ties [1: 288]. Concluding their reflections, the researchers wrote about the "coexistence" of elements of tradition and modernity within the countryside and farm.

In summarizing the achievements of the 1960s and 1970s, Bukraba-Rylska writes that the domain of Polish research on diffusion has become a comprehensive analysis of the rural reality, taking into consideration the basic fact that the village is a co-dependent arrangement which includes the farmer's personality, family, farm, local community and culture [7:329]. Another indication was the indication of the significance of the local system and emphasizing its significant influence on the process of modernization, "(...) the perception of complex relations between the village and its surroundings, and - already within the village - the unequivocal relations between elements of tradition and modernity" [7:331].

Methods

In the conditions of a market economy, it is possible to identify four types of entities operating in the external environment of agriculture which - to different degrees - influence the process of progress implementation in private farms:

- 1) Polish and foreign companies whose objective is the production and distribution of industrial inputs (sowable material, pesticides, mineral fertilisers, machines and equipment necessary for crop and animal production).
- 2) State/local government institutions whose objective is to disseminate agricultural progress (e.g. agricultural advisers). Such institutions accomplish long-term objectives of agricultural and social policy addressed to rural areas. The institutional system of the state influences the entities involved in bringing and accepting the progress to/in agricultural holdings (such as the Agency for Restructuring and Modernisation of Agriculture, the Agricultural Property Agency).
- 3) Institutions of the “knowledge triangle,” such as higher education institutions in the area of agriculture, research centres (e.g. Variety Assessment Experimental Stations) that provide education, research and create innovation [14: 90].
- 4) Modern, large private enterprises as well as State Treasury agricultural holdings which are the sources of models of good practices in the application of modern pesticides, fertilisers, machines and equipment as well as appropriate agrotechnical procedures for farms operating in their vicinity.

The land concentration process, regardless of statutory regulations in the scope of land trading, is restricted. The changes in the agricultural structure proceed very slowly (Table 1.).

Table 1. Number of agricultural holdings in the years 2003 and 2010 (in thousand)

	<1 ha	1-2 ha	2-5 ha	5-10 ha	10-20 ha	20-30 ha	30-50 ha	50-100 ha	100 + ha
2003	27.5	931.7	485.6	372.5	246.7	60.5	29.8	11.3	6.6
2010	8	355.2	468.2	335	218.5	60	35.39	16.8	9.7

Source: *Gospodarstwa rolne w Polsce na tle gospodarstw Unii Europejskiej – wpływ WPR* [15:14].

In the period from 2003 to 2010, the biggest decrease - by about 60% - of the number of agricultural holdings was noted in the group of holdings with the smallest area (0-2 ha). The number of holdings with the area of 5-30 ha decreases quite slowly, and the number of larger holdings with areas of 30 ha slowly increases. Some of the holdings from the group of 5-15 ha passes to the groups with larger area and some of them to lower area categories [16]. The land concentration ratio in Poland is low in comparison with EU countries at 30% [17: 20]. Big agricultural holdings and agricultural enterprises increased their area mainly through the purchase or lease of land coming from the resources of the State Treasury. The transfer of land between private farms influenced the dynamics of concentration processes to a lesser degree.

W. Józwiak calculated that bigger holdings, that is of 16 and more ESU and with competition and development capacity produced about 63% of national agricultural production in 2010, and at the same time did not exceed 5% of the total number of holdings in Poland [18: 31].

In the present situation, the key issue for the increase in the productivity of agricultural holdings, especially those with between 5 and 50 ha, is the implementation of agricultural development. It is essential to identify the factors facilitating or hindering agricultural development implementation. The channels providing the information about agricultural development are also important.

Doctoral dissertation research carried out by me in the Dolnośląskie Voivodeship (2013) shows some regularities in the process of agricultural development absorption. The research covered two groups of respondents: the representatives of companies offering industrial inputs, and private farmers from holdings with between 5 and 300 ha. The research involved the participation of 22 regional sales representatives operating in the area of Lower Silesia, of which 11 represented seed companies, 6 were companies producing pesticides, and 5 were companies with combined offer of sowable material and pesticides (Causade Polska, Danko Hodowla Roślin, Hodowla Roślin Smolice – Grupa IHAR, Hodowla Roślin Strzelce, KWS Lochów Polska, Lantmannen SW Seed, Limagrain Central Europe Societe, Maisadour Polska, Małopolska Hodowla Roślin – HBP, RAGT Semences Polska, Saanten-Union Polska, BASF Polska, Bayer Crop Science, Dow Agro Science Polska, Du

Pont Poland, Sumi Agro Poland, Syngenta Crop Protection). The study was conducted using an interview questionnaire. The number of conducted interviews with farmers is presented in Table 2.

Table 2. Number of individual farms in Lower Silesia and number of interviews conducted

Area group of individual farms	Number of individual farms (According to PSR)	Structure in area groups in%	Number of interviews
5-10 ha	13548	45,3	91
11-15 ha	6139	20,5	41
16-20 ha	2944	9,9	20
21-30 ha	2758	9,2	18
31-50 ha	2107	7,0	14
51 + ha	2422	8,1	16
Amount	29918	100%	200 interviews

Source: *Charakterystyka gospodarstw rolnych PSR 2010* [19: 442–443] and author's calculations

After World War II, almost the whole population of Lower Silesia was replaced and the region was settled with people arriving from different regions of Poland and Europe. The next argument for the selection of Lower Silesia was its strong urbanisation. The proximity of local markets where the products may be sold and simultaneous possibility of procuring relevant inputs by farmers is a significant element influencing the development of agricultural holdings.

Results

Holdings of lower economic viability are traditionally 5 to 50 ha, excluding special parts, such as orchards, vegetable growing farms, and ponds. The farmers from such holdings produce such a considerable surplus that even with full naturalisation of consumption, they are not able to consume it. Therefore, such holdings are connected with the market. Yet, pursuant to own research, the market environment (providing industrial inputs) takes little interest in establishing direct relations with the owners of small farms, even though their number is very high.

The companies competing in the markets for inputs have similarly defined target group; those who have holdings of an area exceeding 50ha. The groups of farmers with holdings up to 50 ha of arable land are not interesting enough for regional representatives to concentrate on establishing direct contact with them. Some representatives are aware that the holdings which they view as "medium-sized" (up to 50 ha) are somehow "excluded" from access to the most recent information. There are different methods of reaching the farmers from holdings of different areas with the information about the products offered by a company. The method that is the most often applied to the group of farmers with land from 16 to 50 ha is the presentation of the company offer during the meetings organised with other companies (e.g. the event entitled "Days of Fields"). In the case of the owners of holdings exceeding 50 ha of land, the best method of winning the clients was to establish direct contacts.

The study reveals that the companies simply assume that the bigger holdings are market holdings, and therefore similarly to large agricultural holdings need to focus on minimisation of human labour and on financial outlays on inputs to increase the efficiency of its operations. Pursuant to the research by anthropologists, the value of work is not taken into account in economic calculations in terms of family farming. Labour consumption by individual types of production, and the decreasing number of members in a family, increasingly influence the decisions concerning the development of the holding and decisions concerning production. The smaller the need of human labour in a given type of production, the more inclined the farmers are to undertake it [20: 14-16].

Big holdings are objectively the biggest clients in the market for inputs. The competition for those clients has not only the form of extending the scope of cooperation with non-commercial activities, but is focused on

financial instruments, such as what package of benefits is offered by the company with relatively similar products in terms of quality. The assumption is that the bigger the package is, the greater the opportunity to win a given client. However, studies do not show that the farmer buying sowable material and pesticides uses the offer of only one company. They choose the offer with the biggest number of benefits.

In the times of centrally planned economy, the implementation of agricultural development was the responsibility of the state institutional system. At present, the regional representatives of companies are active entities introducing agricultural development to private farms. In their work, they combine the elements of scientific knowledge by inviting the representatives from universities to meetings organised by them and referring to the results of research and studies carried out in higher education institutions. They also combine management competence through the use of increasingly effective sales techniques by organising informational meetings and events promoting new products, and local knowledge. If they do not know local conditions, they cannot effectively advise in the scope of specific varieties; they often win new clients through recommendations by farmers with whom they cooperate [21].

The entities producing inputs in the conditions of the market economy gain their competitive advantage through supplying inputs which are all the time improved in terms of quality and through developing effective distribution networks for the produced goods. A significant element of the organisation of such networks is the informational activity conducted by them in the scope of the products offered, their application and quality in comparison with similar products offered by competing entities. It is a form of introducing development to agricultural holdings which, through the activities undertaken by sales representatives, can be significantly more effective. In particular, when the representatives reach broad group of farmers directly. The limitation of direct contacts to farmers with more than 50 ha and efficiently operating holdings is not, in my opinion, an optimum solution for the effective implementation of agricultural development [22]. Smaller holdings usually have only indirect access to information about new varieties of plants and stock that will produce higher yields, such as during organised industry meetings at the regional or national level. The holdings which would like to use new varieties of plants pay higher prices and do not receive such economic bonuses as those proposed to bigger holdings (exceeding 50 ha) in the case of direct contacts with sales representatives.

The second category of respondents included the owners of holdings between 5 and 300 ha. There are different factors which influence the absorption of different kinds of development, including biological, chemical and technical. Farmers are still convinced that progress means mainly agricultural engineering (mechanisation). It is possible to identify two reasons for such a belief. First, labour resources decrease in families of farmers because their members increasingly often undertake work outside their farms. Second, agricultural machines, mainly tractors, are a factor influencing the prestige of a given person in rural communities, the type of a tractor owned influences social rank taken by a given farmer in a rural community.

The implementation of changes in agricultural holdings after the accession of Poland to the EU referred mainly to changes in plant and machinery, planned changes in the purchase of land, the use of pesticides, and by the end the use of new varieties of farming plants.

The studies reveal that the knowledge of biological development is scarce. The same low level applies to advantages arising from it and the programmes aimed at the dissemination of knowledge about such progress co-funded from the means expanded by local authorities. The literature shows that the level of crop planning should be necessarily increased in Poland by about 20%. The knowledge of Post-Registration Variety and Testing programme was declared by 100% of sales representatives and 10% of farmers. At present, biological development is viewed as the most important tool for increasing the crop of farming plants. Yet, the interest in the PRVT system seems to be present only among those for whom variety studies are a passion.

The owners of holdings are themselves responsible for introduced varieties. The role of advisers and sales representatives from the business environment of inputs is noticed by them but assessed as of little importance. Even in the case of big enterprises, it is a task of representatives to reach farmers with the offer and convince them that they should change pesticides or varieties used by them thus far.

The meetings which are organised for farmers with the objective to disseminate the knowledge of different kinds of agricultural development are of moderate interest for them. Agricultural education and the area of a managed holding are the factors which influence larger interest in such type of meetings. Younger users of

holdings were more willing to take part in meetings organised for farmers. The change after the meetings organised for farmers was declared the most often by the owners of holdings with area exceeding 20 ha of arable land. It may be assumed that they were more interested in obtaining a higher yield from their holdings without changing its area.

In Lower Silesia, the influence of large agricultural holdings (exceeding 300 ha) is noticeable mainly through the transfer of information by their employees. This method is mainly used by the owners of holdings with smaller areas up to 15 ha. They confirm that they learn about new pesticides and new varieties from their acquaintances employed in such holdings, and based on such information implement them in their own holdings.

The influence of EU financial instruments intended to modernise agricultural holdings was the most noticeable in agricultural holdings with larger areas. The simplified aid scheme is also more advantageous to holdings with large areas.

Conclusions

S. W. Kłopot writes that if we assume that small holdings (up to 5 ha - (note by Barbara Szczepańska) will be of auxiliary character and the activity carried out in them will concentrate, to a larger degree, on non-economic values, then we are still left with the issue of holdings with arable land from 5 to 20 ha (...). At present, there are no opportunities for their development, or, given the realities of local labour markets, for discontinuing the activity of such holdings and liquidating them [23: 110]. Therefore, I assume that the implementation of agricultural progress elements may influence the growth of income from agricultural holdings in those with an area from 5 to 50 ha of arable land.

According to the research presented, there are certain social factors that influence the implementation of agricultural development.

The research and other studies enable the identification of some determinants of the process of implementing agricultural development elements in agricultural holdings: age and education of the main user, and, to a significantly higher degree, the size of the managed agricultural holding. The bigger the area of the holding, the more the owners are inclined to absorb different factors of agricultural progress. An important factor is also direct contacts with sales representatives.

The holdings exceeding 50 ha are connected with the inputs market and markets for agricultural products. In such holdings, agricultural development is absorbed the most quickly. Pursuant to this research, sales representatives establish permanent relations with owners of big and large holdings, and the agricultural development elements are implemented there at first.

Medium-sized holdings are a kind of transitional category. They may develop depending on the resource level in the holding and the ability to absorb agricultural development factors.

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