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Supporting the Development of Multifunctional Agriculture in the Area of the Sudeten and the Polish Carpathians

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ABSTRACT

The article concerns the effects of supporting the development of multifunctional agriculture in the mountain areas of the Sudeten and the Polish Carpathians under the Rural Development Plan for 2004-2006 and the Rural Development Programme 2007-2013. The instruments employed to implement the goals of multifunctional agriculture include the following three measures: the support for agricultural activity in less-favoured areas (LFA), the agri-environmental programme and the afforestation of agricultural land. The spatial analysis was based on the share of the granted support in the total number of farms and on the total amounts granted in PLN per 1 ha of agricultural land, which enabled the synthetic absorption ratio to be constructed and the types differing in terms of the financial funds obtained to be distinguished among the counties. The use of the EU funds related to the productive and natural (green) functions, i.e. the implementation of multifunctionality in farms, is spatially differentiated in the areas of the Sudeten and the Polish Carpathians. In those areas the further development of multifunctional agriculture requires the area structure to be improved and the ownership system of farms to be stabilised.

1. INTRODUCTION

The interest in multifunctional agriculture stems from the appreciation of the role of farming in maintaining the natural environment in a good condition and preserving cultural heritage. This emphasises those spheres and effects of the farmer's activity that are not directly verified and paid for by the market. The multifunctional agriculture is beneficial both from the point of view of socio-economic development and in the context of environmental protection, taking into account the interest of farmers. It is strongly related to the concept of integrated development of agriculture and rural areas. The integration focuses on resources and the multifunctionality on a type and nature of the activities carried out. The concept of multifunctionality has been reflected in the European agriculture model (MFA –

Multifunctional Agriculture), which was launched in the 1980s and has become one of the remedial measures to problems of both income and environmental nature that affect agriculture.

The aim of the study is to present the concept of multifunctionality of agriculture and its implementation in the mountain areas, i.e. in the areas of the Sudeten and the Polish Carpathians, with the use of the financial funds available under the Common Agricultural Policy programmes for the years 2004-2010. Such measures were taken into consideration as are of significance for the multifunctional agriculture and as refer to the nature of the mountain areas. The mountain areas in Poland include not only the Carpathians and the Sudeten, but these regions have the highest share in such areas. The differences between the Sudeten and the Carpathians are significant and relate not only to their geological structure, climate,

fauna and flora, but also to their socio-economic considerations. Despite the differences, those areas are characterised by similar features regarding the agricultural activity carried out. These characteristics include: short growing season, low temperatures and high daily and periodical differentiation, high precipitation, poor soil, differences in exposure and slope of fields situated on hills, small areas of plots and their irregular shapes, significant field dispersion resulting in access road being extended, accumulation of agricultural works in a shorter period and higher costs of acquisition of plant and livestock products [6], [7]. The Sudeten are located in the south-western part of Poland within the area of Lower Silesia Voivodeship and Opole Voivodeship, and they extend over 15 poviats (fig. 1).



Poviats in the Sudeten: 1 - Zgorzelec; 2 - Bolesławiec; 3 - Lubań; 4 - Lwówek Śląski; 5 - Jelenia Góra; 6 - Złotoryja; 7 - Jawor; 8 - Kamienna Góra; 9 - Wałbrzych; 10 - Świdnica; 11 - Dzierżonów; 12 - Kłodzko; 13 - Ząbkowice Śląskie; 14 - Nysa; 15 - Prudnik.
 Poviats in the Carpathians: 16 - Cieszyń; 17 - Bielsko Biala; 18 - Żywiec; 19 - Wadowice; 20 - Sucha Beskidzka; 21 - Mysłenice; 22 - Limanowa; 23 - Nowy Targ; 24 - Zakopane; 25 - Nowy Sącz; 26 - Gorlice; 27 - Jasło; 28 - Krosno; 29 - Strzyżów; 30 - Brzozów; 31 - Sanok; 32 - Lesko; 33 - Ustrzyki Dolne; 34 - Przemysł.
 Source: own compilation.

Fig. 1. Administrative division of the Sudeten and the Polish Carpathians.

The Sudeten occupy 3 percent of the country's area. In 2002, the area of agricultural land was 569963.7 ha and there were 45,136 farms in the Sudeten region. The agriculture concentrates primarily on growing crops of low environmental requirements and the production of natural fodder. The average farm size in the Sudeten is 10 ha. The Carpathians are located in the south-eastern part of the country within the area of Silesia Voivodeship, Małopolska Voivodeship and Podkarpackie Voivodeship, and they extend over 19 poviats. The Carpathians occupy 6.1 percent of the area of Poland. In 2002, the area of agricultural land was 717418.5 ha and the number of farms operating in the Carpathians was 219,822. The crops in that area include, in particular, potatoes and cereals. The breeding of sheep is also popular. The average farm size in the Carpathians is 4 ha. In the Sudeten and the Carpathians, as the altitude of land rises, the agricultural land diminishes and the forests increases.

The share of grassland in the total area of the Carpathians ranges between 13 and 15 percent, and in the Sudeten amounts to approximately 22 percent. The share of forest in those mountain areas is similar and on average amounts to 40 percent of the total area.

2. THEORY AND METHODOLOGY

The multifunctionality of agriculture is determined by many researchers as a local model of agriculture that uses local natural resources and seeks to build a new relationship between the consumers and the producers [13], [14], [16]. The model focuses on the triple meaning of the "attachment to land", which can be found in various forms, i.e. spatial, natural and socio-cultural. This "rootedness" is an important factor differentiating agricultural production from the majority of other production, forced into mobility under the influence of competitors.

The chief idea of multifunctionality is that while there are many agricultural functions expressed in terms of goods, services and markets, agriculture also produces non-market goods, for example, it helps to preserve the landscape or biodiversity.

The existence of both these types of goods is closely related. The connection between the beneficial external effects of farming and the production of market goods is known as *jointness*.

In these terms, the multifunctionality is defined as a set of functions related to the agricultural activity and this differentiates it from the multifunctionality of a farm, in which both agricultural and non-agricultural activities are carried out simultaneously (fig. 2).

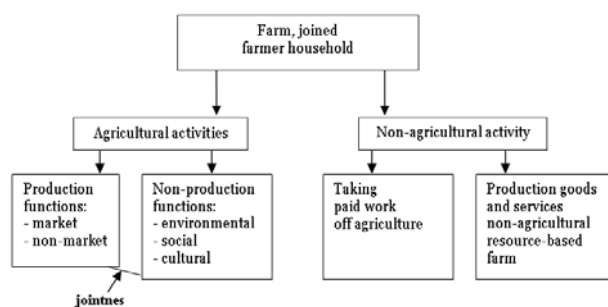


Fig. 2. Multifunctionality of agriculture and multifunctionality of a farm (source: [15; p. 24]).

In the academic literature on the multifunctionality of agriculture, the production functions are very well characterised, but the non-production functions are described only briefly [1], [2], [8].

A new proposal of classification of non-market functions of agriculture has been developed [14], which divides them as follows:

1). Green functions: managing land resources to sustain its valuable properties, creating habitats for wildlife fauna and flora, protecting animal welfare,

sustaining biodiversity and improving the chemicals cycle in agricultural production systems.

2). Blue functions: water resources management, water quality improvement, flood prevention, production of water and wind energy.

3). Yellow functions: sustaining the cohesion and vitality of rural areas, sustaining and enriching the cultural traditions and identities of villages and regions, developing agro-tourism and hunting.

4). White functions: ensuring food security and food safety.

In the majority of cases it is impossible to separate the market and non-market production spheres on farms engaged in multifunctional agriculture. The transition of a farm from a conventional to a multifunctional model also involves paying closer attention to the relationship between the rural landscape and agriculture. The rural landscape does not exist without agriculture, and agriculture plays a significant role in its preservation. This relation leads to the use of good farming practice respecting the natural environment, which is a public asset accessible to the whole of society.

The scenario of support for the development of multifunctional agriculture in Poland was outlined in the Rural Development Plan for the years 2004-2006 [9] and the Rural Development Programme 2007-2013 [11].

The instruments employed to implement the goals of multifunctional agriculture included three measures: the support for agricultural activity in less-favoured areas (LFA), the agri-environmental programme and the afforestation of agricultural land. Each measure determines both the requirements to be fulfilled by a farmer and also the benefits resulting from the impact of agriculture on the natural environment by way of complying with the non-market functions, i.e. green and blue functions.

The measure "Support for agricultural activity in less-favoured areas (LFA)" is an instrument of financial aid addressed to farms situated in the areas, where the agricultural activity is made difficult by unfavourable natural conditions.

Under the Common Agricultural Policy, those payments are intended to protect rural areas against depopulation and the loss of their agricultural character, thus contributing to the continued farmland use, preservation of the rural landscape and promotion of environmentally-friendly agriculture.

Financial aid is granted, among others, to farmers operating their holdings in the mountain areas (EUR 67.8/1 ha of AL; this concerns districts, in which more than half of agricultural land lies at the altitude of over 500 metres a.s.l.) and those having to cope with specific difficulties (EUR 55.2 /1 ha of AL; this concerns districts in foothill areas that were earlier granted tax relief when at least 50 percent of agricultural land was

situated at the altitude of over 350 metres a.s.l.). The agri-environmental programme has been designed to support systems of agricultural production conforming to the requirements of environmental and landscape protection and the rules for conserving endangered wildlife fauna and flora species and their habitats.

The agri-environmental measures are elements shaping the multifunctional development of agriculture, and in particular its non-market functions, i.e. green and blue functions. In that respect, four packages were taken into consideration, which related to the extensive use of permanent grasslands, the protection of endangered bird species and natural habitats outside of and within the Natura 2000 areas and the protection of soil and water.

The payments under those packages were differentiated depending on the fulfilment of specific requirements by the farmers [5]. The measure "Afforestation of agricultural land" is especially important for the Polish agriculture in the mountain areas, which is characterised by overexploitation of land of little agricultural value and susceptible to various threats (for example, erosion or water pollution).

In such conditions, the afforestation of land enhances the multifunctionality of agriculture, thus contributing to the balanced development of agriculture and rural areas. It affects not only the natural environment (by boosting the forestation, and therefore creating conditions for strengthening ecosystems and biodiversity), but also the socio-economic development of the countryside (by creating the possibility of additional employment and income). The nursing and afforestation payments were obtained on condition that the formal requirements of this measure were fulfilled [10].

The spatial differences in the discussed measures related to the multifunctionality of agriculture were assessed on the basis of the ratios illustrating the share of farms receiving the given payments in the total number of agricultural holdings as well as the amounts obtained in that respect per 1 ha of agricultural land in the years 2004-2010.

Those characteristics were subject to normalisation [12], where the zero value corresponded to the average level in the country, which allowed for the average normalised value to be calculated. Such value was adopted as a synthetic ratio of the level of measures related to the multifunctionality of agriculture that affected the improvement in the natural environment [4].

3. RESULTS AND DISCUSSION

In Poland, the availability of the LFA measure to the farmers was high thanks to the easiness in fulfillment of its criteria and due to the formal simplifications. In the mountain areas, due to the land relief (large proportion of hillsides), the uncultivated

agricultural land is endangered, to a significant degree, by water erosion and surface water flows. In order to maintain the landscape values of those areas through a traditional and extensive use of land it is advisable to transform the arable land into the permanent grassland. The higher the altitude of agricultural land and the more diversified the land relief, the stronger is the need to implement this kind of procedures. In 2010, the proportion of agricultural land eligible for the LFA measure differed greatly in the counties situated in the Sudeten and the Carpathians; it ranged from 0.4 percent in Prudnik Poviát (the East Sudeten) to 79.5 percent in Kamienna Góra Poviát (the West Sudeten) (fig. 3).

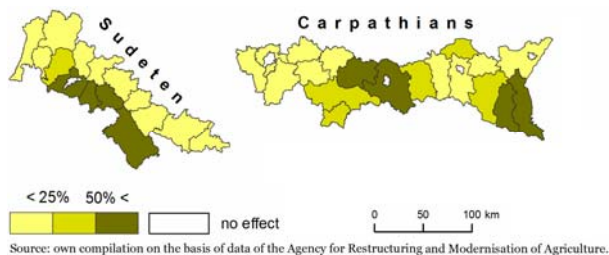


Fig. 3. Agricultural land eligible for payments under the LFA measure in the Sudeten and the Polish Carpathians in 2010.

Over 50 percent of agricultural land eligible for the LFA measure is located in eight counties: Jelenia Góra Poviát, Kamienna Góra Poviát, Wałbrzych Poviát and Kłodzko Poviát (the Sudeten) as well as Limanowa Poviát, Nowy Sącz Poviát, Lesko Poviát and Ustrzyki Dolne Poviát (the Carpathians).

The agriculture support instrument in the form of the agri-environmental programme has mainly become an impulse for the development of multifunctionality of agriculture. On the basis of the effects of support for activities related to the productive and natural (green) functions, the implementation of multifunctionality in farms was spatially differentiated.

In 2010, the average area of agricultural land eligible for payments under the four packages of the agri-environmental programme was 13.8 percent for the counties situated in the Sudeten and the Carpathians (fig. 4).

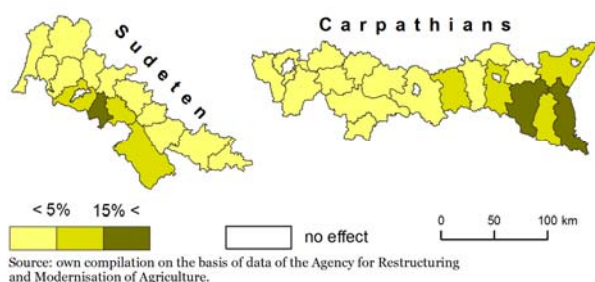


Fig. 4. Agricultural land eligible for payments under the agri-environmental programme in the Sudeten and the Polish Carpathians in 2010.

The largest area of agricultural land (over 15 percent) eligible for the payments was located in Ustrzyki Dolne Poviát and Sanok Poviát (the Carpathians) as well as Kamienna Góra Poviát (the Sudeten). On the other hand, the smallest area of agricultural land subject to the financing was located in Sucha Beskidzka Poviát and constituted 7.9 percent of the total.

The financial support for afforestation of land classified to lower valuation classes in the mountain area was spatially differentiated (fig. 5).

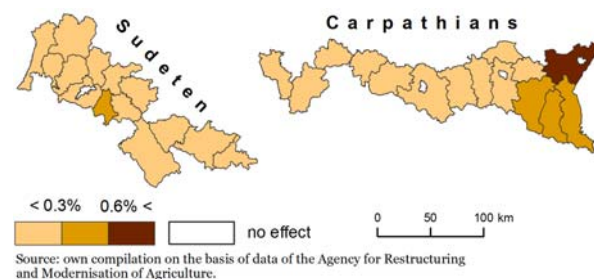


Fig. 5. Agricultural land eligible for payments under the afforestation of agricultural land in the Sudeten and the Polish Carpathians in 2010.

In 2010, the highest share of agricultural land granted afforestation payments was in Przemyśl Poviát (0.96 percent), and the lowest share of agricultural land granted such payments (below 0.001 percent) was in Nowy Targ Poviát, Zakopane Poviát and Bielsko-Biała Poviát (the Carpathians) as well as Dzierżoniów Poviát (the Sudeten). The reasons for the majority of the farms in those counties losing the ability to benefit from the financial support was their failure to meet the criteria regarding the land ownership status, the management of land and the adverse land layout [3].

On the basis of the synthetic ratios, the following eight types of counties were distinguished differing in the financial support obtained under the LFA, agri-environmental and farmland afforestation measures to improve the natural environment through green and blue functions (fig. 6).

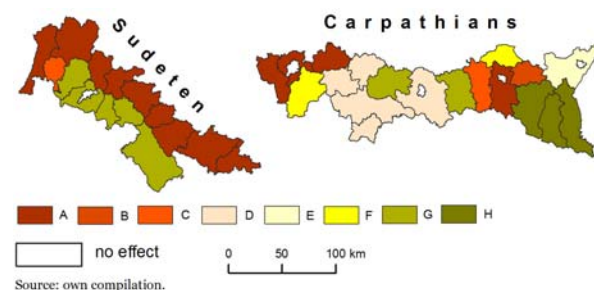


Fig. 6. Types of impact of the financial funds granted under the LFA measure, the agri-environmental programme and the afforestation of agricultural land to improve the natural environment in the Sudeten and the Polish Carpathians: A – measures of the three programmes below average; includes, in particular, the counties located in the Sudeten, i.e. Zgorzelec Poviát, Bolesławiec Poviát, Złotoryja Poviát, Jawor Poviát, Świdnica Poviát,

Dzierżoniów Powiat, Ząbkowice Śląskie Powiat, Nysa Powiat and Prudnik Powiat (the Sudeten), as well as Cieszyn Powiat, Bielsko-Biała Powiat and Krosno Powiat (the Carpathians); B – LFA and agri-environmental measures below average and afforestation of agricultural land above average; includes Brzozów Powiat (the Carpathians); C – LFA and afforestation of agricultural land below average, agri-environmental measure above average; includes Lubań Powiat (the Sudeten) and Jasło Powiat (the Carpathians); D – agri-environmental measure and afforestation of agricultural land below average, LFA above average; includes the Carpathian counties of Myślenice, Nowy Sącz, Sucha Beskidzka, Nowy Targ and Zakopane; E – LFA below average, agri-environmental measure and afforestation of agricultural land above average; includes Przemyśl Powiat (the Carpathians); F – agri-environmental measure below average, LFA and afforestation of agricultural land above average; includes Żywiec Powiat and Strzyżów Powiat (the Carpathians); G – afforestation of agricultural land below average, LFA and agri-environmental measures above average; includes the Sudeten counties of Lwówek Śląski, Jelenia Góra, Kamienna Góra, Wałbrzych and Kłodzko, as well as the Carpathian counties of Limanowa and Gorlice; H – measures of the three programmes above average; includes the Carpathian counties of Sanok, Lesko and Ustrzyki Dolne.

According to the analysis carried out, the support in the form of the EU funds for the development of multifunctionality of agriculture was received in the area of the Carpathians rather than in the area of the Sudeten. This, in particular, could be observed in the eastern part of the Polish Carpathians, where due to the use of aid instruments, the phenomenon of changing the purpose of arable land into grassland or forests occurred.

4. CONCLUSION

The current support in the form of the funds granted under the Common Agricultural Policy is reflected in the development of multifunctionality of agriculture in the mountain areas. Due to the implementation of a series of aid instruments related to the productive and natural (green and blue) functions, and in particular the three measures under the Rural Development Programme, i.e. the support for agricultural activity in less-favoured area (LFA), the agri-environmental programme and the afforestation of agricultural land, the impact of agriculture on the natural environment is positive.

The use of the EU funds under the three measures is strongly differentiated in the areas of the Sudeten and the Carpathians. Despite the differentiation, the implementation of the multifunctional agriculture had a significant effect. The agricultural policy of the EU contributed to giving a high profile to the less-favoured areas, frequently protected by law, which before the accession were not eligible for the national preferential agricultural policy, and therefore were characterised by a series of adverse processes such as depopulation, a decrease in biodiversity and the loss of their agricultural nature by rural areas. In those areas further development of

multifunctional agriculture requires the area structure of farms to be improved and their ownership system stabilised.

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