

**ПРОИЗВОДИТЕЛНОСТ И УСТОЙЧИВОСТ НА ПОЛСКИТЕ ЗЕМЕДЕЛСКИ СТОПАНСТВА
PRODUCTIVITY AND SUSTAINABILITY OF POLISH FARMS**

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Резюме

Актуалните стратегии за развитие на селското стопанство и селските райони разглеждат въпроса за устойчивия икономически растеж. Устойчивият растеж се възприема главно през призмата на приспособяването на икономиката към екологичния потенциал на земята и региона. Стратегията Европа 2020 подчертава необходимостта от по-ефективно използване на екологичните ресурси и внедряването на по-екологични технологии. При селското стопанство особен акцент се поставя върху биотехнологиите.

В европейските стратегии въпросът за устойчивостта на селското стопанство има общ характер и не засяга специфичните проблеми на отделните региони и страни членки. В резултат на това националните модели за устойчиво селско стопанство може да се разминават с модела, предпочитан на европейско ниво.

Статията има за цел да сравни европейските и полските стратегии за устойчиво развитие на селското стопанство и селските райони. Изследването позволява да се очертаят разликите в предпочитанията към европейския и към националния модел и да се посочат сферите на селскостопанската политика, които изискват интеграция.

Abstract

The growing interest in the agricultural sector observed recently is, above all, connected with the need to satisfy the global demand for food in the long term. The significance of this problem is, on the one hand, defined by the growing number of people worldwide, and, on the other hand, by the limited capacity to increase agricultural production through extensive farming. The problem of providing sufficient nourishment for the growing population, known as the *Malthusian trap*, involves production intensification by means of agricultural industrialisation. The justifiability of the industrial model of agriculture in addressing the issue of subsistence becomes, however, controversial in nature, in the light of dwindling natural resources. In consequence, it seems vital to develop a sustained-farming model which would provide for current and future challenges with respect to the food economy, and ecological and social resource management in rural areas.

Economic- and rural-area development strategies currently in place address the issue of economic growth. Sustainable growth is perceived chiefly through the prism of adjusting the economy to the economic potential of the soil and a particular region. The *Europe 2020 Strategy* sees the European economy adaptation as calling for the more efficient use of ecological resources and the implementation of environment-friendly technologies. As regards agriculture, the focus is on biotechnological innovations. In view of the above-mentioned reasons, the correlation between agriculture and the environment is the primary parameter in the sustainability evaluation of European agriculture.

Under *EU* strategies the question of sustained agriculture is of a general nature and does not address any specific local problems of rural areas or individual member states. As a consequence, national models of sustainable agriculture may differ from the model preferred in the *EU*. This article aims at comparing the European and Polish strategies designed to address the issue of the sustainable growth of agriculture and rural areas. The study will facilitate the identification of divergences in preference as regards farming at *EU* and national levels, and an indication of fields in the agricultural policy that call for integration.

Ключови думи: земеделие в Полша, равнище на устойчивост.

Key words: Polish agricultural, level of sustainability.

INTRODUCTION

Today's farming, along with food and material production for industry, is viewed as a source of public goods, which, in the case of agriculture, include food security and environment-oriented services [1]. Food security refers to the need to have sufficient food volume secured in the conditions of the growing number of people and the limited means of increasing production. The problem of providing enough food, although there is a global aspect to it, is faced primarily by developing countries. As regards developed countries, the evolution of farming towards its industrialisation on the one hand, and demographic stabilisation on the other, have led to food overproduction. Industrial farming is characterised by processes such as specialisation, concentration, and high production intensity. Currently, these processes are viewed as negative, due to their detrimental impact on the natural environment. At the same time, the intensification of production under the industrial model has led to an imbalance in the raw materials used for producing chemical fertilisers.

In view of the above-mentioned descriptions, industrial agriculture fails to satisfy the requirements under the Sustainable Agriculture and Rural Development (SARD) Initiative, regarded as a model practice [2]. The SARD excludes particularly the development of agricultural production at the expense of depleting natural resources. Various effects of agricultural activity are assessed from the perspective of satisfying current and future food needs. These policies, therefore, face challenges in the identification of areas that are particularly vulnerable in respect of farming sustainability, and of fostering sound transformations.

The study will present the level of Polish agriculture sustainability compared to that in Europe, based on selected indices developed under the IRENA (Indicator Reporting on the Integration of Environmental Concerns into Agriculture Policy [3]) Project. It will be followed by the presentation of European and Polish strategies aimed at the development of the agricultural sector with a view to establishing potential areas of incompatibility.

THE LEVEL OF SUSTAINABILITY OF POLISH AGRICULTURE

The varied level of development of agriculture is associated with diverse natural conditions and also with the historically-formed path of the socio-economic development of individual countries and regions. Among the main socio-economic factors determining the division of European agriculture in recent years is the experience of the centrally-planned economy. The centrally-planned system led to a relative slowdown in the transformation of Polish agriculture towards industrial farming, favouring instead the prevalence of family farms. As a consequence, in comparison to the agriculture of Western Europe, it stands

out with its broken-up agrarian structure and high level of employment [4]. These features indicate the low level of industrialisation of Polish agriculture and the potentially higher level of sustainability of its production. At the same time, the high level of labour resources in Polish agriculture exposes the need to emphasise the social aspects of sustainability. The concept of socially-sustainable agriculture, besides the economic and environmental spheres, distinguishes the social sphere, pointing to the need to adjust the model of agriculture to rural labour resources [5]. The significance of the social results of labour resource transfers from agriculture, released following the advancing mechanisation, is considered here through the prism of providing employment to the agricultural and rural population.

In accordance with the concept of socially-sustainable agriculture, the study used the indicators that present the sustainability of Polish agriculture against the background of European agriculture in the economic, environmental, and social spheres. In the economic sphere, the proportion of Polish agriculture in generating gross value added in the economy is not considerably lower than the same statistic in the EU, which proves the similar role of agriculture in creating the basis of national income and national welfare. Concurrently, the value per capita of Polish agriculture, which is nearly one-third the value of in the EU, indicates its relatively low efficiency in satisfying the potential national demand for agricultural production. The relatively poor sustainability of Polish agriculture in the economic sphere should be seen while taking account of its lower productivity, which is, however, in line with its general economic development. In this light, supporting increased productivity in Polish agriculture should be considered desirable.

Sustainability in the environmental sphere is evaluated using the index of the use of nitrogenous fertiliser and livestock units and shows a higher-than-average level of intensity of crop production and a relatively low intensity of livestock production in Poland. In the first case we may speak of a potentially higher level of environmental hazard, while a more extensive livestock inventory may be seen as a positive phenomenon. It should be stressed that the IRENA indicators are based on averaged values and their cognitive value is of a general nature [6]. This means that as an undesirable value grows, the possibility of an adverse impact on the natural environment also increases. As a consequence, it is justifiable to introduce regulations aimed at minimising the related hazards. A lower proportion of organic farming area indicates the need to promote this form of production as more environmentally-friendly.

The indicator of employment rates in agriculture in relation to total labour resources in the economy, used in an evaluation of the social sphere of agricultural sustainability, points to a considerably higher proportion of

Table. The level of sustainability of Polish agricultural as compared to EU-27 agriculture

	EU – 27	PL	PL/EUx100
Proportion of agriculture in GVA	1.2%	1.3%	108.3
The value of agricultural production per capita	3400	1211	35.6
Nitrogenous fertiliser use per ha of agricultural land	64	70	109.4
Livestock units per ha	0.8	0.7	87.5
Proportion of organic farming area in total agricultural land	4.5%	2.1%	46.7
Level of employment as a % of total labour	4.7%	10.1%	214.9
Factor Income per Annual Work Unit	1320	507	38.4

Source: Eurostat

employment in Polish agriculture as compared to the EU average. At the same time, earnings in Polish agriculture, which are less than half as high as those in the EU, indicate the need to intensify actions towards an improvement in the income situation of people employed in agriculture.

THE SUSTAINABILITY OF AGRICULTURE IN EU AND POLISH DEVELOPMENT STRATEGIES

EU strategies for economic development combine sustainable growth with the need to transform the economy towards more environmentally-friendly technologies and the improved competitiveness of the EU economy. In the “Europe 2020” strategy, the three major priorities comprise smart, sustainable and inclusive growth [7]. The transformations of the EU economy in the process of implementing energy- and material-efficient technologies is to lead to an improvement in productivity and reduced emissions of greenhouse gases. The expected result of these transformations is the improved quality of life of society, now and in the future. In the case of agriculture, modern and environmentally-friendly production technologies should result in faster growth of yield and sustainability in response to decreasing land resources for agriculture. Among the preferred directions for technological change, technical and biological progress was distinguished, pointing also to their positive influence on reducing greenhouse gas emissions. As regards biological progress, the bio-based-economy formula is applied, on the basis of which progress would be based on own biological resources and would be subject to the discipline of sustainable production.

In Polish strategies for general economic development, the diversity of the functions of agricultural areas is emphasised [8]. The modernisation of agriculture is associated with structural transformations leading to the concentration of agricultural production. This direction of change indicates the need to strengthen the process of industrialising Polish agriculture and to apply advanced technologies contributing to an increase in productivity. The concurrent development of non-agricultural jobs would lead to the stabilisation of the social sphere in agricultural areas. In the development strategy of the country, the functions of

agriculture in the field of food safety perceived through growth, especially in high-quality production, are clearly considered as vital. The issues of production sustainability mainly refer to preserving the production potential of agriculture, with emphasis put on the economic potential of rural areas in non-agricultural sectors.

As opposed to the domination of the economic sphere in the general economic strategies, the strategy for the development of Polish agriculture lists all the spheres of sustainable growth [9]. The improvement in the quality of life of the rural population, which is held up in this Strategy as the principal goal, indicates the preference for sustainability in the social sphere, however. In the economic and environmental spheres a key role is played by the modernisation process of the agri-food sector. Improving the production infrastructure, implementing innovative solutions, improving work conditions, and increasing the involvement of producers in setting directions for developmental research, were seen as key objectives in this process. The specific objectives in the field of economic sustainability mentioned in the Strategy stress the necessity to increase the productivity of the agri-food sector, by

- modernising and increasing the innovativeness of the agri-food sector,
- developing and transferring knowledge and technologies assisting the sustainable growth of the agri-food sector,
- adjusting the structures of the agri-food sector to the changing challenges in Poland, the EU, and on a global scale,
- promoting and enlarging outlets for agri-food products.

In turn, the privileged position of environmentally-friendly technical solutions is conducive to the sustainability of agriculture in the environmental sphere. Similarly, various simplifications and the popularisation of good agricultural condition principles, as well as the stimulation of desired actions through direct payments, might favour a better balance in the interactions between agriculture and the natural environment.

Improving the potential and growth capabilities of farm groups points to the need to maintain the diversity of

holdings as an element of sustainability in the social and economic spheres. In this light, the structural transformations of the agri-food sector listed in the Strategy are of a comprehensive nature, involving changes in agricultural structures and producer organisations, and enhance the structure of the production base of agricultural holdings, *inter alia* through land consolidation, creating preferences for young farmers and supporting various forms of organising among agricultural producers. The development and transfer of knowledge to the agri-food sector indirectly affects all the spheres of sustainable development, given the dominant role of agricultural counselling in the transfer of scientific achievements to agricultural practice.

The common feature of EU and national strategies is the combination of agriculture development with the implementation of technical progress. Innovative technologies are meant to improve agricultural productivity, but also to reduce the footprint of agricultural production on natural resources. As regards to the Polish strategy of agricultural development, social sustainability prevails over the economic and environmental spheres.

CONCLUSIONS

Comparing the basic indicators of the sustainability of Polish agriculture with EU agriculture shows that the most problematic in Polish agriculture is the social sphere. The high level of employment and low earnings in Polish agriculture indicate the need to modernise the agricultural sector. Similarly, the lack of impact of the higher level of mineral fertiliser use on production value reflects the average differences in the effectiveness of the production technologies applied. However, a natural consequence of the process of modernisation and restructuring is the release of labour resources from agriculture, which may result in an increasingly pressing problem of managing sustainability in the social sphere. The development of non-agricultural jobs in rural areas becomes crucial in this context. The need to support the non-agricultural development of the economy, whose beneficiary is the rural population, is strongly emphasised in national general economic strategies. The EU strategy and the strategy for the development of Polish agriculture stress supporting the agricultural sector and the agricultural population. This creates the need to integrate the policies of regional development and agri-food sector development due to their competition for the resources of rural areas. The strategies listed prefer the industrialisation of Polish agriculture as the most effective measure to improve its productivity.

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Статията е приета на 17.04.2012 г.
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