



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

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

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

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

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

The Prospective Situation of Polish Agriculture in 2030 (An Analysis of Environmental, Social and Economic Conditions of Development)

Rafał Baum¹, Benedykt Pepliński², Karol Wajszczuk³, Jacek Wawrzynowicz⁴

¹ Poznań University of Life Sciences. Poznań, POLAND; baum@up.poznan.pl

² Poznań University of Life Sciences. Poznań, POLAND; peplinsk@up.poznan.pl

³ Poznań University of Life Sciences. Poznań, POLAND; wajszczuk@up.poznan.pl

⁴ Poznań University of Life Sciences. Poznań, POLAND; jacekwaw@up.poznan.pl



**Poster paper prepared for presentation at the EAAE 2014 Congress
'Agri-Food and Rural Innovations for Healthier Societies'**

August 26 to 29, 2014
Ljubljana, Slovenia

Copyright 2014 by Rafał Baum, Benedykt Pepliński, Karol Wajszczuk and Jacek Wawrzynowicz. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Abstract

This study was an attempt to forecast changes which are likely to take place in Polish agriculture in the future. Taking into consideration expected macroeconomic, social, cultural, demographic trends, etc., it was determined which farming systems would be dominant, new functions to be served by agriculture were analysed, probable ways of farm evolution were indicated (polarization and dual development), while issues of the volume of production in agriculture and the number of farms in Poland up to the year 2030 were discussed.

Key words: agriculture in Poland, transformations in agriculture, scenarios for development of agriculture, sustainable agriculture.

1. Introduction

The issue of the future of rural areas and agriculture in Poland is important not only to farmers but also to entire society, whose future largely depends and will depend on food economy. After 2013 both the Common Agricultural Policy (CAP) and other policies in the European Union underwent further transformations. It is noticeable that the EU budget for 2014-2020 was reduced and the EU priorities have changed, including reduced expenses on rural areas and agriculture. Poland, which is at present one of the greatest beneficiaries of the EU budget (also, the main beneficiary of the cohesion policy in the budget and one of the countries receiving the greatest subsidies within the CAP), is vitally interested in the discussion on the development of a new EU financing concept or on reforms of the EU agricultural and rural policy. The participation in a Pan-European discussion on further transformations is strictly related with the need to study the future situation of agriculture and to analyse its concepts, development scenarios, problematic phenomena, etc. The study is financed from the development project: 'The Development of a Species Index and Optimisation of the Technologies of Production of Selected Energy Crops' (UDA-POIG.01.03.01-00-132/08-00).

2. Aim and scope of research

The aim of the study is an attempt to determine the transformations which will have taken place in Polish agriculture by 2030. The analysis includes current management systems in agriculture and the prognoses of transformations include main macroeconomic phenomena, sociocultural tendencies, demographic trends, etc. The considerations are based on the assumption that in the future 'pure' commodity farms will coexist with the farms for which market production will not be their main target.

The study specifies which agricultural systems will be predominant. It analyses the new functions of agriculture, shows the probable ways of evolution of farms (polarisation and dual development) and it analyses the problem of the volume of agricultural production and the number of farms in Poland by 2030.

3. Method

The research assumes that the principal trend of the CAP reforms will be continued. This means that the traditional forms of support to agriculture will be limited in favour of meeting new social expectations, concerning such additional functions of agriculture as the protection of natural environment, production of energy, maintenance of rural landscape and the culture of rural areas. The considerations are based on the assumption that the propagated concept of sustainable development of agriculture will be implemented with simultaneous exertion of strong pressure on increased competitiveness of farms (Polish agriculture will have to catch up with the most agriculturally developed EU countries) and that it will be influenced by

globalisation phenomena. The analysis assumes that the Polish state agricultural policy will be based on the concept of sustainable development (SD).

4. Main findings

In view of Polish and foreign studies on farming systems, agriculture is divided into (König et al., 1989): conventional farming (with the extreme form of high-tech agriculture), integrated farming and ecological farming.

Integrated farming, meeting the principles of sustainable development and at the same time capable of meeting the competition of world agriculture, needs to be considered a trend to be most promoted (at least for the time being) in Poland. This trend comprises both large farms (using first of all the effect of the scale of production) and smaller farms, e.g. goods typical only or mainly of Poland (e.g. horses for slaughter, native pig breeds fed traditional feedingstuffs, etc.), which need to be promoted among producers and on the market. A certain position will be occupied by farms run (as it is the case in wealthier countries worldwide) in time off-work and as a hobby – they may successively participate in the realization of tasks for the agri-environmental program. Moreover, irrespective of their size, the following should develop within the framework of the realized concept of sustainable development: farms focused on energy production, farms running agritourist activities and other forms of farms (farms with specialist production -vegetable, orchard, fishery, etc., farms involved in the so-called niche production - e.g. breeding goats, ostriches, fallow deer, herb cultivation, etc., speculation property - which need to be treated as a temporary investment).

The sustainable model for the development of agriculture, in which social and economic objectives are fully integrated with environmental goals assumes simultaneous fulfillment by rural areas of various functions, not connected solely with food production. The most important non-market functions of agriculture include (Anania et al., 2003; Baum and Śleszyński 2009):

- providing food security,
- maintenance of socio-economic activity in poorly populated regions,
- protection of the natural environment in agriculture and in rural areas,
- preservation of cultural heritage of rural areas.

The support for agriculture (this being a general European trend) is transformed in the direction of indirect methods – by the support for the development of rural areas. A network of tools is being developed, connected with the protection of the natural and cultural environment, enhancing the vitality of rural areas. Since prices are going to be more and more strongly determined by the global market, in the future instruments of direct support for farmers – especially through prices – will lose in importance. Thus such a significant and increasing role of the non-market functions of agriculture is going to be in its further development (Baum, 2004; Schwarz and Burton, 2007).

After accession to the EU, in the opinion of many agri-economists the process of dual diversification (polarization) of farms in Poland was intensified (SERiA 2005). These observations are confirmed by statistics, from which it results that applications for direct subsidies were filed by 1.4 million farmers and concerned 93% total agriculturally utilized area. It needs to be remembered that out of these 1.4 million farms, which receive direct subsidies, only approx. 700 thousand have any significant ties with the market, while only 20 % farmers support themselves only from agriculture, which corresponds to approx. 350 thousand farms.

Moreover, it results from the investigations conducted by the authors of this study as well as those by other authors (Anania et al., 2003; Woś and Zegar, 2004) that in the future a dual road to development will be characteristic for Polish agriculture. This will consist in the fact that some farms will adopt methods of production ensuring first of all high economic efficiency, while respecting only the basic requirements of environmental protection, whereas

a certain proportion of farms will choose methods more friendly for the ecosystem, facilitating the utilization of environmental and socio-cultural assets.

It seems that large prospects are open for the special agricultural production in EU member countries, which in the future most probably will generate its own, specialized markets for specialized products (ecological, integrated production, etc.), satisfying the needs of specific groups of consumers (Grunert, 2005). It may be expected that the formation of a separate market for genetically modified products (GMO), combined with reliable and truthful information for consumers, may result in the acceptance of these products in the EU.

The number of farms in Poland in 15 years will undoubtedly be correlated (especially in view of the elimination of subsidies to production) with the domestic demand for food and potential for its export.

Potential for exports of domestic agri-food products seems to be limited. In spite of the fact that balance in the foreign trade turnover in case of these products with the EU in the last period has been positive, and it may hardly be expected for the value of exports and the share of agri-food products in total exports to increase markedly in the future. Moreover, a radical increase in exports to other markets, e.g. in the easterly direction to countries of the former Soviet Union, may hardly be expected, in view of the increasing productivity of agriculture in rapidly developing countries (e.g. China). Thus considerations on the expected volume of production in agriculture were based on domestic demand, which is connected with food self-sufficiency (it was assumed that export of agricultural produce will be almost equal to the volume of imports). Moreover, in the forecast it was also assumed that in 2030 domestic production will cover 100% food demand. From the point of view of food producers domestic demand will be stable – a limited outlet market will make possible neither a dynamic increase in production nor (especially) an increase in prices for agricultural products, i.e. also income for farmers. Taking into consideration solely food self-sufficiency up to 2030 a slight decrease in production levels should take place, amounting to 0.3 dt cereal units/ha, especially since in 2030 the age structure of the society will be different, which will probably result in an additional reduction of food consumption on the domestic market (according to GUS [2006] the percentage of population aged over 65 years is to increase from approx. 13% in 2002 to almost 24 in 2030, i.e. by 50%).

In terms of the number of farms and proportions between the so-called conventional and sustainable farming, in the opinion of the authors considerable changes will be observed. In order to present the current situation in the production and distribution of farms we may apply the so-called Pareto effect (80/20) (Baum, 2011). Using the statistical data given above, in the total number of approx. 1.5 million farms three groups may be thus distinguished. Group A consists of commercial farms in permanent contact with the market (supported only by farming with a relatively large value of sales), group B being the most numerous, comprising approx. 50% farms, a community still having significant ties with the market, although with a much lower value of sales, while group C consists of farms, which contacts with the market are rather accidental and insignificant (Fig. 1).

Taking into consideration expected changes in support for farms (direct subsidies) and likely changes in taxes (elimination of the agricultural tax, introduction of income and cadaster taxes) as well as insurance for farmers (elimination of “cheaper” insurance rates for farmers), a likely scenario for the next 15 years is for group C to undergo systematic and dramatic reduction, while for group B of farms the number will drop by 50%. At such an assumption the total number of farms in 2030 would be 700 - 750 thousand. In view of trends observed in European agriculture and the so-called consumer preferences it may be expected that out of the total number approx. 10% farms will apply ecological production methods, approx. 20% will be found in the group of the largest commercial farms, which (although in a milder, more environmentally-friendly form) will still apply the industrial model of

development in agriculture, in which in the agricultural ecosystem economic objectives will predominate. These enterprises will become even more integrated with the food chain, attempting to meet increasing requirements concerning raw materials on the part of the food industry. The remaining part, i.e. approx. 70% farms will use integrated production methods, i.e. those constituting a certain compromise between the two above mentioned systems of production. It is forecasted that the average area of a family farm in 2030 will be 23 ha, i.e. it will increase over two times.

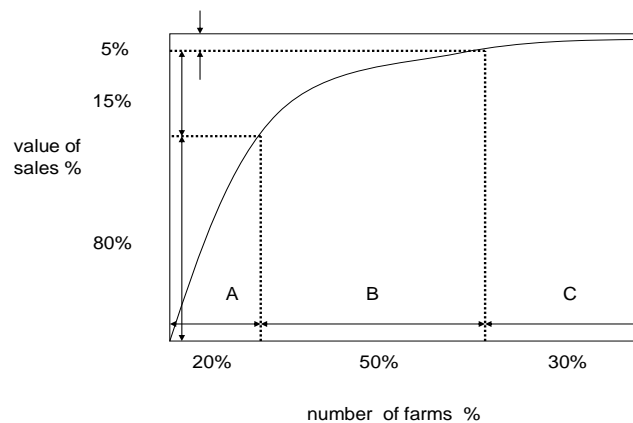


Fig. 1. Segmentation of farms in terms of their net commercial production (a share in the market)
Source: The authors' study

Since in the future it will be increasingly necessary to observe the so-called Good Farming Practice (GFP) it needs to be expected that the potential for the intensification of production on farms will be limited. In some farms, especially the biggest, commercial farms, the observed trend will be just the opposite, enforced by the closer system of ties contained in the cross-compliance principle.

Maintenance of the current level of production on farms with integrated and ecological systems of production will in turn be guaranteed by the agri-environmental programs, in which the society concludes a contract with the farmer to fulfill environmental objects exceeding the level required by GFP (which results in an increase of production costs or a decrease of revenue), providing an additional bonus for this “service”.

An important phenomenon affecting also the volume of production in agriculture and the number of farms, will be a gradual release of land from agricultural food production for the sake of extension of cultivation of energy crops.

5. Conclusion

According to the assumptions of SD concept, rural areas in Poland will face three main scopes of problems and challenges:

- economic (below average income, ageing of rural population, high dependence on the sector of means of production for agriculture and on the processing industry);
- social (above average unemployment rate, social exclusion, poor diversification of labour market and low population density, which results in worse access to basic services);
- environmental (pro-environmental role of agriculture and forestry).

Taking the abovementioned problems into consideration, the main goals and priorities were set for the policy of agricultural and rural development in Poland. They are supposed to: improve competitiveness (support given to the agricultural and forest sectors), improve the state of the environment and landscape (sustainable management of farmland and forestland

resources) and improve the living standard of rural population and diversify business activity in rural areas.

It will not be easy to reconcile these tasks, but further evolution of agriculture and rural areas will surely be a compilation and an attempt to make a more or less harmonious combination of the three problem areas mentioned above.

As results from the considerations, in 2030 Polish agriculture will be a compilation of numerous phenomena and the function of diversified conditions. Polish agriculture will undergo significant changes. To sum up, it is very likely that we will observe:

- gradual and significant decrease in the number of farms,
- income polarisation of farms,
- more than a double increase in the mean farm area,
- keeping the agricultural end production at its current level,
- extension of the energy crop area,
- modernisation of farm production facilities,
- increased importance of integrated and organic farming,
- acceptance and development of a separate market of GMO products,
- multifunctional rural development (new non-productive functions).

The problem of planning and making prognoses has always intrigued economists, especially in terms of the development of action strategies, investments, etc. Our considerations are conjectures, which are quantified to a limited extent. In this context the study does not present model solutions, but it is only a platform for further considerations about the future situation of Polish agriculture and it is an attempt to systematise this development so it can be more predictable.

References

1. Anania G., Blom J. C., Buckwell A., Colson F., Azcarate T. G., Rabinowicz E., Saraceno E., Sumpsi J., von Urff W. and Wilkin J. (2003). Policy Vision for Sustainable Rural Economies in an Enlarged Europe. DATAR & ARL Hannover.
2. Baum R. (2004): „Analiza instrumentów wspierających zrównoważony rozwój rolnictwa”. *Roczniki Naukowe SERiA*. Tom VI, Warszawa-Poznań-Puławy, Zeszyt 3: 7-12.
3. Baum R., Śleszyński J. (2009). Nowe funkcje rolnictwa – dostarczanie dóbr publicznych. *Roczniki Naukowe SERiA*. Tom XI, Warszawa-Poznań-Olsztyn, Zeszyt 2: 19-23.
4. Baum R. (2011). *Ocena zrównoważonego rozwoju w rolnictwie (studium metodyczne)*. Rozprawy Naukowe 434. Wydawnictwo Uniwersytetu Przyrodniczego w Poznaniu. Poznań.
5. Grunert, K.G. (2005). Food quality and safety: consumer perception and demand. *European Review of Agricultural Economics* Vol. 32 (3): 369-391.
6. GUS (Polish Central Statistical Office) (2006). http://www.stat.gov.pl/dane_spol-gosp/ludnosc/prognoza_ludnosci/index.htm
7. König, W., Sunkel, R., Necker, U., Wolf-Straub, R., Ingrisich, S., Wasner, U. and Glück, E. (1989). *Alternativer und konventioneller Landbau*. Stuttgart.
8. Schwarz, G. and Burton, R. (2007). Public good provision and upland farming in the UK: Lessons for future agri-environment support. The Third International Scientific Conference “Rural Development 2007”. 8-10th of November 2007., Akademija Kaunas, Lithuania. Proceedings II. Volume 3, Book 1: 193-198.
9. SERiA (Polish Association of Agricultural and Agribusiness Economists) (2005). Jak Polscy rolnicy powinni zmieniać swoje gospodarstwa aby sprostać wyzwaniom unijnego rynku. *Biuletyn Informacyjny Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu* nr 11. Poznań: 69-73.
10. Woś A. and Zegar, J. (2004). Rolnictwo społecznie zrównoważone – poszukiwaniu nowego modelu dla Polski. *Więś i Rolnictwo*, Nr 3 (124). PAN, IRWiR Warszawa: 9-23.