COMPETITIVE ADVANTAGES OF POLISH ORGANIC SECTOR IN LIGHT OF CO-EXISTANCE BETWEEN GMO AND NON-GM PRODUCTS

MACIEJCZAK, MARIUSZ

Key words: organic agriculture, competitive advantage, coexistance, GMO.

CONCLUSIONS

The perfect segregation of the different agricultural production types, namely conventional, organic or based on genetically modified organisms is not possible in practice. But the side by side functioning of this systems in agricultural production and further on of the products on the shelves requires suitable measures during cultivation, harvest, transport, storage, and processing to ensure co-existence. Consumers, food and feed industry, as well as wholesalers and retailers in European Union, including Polish ones demand a reasonable degree of choice between GMO and non-GMO derived products. Accordingly the ability to maintain different agricultural production and processing systems is a prerequisite for providing a high degree of consumer choice. As the organic production grows in Poland and on other hand there is observed increase of the GMO importance in food and feed chains the rivalry between organic and GMO sector rises and the competition between products coming from this sectors is increasing on the market too. What are then, the advantages of organic sector that qualifies them over GMO competitors and might constitute as a basis for the competitive strategy? This is the perception of organic products by the consumers, which is much favorable comparing to GMO. Then the developing organic sector increases the availability of organic products and forces the competition to provide products meeting consumers requirements. Finally low capital requirements, subsidies and opportunities for market increase gives organic sector in Poland an unique advantage to expand not only domestically but also abroad. A key factor in the competitive strategy of the organic sector should be therefore the broad information about the advantages of organic nutrition. The advertising and sale forces, which are elements of the communication with the consumers, would be appreciable contributors to organic sector's development, and accordingly threat to GMO products. In this context the co-existance brings the biggest results to the economic and market issues, placing the consumer attitude as a key factor for development of the market competitive advantages, especially for organic sector in Poland.

ABSTRACT

Growing concerns are observable over the co-existence between genetically modified organisms (GMO) and organic products in Poland. In Poland there are no GMO cultivations, but such products are available at the market. Nonetheless the European Commission permitted biotech varieties to be grown in the European Union, in Poland there is much opposition to GMO. It is empha-

sized that the ban of GMO is the only option, among others to ensure the further development of organic farming. A system of organic production exists is Poland since 2001. Although this sector is booming in terms of number of organic farms and the area under organic cultivation the market remains undeveloped. Considering different aspects of the co-existance between GMO and non-GM products it needs to be taken into account that in EU no form of agriculture should be excluded and the ability to maintain different agricultural production systems is a prerequisite for providing a high degree of consumer choice. In this context the co-existance brings the biggest results to the economic and market issues, placing the consumer attitude as a key factor for development of the competitive advantages, especially for organic sector in Poland.

INTRODUCTION

Agriculture is an open process, which means that perfect segregation of the different agricultural production types, namely conventional, organic or based on genetically modified organisms (GMO) is not possible in practice. Co-existence of these production types, which will not lead to a systematic exclusion of one or more of them, can only be ensured if the segregation measures are designed in a way that the limitations are taken into account. Co-existence therefore refers to the ability of farmers to make a practical choice between conventional, organic and genetically modified (GM) crop production, in compliance with the legal obligations for labeling and/or purity criteria (*OECD, 2000*). On other hand the possibility of adventitious presence of GM crops in non-GM crops cannot be dismissed. Consequently, suitable measures during cultivation, harvest, transport, storage, and processing are necessary to ensure co-existence. Consumers, food and feed industry, as well as wholesalers and retailers in European Union (EU) demand a reasonable degree of choice between GMO and non-GMO derived products. But different modes of European agricultural production are not naturally compartmentalized. If GM crops increase their share in EU agriculture important questions arise concerning their coexistence with non-GM crops, especially organic grown, through the food and feed value supply chains. According to EU organic law (*Council Regulation No 2092/91*) the GMO is not accepted in organic production. However the European Commission recommendations (*European Commission, 2003*) state that co-existence measures should not go beyond what is necessary and the ability to maintain different agricultural production systems is a prerequisite for providing a high degree of consumer choice.

MATERIAL AND METHODOLOGY

To describe the overall situation of the Polish organic sector in light of co-exiatance between GMO and non-GM products there have been used different sources of data. The biggest parts are secondary data taken from the Polish national statistics as well as academic researches' outcomes from Poland and other countries. There have been also used documents and papers being a primary or secondary law, both in EU and in Poland, as well as other strategic papers. To assess the competitive advantage of Polish organic and GMO sectors the concept of strategic analysis has been applied. There has been used the five forces' model developed by *M. Porter*. Also the analysis based on the statistics have been applied.

ORGANIC AGRICULTURE IN POLAND

Poland as new EU member states with a rather hesitant initial development of organic agriculture, today faces an „organic boom". The payment of land subsidies caused the number of organic farmers to suddenly treble from 1999 to 2000 and the annual growth since then commands respect. Poland is now about to make another great leap forward. According to offical data (*Gijhars, 2005*) the organic area is to grow from the present 167,740 ha (end of 2005) to 200,000 ha by the end of 2006. The number of organic farms in Poland increased by an impressive 315% from 2,286 in 2003 to 7,183 at the end of 2005. The growth rate 2004/2005 has been 91%. Accordingly, during two years the number of certified processors increased over four times: from 22 in 2003 to 99 in 2005. The average size of organic farms in 2005 reached 23 ha, which is distinctly larger than conventional farms (i.e. 7,43 ha). 47% of the certified organic land has been used for arable farming and 47% as grassland, 5% for growing fruit and berries and 1% for vegetables (2005). Admission to the European Union has doubled the support for organic farmers, so there is a considerable financial incentive for converting to organic – as everywhere in Europe. Grants are also available for the certification. The structure of organic agriculture is very mixed in Poland. A good half of the 7,183 organic farms were between 5 and 20 ha in size. About the quarter of the farms were less than 5 ha, and 18% were 20 to 50 ha. Larger farms with over 100 ha accounted for only 7%. Many farms are still in the first two years of conversion and cannot sell any products with an organic label during this transition period. On the basis of accountancy data contained in the Polish FADN in 2004 (*Nachtman – Żekało, 2006*) economic results of organic farms were compared with results of a traditional farm group in the same type of farming and economic size of 5.5 ESU. Taking into account the incurred costs of fertilisers and plant protection products, which were several times lower in organic farming as compared to traditional, the organic farms in Poland achieved a higher value added due to lower specific production costs and the system of subsidies supporting organic production. The prices that farmers received for their organic products were not much higher then the conventional ones.

Organic products are mainly sold at present by direct marketing and specialist shops that are similar to small health food stores. The share of fresh fruit, vegetables, milk products and meat is growing constantly. The conventional supermarkets and department stores – mostly of Western origin – also stock an increasing number of organically produced food items. There are some 300 sales outlets for organic products in Poland. Organic agriculture has been controlled by law since as early as 2001. Seven Polish certification bodies ensure compliance with the EU organic standards. International certifiers also operate in Poland. All Polish organic farms are given a thorough inspection once a year, as is usual throughout Europe. Products can only be labelled as organic if they originate from a certified company. There is no separate official organic label in Poland, and the official EU organic label is used. Poland as a rural country offers growth potential for organic agriculture and enormous opportunities for both domestic market development and export. Poland together with the Czech Republic and Hungary is one of the new EU member states in which organic agri-

culture is developing most rapidly (*Metera – Maciejczak, 2005*).

GMO IN POLAND

So far GMO use is very restricted in Poland. According to official data provided by responsible authorities, currently there are no GMO cultivations in Poland (*Simonides, 2004*). However, since September 2004 the European Commission permitted GMO varieties to be grown in the European Union. Polish authorities asked for a two-year temporary prohibition, backing up this claim by the need to strengthen the existing law on GMO plant cultivation. Nevertheless, there is much opposition to the introduction of GMO crops at the local and regional level. As a result, 13 provinces out of 16 have already announced that they aim for a total ban of GMO crops (*GMO free zones..., 2005*). The authorities of Malopolska province, with one of the highest shares of area subject to organic production in Poland, emphasize that such a ban is the only option to ensure the further development of organic farming.

At present there are two basic regulations that refer to GMO issues in Poland: The legal act of 22 June 2001 on genetically modified organisms and The legal act of 11 May 2001 on health conditions of food and nutrition. As a result of the harmonization process with EU aquis, on 14 October 2004 the Council of Ministers approved and sent to the Parliament the proposed amendment to the law on genetically modified organisms. The proposal sets new rules, among others, for closed use of genetically modified microorganisms and genetically modified organisms as well as their introduction to the market. Also proposed is a joint monitoring system of GMO use. In 2004, Inspection of the Trade Quality of Food Products carried out controls, which aimed to check out the conditions of transport, storage, documentation as well as labeling of products that might contain GMO in Poland (*The report on..., 2004*). Two main products were selected, soya and maize. The results of the controls show that 99% of products from soya were labeled as GMO free that was confirmed by appropriate certificates (Solae Europe, Cerestar, Gene Scan, Solbar). In the case of maize, 84% of products traded as GMO free had the required certificates. Only 1% of all controlled products did not have any information about GMO on their labels. Nonetheless, 61% of checked products were labeled incorrectly. Among the samples that were analyzed in depth, 3.77% contained over 0.9% GMO, including two samples declared as GMO free.

However another surveys shows that almost 98% of soymeal imported to Poland (in 2005 it was 1.6 mln t) contains over 0.9% of GMO. That means that animal fodders produced from this soymeal are not GMO free (*Maciejczak, 2006*). Although there are no exact data about the influence of GMO-free policy in Poland base on the research on European level it could be shown that the costs associated with such policy might influence the profitability of companies and the prices of products. For example for producers of poultry meat, whilst the additional costs associated with using non-GM protein (soy meal) in diets has added up to 2% to feed costs (at the EU level, adding between 10 million EUR and 50 million EUR to annual feed raw material costs), the impact on profitability has been marked up to 7% in minus. To the year 2008 these costs are likely to increase significantly (at the EU level, adding between 41 million EUR and 129 million EUR to the cost of feed raw ma-

terials), potentially resulting in profitability losses of 9%-29%. These levels of losses are likely to be unsustainable and continuation of a non-GM policy will probably require buyers of poultry meat to pay higher prices to cover the additional raw material costs (*Brooks – Craddock – Kniel, 2005*).

PERCEPTION OF POLISH CONSUMERS

In Poland consumer requirements, as far as food is concerned, are continuously changing. In the 80's, consumers perceived appearance (size, colour, lack of blemishes) and packaging as the most important features of grocery products. Nowadays, consumers attach more importance not only to merchandise criteria, but they also care about health aspects (health, safety, non chemical production processes and absence of pesticides) and environmental aspects (goods should be produced so that the environment is not destroyed). All the conditions mentioned are met by organic food. One of the factors which reinforce its position on the market is an increasing demand for organic groceries (*Kucinska – Pelc – Artyszak, 2006*).

However the surveys carried out in Poland in 2000 and more recently, showed that half of respondents did not know the term „organic food". The term was either completely unknown to them or they misunderstood it. The other half of respondents were familiar with the term of „organic food", yet only 23% of them were consumers of it (*Pilarski – Grzybowska, 2002*). Research conducted by *Zakowska and Biemans (2005)* showed that the term „organic food" was recognized by approximately 71% of respondents. However, 35% of them were still not able to define it properly. The majority of organic food consumers are under 45 years old (they constitute 57% of respondents) and between 46 and 65 (31%). The least numerous groups consist of respondents below 20 (9%) and above 65 years old (21%). An important determinant of purchasing organic food is gender. Research by *Laguna and Zuchowski (2000)* as well as *Zakowska and Biemans (2005)* proved that women account for over then half of organic food buyers in Poland.

Accordingly surveys on the public perception of biotechnology were conducted in Poland, similarly as Eurobarometer in the EU, in 1996, 1999, 2001 and 2003. In the 2003 survey on a representative sample of Poles (1007 respondents above 15 years old) 74% respondents declared that they heard about GMO (*Janik-Janiec – Twardowska – Twardowski, 2003*). However, the majority admitted that they are not sufficiently informed about this issue. More than 50% of Poles are in favor of scientific research using the biotechnology and genetic engineering in production and processing of food. However, 58% of respondents are afraid that the GMO in food products might have negative impact on environment and human health. Compared with the 2000 survey, there is decreased support for research on GMO in food (by 18%) and an increase of GMO related threats to health and environment (by 7%). The respondents were very much concerned about the regulatory framework of GMO and 83% of them expected that all issues related to GMO should be strictly regulated by the law and supervised by the government. Almost 75% of Poles believe that new legislative measures concerning GMO should be consulted with civil society. Compared to the previous surveys these results clearly indicate that less Poles support GMO in food products and they have very high expectations concerning

the scope of regulatory framework and labeling of GMO products.

One could sum up that the main reasons for lack of interest in purchasing organic food in Poland are unavailability of information accompanied by the not sufficient wide availability of organic food, which influences the prices. A key factor in the development of the domestic market is therefore the information about the advantages of organic nutrition. Accordingly luck of information about the GMO products, either on products, or in public perception accompanied with the lower price are the key factors that drives sale of biotech food.

COMPETITIVE ADVANTAGE OF POLISH ORGANIC AND GMO SECTORS

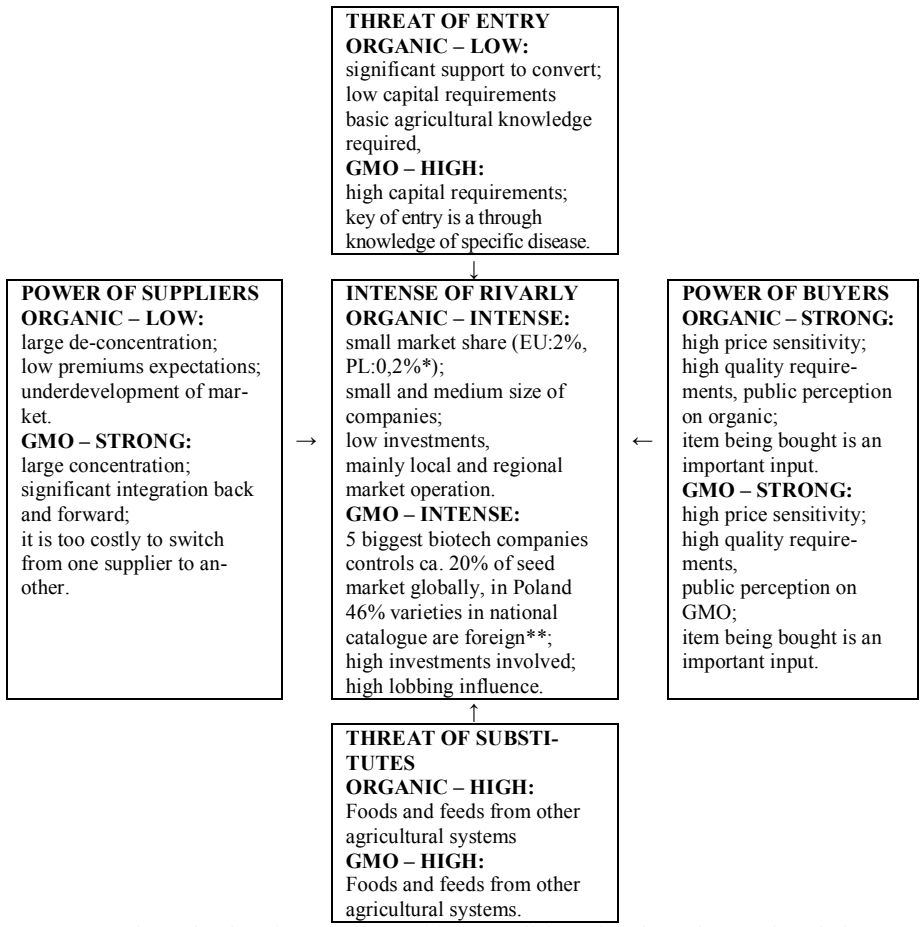
The general concept of competitive advantage indicates that it is an advantage over competitors gained by offering consumers greater value, either by means of low prices, or by providing greater benefits and services that justifies higher prices. Due to an author of this concept *M. Porter (1985)* the competition is at the core of the success or failure of firms or sectors. Competition determines the appropriateness of activities that can contribute to performances such as innovations, a cohesive culture, or good implementation. Thus competitive strategy is the search for a favorable competitive position in an industry, the fundamental arena in which competition occurs. Competitive strategy aims to establish a profitable and sustainable position against the forces that determine industry competition. Competitive strategy must grow out of a sophisticated understanding of the rules of competition that determine an industry's attractiveness. The ultimate aim of competitive strategy is to cope with and, ideally, to change those rules in the competitors' favor. In any industry the rules of competition are embodied in five competitive forces: the entry of new competitors, the threat of substitutes, the bargaining power of buyers, the bargaining power of suppliers, and the rivalry among the existing competitors. The Figure 1 presents the analyze of five forces for both organic and GMO sectors in Poland.

The five forces determine industry competitiveness because they influence the prices, costs, and required investment. Buyer power influences the prices that firms can charge and is very strong in case of Polish consumers. They are very price sensitive, require high quality, and food is important issue in their consumption basket. The difference is a perception of organic and GMO food accompanied with an awareness of own health and the environment issues. The power of well informed buyers would significantly influence the costs and investments, because powerful buyers could demand costly services, i.e. GMO-free or organic poultry meat. At the same time the bargaining power of suppliers determines the costs of raw materials and other inputs. In case of the GMO suppliers they are strong, significantly concentrated and integrated. The power of organic suppliers is very low. They are deconcentrated and due to market undevelopment, slightly premiums received due to organic value added might satisfy them. This would influence the level of premiums paid by final consumer, who could accept higher price for GMO-free assurance. As the GMO and organic products are substitutes the rivalry among them, as well as among products from other systems, i.e. conventional and integrated is very high. The threat of entry places a limit especially on shapes the investment required to deter entrants. In case of organic sector the investment requirements are very low and are supported by the subsidies, while GMO sec-

tor requires high investments. New players that could easily enter the organic sector in Poland on one hand might increase the rivalry, but on other could significantly contribute to the development of the market. However the intensity of rivalry influences prices as well as the costs of competing in areas such as plant, product development, advertising, and sales force. The later ones are very well developed by the GMO sector, comparing to very undeveloped in organic one. Again advertising and sale forces, which are elements of the communication with the consumers, would be appreciable contributors to organic sector development, and accordingly grate threat to GMO products.

Figure 1

Five forces model for organic and GMO sector in Poland



Source: own investigation, * OECD 2003, ** ISF, Polish National Catalogue of Varieties

REFERENCES

(1) Brooks G., Craddock N., Kniel B. (2005): Global GM market – implications for the European food chain. Brookes West UK. – (2) Council Regulation (EEC) No 2092/91 of 24 June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs. OJL 198, 22.07.1991. – (3) European Commission (2003): Commission Recommendation of 23 July 2003 on guidelines for the development of national strategies and best practices to ensure the co-existence of genetically modified crops with conventional and organic farming – (4) GMO free zones in Poland (2005). ICPPC International Coalition for Protection of Polish Countryside, http://icppc.pl/pl/gmo/index.php , read on 15-05-2006. – (5) International Seed Federation, ISF, www.worldseed.org, read on 15-05-2006 – (6) Janik-Janiec, B., Twardowska, A. & Twardowski, T. (2003). Public perception of biotechnology – 2003, Institut of Plant Breeding, Radzików, Poland. – (7) Kucinska K., Pelc I., Artyszak A. (2006): Development of organic agriculture in Poland. Proceedings of Joint Organic Congress, May 30 - 31 2006, Odense, Denmark – (8) Laguna M., Zuchowski I. (2000): Znaczenie badań preferencji konsumentów dla programowania produkcji żywności ekologicznej. Ekonomika i Organizacja Gospodarki Żywnościowej. Zeszyty Naukowe SGGW (41). – (9) Maciejczak M. (2006): Soybean chain in Poland. Paper elaborated in Faculty of Agricultural Economics of Warsaw Agricultural University. Not published. – (10) Metera D., Maciejczak M. (2005): Organic agriculture in New EU Member states – first year after accession. IUCN – (11) Nachtman G., Żekało M. (2006): Economic results achieved by a selected group of organic farms in Poland in 2004. Proceedings of Joint Organic Congress, May 30 - 31 2006, Odense, Denmark – (12) National Catalogue of Plant Varieties in Poland, edition 2005 – (13) OECD (2000): The chairman's report of the OECD Edinburgh Conference on the Scientific and Health Aspects of Genetically Modified Foods 28 February - 1 March 2000 – (14) OECD (2003): Global market for organic food. Paris – (15) Pilarski S., Grzybowska, M. (2002): Stan i uwarunkowania popytu na żywność ekologiczną. Roczniki Nauk Rolniczych (2). – (16) Porter M. (1985): Competitive Advantage: Creating and Sustaining Superior Performance. Free Press, New York. – (17) Simonides E. (2004). An answer to open letter regarding GMO in Poland dated 27.02.2004 issued after The Guardian article „Genetic nightmare" from 14.02.2004. Ministry of Environment, Warsaw, Poland. – (18) The report on the control of the conditions of transport, warehousing, documentation and labeling of products contained GMO in Poland (2004). Inspection of the Trade Quality of Food Products (IJHARS), Warsaw, Poland. – (19) Żakowska – Biemans S. (2005): Bariery zakupu żywności ekologicznej w opinii polskich konsumentów. SERiA, Roczniki Naukowe, t. 7, z. 3.