

BUILDING COMPETITIVE ADVANTAGE THROUGH PRODUCT INNOVATIONS BASED ON RAW MATERIAL MODIFICATIONS

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Abstract. Changes in consumers' activity on the agri-food market in Poland, especially their growing awareness and knowledge of products translate into competitive strategies of enterprises. Product strategies with increasing significance of innovativeness have the leading role among competitive strategies. The aim of this article is to present product's innovations in terms of input (raw material) and discuss its role in creating competitive advantages of enterprises. The crispbread market is an example of the implementation of these actions. This article analyses this market in terms of changes in product-based innovativeness. Desk research was applied to analyze the most important concepts and determines detailed research areas that are adequate to the issue of raw material-based innovativeness. Analyses proved that in Poland conventional (traditional) production systems prevailed over modern ones, which are characterised by flexibility, leading technology and organisation of variable serial production. For this reason, innovations are being developed. Modifications in the raw material composition have an element of originality and they should be treated as product-based innovations observed from the market perspective. The development of new trends in production and distribution as well as the possibilities of assortment changes reflect global tendencies in the trends of product innovations on the food market.

Keywords: innovation, innovation through raw material, competitive advantage, enterprise, market

INTRODUCTION

Running a business is a constant process of implementation of complex projects in each area of the enterprise's operation. Usually these projects are reflected by the company's strategy, whose aim is to gain and maintain a competitive position by developing innovativeness, constant improvement of internal processes, learning and risk analysis. These elements can be regarded as the driving force of all branches in the food industry, where production and sales-related services are vital areas. They require special care both in terms of competence and technical organisation.

Not every decision about the production process proves the innovativeness of the enterprise. For example, decisions related to production volume or structure are not innovations. However, there is innovativeness in decisions to develop or start a new innovative technology or to improve the current technology as well as in the decisions taken in consequence of introducing changes and those related with the implementation of a new marketing method (Podręcznik Oslo, 2008).

An original, modified or improved product, which is new from the consumer's or enterprise's point of view, is regarded as a product innovation on the food market (Sobotkiewicz and Waniowski, 2006). The distinction between the perception of a product by manufacturers and potential buyers is a significant problem related

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with the releasing of a new product on the market (Sobotkiewicz and Waniowski, 2006, p. 105–113; Sojkin et al., 2009, p. 30).

The aim of this article is to present product's innovations in terms of input (role material) and discuss its role in creation competitive advantages of enterprises. The considerations presented in the article refer to the bakery industry and the crispbread market. Both the industry and the market are developing, changing and evolving as a result of modifications stimulated by consumers' expectations, socioeconomic transformations and individual activity of enterprises in the field of innovations.

MATERIAL AND METHODS

Desk research was applied to prepare this article, which analyses the most important concepts and determines detailed research areas that are adequate to the issue of raw material-based innovativeness. The article is based on a classic analysis of existing documents, which was used to determine, verify and present facts. The selection of the methods was determined by the availability of source materials, most of which are of secondary nature. The materials include industry reports and literature related with the issue of innovativeness and the problems of the market of agri-food products, especially crispbread.

INNOVATIVENESS OF ENTERPRISES ON THE MARKET OF AGRI-FOOD PRODUCTS – SELECTED PROBLEMS

The innovative potential of enterprises is conditioned by basic relations between the existing development base and the means applied to the operation of this base and controlling the efficiency of the means. According to the criterion of distinction between the perception of a new product by manufacturers and potential buyers, there are absolute and secondary innovations (Sobotkiewicz and Waniowski, 2006). Enterprises introducing absolute innovations must be ready for very high costs, both at the design phase and during the production process. Only large concerns and the biggest companies acquire (develop) knowledge and skills, develop new market products and introduce these innovations in order to develop and strengthen their competitive position on the market. This investment on the agri-food market requires a comprehensive study of major links in the chain of

production of a particular product, i.e. from the producer to the consumer, including market research.

The entities which undertake absolute innovations may support producers, for example, in meeting raw material expectations in a particular branch or segment of the market. In the era of sustainable development and interest in the idea of sustainable consumption, enterprises monitor all elements of production processes which are closely related to the natural and social environment¹. Thus, on the one hand, they try to ensure a product with values meeting consumers' expectations (generating the enterprise's income and indirectly generating benefits for internal stakeholders). On the other hand, they try to meet the expectations of external stakeholders by taking care of the natural environment and the well-being of humans and animals. For example, there are innovations in crop growing technologies, e.g. in cereals (Bioprodukty..., n.d.; Świącicki et al., 2011) and oily plants (Boczar, 2014) in order to obtain products with modified chemical composition, which are widely used for consumption. The bakery industry is interested in the research results and it often transfers them directly into economic practice for market needs.

Innovative solutions based on new technologies and raw materials are implemented by major crispbread manufacturers, e.g. Wasa Barilla Poland Sp. z o.o, Sante, Sonko². These entities have a rich offer of assortments and modern infrastructure. They are concerned about the quality of their products and outlay considerable amounts of money on research, innovations, technology and communication. Smaller entities, which cannot invest big funds, are usually concerned about functional and aesthetic solutions. It is important to

¹ Since 1 January 2015, according to Article 18 of Regulation (EC) No. 178/2002 of the European Parliament and of the Council of 28 January 2002 food enterprises have been obliged to ensure the traceability of raw materials of products in the entire food chain, i.e. from the moment of their acquisition, through production, storage, expedition until delivery to the end user.

² The brands of these companies are characterised by innovativeness and variety of flavours and variants. By observation of their market actions we can conclude that their main aims are to promote a healthy lifestyle, take care of consumers and constantly improve quality. The consumers of these brands have an opportunity to discover new experiences, enjoy eating these products in a number of ways and on different occasions. Thus, the brands are also characterised by creativity and usefulness (www.wasa.pl; www.wasa-barilla-poland.polandtrade.pl; www.sante.pl; www.sonko.pl).

adapt innovations, use and develop them for one's own needs – new innovations for a particular company and the country³.

Many agri-food enterprises operating on the domestic market, especially representatives of the sector of small and medium businesses, use generally available technology. As it is difficult to change this technology, innovativeness can be achieved through raw material. The application of new raw materials, which have not been used in the production process before (depending on the qualities of a particular raw material), may cause technological changes in the enterprise and lead to the development of a new or substantially improved product. We can observe examples of product innovations developing on the market. They do not require highly advanced solutions in current production processes, nor do they generate high investment outlay within the enterprise, because they are based on raw material. Change based on raw material is a method of developing product innovations. This is an innovation trend which does not always require access to external financing or support given by the public sector. The effects of the aforementioned innovations can be presented on the current markets without additional costs.

Depending on the region, sector and scale of activity in Poland, we can observe diversified pro-innovative behaviours. The development of these behaviours is a long, complex and difficult process. During the development of pro-innovative behaviours we can observe different intensity of their determinants, e.g. exchange of information, awareness, economic, geographical and other factors. Innovative activity and the character of innovation implemented by business entities determine competitiveness both on the national (novelty in the enterprise or in the market/sector) and international scale (world novelty). It is important for enterprises to develop pro-innovative cooperation with entities and institutions in the sector. The support provided by institutions is a significant element of development, acceleration, improvement and absorption of innovations by market entities. Entrepreneurs affect the economic growth rate and level by participation in the acquisition of funds to finance and develop skills supporting the development of innovativeness.

³ It is estimated that brand-new products make about 10% of all innovations (Sobotkiewicz and Waniowski, 2006).

CRISPBREAD MARKET – MARKET PERSPECTIVE

The largest markets for bakery products in Europe are in Germany, France, Italy, the United Kingdom, Spain, Sweden and Finland. According to product categories, in 2009 in Europe, the share of crispbread in the market of bakery products amounted to 2%. By comparison, between 2003 and 2008 it increased by 2% (Bakery..., 2009). Crispbread is a significant segment of the food market, as results from its high dynamics which has been noted in recent years also in Poland. According to the research conducted by ACNielsen⁴, in 2015 the value of the Polish healthy snacks market amounted to 1.2 billion. In comparison with 2014, the value increased by about 12%. It is noteworthy that the growing trend applies to all categories in this segment of the market. An average Pole spent more than 30 PLN a year on products in this category, which was more than in the previous year. The potential of this market is reflected by the annual crispbread consumption per capita, where Sweden is the leader – about 4 kg, followed by Poland – 0.2 kg, Germany – 0.37 kg and Denmark – 0.6 kg⁵.

The crispbread market has a different structure than the market of traditional bakery products, where large and medium companies are permanent participants and there is a considerable share of small companies – bakery and pastry workshops⁶. There is a limited number of producers, usually big ones, operating in the crispbread market sector. Wasa is the biggest crispbread producer in the world and in Poland. According to ACNielsen's reports⁷, as early as 2006 Wasa was indicated as the leader in the crispbread sector. Wasa Barilla Poland Sp. z o.o. is a producer (light bread and enriched light bread) and distributor (crispbread) of bread substitutes⁸. Ten years

⁴ Retail Panel. ACNielsen research company included the following categories in the analysis of the healthy snacks market: crispbread, rice cakes, unsalted nuts and seeds, dried fruit and muesli bars.

⁵ ACNielsen, Retail Audit, March/April 2006.

⁶ Statistics include only industrial production.

⁷ ACNielsen is a market research company studying retail and consumers.

⁸ Imported goods have a significant share in the total amount of bread substitutes sold by this company in Poland. Wasa Barilla Poland Sp. z o.o. is seated in Warsaw. It is part of the Barilla capital group, which is headed by Guido M. Barilla e F.lli S.a.p.A. in Italy. The group consists of three subholdings: Barilla G. e R. F.lli S.p.A. in Italy (selling pasta and sauces and manufacturing

ago this market was more stable. At the time, Chaber and Sonko were indicated as the greatest competitors (MM&P24, 2006). According to the data provided by Barilla Poland, in 2015 the value of the crispbread market in Poland exceeded 82 million PLN (Handel extra, 2016).

Crispbread manufacturers locate their production both on the domestic and foreign markets. Polish crispbread manufacturers sell their products not only on the domestic market but also on the European Single Market⁹, where producers and distributors have a cost and price advantage (relatively low labour costs, low margins on products). Short transport distances (closely related to costs of transport), where products are delivered from the manufacturer to the purchaser (distributor, consumer), are regarded as a facilitating element. Many domestic crispbread manufacturers offer private label products or products manufactured under the private label of external companies. Crispbread is offered both by chain stores (hypermarkets and supermarkets) and small shops (located in housing estates and rural areas). Borkowska and Pospieszna (2015) analysed the sensory quality of bread brands available in retail and they did not note significant differences between the crispbread of well-known brands and private label crispbread. It proves the fact that manufacturers are concerned about high quality of their products.

Polish companies related with the crispbread market are eager to extend their sales to foreign markets, where these products are more popular. In consequence, technologies and know-how are adopted on the domestic market. Crispbread is chiefly exported to Eastern Europe (i.e. Lithuania, Hungary) and Western Europe (France, Germany). For many years crispbread manufacturers have been interested in the American market. The development of this market is noticeable in the scale of the global market. As practice shows, the interest in crispbread is increasing in Asia, where local manufacturers are unable to meet consumers' demand. The interest in healthy and convenience foods, which are ready for consumption, are strongly outlined trends in consumption. As results from domestic and foreign

literature, portals and exhibition events, there is high interest in crispbread in these markets and according to forecasts, further development can be expected. This thesis is even stronger when we consider the model of consumption in Eastern, Central and Western Europe.

New trends in distribution and new possibilities of changes in crispbread production reflect global tendencies in the food market.

PRODUCTS ON OFFER AND CONSUMERS' INTEREST

The development of contemporary production and change of consumers' lifestyles and habits significantly influenced trends in the development of the bakery industry. The appearance of new raw materials and additives caused changes in methods of production. As results from observations of contemporary markets, manufacturers need to process and adjust their products to meet consumers' needs and preferences. These actions respond to changes caused by consumers' behaviours on the food market, which are decisive to its development. Presently, scientific research centres and agri-food enterprises are conducting studies in order to improve the nutritional value and sensory quality of products offered on the market. One of the aims of these studies is to develop the methods of technological processes which will make it possible to offer health-promoting products on the market. This aim can be achieved by composing products of different raw materials with high nutritional value and specific properties. Apart from changes in nutritional values, the process often involves changes in technological (e.g. stability, crispness) and sensory (e.g. flavour, aroma) properties. Crispbread manufacturers have noticed that the consumption of their products may be beneficial to health. Crispbread is treated as a traditional bread substitute and it is classified as functional food.

The crispbread market comprises the following types of products: regular crispbread, light (extruded) crispbread, rusks and rice bread¹⁰. The development of this food sector is manifested by a wider range of products of this sector offered on the market. It includes rye bread, cornbread, light bread, biobread, etc.

Many companies have developed brand-new, original offers of products, which belong to the categories

bakery products), GranMilano S.p.A. in Italy (manufacturing and selling bakery products and ice-cream) and Fin.Ba Luxembourg SaRL in Luxembourg (financial business).

⁹ It is an absorptive market with more than 500 million consumers (Unia Europejska, n.d.).

¹⁰ Trader's guide.

of crispbread and cereal snacks. For example, recently Barilla Polska has released crispbread with fibre and brand-new types with sourdough (rye bread and multi-grain bread) under the brand name Wasa. There are also seasonal, periodical products available in this market. At Christmas time, Tovago company offers gingerbread (sauté and with chocolate), which is increasingly popular with consumers every year. Good Food company also has an interesting offer – in summer it promotes light bread Bio, which is an ecological alternative to traditional bread. There are three types of the product available on the market: sunflower, seven grains and spelt. The new product from Good Food has an ‘Eko-gwarancja’ certificate, which is issued to organic food producers by the Polish Society of Organic Agriculture Sp. z o.o. (portalspozywczy.pl, n.d.).

The dynamics of this market results from consumers’ increasing interest in simple products with a limited number of ingredients and clean label, which confirms the absence of raising agents and preservatives. Consumers search for a short list of product ingredients because the label and the information it contains prove food manufacturers and retailers’ concern about quality, honesty and transparency. For example, apple juice is free from preservatives, water and sugar. Instead of buying fruit yoghurt consumers prefer to buy natural yoghurt and they add some fruit to it themselves. This tendency in consumption is related with naturalness, ecology, individualism or even minimalism, but the primary matter for the consumer is to know how a product was prepared and what ingredients it contains. Crispbread is usually consumed by wealthy, educated women aged 20–44 years, who choose products due to their concern about health (Borkowska and Pospieszna, 2015; Healthy..., 2010). Studies conducted in Sweden show that crispbread is usually purchased by older rather than younger consumers (Sandvik et al., 2014).

Entrepreneurs should be interested in testing consumers’ satisfaction with innovative products. Aspects related with the identification of items of assortment accepted by consumers might be an interesting element of research on competences of a brand (Górska-Warzewicz, 2014). Many companies adopt the strategies whose aim is to better and fully understand consumers’ behaviours concerning their choice and consumption of products and to stimulate the choice of food so as to develop a healthy, diet-supporting product, on the one

hand, and to build consumers’ faith and confidence in food, on the other hand.

Technological development, market globalisation, change of consumers’ expectations and activities affect the development of product categories on the markets of individual branches of the agri-food sector. These changes might lead to the appearance of new segments of food and new, innovative products within these segments. Due to the wide market offer, we can observe diversification in segments of consumers. They are increasingly often identified according to synthetic criteria, such as a system of values, lifestyle or recently, according to the significance of innovations (Barska, 2014; Gutkowska et al., 2014).

SELECTED ASPECTS RELATED WITH CRISPREAD PRODUCTION TECHNOLOGY

The process of crispbread production is based on the traditional method or hot extrusion. There are two types of crispbread available on the market: regular crispbread and extruded crispbread. Depending on the approach to raising agents, the traditional method involves kneading dough with or without yeast. Kneaded dough goes through consecutive devices in the technological process, i.e. container, mixer, combiner, homogeniser, moulder and stove, which are used for baking, sorting and packaging of ready-made products. However, due to the unit cost of production and possible use of raw materials with particles of different sizes, enterprises very often apply hot extrusion in crispbread production. Extrusion consists in mechanical and thermal processing of raw material, which is transformed into a workable mass in a short time (Gondek et al., 2013). Due to the rapid reduction of pressure and evaporation of water, the resulting mass causes the formation of an expanded product with a specific texture and shape. While the product is cooling, it gains a permanent structure. Crispbread manufactured in this way does not lose valuable nutrients, such as fibre, which facilitates digestion and supports the functioning of the gastrointestinal tract.

The extrusion technology enables enterprises to manufacture products characterised by low moisture (Gondek and Marzec, 2007), relatively long stability (even up to 1 year) and light structure (Jakubczyk et al., 2008). These properties facilitate the process of storage. These values of the product are rated high for

practical reasons. Only the aroma and flavour may render the product inconsumable. Crispbread is perceived as a product that does not involve health, biological, chemical or physical hazards for consumers.

INNOVATION THROUGH RAW MATERIAL

At present, products with natural ingredients, e.g. buckwheat, evening primrose or inulin are increasingly often released on the market. The use of these ingredients enables manufacturers to offer products which are sources of valuable nutrients. The use of the extrusion technique combined with the addition of different raw materials, e.g. nigella, young oats, bran or buckwheat hulls, enables crispbread manufacturers to make high-value products, which are ready for consumption and free from the possible effect of anti-nutritional compounds.

Manufacturers' increasing interest in raw materials such as nigella is caused by the fact that it gives products a distinct, specific flavour and aroma. It harmonises and supports the human immune system and it improves metabolism. Young barley is also a rich source of vitamins and minerals. It purifies the organism of toxins and helps to eliminate deficits. Buckwheat hull (Christa, 2008; Li and Zhang, 2001) is another raw material that is a valuable component of the diet for people suffering from coeliac disease due to the low content of polyamines in buckwheat proteins. Buckwheat seeds have high nutritional value due to the high content of silicon, iron and manganese. They also reduce the amount of cholesterol.

Nowadays it is a common trend to be different from others and consumers often search for unique values. If the proposed solution based on innovations through raw materials and improved by the applied type of technology is far from mass products which surround consumers nowadays and if it is not imitative or reproductive, it may favour the competitiveness of a company on the market.

The analysis of the offer of crispbread products in Poland shows that manufacturers compete in raw materials used in technological processes and are concerned about the ingredients of their products. These products are based both on natural ingredients, such as ground or whole cereal grains (e.g. wheat, rye, spelt or oats), and on the basic raw material, i.e. cornmeal. So far sugars, improvers, flavouring and colouring agents have been widely used in technological processes in different

branches of the food industry. Recently companies have been abandoning these ingredients in favour of natural additives in order to enrich their offer of products. The offer provided to crispbread consumers does not diverge from these tendencies as manufacturers are also abandoning sugars, colouring agents, powdered milk and raising agents, which have been used to improve the product flavour. By reading the label on a product offered by a particular retail outlet, the consumer receives clear information that the manufacturer did not add any sugar or improvers and therefore the product is described as natural and healthy. If we consider the fat content in crispbread, this product can be called a low-fat snack.

In view of the relations between the type of raw material used and the scale of changes which this innovation may involve and following the definition of innovation proposed by R. W. Gryffin (Niedzielski and Rychlik, 2006), we can say that the innovations based on the use of raw materials mentioned in the article have gradual character. It means that they should be associated with improvement of good elements in the entity and they should be related with the reaction of the enterprise to noticeable changes taking place in its surroundings. As far as crispbread is concerned, the introduction of product innovation through raw material involves the difficulty of making the ideal composition, i.e. the composition which will guarantee not only adequate taste and olfactory sensations (palatability) but it will also make it possible to make a safe product with a desirable shape/form, size, texture, crispness as well as nutritional, calorific and dietetic values. The search for the ideal composition, which is a stage in the development of a new product, entails continuous modifications in order to match the components used in production.

Improvement of the production method through raw material-based innovation may cause production enterprises to prepare for connections in the area of auxiliary activity, i.e. change in the processes of raw material acquisition and end product delivery. Raw material-based innovation increases the product quality. An innovative production technology does not have to be much different from the current technology, as can be observed in crispbread production.

Product innovations resulting from modified composition of raw materials carry an element of originality and should be treated as product-related innovations observed from the market perspective. The dynamics of the

crispbread market combined with predominant trends in changes in food consumption and outlined product innovations in the food industry justify companies' continuing interest in this market. Further development of the crispbread market is possible both in the quantitative aspect (e.g. the observed increase in the amount of money spent on healthy snacks) and qualitative one (development of the product portfolio). Innovation through raw material, interpreted as a carrier of qualitative changes, contributes not only to technological changes but also to the marketing activity of a particular entity. The need to develop new product strategies, methods of distribution and communication between the enterprise and the market are key actions to be taken.

In the 21st century, the consumer is demanding and aware of the choice of a food product. It is not only the product appearance (the effect of external features) or its flavour but also additional values that are important. Consumers are increasingly often interested in the production process because they want to have the knowledge not only about the production conditions but also about the product ingredients. The consumer defined as the prosumer wants to participate in the production process. This experience is perceived as an element of product authentication. Food manufacturers increasingly often choose the raw materials which are characterised by consumers' growing interest in the nutritional aspect. This is the case in dairy, bakery, oil and beverage production. The United Kingdom, Germany, France and the Netherlands are the most active European countries in this respect (Błaszczak and Grześkiewicz, 2014).

CONCLUSION

In Poland, conventional (traditional) production systems prevail over modern ones, which are characterised by flexibility, leading technology and organisation of variable serial production (Brzeziński, 2013). For this reason, innovations are being developed. Modifications in the raw material composition have an element of originality and they should be treated as product-based innovations observed from the market perspective. The dynamics of the crispbread market justifies companies' continuing interest in it. The development of new trends in production and distribution as well as the possibilities of changes in the crispbread assortment reflect global tendencies in the trends of product innovations in the food market.

The observation of changes in the agri-food market, including the crispbread market, lets us conclude that manufacturers are interested in building and creating the image of identification with innovative solutions and technological progress. They monitor economic and social trends, stress their constant willingness to make improvements and developments and they follow consumers and their needs. Product innovativeness based on raw material modifications increases the quality of products and their attractiveness to consumers.

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