PREFERENCES OF CATTLE BREEDERS ON THE POLISH INDUSTRIAL FEED MARKET TOWARDS DOMESTIC OR FOREIGN FEED

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Abstract

The aim of the paper is to divide cattle breeders in groups regarding their preference towards domestic or foreign industrial feed, to determine importance of some characteristics when buying feed and to determine impact of sociodemographic characteristics on cattle breeders preferences towards domestic or foreign industrial feed. Furthermore, the goal is to determine knowledge about industrial feed market in Poland among cattle breeders and the impact of sociodemographic characteristics and preference towards domestic or foreign industrial feed on their knowledge. The main source of data used was primary information from the authors' own study (PAPI method, 200 cattle breeders). Based on the conducted research, it can be concluded that the majority of cattle breeders on the Polish market has the medium level of ethnocentricity (47%). Another group consists of purchasers declaring the high level of ethnocentrism. The purchasers with the low level of ethnocentricity are the smallest group. When choosing feed suppliers, farmers usually take the price, good location, and favorable payment terms into account. The level of ethnocentrism depend on age and education of the purchasers. They were the most common among people with a basic vocational education and breeders over 55 years old. No statistical correlation between the ethnocentrism level and the gender of the respondents was found. Cattle breeders believe that feed from foreign companies is more innovative, accessible, and is of better quality.

Keywords: *cattle breeder, ethnocentrism, industrial feed market, preferences*

JEL Classification: *L22, M31,R31*

1 Introduction

The industrial feed market is one of the most dynamically developing production means markets in Poland. According to the Central Statistical Office of Poland, the 2016 industrial feed production amounted to 10.9 million tonnes compared to 9.3 million tonnes in 2015. The sales amounted to 9.80 million tonnes compared to 9.12 million tonnes in the previous year. The production of industrial feed for poultry grew by 10%, for pig – by 6%, and for cattle – by 1%. The quantitative structure of industrial feeds for cattle was dominated by complementary feed compounds (89%). The percentage share of milk replacers was 5% and mineral feed compounds - 4%. The proportion of complete feed compounds was 2%, and premixtures (calculated per 1%) - 1.5% (GUS, 2017).

In 2016, the economic and financial of companies obliged to produce financial statements improved compared to previous years. Due to the low prices of raw materials for feed, profitability indicators and generated profits were high throughout the 2016/2017 season (Rynek pasz, 2017).

The industrial feed market in Poland is highly concentrated. The leaders on the analyzed market of agricultural production means are: Cargill, De Heus, Sano and Wipasz (Rynkometr, 2018). It is characterised by a continuously changing structure of supply. Foreign feed companies intensify their marketing activities in Poland and those already operating are subject to diverse transformations. The effect of the process of internationalisation of the feed sector is the increase of competitiveness between national and foreign companies (Piwowar, 2013; Ploplis, 2017; Rynek pasz, 2017). Competition in such a dynamic and internationalised environment requires understanding diverse attitudes of purchasers towards national and foreign feed companies. The preferences towards domestic or foreign products offered on the market often have a significant impact on their purchase decisions and, in consequence, on the success of a given institution. These preferences continuously change over time. (Hat and Smyczek, 2016; Guo & Zhou, 2017; Michailova et al., 2017).

The preferences towards domestic or foreign industrial feed on the industrial feed market are still not researched. Researchers have been focusing mostly on consumer goods (Godey et al., 2012; Claret et al., 2012; Lee et al., 2013, Lagerkvist et al., 2014) and services market (Lin & Chen, 2006; Chaney & Gamble, 2008; Ferguson et al., 2008). The market of production means, including the industrial feed market, its meaning and specificity, which often needs a separate marketing approach, has not been discussed much. It is due mostly to a smaller number of entities on this market, lower number of transactions, and different trade in goods structure (prevalence of direct trade) (Wojciechowski, 2003).

Thus, the aim of the paper is to divide cattle breeders in groups regarding their preference towards domestic or foreign industrial feed, to determine importance of some characteristics when buying feed and to determine impact of sociodemographic characteristics on cattle breeders preferences towards domestic or foreign industrial feed. Furthermore, the goal is to determine knowledge about industrial feed market in Poland among cattle breeders and the impact of sociodemographic characteristics and preference towards domestic or foreign industrial feed on their knowledge. Apart from their cognitive dimension, the information obtained may be used to design marketing actions in feed businesses effectively and reduce the vulnerability of their position on the Polish feed market.

2 Data and Methods

The main source of data used was primary information from authors' own study. The research was conducted in 2017 using the PAPI method on a group of 200 cattle breeders from the Małopolska Province. In 2013, the number of bovine holdings in the analyzed province was 42,200 (Urząd Statystyczny, 2014). Purposive sampling was used. To estimate the minimal sample size, the following formula was used (Szreder, 2004):

$$z_{ij} = \frac{x_{ij} - \min\limits_{i} x_{ij}}{\max\limits_{i} x_{ij} - \min\limits_{i} x_{ij}}$$

where: N – population size,
d – statistical error,
$z_{\alpha}/2$ – the value of random variable Z of normal standard distribution.

The maximal value of the statistical error of the result was assumed as 5%. The necessary minimal sample size was determined as 101 persons. 210 breeders participated in the study. After excluding inconsistent and incorrectly filled questionnaires, data from 200 questionnaires was further analyzed.

The questionnaire was divided into two parts and consisted of 21 questions in total. Most of the questions were closed, only two were open. The first part contained questions regarding observable elements of the consumers' ethnocentrism on the industrial feed market (cognitive, affective, and behavioral components). To measure the level of ethnocentrism, was used the CETSCALE. The minimum possible score was 17 points, maximum of 119. Three, roughly equal length levels of ethnocentrism of respondents have been established: low (17-51 points), medium (52-85 points) and high ethnocentricity (86-119 points). The second part contained sociodemographic variables of respondents.

30% of the respondents were women and 70% were men. Only adult persons (over 18 years of age) participated in the study. Over 50% of the respondents were between 18 and 35 years old. The high share of young farmers in the sample results that they were more willing to participate in research. The two remaining groups of participants were middle-aged (23%) and elderly (23%). The majority of the studied group declared secondary education. Persons with basic vocational education constituted 25% of the studied group. The remaining respondents declared tertiary education.

Distinguishing the criteria based on which a person is likely to consider a given product/brand domestic or foreign is an important issue. In case of the industrial feed market, the correct criterion is the country of origin of the dominant share of equity capital (Figiel, 2004).

Two groups of factors have a direct impact on the level of consumers' ethnocentrism: psychosocial (patriotism, conservatism, individualism, etc.) and demographical (age, gender, education, place of residence). Selected demographical factors were included in the study. Based on the literature, it was assumed that the results obtained so far within the psychosocial determinants were coherent and uniform (Figiel, 2004), so there is no need to take them into consideration. However, it is worth remembering that the behaviors of purchasers on the market change over time, so these factors should be included in future research.

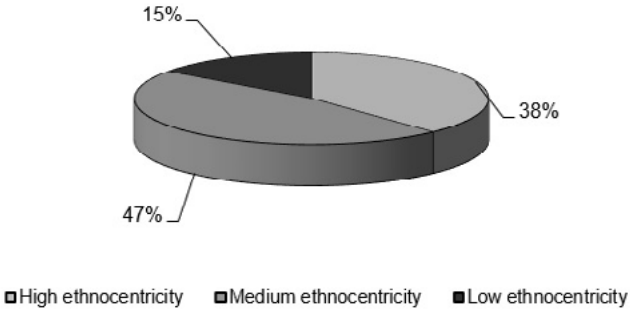
The statistical analysis of the studied material encompassed aggregate statistical indicators as well as the non-parametric test „chi square" (χ^2) allowing for an assessment of the significance of relationship between variables if at least one of them is non-measurable. All hypotheses were verified on the significance level $\alpha = 0.05$.

Apart from the primary sources they also used secondary sources which encompassed both domestic as well as foreign literature. Results of studies were presented in a descriptive, tabular and graphic form.

3 Results and Discussion

The conducted research shows (Figure 1) that almost 40% of cattle breeders consciously choose feed manufactured by companies with the prevalence of Polish capital (the high ethnocentricity). Almost every second respondent had the medium level of ethnocentricity. 15% of the participants declared that they prefer foreign companies' feeds (the low level of ethnocentricity).

Figure 1 **Levels of ethnocentrism of respondents (%)**



Source: Own research, n = 200.

Breeders with the medium level of ethnocentricity pointed to a range of different factors they take into account when buying feed. The most important, decisive one was low price (31% of answers). The research results are consistent with the results obtained by other researchers (Staszczak, 2014; Bórawski, 2016). Good location of the point of sale was also important (22%). The respondents also mentioned favorable payment terms (sale in instalments and deferred payment term), as well as the availability of other products needed in an agricultural holding in the point of sales (13% each). Feed availability was also an important factor (11%), indicated mostly by dairy cattle breeders. Only fixed and balanced feed composition guarantees the high productivity of dairy cattle. All, in particular sudden changes in feed rations may lead to metabolic diseases, and a decrease in productivity and milk quality. Every tenth respondent indicated the possibility of the direct delivery of the feed to the holding included in the price. It would allow the farmers to save time and reduce transport costs (Seremak-Bulge et al., 2015).

As mentioned above, 15% of breeders buy feed manufactured by companies in which foreign capital prevails. In their opinion, this feed is of better quality (54%) than Polish companies' products, but are more expensive (46%). The obtained results confirm the results of other research (Pietrzko, 2017). Almost 40% of the respondents believe that products used in cattle nutrition manufactured by foreign companies are more innovative than the Polish ones. One in four participants said that there were no problems with the purchase or timely delivery of feed from foreign companies, whereas such issues were not uncommon in the case of Polish manufacturers. Every twelfth breeder stated that foreign feed is often cheaper than Polish feed.

Preferences towards domestic or foreign industrial feed is determined by multiple factors, one of which is gender (Szromnik & Wolanin-Jarosz, 2013; Schnettler

et al., 2017). The high level of ethnocentricity were presented by men and women equally ($\chi 2$=2.3; *df*=2). Research shows that for 33% of women the fact that the manufacturer is a Polish company plays a decisive role and for men the result was only 3 pp lower (Table 1). The segment of low ethnocentricity is primarily made up of men (60%). These results are consistent with those of earlier studies (Garcia-Gallego & Chamorro Mera, 2015).

Table 1 **Respondents' level of ethnocentricity by gender, age and education (%)**

Specification		Respondents' level of ethnocentricity			Total
		High	Medium	Low	
Gender	Women	33	51	16	100%
	Men	30	60	10	100%
Age	18-35 years	31	42	25	100%
	36-55 years	30	54	16	100%
	>55	60	24	16	100%
Education	Vocational	50	34	16	100%
	Secondary	40	44	16	100%
	University	32	55	13	100%

Source: Own research, n = 200.

The statistical analysis conducted shows that the factor determining the level of ethnocentrism among breeders on the industrial feed market is age (χ^2 = 83.4; *df=2*). The highest level of ethnocentrism was observed in the oldest respondents. Two in three people in this group declared that they consciously choose feed manufactured by Polish companies. The lowest level of ethnocentrism was noted in the youngest group. The respondents from this age group chose feed from foreign manufacturers most often in comparison with other groups. The research results are consistent with the results obtained by other researchers and demonstrate that the level of ethnocentrism increases with age (Watson & Wright 2000, Javalgi et al., 2005; Shankarmahesh, 2006; Rašković et al., 2016).

Another factor determining the level of ethnocentrism is education. According to the research, people with basic vocational education were the most ethnocentric ($\chi 2$=36.3; *df*=4). Every second respondent from this group bought feed from Polish manufacturers. The share of persons with a secondary education representing the high level of ethnocentricity was 10 pp lower than in the case of respondents with a basic vocational education. People who completed a higher education were the least likely to pay attention to whether the feed manufacturer is a Polish or foreign company. The obtained results confirm the results of other

research identifying the factors determining the level of ethnocentrism, which shows that the ethnocentrism level decreases with the increase of purchasers' education level (Sharma et al., 1995; Luque et al., 2004; Matysik-Pejas, 2009; Garcia-Gallego & Chamorro Mera, 2015).

An important issue in the process of identifying of ethnocentrism level is the perception of a feed manufacturer as a Polish or foreign company. Given the continuous changes and fusions on the industrial feed market, it is difficult for an ordinary purchaser to distinguish between Polish and foreign companies. In the study, the breeders were asked to indicate Polish and foreign companies in a group of industrial feed manufacturers. They identified the companies in terms of prevailing capital without difficulties. The recognisability of the two largest Polish feed manufacturers was 92% (Ekoplon SA) and 70% (Wipasz SA) The recognisability of foreign feed companies was also high (Cargill — 92%, Sano — 92%, Josera — 85%). The respondents had a problem with recognising two Polish companies: Dolfos — 61%, and Golpasz — 53%).

The level of feed manufacturer recognisability in terms of capital owner is determined by multiple factors. One of them is the gender of purchasers ($\chi 2$=78.7; *df*=2). Men were characterized by a significantly higher level of knowledge on the subject. 60% of them identified all the feed brands correctly, whereas only 20% of the women were able to do so (Table 2). Taking the age of breeders into account, it can be stated that respondents over 35 years of age were the best in identifying brands ($\chi 2$=90.2; *df*=4). The level of actual recognisability also grew with the level of education of the respondents ($\chi 2$=94.2; *df*=4). A vast majority of respondents who completed a higher education was characterized by a high degree of brand identification (80%). In breeders with a secondary education the level was 40% and in breeders with basic vocational education — only 25%.

Table 2 **Level of the actual recognisability by gender, age and education (%)**

Specification		Level of the actual recognisability			Total
		Low	Medium	High	
Gender	Women	25	55	20	100%
	Men	15	25	60	100%
Age	18-35 years	16	39	45	100%
	36-55 years	16	24	60	100%
	>55	16	39	45	100%

Specification		Level of the actual recognisability			Total
		Low	Medium	High	
Education	Vocational	15	60	25	100%
	Secondary	15	45	40	100%
	University	15	5	80	100%

Source: Own research, n = 200.

According to B. Sternquist and S. McLain (1991), when characterizing ethnocentrism, the relation between the intensiveness of ethnocentrism and purchasers' awareness of the actual origins of products is of significance. Often, despite their ethnocentric tendencies, purchasers are not aware of the country of origin of the purchased products. The awareness of the origin of the product is necessary in order to choose a domestic product consciously, so the phenomenon explains the discrepancies between the declarations and actual behaviour on the market.

Table 3 **Level of the actual recognisability of the country of origin of feed companies in terms of kinds of respondents' level of ethnocentricity (%)**

Respondents' level of ethnocentricity	Level of the actual recognisability			Total
	Low	Medium	High	
High	20%	52%	28%	100%
Medium	11%	22%	67%	100%
Low	14%	57%	29%	100%

Source: Own research, n = 200.

According to the conducted analysis (Table 3), the phenomenon was also observed in the studied group. Persons with the medium level of ethnocentricity had the highest level of actual recognisability of feed brand owners. Almost 70% of respondents from this group correctly distinguished Polish and foreign feed companies operating on the Polish market. Respondents with the highest ethnocentrism level had the highest number of incorrect answers.

Considering the discrepancies between the intensiveness of ethnocentrism and the purchasers' awareness regarding the actual country of origin of the feed, the breeders were asked the following question: "Do you feel the need to learn which companies manufacturing industrial feed are Polish and which are foreign?" Based on their declarations, it can be concluded that almost 50% of the respondents were not interested in this information. These were mostly participants representing the medium level of ethnocentricity. Almost 1/3 of farmers

look for such information. The remaining participants were not able to express their opinion. These results are consistent with those of earlier studies (Czy polscy konsumenci…, 2012).

4 Conclusion

The behaviour of contemporary production means purchasers is the result of global economy globalisation and internationalization processes. The inflow of a growing number of foreign companies to the Polish industrial feed market increases competitiveness on the internal market and affects the operations of domestic feed plants and business. Therefore, it is important to consider the preferences of feed purchasers in view of these changes and their ethnocentric reaction to the presence of numerous foreign institutes in particular.

Based on the conducted research, it can be concluded that the majority of cattle breeders on the Polish market has the medium level of ethnocentricity (47%). Another group consists of purchasers declaring ethnocentrism. The purchasers with the low level of ethnocentricity are the smallest group. When choosing feed suppliers, farmers usually take the price, good location, and favorable payment terms into account.

The level of ethnocentrism depend on age and education of the purchasers. They were the most common among people with a basic vocational education and breeders over 55 years old. No statistical correlation between the ethnocentrism level and the gender of the respondents was found, although most researchers believe that women are characterized by a higher level of ethnocentricity.

Cattle breeders believe that feed from foreign companies is more innovative, accessible, and is of better quality. This information should be used by the managers of these companies to emphasize the attributes of their products, which will result in a sales increase and in market share gains in the long term.

An important issue in the process of identifying of the level of respondents' ethnocentrism is the problem of actual distinction between Polish and foreign companies by the purchasers. According to the conducted research, the respondents with the high level of ethnocentricity were the least familiar with feed companies in terms of prevailing capital. Due to high level of ethnocentrism of Polish cattle breeders, this information should be taken into account when shaping marketing strategies or promotional actions by Polish companies, e.g. building strong brands emphasizing their country of origin.

References

1. BÓRAWSKI, P. (2016). Price variability and transmission in the milk marketing chain in Poland. *Handel Wewnętrzny,* 1(360), p. 213-226.
2. CHANEY, I., GAMBLE, J. (2008). Retail store ownership influances on Chinese consumer. *Int. Business Rev.,* 17, p. 170-183.
3. CLARET, A., GUERRERO, L., AGUIRRE, E., RINCON, L., HERNANDES, M., MARTINEZ, I., PELETEIRO, J., GRAU, A., RODRGUEZ, C. (2012). Consumer preferences for sea fish using conjoint analysis: exploratory study of the importance of country of origin, obtaining method, storage conditions and purchase price. *Food Qual. Pref.,* 26, p. 259-266.
4. Czy polscy konsumenci szukają i cenią polskie produkty? (2012). Retrieved from: http://www.590powodow.pl.
5. FERGUSON, J., DADZIE, K., JOHNSON, W. (2008). Country-of-origin effects in service evaluation in emerging markets: some insights from five West African countries. *J. Business Ind. Market*., 23, p. 429-437.
6. FIGIEL, A. (2004). *Etnocentryzm konsumencki. Produkty krajowe i zagraniczne*. Warszawa, Polskie Wydawnictwo Ekonomiczne.
7. GARCIA-GALLEGO, J., CHAMORRO MERA, A. (2015). The region-of-origin effect on the preferences of financial institution's customers: Analysis of the influence of ethnocentrism. *Business ResearchBusiness Quarterly, 19,* p. 206-218.
8. GODEY, B., PEDERZOLI, D., AIELLO, G., DONVITO, R., CHAN, P., SINGH, R., SKOROBOGATYKH, I., TSUCHIYA, J., WEITZ, B. (2012). The relative effects of national stereotype and advertising, information on the select ion of a service provider. *J. Services Market*, 9, p. 47-59.
9. GUO, G., ZHOU, X. (2017). Consumer Ethnocenrism on product judgement and willingness to buy: a meta-analysis. *Social Behavior and Personality*, Vol. 45/1. p. 163-176.
10. GUS. (2017). *Rocznik Statystyczny RP*. Warszawa, Zakład Wydawnictw Statystycznych.
11. HAT, A., SMYCZEK, S. (2016). *Etnocentryzm konsumencki na rynku usług finansowych*. Katowice, Wydawnictwo Uniwersytetu Ekonomicznego.
12. JAVALGI, R. G., KHARE, V. P., GROSS, A. C., SCHERER, R. F. (2005). An application of the consumer ethnocentrism model to French consumers. *International Review*, 14(3), p. 325-344. doi:10.1016/j.ibusrev.2004.12.006
13. LAGERKVIST, C., BERTHELSEN, T., SUNDSTROM, K., JOHANSSON, H. (2014). Country of origin or EU/non-EU labeling of beef? Comparing structural reliability and validity of discrete choice experiments for measu-

rement of consumer preferences for origin and extrinsic quality cues. *Food Qual. Pref.,* 34, p. 50-61.
14. LEE, J. LEE, B., LEE, W. (2013). Country-of origin fit's effect on consumer product evaluation in cross-border strategic brand alliance. *J. Business Res*., 66, p. 354-363.
15. LIN, L., CHEN, C., (2006). The influence of the country-of-origin image, product knowledge and product involvement on consumer purchase decisions: an empirical study of insurance and catering services in Taiwan. *J. Consumer Market*, 23, p. 248-265.
16. LUQUE, T., IBANEZ, J., Rodriguez, M. (2004). Analisis de los efectos provocados por el etnocentrismo del consumidor en la evaluacion de los productos procedentes de diferentes paises. *Rev. Europea Direcion Econ. Empresa,* 13, p. 139-154.
17. MATYSIK-PEJAS, R. (2009). Globalizacja konsumpcji a postawy etnocentryczne konsumentów. *Roczniki Naukowe Stowarzyszenie Ekonomistów Rolnictwa i Agrobiznesu*, XI/5, p. 207-211.
18. MICHAILOVA S., PIEKKARI, R., STORGAARD, M., TIENARI, J. (2017). Rethinking Ethnocenrtism in International Business Research. *Global Strategy Journal*. Vol. 7/4. p. 335-353.
19. PIETRZKO, K. (2017). Made in Poland. *Ranczo*, 4, p. 10-13.
20. PIWOWAR, A. (2013). *Rynek pasz przemysłowych w Polsce w latach 2005-2011*. Journal of Agribusiness and Rural Development, 3(29), p. 111-119.
21. PLOPLIS, E. (2017). *Rynek pasz 2017*. Retrieved from http://www.agrofakt.pl.
22. RAŠKOVIĆ, M., DING, Z., ŠKARE, V., DOŠEN, D., ŽABKAR, V. (2016). Comparing consumer innovativeness and ethnocentrism of young-adult consumers. *Journal of Business Research*, 69 (2016), p. 3682-3686.
23. *Rynek pasz. Stan i perspektywy* (2017). Warszawa, Zakład Badań Rynkowych IERiHŻ –PIB.
24. RYNKOMETR. (2018). Retrieved from http://www.rynkometr.pl
25. SCHNETTLER, B., SANCHEZ, M., MIRANDA, H., ORELLANA, L., SEPULVEDA, J., MORA, M., LOBOS, G., HUECHE, C. (2017). "Country of origin" effect and ethnocentrism in food purchase in Southern Chile. *Revista de la facultated de cencias agrarias*, 49/2, p. 243-267.
26. SEREMAK-BULGE, J., GROCHOWSKA, R., SZCZEPANIAK, I., BUŁKOWSKA, M., HRYSZKO, K. (2015). Ocena strat ponoszonych na poszczególnych etapach łańcucha mleczarskiego w Polsce. *Studia i Monografie*, 162, p. 1-135.

27. SHANKARMAHESH, M. N. (2006). Consumer ethnocentrism: an integrative review of its antecedents and consequences, *International Marketing Review*, 23/(22), p. 146-172. https://doi.org/10.1108/02651330610660065
28. SHARMA, S., SHIMP, T., SHIN, J. (1995). Consumer ethnocentrism: a test of antecedents and moderatoros. *J. Acad. Market*, 21, p. 75-84.
29. STASZCZAK, A. (2014). Znaczenie ceny jako punktu odniesienia w kształtowaniu preferencji nabywczych. *Handel Wewnętrzny,* 1(354), p. 252-260.
30. STERNQUIST, B., MCLAIN, S. (1991). Ethnocentric Consumers: Do They Buy American? *Journal of International Consumer Marketing,* 4(1/2), p. 39-57.
31. SZREDER, M. (2004). *Metody i techniki sondażowych badań opinii*. Warszawa, Polskie Wydawnictwo Ekonomiczne.
32. SZROMNIK, A., WOLANIN-JAROSZ, E. (2013). Diagnoza poziomu etnocentryzmu konsumenckiego Polaków z wykorzystaniem metody CETSCALE*, Konsumpcja i rozwój*, 1, p. 98-112.
33. Urząd Statystyczny w Krakowie. (2014). Charakterystyka gospodarstw rolnych w 2013 r. w województwie małopolskim. Kraków. Retrieved from: http://krakow.stat.gov.pl/publikacje-i-foldery/rolnictwo-lesnictwo/charakterystyka-gospodarstw-rolnych-w-wojewodztwie-malopolskim-w-2013-r-,2,1.html
34. WOJCIECHOWSKI, T. (2003). *Marketing na rynku środków produkcji*. Warszawa, Polskie Wydawnictwo Ekonomiczne.
35. WATSON, J. WRIGHT, K. (2000). Consumer ethnocentrism and attitudes toward domestic and foreign products. *Eur. J. Market*, 34, p. 1149-1166.