



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.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

received: 10.10.2020
acceptance: 18.12.2020
published: 22.12.2020
JEL codes: Q17

Annals PAAAE • 2020 • Vol. XXII • No. (4)

DOI: 10.5604/01.3001.0014.5969

BARBARA KUTKOWSKA, TOMASZ SZUK, IRENA KROPSZ-WYDRA

Wrocław University of Environmental and Life Sciences, Poland

SELECTED ISSUES OF THE WORLD MILK MARKET

Key words: global market, milk, production, exports, competitive position

ABSTRACT. The purpose of the study was to assess the competitive position of the dairy sector in international trade in 1998-2017. The analysis of the concentration of global milk production in the years covered by the study was also presented in the paper. The data from the FAO and the information provided by the CLAL constituted the reference source for the conducted research. The study presents the assessment of: trends in production, export and import changes, trends in percentage share changes of major milk producers, exporters and importers and also the competitive position of dairy product exporters. The analysis covered 20 largest global producers and exporters of these products. In the analysed period, the largest milk producers were as follows: India, the United States, Russia, Germany, France and Pakistan. China significantly increased its production share in recent years, whereas Russia, Germany and France reduced their share in global milk production. The following EU countries are listed among the leading exporters of dairy products: Germany, Belgium, the Netherlands, France and the Czech Republic. The highest export growth dynamics were recorded in: Poland, the Czech Republic, Latvia, Estonia and Slovakia. The analysed period was characterised by a strong concentration of countries producing and exporting dairy products and an increase in pro-export orientation among the largest exporters of these products in global markets. After joining the European Union, Poland's competitive position on the discussed market was gradually improving.

INTRODUCTION

Cow's milk dominates in world production, accounting for 82.7% of total milk production [Stańko, Mikuła 2018, Górska-Warsewicz et al. 2019]. According to the data provided by the International Comparison Farms Network (IFCN), global milk production is performed in 150 million farms worldwide, the vast majority of which represent small agricultural holdings [Guliński, Salamończyk 2016]. This situation varies across regions and countries depending primarily on the level of economic development, but also on the climatic conditions in which the discussed production is carried out. In economically developed countries, the average number of cows in a herd amounts to several dozen, whereas in such countries as: the USA, New Zealand, Argentina, Australia and South Africa it even exceeds 100 heads [Guliński, Salamończyk 2016]. The progressing phenomenon of globalization intensifies trade in various goods on world markets. This

also applies to agri-food sector products, including dairy products [Baer-Nawrocka et al. 2012]. Such a situation is conducive to intensifying competitiveness [Woś 2001, Skawińska 2002, Gorynia, Łaźniewska 2009]. The purpose of the study was to assess the competitive position of the dairy sector in international trade in 1998-2017. Increasing market competition is resulting in intensifying concentration processes. The analysis of the concentration of global milk production in the years covered by the study was also presented in the paper.

RESEARCH MATERIAL AND METHODS

The analysis of changes in the global milk market was conducted based on data collected by the Food and Agriculture Organization of the United Nations (FAO) and the information provided by the Global Dairy Market (CLAL). A substantive scope of the study covered the following problems:

- trends in production, changes in exports and imports;
- trends in the percentage share changes of the largest producers, exporters and importers;
- an assessment of exporters' competitive position.

The ex-post assessment of the competitive position was conducted using the following quantitative measures [Pawlak, Poczta 2011]:

1. Export Market Share (EMS): $EMS = \frac{X_{ik}}{X_{iw}} \times 100\%$

where X_{ik} – export of i product from k country,

X_{iw} – global exports of all i products.

2. Export Orientation (EO): $EO = \frac{X_{ik}}{P_{ik}} \times 100\%$

where P_{ik} – production of i product in k country.

3. Relative Export Orientation (REO): $REO_k = \frac{X_{ik}}{P_{ik}} \cdot \frac{X_{iw}}{P_{iw}}$

where P_{iw} – global production of i product.

4. Hypothetical Exports (HE): $HE_k = X_{ik} \times r_i$

where r_i – growth rate of global exports between analysed periods.

5. Trade Coverage (TC): $TC = \frac{X_{ik}}{M_{ik}} \times 100\%$

where M_{ik} – import of i product to k country.

6. Relative Trade Advantage (RTA): $RTA = X_{ik} - M_{ik}$.

The conducted analyses covered twenty countries with the highest milk production and the largest exports of dairy products in the world in the period 1998-2017. The surveyed groups were each time divided into 4 groups including 5, 10, 15 and 20 countries occupying leading positions in the production and export ranking. Similarly, the designations “Top 5”, “Top 10”, “Top 15” and “Top 20” were used. The size of the research group and the length of the analysis period were a subjective choice of the authors resulting from the outlined purpose and scope of the study. The countries which recorded the highest milk production in 2017 were the starting point for the analysis of production and the countries with the largest exports in the same year for the analysis of exports. Graphical and tabular techniques were used to present numerical data.

RESEARCH RESULTS

According to the Global Dairy Market [CLAL 2020], the largest production on a global scale, i.e. 32% of global milk production takes place in Europe, including 23% in EU countries. Not much less, because 30% is produced on the Asian continent. It is followed by North America (16), South and Central America (12%), and Oceania and Africa (5% each). Global processes on the world milk market, which occurred till 2000, referred primarily to the area known as the “triad of the world dairy industry”, which included Western Europe, North America, excluding Mexico, and Oceania. The economic development of countries worldwide resulted in this area also covering the countries of Asia and East Asia [Baer-Nawrocka et al. 2012].

Milk and dairy products remain to be important components of human nutrition [Huth et al. 2006]. The production volume of milk and its products result from a demand for these goods, whereas demand depends on the population number and also on such factors as: consumer income and preferences, product prices as well as substitute or complementary goods and others [Kołoszycz 2016]. When analysing the structure of milk production in terms of world regions and the population structure living in these regions, certain clear disproportions become noticeable. Europe is home to just over 10% of the world’s population, including 7% residing in the EU. The countries of Asia are inhabited by 26% of the global population, Southeast, Central and Eastern Asia by 35% of this figure,

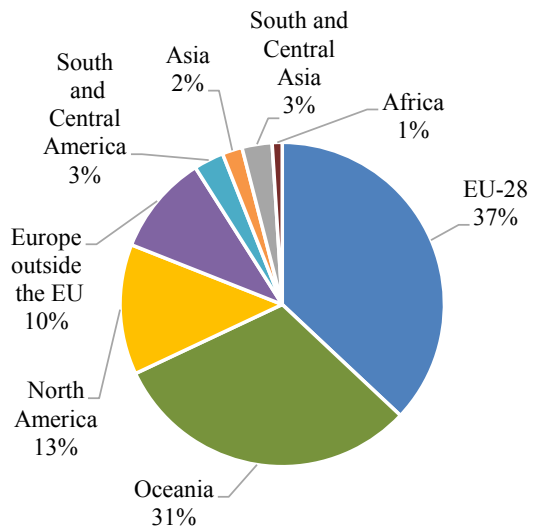


Figure 1. Percentage share of the global dairy products market in 2019

Source: [CLAL 2020]

North America – 7.7%, South and Central America – 8.5%, Oceania – 0.6% and Africa – 17 %. These disproportions seem to not be insignificant in the context of the share of individual countries and continents in the world market of dairy products. 12 products traded internationally were analysed, with their quantities presented in milk equivalents [CLAL 2020]. This market is dominated by Europe, primarily by EU countries, Oceania and North America (Figure 1). These three regions account for 91% of the global dairy products market and are home to just over 18% of the world's population.

Further analysis addressed assessing individual countries in terms of production, exports and imports. In the years 1998-2017, global milk production increased from a level of 559.51 million tonnes to 831.32 million tonnes at an average annual growth rate of 2.4% (Figure 2). Thus, in the twenty-year period, the volume of global milk production went up by 48%. The highest dynamics of milk production growth, at that time, was recorded in: France (a 2.3-fold increase), Poland (a 1.9-fold increase), China (a 1.4-fold increase), Argentina (a 1.1-fold increase) and also India, Brazil and Indonesia (an increase by approx. 70-90%). A drop in production, comparing to 1998, was observed in such countries as: the Ukraine, Russia, Pakistan and Vietnam. As Ewa Kołoszycz [2016] indicates, 67% of produced milk was processed in 2013. Almost all production was processed in the following countries: New Zealand, Australia, the USA and Canada, whereas in such countries as Pakistan only 3%, India 17%, the Ukraine 40% and Turkey 43% of the production was subject to further processing. Figure 3 presents twenty largest milk producers in 1998 and 2017 using the percentage share in global production.

In 1998, the largest milk producers were: India with a 13.3% share in global production, followed by the United States (almost 12.8%), Russia (5.9%), Germany (5.1%), France and Pakistan (about 4% each). The top ranking positions did not change after 20 years, however, the percentage share of leading producers in global production did increase. This was especially true for India (21.2%), China (4.3%) and Pakistan (5.3%). In turn, the shares for Russia (3.6%), Germany (3.9%), France (3.2%) and also slightly for the USA (11.8%) went into decline. Poland was ranked 13th with a share of 1.65% and in 1998 it had also occupied the 13th position with a share amounting to 2.25%. Lifting the

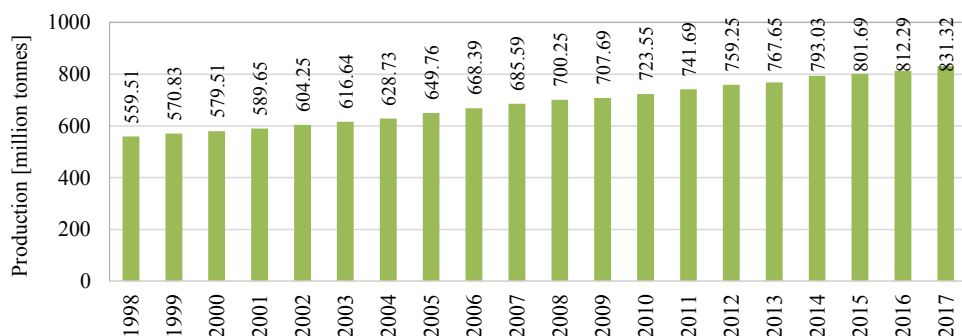


Figure 2. Global production of milk in the years 1998-2017

Source: own compilation based on FAOSTAT data

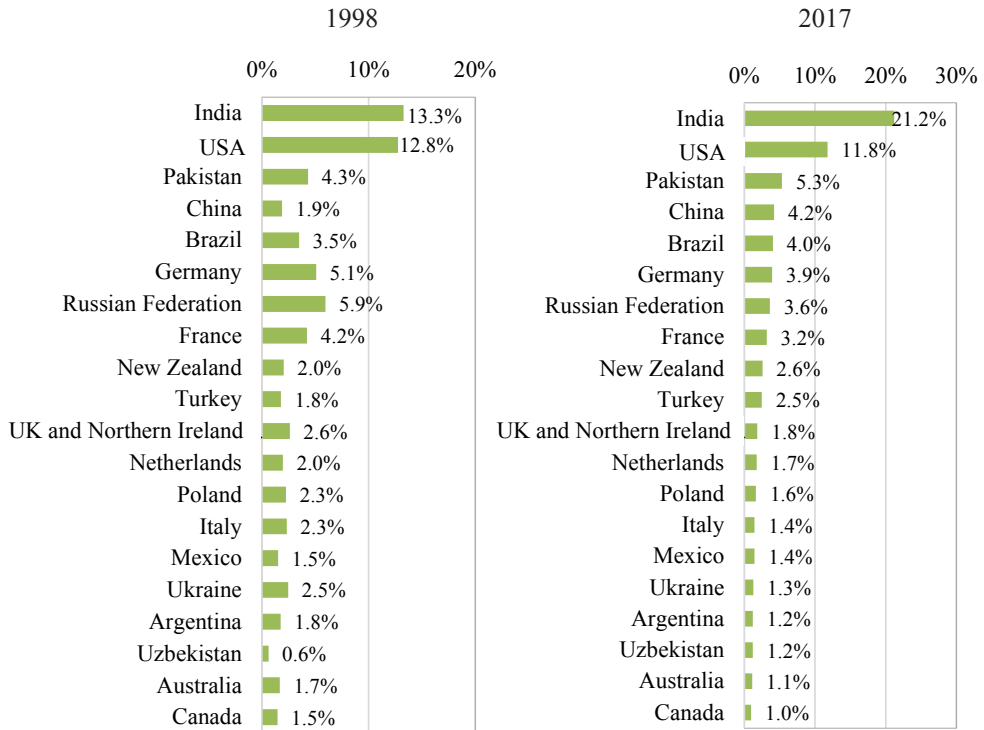


Figure 3. The largest milk producers in 1998 and 2017

Source: own compilation based on FAOSTAT data

requirement of milk quotas in EU countries had an impact on milk production growth in this region [Kołoszycz 2016], but did not significantly increase the share of global leading European milk producers (Figure 3).

Milk production is characterized by concentration, which has not changed significantly for twenty years. Five (Top 5) leading countries in 2017 provided 47% of global production, ten (Top 10) 62%, fifteen (Top 15) 70% and twenty (Top 20) almost 76% of milk production worldwide (Figure 4).

Approximately 10% of global milk production is traded internationally (turnover of dairy products presented in milk equivalents). This turnover increased significantly in the analysed period of time in world markets. It referred to both exports and imports (Figure 5). The increase in exports was particularly high in 2002-2013, whereas in imports in 2006-2017. In 1998-2017, exports doubled (an increase by 105%) from a level of 6.47 million tonnes to 13.17 million tonnes in the final year. The countries which joined the EU after 2004, especially Poland, the Czech Republic, Latvia, Estonia and Slovakia were characterized by the highest export growth dynamics. Imports showed even greater growth dynamics (an increase by 116%) from 6.73 million tonnes to 14.55 million tonnes. After 2015, a negative international trade balance was observed on the global market. In 2017, it was -1.4 million tonnes (Table 2). Similarly to production, exports of dairy products are

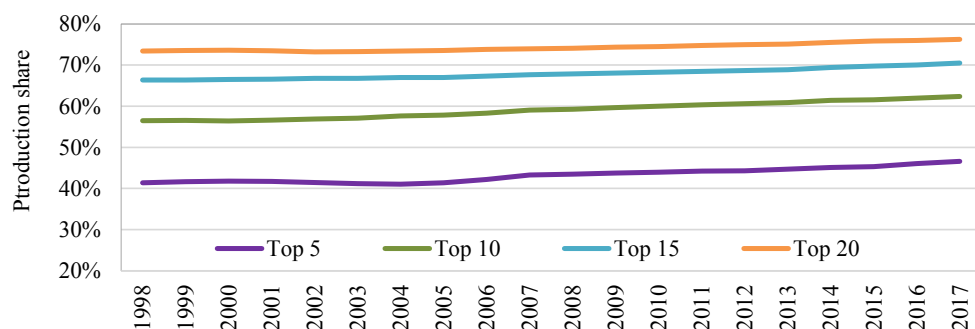


Figure 4. The share of major producers in global milk production in the years 1998-2017

Source: own compilation based on FAOSTAT data

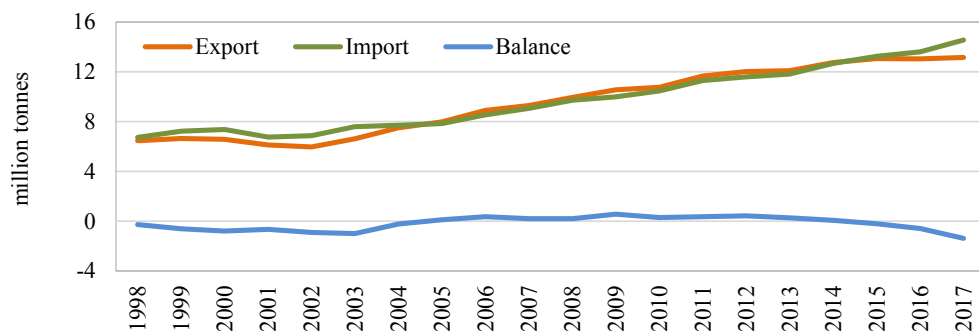


Figure 5. International trade in milk in the years 1998-2017

Source: own compilation based on FAOSTAT data

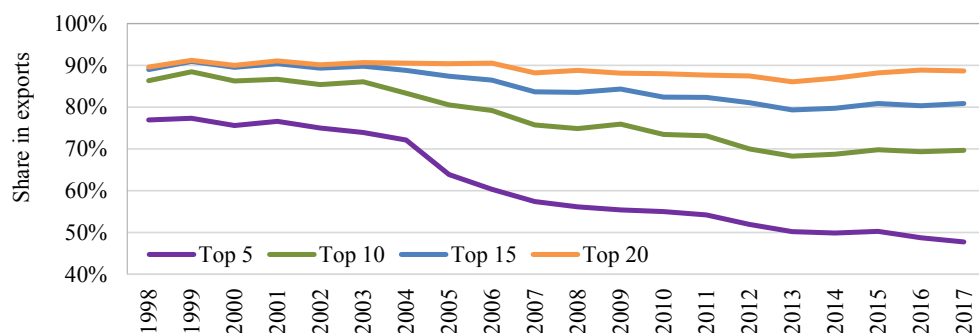


Figure 6. The share of countries in world exports according to separate ranking groups in 1998 - 2017

Source: own compilation based on FAOSTAT data

concentrated within a group of top 20 countries (Top 20) (Figure 6). The twenty major countries account for 89% of global exports and this situation did not change for many years. On the other hand, the share of five (Top 5) largest dairy exporting countries declined from 77% in 1998 to 48% in 2017 (Figures 6 and 7), as well as ten (Top 10) from 86% to 70% and 15 (Top 15) from 89% to 81%. Despite these trends, five leading countries still account for almost half of the world's exports of the discussed products. These are the following EU Member States: Germany, Belgium, the Netherlands, France and the Czech Republic.

Based on using export market share (EMS), twenty largest exporters of dairy products in 1998 and 2017 were identified (Figure 7 and Table 2). In 1998, the largest exporters were as follows: Germany (39.1%), France (14.5%), Belgium (12.7%), Austria (6.6%)

Table 1. Export orientation (EO) indicators in 1998 and 2017

No.	Export orientation in 1998		Export orientation in 2017	
	country	share [%]	country	share [%]
1.	Luxembourg	44.87	Luxembourg	65.72
2.	Belgium	23.96	Slovenia	49.29
3.	Austria	13.82	Latvia	31.75
4.	Slovenia	9.34	Estonia	29.45
5.	Germany	8.91	Czech Republic	27.32
6.	Saudi Arabia	5.26	Belgium	25.75
7.	France	3.95	Slovakia	20.41
8.	Spain	2.09	Austria	18.11
9.	Netherlands	2.00	Hungary	17.84
10.	United Kingdom and Northern Ireland	1.82	Germany	7.23
11.	Hungary	1.67	Netherlands	7.17
12.	Latvia	0.98	Saudi Arabia	7.04
13.	Australia	0.84	United Kingdom and Northern Ireland	5.51
14.	Slovakia	0.75	Denmark	5.28
15.	Denmark	0.61	Poland	5.03
16.	Estonia	0.55	Belarus	4.19
17.	Czech Republic	0.46	France	3.76
18.	New Zealand	0.44	Spain	2.70
19.	Belarus	0.29	Australia	2.24
20.	Poland	0.01	New Zealand	1.42

Source: own compilation based on FAOSTAT data

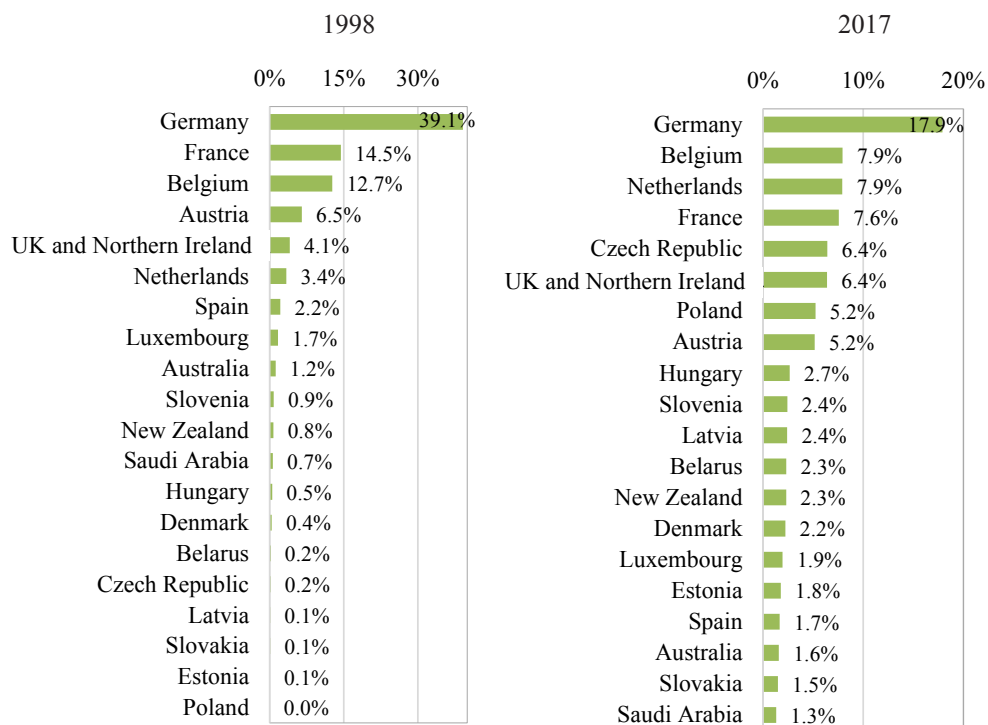


Figure 7. Share of 20 leading countries in world milk exports in 1998 and 2017

Source: own compilation based on FAOSTAT data

and Great Britain (4.1%). Twenty years later, changes in the shares of the leading global exporters of dairy products were recorded, i.e. Germany as the leader among exporters reduced its market share to 17.9%, France to 7.6% and Belgium to 7.9%, while the Netherlands increased the respective share from 3.4% to 7.9%, ranking 3rd in 2017. In 1998, the Czech Republic was also ranked 16th with a share of 0.02% in global exports on the milk market, and in 2017, by increasing its share up to 6.4% it was ranked 5th among leading exporters on this market. The following countries also increased their shares: New Zealand (from 0.8% to 2.3%), Latvia (from 0.14% to 2.41%), as well as Hungary, Estonia and Slovakia. During these years, Poland expanded its market share from 0.02% to 5.2% and moved from 20th position up to 7th in the ranking of the largest global exporters of dairy products.

The group of major exporters of dairy products includes countries featuring a high export orientation (EO), which indicates the percentage share of exports in domestic production (Table 1). In 1998, the highest EO indicator was recorded in Luxemburg, which exported approx. 45% of its domestic production, followed by Belgium (24%) and Austria (14%). In 2017, for most of the analysed countries, this indicator's values increased significantly showing pro-export trends in this market. The dynamic increase in

exports against production also referred to Poland. In 2017, 5% of domestic production was directed to international markets, comparing to 0.01% in 1998, which was certainly a consequence of our country joining the common EU market.

Having assessed the competitiveness of individual countries on the global milk market using the Relative Export Orientation (REO) index, it can be stated to what extent a given country is opening this sector of the economy, comparing to the average opening of economies worldwide. A greater than 1 value of this coefficient indicates a pro-export orientation and, depending on this index value, shows greater or lesser competitiveness on the global market. If REO is lower than 1, the country does not have the capacity for competing internationally in terms of the analysed products [Jagiello 2003].

The conducted analysis shows that the countries presenting the highest share of exports in domestic production, as evidenced by high EO values, such as: Luxembourg, Belgium, Austria and Germany (Table 1) are also characterized by the highest REO values (Table 2), which proves their high competitiveness in the global market. However, the REO values for 2007 and 2017 indicate increasing competitiveness of new countries on the market of dairy products. These are mainly the new EU-13 Member States: the Czech Republic, Estonia, Latvia, Hungary, Slovakia and Slovenia, as well as Poland which increased its competitive position in 2017 from an REO value of 0.01 in 1998 to the respective value of 3.18 (Table 2).

The hypothetical exports (HE) index shows the volume of dairy products which could be supplied by a given country to international markets, if it developed sales to international markets in proportion to global trends. The relation of actual exports to hypothetical exports, expressed as a percentage, determines how many times actual exports exceed hypothetical exports [Krasiński 2016]. The indicator values which increase over 100% prove the improvement of international competitiveness and allow comparisons between countries in this respect. The discussed indicator was calculated by relating the volume of exports from 1998, 2007 and 2017 to the base period, i.e. 1997 in this case.

This indicator's values show the rapid growth of this indicator among new EU Member States, primarily Poland, the Czech Republic, Slovakia, Estonia and Latvia, but also in the non-EU country – Belarus. The detailed values of actual exports against hypothetical exports in the surveyed group are presented in Table 2.

Trade coverage (TC), in the situation when its value exceeds 100%, indicates the export specialization of a given country. It only determines a relative advantage over other countries on the external market as it is based on the export and import of a given country alone [Lubiński et al. 1995, Misala 2011]. In 1998, the highest values of this indicator were recorded in: Austria, New Zealand, Australia, Belarus, Slovenia and Saudi Arabia. In 2017, the Czech Republic and Estonia joined the export leaders specializing in dairy products (Table 2). The countries which also significantly increased their TC value in the analysed period include: Denmark, Great Britain and Poland.

A relative trade advantage in quantitative terms is the final indicator used in this analysis to assess competitiveness on the global milk market. A positive relative trade advantage confirms the product's competitiveness and usually results from an increase in trade efficiency caused by higher competitiveness of domestic products [Krasiński 2016]. The highest value of relative trade advantage in 1998 was achieved by Germany

(1,899 million tonnes). It was followed by Austria (0.421 million tonnes) and France (0.186 million tonnes). In 2017, the Czech Republic (0.758 million tonnes), Great Britain (0.583 million tonnes) and Poland (0.445 million tonnes) were ranked as leaders. In that year, the highest negative relative trade advantage was recorded in Germany (-0.749 million tonnes) and Belgium (-0.574 million tonnes) (Table 2). An upward trend in the relative trade advantage was observed in: Belarus, Estonia, Denmark, Hungary, Latvia, New Zealand and Slovenia.

CONCLUSIONS

1. In 2017, the following countries were listed among the leaders of milk producers: India, the United States, Pakistan and China. In turn, Russia, Germany and France recorded a significant decline of their percentage shares in global production.
2. After twenty years, there have been changes in the share of leading exporters of dairy products in the world, and so: Germany, France and Belgium, while remaining leaders among exporters, decreased their share in this market, while the Netherlands, the Czech Republic, New Zealand, Latvia, Hungary, Estonia, Slovakia and Poland increased its share in world exports of these products.
3. In the analysed period, a significant increase in pro-export orientation occurred among the exporters of dairy products on global markets, as evidenced by a lower number of countries for which the calculated REO value did not exceed 1. At the same time, significant increases of this indicator value were recorded in such countries as the Czech Republic, Estonia, Latvia, Hungary, Slovakia, Slovenia and Poland. For new EU Member States, accession to the common market improved their competitive position, also in the sector of dairy products.
4. The values of actual exports against hypothetical exports (HE) were significantly growing in new EU Member States, especially Poland, the Czech Republic, Slovakia, Estonia and Latvia.
5. In 2017, the highest level of competitiveness on the global milk market, measured by the level of trade surplus, was achieved by the Czech Republic, Great Britain and Poland. Upward trends in the relative trade advantage were presented by: Belarus, Estonia, Denmark, Hungary, Latvia, New Zealand and Slovenia. These countries also showed clear export specialization, which is confirmed by the calculated values of trade coverage (TC).
6. The conducted research shows that the export of dairy products is concentrated in Europe. European countries, and predominantly new EU Member States, were gradually improving their competitive position on the international market.
7. The production and exports of milk show an extensive concentration and this situation did not change significantly within a period of twenty years. The top five producers supplied almost half of the global milk production and twenty producers were responsible for its 76%. Twenty major exporters accounted for 89% of global exports. In turn, the share of five largest dairy product exporters decreased significantly, i.e. from 77% to 48%.

BIBLIOGRAPHY

- Baer-Nawrocka Agnieszka, Renata Grochowska, Ewa Kiryluk-Dryjska, Jadwiga Seremak-Bulge, Piotr Szajner. 2012. Światowy rynek mleka i jego wpływ na polskie mleczarstwo po zniesieniu kwot mlecznych (The global milk market and its impact on Polish dairy industry after lifting milk quotas). Warsaw: IERiGŻ-PIB.
- CLAL. 2020. *World Trade: The division of the dairy market*, https://www.clal.it/index.php?section=dwt_trial, access: 14.08. 2020.
- FAOSTAT, <http://www.fao.org/faostat/en/#data>, access: 18.02.2020.
- FIL-IDF. 2020. *Facts & Figures*, <https://www.fil-idf.org/about-dairy/facts-figures>, access: 02.09.2020.
- Gorynia Marian, Ewa Łązniewska. 2009. *Kompendium wiedzy o konkurencyjności* (Compendium of knowledge about competitiveness). Warsaw: PWN.
- Górska-Warzewicz Hanna, Krystyna Rejman, Wacław Laskowski, Maksymilian Czeczotko. 2019. Milk and dairy products and their nutritional contribution to the average polish diet. *Nutrients* 11: 1771. DOI: 10.3390/nu11081771.
- Guliński Piotr, Ewa Salamończyk. 2016. Światowy rynek mleka – stan obecny i perspektywy rozwoju (The global milk market – current status and development perspectives). *Wiadomości Zootechniczne* RLIV: 118-130.
- Huth Peter, Douglas DiRienzo, Gregory Miller. 2006. Major scientific advances with dairy foods in nutrition and health. *Journal of Dairy Science* 89 (4): 1207-1221.
- Jagiello Małgorzata. 2003. *Wskaźniki międzynarodowej konkurencyjności gospodarki* (Indicators of International Competitiveness of the Economy). *Studia i Materiały* 80: 1-40.
- Kołoszycz Ewa. 2016. Światowy rynek mleka – wybrane zagadnienia (The global milk market – selected problems). *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu* 450: 287-297.
- Kraciński Paweł. 2016. *Konkurencyjność największych światowych eksporterów jabłek* (The competitiveness of the world's largest exporters of apples). *Roczniki Naukowe Ekonomii Rolnictwa i Obszarów Wiejskich* 101 (3): 106-118.
- Lubiński Marek, Tomasz Michalski, Józef Misala. 1995. Międzynarodowa konkurencyjność gospodarki. Pojęcie i sposoby mierzenia. [W] *Raporty. Studia nad konkurencyjnością* (International competitiveness of the economy. The concept and method of measuring. [I] Reports. Competitiveness studies). Warsaw: IRSS.
- Misala Józef. 2011. *Międzynarodowa konkurencyjność gospodarki narodowej* (International competitiveness of the national economy). Warsaw: PWN.
- Pawlak Karolina, Walenty Poczta. 2011. *Międzynarodowy handel rolny. Teorie, konkurencyjność, scenariusze rozwoju* (International Agricultural Trade. Theories, competitiveness, development scenarios). Warsaw: PWN.
- Skawińska Eulalia. 2002. *Reakcje na zmiany a konkurencyjność przedsiębiorstw*. [W] *Konkurencyjność przedsiębiorstw-nowe podejście* (Reactions to changes and the competitiveness of enterprises. [In] Competitiveness of enterprises – a new approach), ed. Eulalia Skawińska, 59-112. Warsaw-Poznań: PWN.
- Stańko Stanisław, Aneta Mikuła. 2018. Tendencje na rynku mleka na świecie i w Polsce w latach 2000-2016 (Tendencies in the World Milk Market and in Poland in the Years 2000-2016). *Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Problemy Rolnictwa Światowego* 18 (1): 235-247.
- Woś Augustyn. 2001. *Konkurencyjność wewnętrzna rolnictwa* (Internal competitiveness of agriculture). Warsaw: IERiGŻ.

WYBRANE ZAGADNIENIA ŚWIATOWEGO RYNKU MLEKA

Słowa kluczowe: rynek światowy, mleko, produkcja, eksport, pozycja konkurencyjna

ABSTRAKT

Celem opracowania jest ocena pozycji konkurencyjnej sektora mleczarskiego w wymianie międzynarodowej w latach 1998-2017. Dokonano także analizy koncentracji produkcji mleka na świecie w badanych latach. Źródłem materiałów były dane Organizacji Narodów Zjednoczonych ds. Wyżywienia i Rolnictwa (FAO) oraz informacje podawane przez Global Dairy Market (CLAL). W pracy oceniono: tendencje zmian w produkcji, eksporcie i imporcie, tendencje zmian w procentowym udziale największych producentów mleka, eksporterów i importerów oraz pozycję konkurencyjną eksporterów produktów mleczarskich. Analizie poddano 20 państw będących największymi producentami i eksporterami tych produktów na świecie. W badanym okresie największymi producentami mleka były: Indie, Stany Zjednoczone, Rosja, Niemcy, Francja i Pakistan. W ostatnich latach udział w produkcji znacząco zwiększyły Chiny, natomiast Rosja, Niemcy i Francja ograniczyły swój udział w światowej produkcji mleka. Do czołowych eksporterów produktów mleczarskich należą państwa UE: Niemcy, Belgia, Holandia, Francja i Czechy. Największą dynamiką przyrostu eksportu cechowały się takie kraje, jak: Polska, Czechy, Łotwa, Estonia i Słowacja. W badanym okresie zauważono silną koncentrację państw produkujących i eksportujących produkty mleczarskie oraz wzrost orientacji proeksportowej wśród największych eksporterów tych produktów na rynkach światowych. Pozycja konkurencyjna Polski na rynku po przystąpieniu do Unii Europejskiej stopniowo poprawia się.

AUTHORS

BARBARA KUTKOWSKA, PROF.

ORCID: 0000-0001-7581-746X

Wrocław University of Environmental and Life Sciences

Institute of Economics Sciences

Faculty of Life Sciences and Technology

25 Norwida St., 50-375 Wrocław, Poland

TOMASZ SZUK, PHD ENG.

ORCID: 0000-0001-7653-578X

Wrocław University of Environmental and Life Sciences

Institute of Economics Sciences

Faculty of Life Sciences and Technology

25 Norwida St., 50-375 Wrocław, Poland

IRENA KROPSZ-WYDRA, PHD ENG.

ORCID: 0000-0002-1835-3256

Wrocław University of Environmental and Life Sciences

Institute of Economics Sciences

Faculty of Life Sciences and Technology

25 Norwida St., 50-375 Wrocław, Poland