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COMPETITIVENESS OF THE POLISH DAIRY FARMS AT THE BACKGROUND OF FARMS FROM SELECTED EUROPEAN UNION COUNTRIES

WOJCIECH ZIĘTARA
MARCIN ADAMSKI

Abstract

The paper presents the level of competitiveness of the Polish dairy farms at the background of farms from the selected European Union countries. The selection was not random. The research covered farms from the following countries: Poland, Hungary, Lithuania, Austria, Germany, Denmark, the Netherlands and France. Hungary, Lithuania and Austria were selected because of similar farm size and structure as well as similar production intensity level. Whereas Germany and France – as the largest milk producers, while Denmark and the Netherlands – as countries with the highest level of milk production intensity. Researched materials were sourced from data on farms covered by European FADN monitoring between 2013 and 2015. Competitiveness of farms was determined by the ratio of farm income to costs of use of own factors of production. Competitive ability was shown by Polish medium large and large farms with economic size of, respectively, EUR 50-100 thousand SO and EUR 100-500 thousand SO, using, accordingly, 39.1 and 81.3 ha of UAA and maintaining: 31 and 65 cows. Competitive ability was shown by Hungarian and Lithuanian farms from similar economic size classes and very large Hungarian and German farms.

Keywords: dairy farms, economic size of farms, competitiveness.

JEL codes: D2, D24, D3, D33, O13.

Prof. dr hab. Wojciech Ziętara, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej – Państwowy Instytut Badawczy, Zakład Ekonomiki Gospodarstw Rolnych; ul. Świętokrzyska 20, 00-002 Warszawa (wojciech.zietara@ierigz.waw.pl).
Mgr inż. Marcin Adamski, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej – Państwowy Instytut Badawczy, Zakład Ekonomiki Gospodarstw Rolnych; ul. Świętokrzyska 20, 00-002 Warszawa (marcin.adamski@ ierigz.waw.pl).

Introduction

The agricultural production is conducted by farms and agricultural enterprises, which are the basic economic operators in agriculture and function under various legal forms[1]. The level and structure of commercial production in agriculture and on individual types of farms is determined by social needs, which are reflected on the market. For this reason, the commercial agricultural production in Poland is dominated by livestock production. In 2015, its share amounted to 58.5% (GUS, 2016). The main trading partners of farms are enterprises engaged in purchasing agricultural products and agricultural processing. They formulate the specific requirements towards farms in terms of product quality, batch size, continuity and timeliness of deliveries. These requirements make farms increase the production scale. Another factor making farms increase the production scale is the trend in the evolution of the labour costs in the national economy, which affect the labour costs in agriculture, prices of means of production purchased by farmers and prices of agricultural products. Figure 1 shows these trends between 1995 and 2016. In the analysed period, salaries in the national economy rose by almost 6 times (5.76), prices of means of production purchased by farms rose more than three times (3.19), and prices of agricultural products rose more than twice (2.12).Definitely, higher rate of wage growth rate in the national economy and growth in prices of means of production purchased by farmers resulted in a decrease in the unit profitability of agricultural production. Farmers wishing to achieve a satisfactory level of income must increase their production scale by increasing the production intensity the cultivation area of crops and also by increasing the number of animals on a farm.

An important role in the livestock production is played by cattle production, which includes the production of milk and beef. Its share in 2015 was 46.9%, including the share of milk – 33.8% and beef – 13.1% (GUS, 2016). Poland is a major producer of milk in the European Union. In 2013, ranked fourth, with the share of 8.3%, following such countries as: Germany (24%), France (15.6%), Great Britain (9.1) (Statistisches Jarbuch über..., 2016). Milk production is a basis of the dairy industry, whose products are largely exported. The balance of foreign trade in milk products in the past dozen or so years has been positive, both in quantitative and value terms. The balance of foreign trade in milk products between 2010 and 2016 in quantitative terms ranged from 1,310 thousand tonnes of raw material equivalent in 2010 to 2,404 thousand tonnes in 2015. In value terms over the same period it amounted to about EUR 890 million, ranging from EUR 701.6 million in 2016 to

[1] The literature of the subject contains numerous definitions of a farm (e.g. according to the Civil Code, Central Statistical Office and the scientific discipline of economics and organisation of farms). Colloquially, the concept of a farm applies to a family (individual) farm. According to the scientific discipline: "a farm is a technical and organisational entity, identified in organisational terms, including production factors – land, labour and capital – focused on manufacturing agricultural products for sale". Then, an agricultural enterprise is a similar entity, additionally identified in economic and legal terms, focused on manufacturing agricultural products for sale. According to the latter, individual (family) farms conducting commercial production are enterprises in the legal form of a "natural person". In this paper, we use the concept of a farm in the sense of the enterprise. In agriculture, apart from enterprises of natural persons, there are enterprises of legal persons, e.g. companies (limited liability and joint stock) and cooperatives (Manteuffel, 1979, pp. 265-266; Ziętara, 2008, p. 599).

EUR 1,108.1 million in 2014. The share of the export of milk products in raw milk equivalent was significant and showed an upward trend from 17.8% in 2010 to 31% in 2014 (*Rynek Mleka* nr 42, 47, 48 and 52).

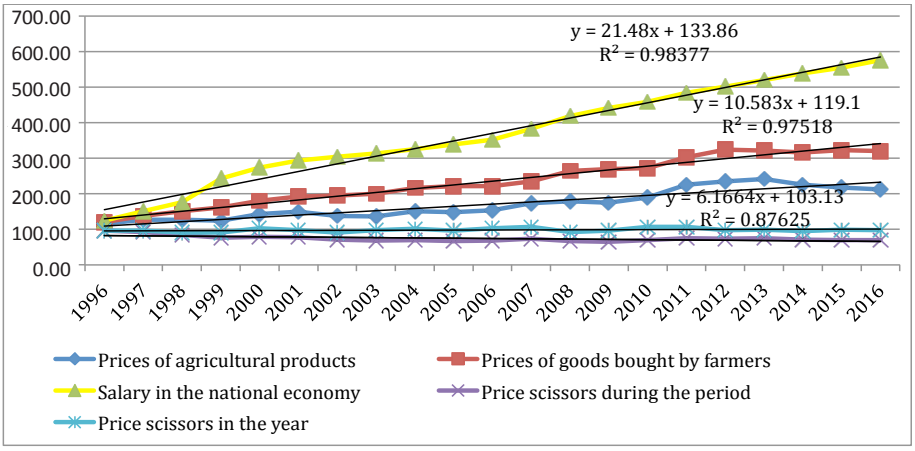

Fig. 1. Trends of changes in the labour costs, prices of means of production for agriculture and selling prices of agricultural products.

Source: GUS (1996-2016).

Farms rearing cattle are closely linked to land. They cultivate fodder crops, including legumes, which allows to conduct rational crop rotation management. Moreover, they have organic fertilisers in a form of manure, thus the soil is supplied with an organic substance, which fixes significant amounts of carbon dioxide. For these reasons, the production on these farms is sustainable and environment-friendly (Harasim, 2013). The cattle rearing and milk production are a basis for the maintenance of a significant part of the farming population. In 2013, cattle was reared by more than 400 thousand farms, i.e. about one-third of all farms with an area of 1 ha and more.

Given the importance of farms rearing cattle (including those with milk production) for food production, for foreign trade and for land management, it is essential to examine their organisation and performance of processes taking place therein. In the light of limited domestic demand for milk products, their export provides an opportunity for development of dairy farms. For this reason, the study on the performance of Polish dairy farms should be carried out against a background of similar farms from the selected European Union countries.

Objective and study methods

The objective of the research was to assess the effectiveness of the functioning of Polish dairy farms (Type 45) in 2013-2015 against a background of similar farms from the selected European Union countries and to determine their efficiency. The research covered farms from the following countries: Poland, Hungary, Lithu-

ania, Austria, Germany, Denmark, the Netherlands and France. The choice of the countries was deliberate. Hungary, Lithuania and Austria were selected due to their similar size and structure of farms and production intensity level. In contrast, Germany and France were selected as the largest milk producers, and Denmark and the Netherlands – as the countries with the highest level of intensity of milk production. The research materials were sourced from the data on farms from the European FADN[2]. Table 1 provides the number of the analysed farms by individual economic size classes. It was diverse, and not all classes of farms were covered by the research. Among the Polish, Lithuanian and Austrian farms, the research covered dairy farms in the classes 2-5[3], Hungarian – 4-6, German – 3-6, Danish and Dutch – 5-6 and French – 3-5. In Type 49, the research did not cover farms in class 2 (small).

Table 1

Number of the studied dairy farms in 2013-2015

Countries	Economic farm size in SO (EUR thousand)				
	8-25 (2)	25-50 (3)	50-100 (4)	100-500 (5)	≥500 (6)
	Dairy farms (Type 45)				
Poland	200-500	500-1000	500-1000	200-500	-
Hungary	-	-	15-40	15-40	15-40
Lithuania	40-100	40-100	40-100	40-100	-
Austria	40-100	200-500	200-500	100-200	-
Germany	-	40-100	200-500	100-200	200-500
Denmark	-	-	-	40-100	200-500
Netherlands	-	-	-	200-500	100-200
France	-	15-40	100-200	500-1000	

Source: European FADN.

The ratio method was used to assess the effectiveness of the analysed dairy farms. The method used the following four groups of ratios describing the: production potential, production organisation, productivity and performance:

I. Production potential of farms:
1) Economic size of farms expressed in SO,
2) Utilised agricultural area in ha,
3) Share of rented land (%),
4) Total labour input (AWU/farm),
5) Unpaid labour input (FWU/AWUx100),
6) Total assets (EUR thousand/ha),
7) Total assets (EUR thousand/AWU),

[2] Network of farms covered by the research in all European Union countries.

[3] The following classes were identified according to the economic size: very small (1) =<2>8 EUR thousand; small (2) =<8<25 EUR thousand; medium small (3) =<25<50 EUR thousand; medium large (4) =<50<100 EUR thousand; large (5) =<100<500 EUR thousand; very large (6) =<500 EUR thousand and more.

8) Share of fixed assets in total assets (%),
9) Share of equityin liabilities (%).

II. Production organisation:
1) Share of cereals in UAA (%),
2) Share of fodder crops in UAA (%),
3) Stocking density (LU/100 ha of UAA),
4) Density of grazing livestock (LU/ha of forage area),
5) Density of dairy cows (head/farm),
6) Density of other cattle (LU/farm),
7) Share of livestock output in the total output (%).

III. Level of costs by nature:
1) Total inputs (EUR thousand/ha),
2) Total specific costs (EUR thousand/ha),
3) Costs of purchased feed for cattle (EUR/LU),
4) Costs of own feed for cattle (EUR/LU),
5) Cost of interest paid (EUR/ha),
6) Costs of paid labour (EUR/ha),
7) Cost of rent paid (EUR/ha),
8) Cost of depreciation (EUR/ha).

IV. Productivity and performance of farms:
1) Milk yield (kg/cow),
2) Assets productivity (output/assets – times),
3) Current assets productivity (output/current assets – times),
4) Labour productivity (output, EUR thousand/AWU),
5) Land profitability (farm income, EUR thousand/ha),
6) Assets profitability (farm income/assets – %),
7) Operator's profit (EUR thousand/farm)[4],
8) Farm income parity (%),
   A1 in relation to payment for paid labour in agriculture (%),
   A2 in relation to payment in the national economy (%),
9) Net investment rate (%),
10) Competitiveness index.

The value of these ratios was calculated as an average from the period between 2013 and 2015. The use of the average from that period was justified by the low variability of those parameters during that period.

Table 2 lists the costs of using own production factors: land, labour and capital in the dairy farms (type 45). These figures are necessary to calculate the income parity[5]: A1 and A2 and the operator's profit and competitiveness index.

[4] Operator's profit – a difference between farm income and costs of using own production factors (labour, land and capital). The equivalent category is management income.

[5] Income parity: ratio of farm income per FWU (Family Work Unit = 2,120 hours of unpaid labour annually). It is calculated in relation to an average wage for paid labour in the given economic size class (A1) to an average wage in the national economy (A2).

Table 2

Costs of own production factors: land, labour and capital for the analysed dairy farms by economic size in 2013-2015

Countries	Economic size in SO (EUR thousand) Type 45				
	8-25 (2)	25-50 (3)	50-100 (4)	100-500 (5)	≥500 (6)
	medium	medium	medium	medium	medium
	Costs of land (EUR/ha)				
Poland	58.0	80.9	87.1	94.2	-
Hungary	-	-	78.4	93.9	115.8
Lithuania	11.8	20.4	13.6	16.9	-
Austria	115.0	143.8	177.76	231.0	-
Germany	-	204.1	227.1	281.3	251.5
Denmark	-	-	-	499.9	616.7
Netherlands	-	-	-	704.5	930.0
France	-	68.4	109.6	151.2	-
	Costs of labour in agriculture (EUR/h)				
Poland	2.04	2.24	2.25	2.70	-
Hungary	-	-	2.79	2.78	5.65
Lithuania	2.67	2.84	2.90	3.39	-
Austria	4.94	6.98	6.56	6.31	-
Germany	-	12.43	11.68	11.84	13.35
Denmark	-	-	-	21.69	22.82
Netherlands	-	-	-	13.62	16.56
France	-	7.92	11.46	12.77	-

	Average wage[a] in the national economy (EUR/h)	Costs of capital according to 10-year bonds (%)[b]
Poland	4.29	4.7
Hungary	3.59	6.6
Lithuania	3.11	5.4
Germany	15.67	1.9
Denmark	25.52	2.1
Netherlands	16.0	2.2
Austria	14.02	2.4
France	14.94	2.5

[a] median of wages, all employees (apart from trainees);
[b] calculations based on daily data from national central banks.

Source: Eurostat (Retrieved from: http://appso.eurostat.ec.europa.eu/nui/show.do?dataset=earn_ses_pub2s&lang=en; access date: 29.05.2017); European FADN.

Alternative costs of own land were adopted at the level of land rent paid in the appropriate economic size classes. Costs of unpaid labour of the farmer and his family members were adopted at two levels: on the level of payment for paid labour in the appropriate economic size classes of farms, as a calculation basis for the income parity A1 and on a basis of the average level of wages in the national economy, as a calculation basis for the income parity A2. Costs of capital were adopted according to 10-year bonds (Table 2).

The competitiveness of farms was defined using the competitiveness index (*Wk*) according to Kleinhanss (2015). The competitiveness index (times) was determined as a quotient of farm income and the total of estimated costs of using own production factors: labour, land and capital (Equation 1). The value of the competitiveness index *Wk*>=1 indicates that farm income fully covers costs of production factors. Following Kleinhanss, the further classification of Wk was adopted by identifying the following classes:

Wk (-) – in the case of negative Dzgr (*Wk*1);
0 < *Wk* < 1 – partial coverage of own costs of production factors (*Wk*2);
1 = *Wk* < 2 – full coverage of costs of production factors (*Wk*3);
Wk > = 2 – double and more coverage of costs of production factors (*Wk*4).

The competitiveness index *Wk*3 points to the competitive capacity, while *Wk*4 points to the full competitiveness of a farm. This conclusion is consistent with the Binswanger's view who states that the company able to develop should achieve the profit rate twice as high as the credit interest rate (Binswanger, 2011).

$$Wk = \frac{\text{Dzgr}}{\text{Kwz+Kwp+Kwk}} \tag{1}$$

where:
WK – competitiveness index,
Dzgr – farm income,
Kwz – alternative cost of own land,
KwP – alternative cost of unpaid labour,
KwK – alternative cost of equity(without own land).

In this paper, the competitiveness was defined as the farm's ability to develop. The farm obtains this ability when farm income covers costs of own production factors. This approach is different from traditional defining of the competitiveness, as obtaining advantage (cost, price, quality, etc.) in relation to competitors. The authors have previously defined the competitive capacity of the farms using the category of operator's profit, parity-based income and net investment rate (Ziętara and Zieliński, 2016).

Concentration processes on dairy farms in Poland and in the analysed countries

Figure 2 shows the changes in the number of farms with livestock, including cows, as well as the population of cattle and cows in Poland between 1996 and 2016. The greatest changes took place in the number of farms rearing cattle and cows. In 1996, there were 1,374 thousand farms with cattle, including 1,309 thousand (95.3%) farms rearing cows, and in 2016, cattle was reared by 343 thousand farms, including cows – by 267 thousand (77.8%). A decrease in the number of farms from the first group was 75% and from the other – 79.6%. The total population of cattle at that time decreased from 6,997 thousand heads in 1996 to 5,960.7 thousand heads in 2015 and 5,939 thousand in 2016. A decrease in the number of cattle was, respectively: 14.8% and 15.1%, while a decrease in the number of cows in those years was, respectively: 29.4% and 32.6%. These numbers indicate a slow growth process in the degree of specialisation of farms towards the livestock production. In 1996, the share of such farms in the total number of farms rearing cattle was 4.7%, while in 2016 – 22.1%. The result of the different rate of decrease in the number of farms rearing cattle and cows was an increase in the average size of herds. In 1996, the average number of cattle on the farm was 5.1 heads, while of cows – only 2.4. However, in 2016 the respective numbers were: 17.3 and 8.9. In the analysed period, the average size of cattle herd increased by 239%, while cow herd – by 271%. Despite a significant increase in the degree of concentration of rearing cattle and cows in Poland, the difference in relation to the concentration of cows in the analysed countries is very large. Table 3 shows relevant figures. They relate to the years between 2010 and 2013. From the numbers provided in Table 3, it results that in 2010, the average dairy farm in Poland kept 5.9 cows, while the Lithuanian farm – 4.1 cows, and the Austrian and Hungarian farms, respectively: 11.3 and 21 cows. The largest cow herds in that year were kept in Denmark and the Netherlands, respectively: 132.2 and 74.7 cows. But then, about 45 cows were kept on farm in Germany and France. In 2013, when compared to 2010, the number of cows on farm increased in all analysed countries (from 11% in the Netherlands to 23.8% in Hungary) except for France, where it decreased by 10%. Differences among the individual countries have remained unchanged over the analysed years.

In 2010, an average cow herd on the German farms was by 8 times larger than on the Polish farms, while in 2013 this ratio remained virtually unchanged. Even larger herds were noted on the Danish farms, which in relation to the Polish farms were larger by, respectively, 22.0 and 22.4 times. The average size of cow herd does not reflect the whole complexity of the phenomenon, i.e. the concentration of milk production. A more complete picture is provided by the structure of farms according to cow rearing scale. The share of small farms (keeping herds of up to 9 cows) in Poland, Hungary and Lithuania ranged from 78% to 92%. In Austria, the share of those farms was at about 50%, while in other countries it ranged from 2.4% (Denmark) to 12.9% (Germany). In Poland, the small farms kept about 30% of the population of cows, the Lithuanian farms – about 42%, Austrian – about 16%, and Hungarian – about 10%. In other countries, it was from 0.03% (Denmark) to 1.8%

(France). Poland is among the leading milk producers in the European Union. With the output of 12.74 billion litres of milk, it is ranked fourth following such countries as: Germany, France, Great Britain. After the potential withdrawal of Great Britain from the EU structures, Poland would be the third milk producer in the EU.

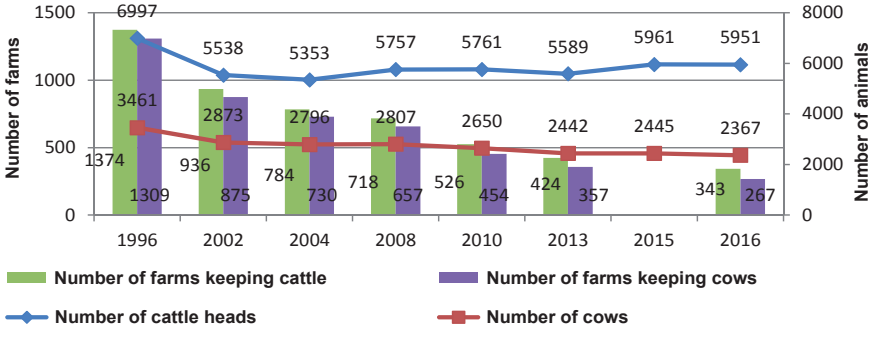

Fig. 2. Number of farms rearing cattle and cows and the population of cattle and cows between 1996 and 2016 in Poland.

Source: GUS (2015, 2017); Ziętara, Adamski and Grodzki (2013).

Table 3

Number of dairy farms, population of cows and milk output in the analysed countries between 2010 and 2013

Countries	Years	Number of dairy farms, thousand	Number of cows, thousand	Size of the cow herd/farm	Share of small farmsa (%)	Share of cows in small farms (%)	Milk output, million litres	Average milk yield, litres/ cow
Poland	2010	452.8	2,505.6	5.9	82.5	32.2	12.43	4,854.0
	2013	334.5	2,343.51	7.0	77.7	26.8	12.74	5,532.0
Hungary	2010	11.4	239.0	21.0	81.5	10.6	1.68	7,050.0
	2013	9.5	250.0	26.0	78.0	9.4	1.78	7,091.0
Lithuania	2010	85.0	352.6	4.1	85.7	44.9	1.73	4,815.0
	2013	65.0	318.1	4.9	91.8	40.8	1.72	5,447.0
Austria	2010	47.7	540.	11.3	54.1	19.6	3.25	6,115.0
	2013	42.2	536.0	12.7	49.3	15.4	3.42	6,407.0
Germany	2010	89.8	4,164.8	46.4	12.9	1.4	29.63	7,085.0
	2013	78.8	4,251.4	54.0	12.4	1.2	31.34	7,343.0
Denmark	2010	4.3	568.2	132.2	4.6	0.1	4.91	8,569.0
	2013	3.	582.3	157.4	2.7	0.03	5.09	8,963.0
Netherlands	2010	19.8	1,487.6	74.7	3.8	0.1	11.95	7,866.0
	2013	18.7	1,552.9	83.0	3.7	0.02	12.64	7,769.0
France	2010	82.6	3,720.0	45.0	10.2	0.7	23.93	6,464.0
	2013	92.5	3,737.2	40.4	12.6	1.8	26.65	6,607.0

[a] small farms keeping up to 9 dairy cows.

Source: Statistisches Jahrbuch (2015).

There are also significant differences in the milk yield of cows. In 2013, the average annual milk yield of cows in Poland was similar to that in Lithuania and amounted to about 5,500 litres and was by about 38% lower than on the Danish farms, where it was 8,900 litres. In other countries, it ranged from 6,400 litres (Austria) to 7,769 litres (the Netherlands).

Competitiveness of the Polish dairy farms between 2008 and 2015 and against the background of the analysed countries

Table 4 shows the competitiveness of the Polish farms specialising in milk production between 2008 and 2015, depending on the production scale determined by the number of dairy cows kept on a farm.

Table 4

Production scale and production and economic effects of the Polish dairy farms in 2008-2015

Years	Specification	Farms by the number of cows (head)					
		5-10	10-15	15-20	20-30	30-40	>40
2008	Number of cows (head)	7.53	12.33	17.25	24.15	33.50	54.04
	UAA (ha)	12.30	18.03	23.10	29.77	41.31	66.08
	Operator's profit (EUR thousand/farm)	-35.37	-29.79	-25.52	0.88	8.50	89.79
	Income parity (%)	44.0	77.0	101.0	184.6	239.6	399.6
	Wk index	0.32	0.52	0.64	1.01	1.09	1.72
2009	Number of cows (head)	7.69	12.50	17.30	24.13	33.59	54.55
	UAA (ha)	13.41	17.95	24.08	31.59	40.95	63.38
	Operator's profit (EUR thousand/farm)	-39.80	-31.73	-26.33	-3.45	10.35	86.07
	Income parity (%)	34.2	65.4	91.2	153.8	197.0	377.0
	Wk index	0.27	0.48	0.62	0.95	1.11	1.76
2010	Number of cows (head)	7.77	12.52	17.39	24.45	34.06	57.69
	UAA (ha)	14.80	20.55	24.99	33.56	43.38	69.84
	Operator's profit (EUR thousand/farm)	-20.17	-19.19	-3.62	24.80	55.92	151.00
	Income parity (%)	59.7	95.60	134.50	204.30	277.40	477.20
	Wk index	0.47	0.69	0.95	1.32	1.61	2.29
2011	Number of cows (head)	7.66	12.46	17.44	24.54	34.19	59.80
	UAA (ha)	14.96	21.22	24.76	33.39	43.61	71.92
	Operator's profit (EUR thousand/farm)	-32.75	-20.43	-3.99	22.68	67.39	164.27
	Income parity (%)	61.00	94.00	141.60	202.80	300.00	489.90
	Wk index	0.47	0.71	0.96	1.26	1.67	2.22
2012	Number of cows (head)	7.62	12.46	17.37	24.36	33.90	59.22
	UAA (ha)	15.30	21.19	24.72	33.31	43.78	70.05
	Operator's profit (EUR thousand/farm)	-37.03	-20.13	-9.93	14.95	55.95	142.94
	Income parity (%)	56.00	95.08	131.80	192.5	281.20	461.50
	Wk index	0.42	0.68	0.88	1.16	1.52	2.02

cont. Tab. 4

	Number of cows (head)	7.75	12.40	17.45	24.55	34.20	58.80
	UAA (ha)	14.93	20.48	24.62	33.40	42.03	67.25
2013	Operator's profit (EUR thousand/farm)	-38.43	-26.93	-11.27	9.43	55.82	185.31
	Income parity (%)	51.10	86.30	124.10	174.60	266.50	476.80
	Wk index	0.39	0.63	0.86	1.10	1.54	2.38
	Number of cows (head)	7.66	12.47	17.41	24.41	34.33	60.30
	UAA (ha)	14.77	20.35	24.53	33.16	41.41	66.37
2014	Operator's profit (EUR thousand/farm)	-37.26	-26.41	-10.05	16.28	63.41	199.64
	Income parity (%)	46.30	79.20	113.90	168.00	254.40	468.60
	Wk index	0.39	0.62	0.87	1.43	1.69	2.73
	Number of cows (head)	7.77	12.47	17.32	24.41	34.11	60.42
	UAA (ha)	15.23	20.09	24.06	32.46	40.95	64.10
2015	Operator's profit (EUR thousand/farm)	-43.38	-36.87	-25.67	-11.44	22.27	120.40
	Income parity (%)	39.00	61.50	86.50	121.32	184.10	350.00
	Wk index	0.32	0.53	0.66	0.86	1.24	2.03

Source: Parametry techniczno-ekonomiczne według grup gospodarstw rolnych uczestniczących w Polskim FADN w latach 2008-2015 (2010-2017).

The figures presented show a high convergence between the level of operator's profit and the competitiveness index. Negative operator's profit indicates the incomplete coverage of costs of own production factors with farm income. In this case, the value of the competition index is lower than 1. From the figures shown in Table 4, it results that farms keeping about 24 dairy cows show competitive capacity. The exception were the years 2009 and 2015 when the competitive capacity was shown by farms keeping about 34 dairy cows. In all years, except for 2008 and 2009, farms keeping about 60 dairy cows were fully competitive. The income parity A2 was achieved by the farms keeping around 18 cows, except for 2009 and 2015. The fact of achieving income parity by farms does not mean that they are able to develop, i.e. to increase their production potential. The maintenance of the simple reproduction of assets in a situation where the unit profitability of production drops leads to stagnation and, consequently, to total loss of development capacity.

Table 5 shows figures characteristic of the competitive capacity of the analysed Polish dairy farms against a background of the analogous farms from the analysed countries.

From the figures given in Table 5, it results that most of the analysed dairy farms do not have the competitive capacity. This applies to all small and medium-small farms, medium-large farms from Austria, Germany and France, large farms from Austria, Germany, Denmark, the Netherlands and France, and very large farms from Denmark and the Netherlands. Medium large farms from Poland, Hungary and Lithuania showed competitive capacity and has the value of the *Wk* index at, respectively: 1.35; 1.90 and 1.87, whereas only the Polish large farms has the *Wk*

index value at 1.78 and the Hungarian and German very large farms had the value of the Wk index at, respectively: 1.28 and 1.11. Fully competitive proved to be only the large Hungarian and Lithuanian farms, where the value of the *Wk* index was, respectively: 2.9 and 2.24. The net investment rate[6] on all farms without competitive capacity was negative (small and medium-small Polish farms, medium-small German farms, large Danish farms and all French farms) or very low, below 50%. This means that investment inputs covered depreciation costs only in 50%. An exception were non-competitive Dutch farms where the depreciation rate was, respectively, 105% and 182%. Investments on those farms were financed by means of credits. As mentioned above, the non-competitive farms – where farm income did not cover costs of own production factors – are able to operate for some period of time, but are unable to develop, because in the longer term the farmers cannot accept lower income.

Table 5

Competitive capacity of the Polish dairy farms against the background of the EU farms (average for 2013-2015)

SO, EUR thousand	Poland	Hungary	Lithuania	Austria	Germany	Denmark	Netherlands	France
Competitiveness index *Wk* (times)								
(2) 8-25	0.53	-	0.66	0.26	-	-	-	-
(3) 25-50	0.89	-	0.94	0.47	0.45	-	-	0.40
(4) 50-100	1.35	1.90	1.87	0.70	0.64	-	-	0.41
(5) 100-500	1.78	2.90	2.24	0.87	0.90	0.42	0.70	0.63
(6) ≥500	-	1.28		-	1.11	0.34	0.92	-
Net investment rate (%)								
(2) 8-25	-61.4	-	-	9.4	-	-	-	-
(3) 25-50	-17.5	-	8.2	20.2	-29.4	-	-	-29.1
(4) 50-100	18.6	79.2	19.2	50.5	15.3	-	-	-13.4
(5) 100-500	83.1	170.6	59.0	46.3	32.3	-40.8	105.3	-3.1
(6) ≥500	-	32.1	52.9	-	74.5	40.9	181.8	-

Source: European and Polish FADN.

Characteristic of the analysed dairy farms defined as farms without competitive capacity

Table 6 provides figures describing the production potential and production organisation on non-competitive dairy farms. The area of the analysed farms was diverse. The small Polish farms used 12.5 ha of UAA, twice less than the Lithuanian farms and by 18% less than the Austrian farms. The medium-large farms used 22.5 ha of UAA, three times less than the Lithuanian farms, and similarly as the Aus-

[6] The net investment rate was calculated as the quotient of net investments (investment inputs less depreciation) and depreciation, expressed in %.

trian farms. The larger area in each economic size class was characteristic of the French farms. The largest UAA was held by the large and very large Danish farms, which used about 213 ha of UAA.

Table 6

Production potential and production organisation on non-competitive dairy farms in 2013-2015

SO, EUR thousand	Poland	Hungary	Lithuania	Austria	Germany	Denmark	Netherlands	France
Size of farm (ha of UAA)								
(2) 8-25	12.5	-	25.5	15.3	-	-	-	-
(3) 25-50	22.5	-	60.0	22.3	19.5	-	-	37.5
(4) 50-100	-	-	-	35.7	31.1	-	-	54.2
(5) 100-500	-	-	-	58.0	74.3	84.5	47.3	104.7
(6) ≥500	-	-	-	-	-	212.9	111.9	-
Total assets (EUR thousand/ha of UAA)								
(2) 8-25	9.20	-	1.40	15.20	-	-	-	-
(3) 25-50	9.70	-	1.50	18.20	18.90	-	-	4.10
(4) 50-100	-	-	-	16.90	16.50	-	-	4.70
(5) 100-500	-	-	-	16.50	12.70	25.40	54.90	4.90
(6) ≥500	-	-	-	-	-	25.90	57.50	-
Density of dairy cows (head/farm)								
(2) 8-25	7.90	-	6.50	5.50	-	-	-	-
(3) 25-50	16.90	-	18.60	11.70	13.20	-	-	19.70
(4) 50-100	-	-	-	21.80	24.80	-	-	32.60
(5) 100-500	-	-	-	44.90	66.10	81.80	79.10	65.30
(6) ≥500	-	-	-	-	-	226.90	210.00	-
Stocking density (LU/100 ha of UAA)								
(2) 8-25	91.90	-	37.60	37.40	-	-	-	-
(3) 25-50	114.30	-	48.30	53.40	110.10	-	-	75.90
(4) 50-100	-	-	-	61.50	134.70	-	-	96.20
(5) 100-500	-	-	-	77.50	155.30	157.00	242.30	113.80
(6) ≥500	-	-	-	-	-	170.00	271.20	-
Density of grazing livestock (LU/ha of forage area)								
(2) 8-25	1.54	-	0.43	0.63	-	-	-	-
(3) 25-50	1.85	-	0.57	0.97	1.25	-	-	0.80
(4) 50-100	-	-	-	1.40	1.63	-	-	1.07
(5) 100-500	-	-	-	1.59	1.99	1.99	2.44	1.48
(6) ≥500	-	-	-	-	-	2.15	2.80	-

Source: as for Table 5.

The relatively small area was held by the Dutch farms. Their area in the class of large and very large farms was, respectively: 84.5 and 112 ha of UAA. The value of assets per 1 ha of UAA was also highly diverse. The lowest value of assets occurred on the Lithuanian farms, it was, on average, EUR 1.45 thousand/ha of UAA. Relatively low was also the value of assets on the French farms, amounting to, on average, EUR 4.5 thousand/ha regardless of the economic size class. On the Polish farms, it was EUR 9.5 thousand/ha and was about twice less than on the Austrian and German farms. By far, the highest value of assets was on the Danish and Dutch farms where it amounted to, respectively: EUR 25 and EUR 56 thousand/ha of UAA. The crop structure was dominated by fodder crops. Their share ranged from 60% (Polish farms) to more than 90% (Austrian and Dutch farms).

The size of the cow herd on the farm was also varied. The smallest cow herds were on small farms: Polish, Lithuanian and Austrian, where the number of cows was, respectively; 7,9, 6.5 and 5.5 cows. On the medium-small farms, it was within the range of 11.7-19.7 cows. The largest cow herds were on the very large Danish and Dutch farms, where the number of cows was, respectively, 227 and 210 cows. The stocking density (cattle) was varied, it was the lowest on the Lithuanian and Austrian farms, within the range of 40-70 LU per 100 ha of UAA. On other farms, it ranged from 76 (medium-large French farms) to 170 LU per 100 ha of UAA (very large Danish farms). An exception were the Dutch farms, where the stocking density was more than 240 LU per 100 ha of UAA. Diversified was also the use of the forage area referred to by the number of LU of cattle per 1 ha of this area. The lowest stocking density was in the Lithuanian farms and small Austrian farms, where it was about 0.55 LU/ha of forage area. On the Polish farms, it was about 1.7 LU and was higher than on the Austrian, French and German farms, except for the large farms. It should be rated positively. On the Danish and Dutch farms, it was 2 and more of LU/ha of forage area. Such high stocking density entailed the large share of purchased feed.

Table 7 provides the figures describing the level of intensity of production determined by the total costs per 1 ha of UAA, costs of feed per LU of cattle, as well as the effects determined by the milk yield of cows, farm income and share of payments in farm income. The lowest level of intensity of production was characteristic of the Lithuanian farms, where in the class of small and medium-small farms total inputs were, respectively: EUR 515 and EUR 708 per ha of UAA. On the Polish farms, they were higher, respectively, by 87% and 65%. However, they were by about 45% lower than on the Austrian farms and by 60% lower than on the medium-small German farms. On the medium-large and large Austrian and German farms, total inputs per ha of UAA ranged from EUR 2,100 to EUR 3,091. Definitely, the highest level of intensity of production was on the Danish and Dutch farms, where it exceeded EUR 4,600 per ha. Costs of feed per 1 LU of cattle on the Polish farms were around EUR 480 and were similar to the costs on the Austrian, German, French and Dutch farms. Definitely, the highest costs of feed were on the Danish farms, where in both the highest classes they exceeded EUR 1,700 per LU.

Table 7

Costs and production effects on non-competitive dairy farms in 2013-2015

SO, EUR thousand	Poland	Hungary	Lithuania	Austria	Germany	Denmark	Netherlands	France
Total inputs (EUR thousand/ha of UAA)								
(2) 8-25	965.40	-	514.80	1,692.40	-	-	-	-
(3) 25-50	1,172.10	-	707.70	2,127.50	2,943.90	-	-	1,360.00
(4) 50-100	-	-	-	2,174.40	2,393.30	-	-	1,710.70
(5) 100-500	-	-	-	2,640.30	3,091.10	4,686.00	5,576.10	2,177.60
(6) ≥500	-	-	-	-	-	5,620.50	6,592.20	-
Costs of feed (EUR/LU), including the share of purchased feed (%)								
(2) 8-25	483.5(58)	-	889.9(59)	497.5(75)	-	-	-	-
(3) 25-50	473.2(65)	-	959.7(62)	474.8(79)	400.0(75)	-	-	443.3(90)
(4) 50-100	-	-	-	535.4(79)	401.2(76)	-	-	415.3(87)
(5) 100-500	-	-	-	635.5(81)	486.9(78)	1,717(68)	649.5(94)	442.7(90)
(6) ≥500	-	-	-	-	-	1,752.2(69)	688.1(95)	-
Milk yield of cows (kg/cow per year)								
(2) 8-25	4,120	-	4,851	5,041	-	-	-	-
(3) 25-50	4,787	-	5,283	6,033	5,501	-	-	4,820
(4) 50-100	-	-	-	6,760	6,266	-	-	5,928
(5) 100-500	-	-	-	7,457	7,465	8,292	7,901	7,051
(6) ≥500	-	-	-	-	-	8,935	8,143	-
Farm income (EUR thousand/farm)								
(2) 8-25	5.50	-	5.70	4.70	-	-	-	-
(3) 25-50	13.70	-	9.70	15.40	15.90	-	-	11.50
(4) 50-100	-	-	-	28.80	26.40	-	-	17.50
(5) 100-500	-	-	-	47.00	52.00	39.80	55.10	40.30
(6) ≥500	-	-	-	-	-	62.70	164.40	
Share of payments in farm income (%)								
(2) 8-25	75.00	-	101.00	191.00	-	-	-	-
(3) 25-50	50.00	-	146.00	93.00	75.00	-	-	140.00
(4) 50-100	-	-	-	76.00	59.00	-	-	115.00
(5) 100-500	-	-	-	73.00	60.00	100.00	39.00	87.00
(6) ≥500	-	-	-	-	-	145.00	31.00	-

Source: as for Table 5.

A characteristic feature of the cost structure for feed was the high share of pur-

chased feed. It was the lowest on the Polish, Lithuanian and Danish farms, where it was within the range of 60-70%. It was the highest on the Dutch farms, where it was above 94%. The milk yield of cows was also varied, it was the lowest on the small and medium-small Polish, Lithuanian and French farms, where it was within the range of 4,120-5,200 kg/cow per year. It was the highest on the Danish and Dutch farms, where it exceeded 8 thousand kg/cow.

Farm income was strongly diversified, as related to the economic size of farms. It was the lowest on the small Polish, Lithuanian and Austrian farms, where it amounted to about EUR 5 thousand and the highest on the very large Dutch farms – EUR 164 thousand. On all analysed farms, the level of farm income was dependent on payments. Their share in income was the lowest on the large and very large Dutch farms, where it was, respectively: 39% and 31% and then on medium-small Polish farms, where it was 50%. On other farms, it was by far higher. It was the highest on small Austrian farms, where it was 191%.

Characteristics of the dairy farms defined as able to compete and competitive

Table 8 shows the characteristics of the dairy farms able to compete and competitive.

The following characteristics were taken into consideration: utilised agricultural area, number of cows on the farm, density of cattle in LU per 100 ha of UAA, LU of cattle per 1 ha of forage area, costs of feed per 1 LU and share of payments in farm income.

From the figures presented in Table 8, it results that the medium-small farms (Polish and Lithuanian), large German farms and very large Dutch farms did not have the full competitive capacity. On those farms, the competitiveness index was by 6-11% lower than 1. Given the small difference, it was decided to include those farms in the analysis. The medium-small Polish and Lithuanian farms differed in terms of UAA, which was, respectively, 22.5 and 60 ha of UAA. Similarly, the area of the farms in the medium-size class was strongly diversified, ranging from 39 ha (Poland) to 108 ha (Lithuania). There were similar differences in the class of large farms. Variability ranged from 73.4 ha (Germany) to 241 ha (Lithuania). In the class of very large farms, the largest area was that of the Hungarian farms – 1,236 ha of UAA, and by far smaller was that of the German farms – 448 ha, and particularly of the Dutch farms, as only 112 ha of UAA. The number of cows kept on a farm was highly diversified. On the medium-small farms, it was about 18 cows, on the medium-large farms – 26-35 cows, on large farms 65-89, and on very large – 627 (Hungary) – 210 cows (the Netherlands). The level of differentiation in the density of cattle in LU per 100 ha of UAA was lower.

Table 8

Characteristics of the dairy farms able to compete and competitive in 2013-2015

SO, EUR thousand	Poland	Hungary	Lithuania	Germany	Netherlands
Competitiveness index (*Wk*3 and Wk4)					
(3) 25-50	0.89	-	0.94	-	-
(4) 50-100	1.35	1.90	1.87	-	-
(5) 100-500	1.78	2.90	2.24	0.90	-
(6) ≥500	-	1.28	-	1.11	0.92
Size of the farm (ha of UAA)					
(3) 25-50	22.5	-	60.00	-	-
(4) 50-100	39.30	67.00	107.60	-	-
(5) 100-500	81.30	141.60	240.80	73.40	-
(6) ≥500	-	1,235.90	-	447.70	111.90
Number of cows (head/farm)					
(3) 25-50	16.90	-	18.60	-	-
(4) 50-100	31.20	26.40	35.00	-	-
(5) 100-500	64.8	82.10	88.80	66.10	-
(6) ≥500	-	627.30	-	310.30	210.00
Density of cattle (LU/100 ha of UAA)					
(3) 25-50	114.30	-	48.30	-	-
(4) 50-100	124.90	64.00	54.10	-	-
(5) 100-500	127.50	90.10	60.50	155.30	-
(6) ≥500	-	81.20		118.00	271.20
LU of cattle/ha of forage area					
(3) 25-50	1.85	-	0.57	-	-
(4) 50-100	1.88	0.90	0.64	-	-
(5) 100-500	1.87	1.37	0.78	1.99	-
(6) ≥500	-	1.45	-	1.83	2.80
Costs of feed (EUR/LU)					
(3) 25-50	437.20	-	961.50	-	-
(4) 50-100	506.30	957.10	1,119.00	-	-
(5) 100-500	561.70	1,080.00	1,208.00	486.90	-
(6) ≥500	-	1,382.00	-	594.20	688.10
Share of payments in farm income (%)					
(3) 25-50	50.0	-	191.0	-	
(4) 50-100	38.0	82.0	93.0	-	
(5) 100-500	30.0	67.0	76.0	100.0	-
(6) ≥500	-	286.0	-	145.0	31.0

Source: as for Table 5.

The density of cattle on the Polish farms amounted to about 120 LU per 100 ha

and was twice higher than on the Lithuanian farms and by 30% higher than on the Hungarian farms, it was similar to the density on the German farms where it was 118 LU per 100 ha of UAA. The density of cattle on the Polish farms can be assessed as average, while on the Lithuanian as low. The density of cattle was by far higher on the large German farms and very large Dutch farms, where it was, respectively, 155 and 271 LU per 100 ha of UAA. Another indicator pointing to the difference in the level of the intensity of organisation was the number of LU of cattle per 1 ha of forage area. In the Polish farms per 1 ha of forage area, there were 1.85 LU, similarly as on the German farms. The productivity of forage area on the Polish and German farms was three times higher than on the Lithuanian farms and by 30-100% higher than on the Hungarian farms. There were the differences in costs of feed per 1 LU. On the Polish farms, they amounted to EUR 500 and were similar to those on the German and Dutch farms. On the other hand, they were by 50% lower than on the Lithuanian and Hungarian farms.

Farm income was dependent on the amount of received direct payments. Their share in income was diversified. It was the lowest on the Polish farms, ranging from 50% to 30%, showing a downward trend as the economic size of the farms increased. It was also low on very large Dutch farms where it amounted to 31%. The highest share was on the very large Hungarian and German farms where it amounted to, respectively: 286% (this high share of payments in income on the Hungarian farms must be explained by their very large area) and 145%.

Role of farms rearing dairy cows by economic size and competitive capacity in Poland

The question about the role of the dairy farms able to compete in milk production becomes reasonable in the above context. In the previous chapters, it was determined that among the analysed dairy farms, the farms able to compete proved to be the farms with the economic size amounting to EUR 25 thousand of SO and more. Based on the available data provided in Table 9, it was calculated that in 2013, the number of such farms rearing cows was 98,481 thousand, and their share in the total number of farms rearing cows was 27.6%. This group also includes the farms with the economic size of EUR 25-50 thousand of SO where the competitiveness index was 0.89. It was considered that this group of farms is also able to compete. The farms able to compete kept 1,817,260 cows, and their share in the total number of cows was 72.60%. By far, the greater was the share of this group of the dairy farms in the global milk production, which in that year amounted to about 91%, including in the classes above EUR 50 thousand of SO – 61%. The average size of the cow herd in those farms amounted to 18.5 heads, while in the class above EUR 50 thousand of SO – 30.6. relying on this data, it can be concluded that the farms able to compete were the basis for milk production.

Table 9

Structure of the farms rearing cows by economic size and competitive capacity in Poland in 2013.

Specification	Economic size of the farms (EUR thousand of SO)						
	Total	up to 8	8-25	25-50	50-100	100-500	>=500
Number of farms with cows (unit)	356,817	119,994	138,342	62,532	28,435	6,950	564
Structure (%)	100.00	33.64	38.78	17.53	7.94	1.95	0.16
Number of cows (head)	2,503,950	164,250	522,440	716,280	651,110	306,920	142,950
Structure	100.00	6.55	20.87	28.61	26.00	12.26	5.71
Average number of cows per farm	7.01	1.36	3.78	11.45	22.88	44.16	253.45
Number and share of non- and competitive farms		258,336 (72.4%) -			- 98,481 (27.60%)		
Number and share of cows in non- and competitive farms.		686,690 (27.4%) -			- 1,817,260 (72.60%)		

Source: own calculations based on GUS (2014).

It can be assumed with a high level of probability, that the process of concentration in milk production will take place in the following years. The number and share of farms of up to EUR 25 thousand of SO, as well as of the class of EUR 25-50 thousand of SO will decrease, while the number of the farms with the economic size of EUR 50 thousand of SO and more, which are able to compete, will increase.

Conclusions

1. In the last dozen or so years, farms rearing cattle, including dairy cows, in Poland underwent concentration processes manifesting themselves in the decreased number of farms. Between 1996 and 2016, the number of cattle farms decreased by 75%, including those rearing dairy cows – by 79.6%. The higher rate of decrease in the number of farms rearing cows resulted in the increased share of beef cattle farms, from 4.7% to 22.1%.
2. In the analysed period, in Poland there was also a decrease in the population of cattle by 15.1%, including a decrease in the number of cows by 32.6%. Also, there was an increase in the average number of cattle from 5.1 to 17.3 heads and cows from 2.4 to 8.9 heads per farm.
3. Despite the increased degree of concentration of rearing cattle and cows on the Polish farms, still there is a very wide gap between Poland and the Western European countries. The average size of cow herd in Germany in 2010-2013 was more than 7 times larger than on the Polish farms, while on the Danish farms it was 22 times higher.
4. The analysis of the degree of competitiveness of the dairy farms indicated that all analysed small farms (EUR 8-25 thousand of SO) and medium-small farms (EUR 25-50 thousand of SO) did not have competitive capacity. The competi-

tiveness index was there lower than 1, ranging from 0.4 to 0.94. Their area ranged from 12.5 to 60 ha of UAA. Labour input was definitely dominated by unpaid labour input, ranging from 81% to 99.3%. Liabilities were dominated by net worth, ranging from 81.6% to 98.3%. The number of cows kept on a farm varied from 5.5 (Austrian farms) to 19.7 (French farms).

5. In the class of medium-large farms with the value of EUR 50-100 thousand of SO, the Austrian, German and French farms did not have competitive capacity. The competitiveness index there ranged from 0.41 (French farms) to 0.70 (Austrian farms). They used from 31.1 (German farms) to 54.2 (French farms) ha of UAA. They were dominated by unpaid labour, whose share in total inputs was above 90%. Liabilities were also dominated by net worth, ranging from 68.2% (French farms) to 92.8% (German farms). The number of cows kept on farms was from 22 to 33 cows.
6. In the class of large farms (EUR 100-500 thousand of SO) and very large (more than EUR 500 thousand of SO), the Austrian, German, Danish, Dutch and French farms did not have competitive capacity. The competitiveness index ranged from 0.34 (very large Danish farms) to 0.92 (very large Dutch farms). They used the area from 47.3 (large Dutch farms) to 213 (very large Danish farms) ha of UAA. Labour input was dominated by unpaid labour, whose share exceeded 72%, apart from the very large Danish farms where unpaid labour input was 34.8%. Those farms used foreign capital to a greater extent. This applies, in particular, to the Danish farms where the share of equity in liabilities was, respectively: 43.46 (large) and 17.69% (very large). The number of cows was diversified, ranging from 45 (large Austrian farms) to 227 cows (very large Danish farms).
7. n generalising the assessment of the non-competitive dairy farms, we should note the significant differences in their production potential, specified by the area of farms. Definitely, the larger area was that of the Lithuanian farms. The level of labour input in AWU per farm was similar for them. In terms of UAA in the individual economic size classes, the Polish farms were similar to the Austrian and German farms. A characteristic feature of the analysed non-competitive farms, particularly the large and very large German, Danish and French farms was the dominant share of purchased feed, including roughage. This indicates a new trend of weakening the link between cattle rearing and the land.
8. The competitive capacity was demonstrated by the medium-large Polish, Hungarian and Lithuanian farms, large Polish farms and very large Hungarian and German farms. The limited competitive capacity was also showed by the medium-small Polish and Lithuanian farms, large German farms and very large Dutch farms. The competitiveness index on those farms was about 0.9. In the light of a small difference, those farms were also regarded as able to compete. Fully competitive proved to be the large Hungarian and Lithuanian farms in which the competitiveness index was, respectively, 2.90 and 2.24.
9. The area of farms able to compete and competitive was highly diverse, ranging from 22.5 (medium-small Polish farms) to 1,236 (very large Hungarian farms) ha of UAA. The area of the Polish farms was definitely lower than that

of the comparable Hungarian and Lithuanian farms. In the class of large farms, it was 81 ha and was similar to the area of the German farms. In the class of the very large farms, characteristic were the Dutch farms which used only 112 ha of UAA, four times less than the German farms and ten times less than the Hungarian farms.

10. The Polish farms able to compete were characterised by the lower share of fodder crops in UAA, which was within the range of 60-67%, while on comparable farms it was about 80%, with the exception of the very large Hungarian and German farms, where it was, respectively: 53% and 63%. The density of cattle on the Polish farms was within the range of 114-127 LU per 100 ha of UAA and was about two times higher than on the Hungarian and Lithuanian farms and comparable with the density on the German farms. The use of the forage area specified as LU/ha of forage area on the Polish farms was more than twice higher than on the Hungarian and Lithuanian farms and similar to that on the German farms, where there were about 1.86 LU per 1 ha of the forage area. The number of cows kept on the farms from medium-small to large was highly diversified, ranging from 17 heads (medium-small Polish farms) to 89 heads (large Lithuanian farms). It was substantially higher on the very large Hungarian, German and Dutch farms, which was respectively: 627; 310 and 210 cows.
11. Costs of feed per LU on the Polish dairy farms were about EUR 500 and were twice lower than on the comparable Hungarian and Lithuanian farms, and similar to costs of feed on the German and Dutch farms. The Polish farms were less dependent on government payments. The share of payments in farm income on the Polish farms was within the range of 50-30%, showing a downward trend as the economic size was growing. Low was also the share of payments on the very large Dutch farms, which was 31%. This resulted from their smaller area. On other farms, it ranged from 67% (large Hungarian farms) to 286% (very large Hungarian farms).
12. In 2013, the number of the dairy farms with competitive capacity was 98.5 thousand and their share in the total number of farms rearing dairy cows was 27.6%. On those farms, there were 1,182 thousand cows and their share in the population of dairy cows was 72.6%. The share of those farms in the global milk production was 91%. It can, therefore, be concluded that the basis for the milk production were the dairy farms able to compete.

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KONKURENCYJNOŚĆ POLSKICH GOSPODARSTW MLECZNYCH NA TLE GOSPODARSTW Z WYBRANYCH KRAJÓW UNII EUROPEJSKIEJ

Abstrakt

W artykule przedstawiono poziom konkurencyjności polskich gospodarstw mlecznych na tle gospodarstw z wybranych krajów Unii Europejskiej. Badaniami objęto gospodarstwa z następujących krajów: Polska, Węgry, Litwa, Austria, Niemcy, Dania, Holandia i Francja. Wybór krajów był celowy. Węgry, Litwa i Austria zostały wybrane ze względu na zbliżoną wielkość i strukturę gospodarstw oraz poziom intensywności produkcji. Natomiast Niemcy i Francja jako najwięksi producenci mleka, a Dania i Holandia jako kraje o najwyższym poziomie intensywności produkcji mleka. Źródłem materiałów badawczych były dane gospodarstw objętych monitoringiem Europejskiego FADN w latach 2013-2015. Konkurencyjność gospodarstw określono stosunkiem dochodu z gospodarstwa do kosztów użycia własnych czynników produkcji. Zdolnymi do konkurencji okazały się polskie gospodarstwa średnio duże i duże o wielkości ekonomicznej odpowiednio 50-100 i 100-500 tys. euro SO, użytkujące odpowiednio 39,1 i 81,3 ha użytków rolnych i utrzymujące odpowiednio 31 i 65 krów. Z analogicznych klas wielkości ekonomicznej zdolnymi do konkurencji okazały się gospodarstwa węgierskie i litewskie, a także bardzo duże gospodarstwa węgierskie i niemieckie.

Słowa kluczowe: gospodarstwa mleczne, wielkość ekonomiczna gospodarstw, konkurencyjność.

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