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RESULTS OF FARMS SPECIALIZING IN PRODUCTION OF CATTLE FOR FATTENING IN SELECTED EUROPEAN UNION COUNTRIES

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Abstract

The study presents differences in economic results of farms specializing in production of cattle for fattening in six EU countries. France, Germany, Italy and Great Britain are the largest producers of beef in the EU-15, and Poland and Romania – in the EU-N13. The FADN EU average data for 2010-2015 were used for the analysis. The level of farm income was examined in order to assess their condition. The production efficiency assessment was carried out using the productivity indicator of current inputs, fixed capital and the ratio of costs to the production value. In France, Germany and Great Britain, the farm income without subsidies was negative. The loss was covered by the subsidies, their relation to farm income with subsidies amounted to 1.83, 1.67 and 1.55, respectively. The highest costs of producing EUR 100 of production were registered in French farms (EUR 117), and the lowest in Romanian farms (EUR 69). The productivity of current inputs indicates the advantage of Romanian (189.9%), Italian (184.5%) and Polish farms (148.9%). In other countries, this indicator was lower.

Key words**:** *cattle for fattening, beef production, farm income, production efficiency*

INTRODUCTION

Among the EU-15 countries, the largest beef producers (including veal) are France, Germany, Italy and Great Britain. On average, in 2010-2015, their total production expressed in weight of meat (the so-called hot carcass weight – HCW) accounted for 63.9% of total production in the EU-15. In turn, Poland and Romania are the largest producers of beef (including veal) among the EU-N13, their total production accounted for 63.5%. The share of these countries in total beef production in the EU-15 and EU-N13 was similar. However, there are differences in terms of participation in beef production in the EU-28. Beef produced in France, Germany, Italy and Great Britain accounted for 57.5%, and in Poland and Romania – only 6.4%. The "old" EU Member States clearly dominate in the production of this meat. On average, in 2010-2015, beef from the EU-15 accounted for 89.9% (6972 thousand tonnes) of the total EU-28 production (7,758 thousand tonnes). This means that the countries which joined the EU after 2004 (EU-N13) accounted for only 10.1% (786 thousand tonnes). [8]

In some countries (e.g. in Poland), there is no tradition of rearing beef cattle breeds, which is why beef production is mostly related to the dairy use of cattle. The direction of cattle use depends on the percentage of dairy cows or suckler cows in the total number of cows. Dairy cows and suckler cows differ in their physiological features and the resulting predisposition to a specific production. Genetic (breed) and non-genetic (nutrition) factors have a crucial influence on the yield of both dairy and beef cows. Literature specifies that 25% of dairy cows and 75% of suckler cows indicate bidirectional use. More than 75% of beef suckler cows, and less than 25% of suckler cows proves the use of cattle for dairy. [17]

A similar phenomenon as in Poland can be observed throughout the EU. It is estimated that around two-thirds of beef in the EU comes from dairy herds. For this reason, the milk sector and changes in the cattle stock resulting, among others, from the abolition of milk quotas and fluctuations in milk prices, have large impact on beef production. [7]

The long-term tendency of beef production development is determined by demand for this kind of meat. In some countries, this is only

internal demand, and in others also external demand. EU analysts predict a drop in beef production by 2026 compared to 2015 on average by 4.5% in the EU (in the EU-15 by 2.1%, and in the EU-N13 by 21.1%). The consumption of beef per capita will also decrease, on average in the EU by 4.7% (in the EU-15 by 5.6%, and in the EU-N13 by 5.1%). The average EU price of beef will be higher – in 2026 compared to 2015 it may increase by 5.6% (from 3772 EUR/tonne to 3,985 EUR/tonne). [9]

The link between the dairy and beef sectors in the EU provides farmers with additional flexibility in adapting to market needs and addressing the challenges of price volatility. It is estimated that cattle-breeding farms in the EU-N13 may be at greater risk of survival than EU-15 farms, due to their, on average, smaller production scale and smaller share of total EU production. The analysis of the direct payment system and incomes of agricultural holdings shows that, on average, EU beef producers are dependent on CAP payments in over 100%, which intensifies concerns about the future of farms in this sector. [5]

MATERIALS AND METHODS

The purpose of the study was to assess economic results and production efficiency in farms specializing in production of cattle for fattening in selected countries of the European Union. The assessment also covered the level of payment for work of a farmer and farmer's family by the farm income without subsidies.

The subject of the study were specialist farms breeding cattle for fattening (type of farming 49) in four countries which are the largest producers of beef among countries included in the EU-15 (in France, Germany, Italy and Great Britain) and in two countries included in the EU-N13 (in Poland and Romania). The criterion for the selection of these countries was their combined share in beef production in the EU-15 and EU-N13. On average, this share exceeded 60% in 2010-2015. The analysis used the most up-to-date data available during that time, i.e. for the period 2010-2015, collected and processed under the FADN EU system. [10]

The results of farms in a tabular format are presented on average in the adopted research period (2010-2015). The study used horizontal analysis comparing the parameters which characterise farms in individual countries. The analysis covered productive potential of farms, i.e. the utilised agricultural area (UAA), labour resources expressed in the annual work units (AWU) and total assets. The structure of fixed assets and the organisation of production in farms were also examined.

The basic assessment measure of the economic condition of farms was the farm income, but the study also included production value and costs. The dependence of farms on subsidies to operating activity was assessed. Thus, the impact of the CAP on the economic effects of farms was determined. The analysis included the income value per family work unit (FWU) and the estimation of the level of payment – by the farm income – for farmer's work inputs. The pay rate of employed persons in individual countries was taken as the measure of the cost of 1 hour of farmer's work. It was calculated as the quotient of remuneration for employment and the number of hours worked.

The production efficiency assessment was carried out using the following indicators:

•total costs of producing EUR 100 of production (total costs include direct and indirect costs of the farm),

•the productivity indicator of current inputs – the ratio of production value to intermediate consumption (the sum of direct costs and farming overheads, which are related to operations but not recognised as direct operational costs, is referred to as the intermediate consumption),

•the productivity indicator of fixed capital inputs – the ratio of production value to depreciation of fixed assets.

The productivity indicators express the effectiveness of farms in transforming inputs of production factors into effects. They reflect the technical as well as economic aspect of economic activity [4]. In agricultural holdings, the assessment and analysis of productivity is a tool for effective management, and in particular, it allows

assessment of the results achieved by the holding in comparison with other units, especially with the same line of production. Based on the literature, it can be concluded that there is no one universal measure of productivity. The sets of productivity indicators proposed by different authors differ from each other [4, 12, 14, 15, 18]. Partial productivity indicators, characterising the use of particular types of resources, are analysed the most frequently. This study – using variables available in the FADN EU database – uses indicators which depict the productivity of current inputs and fixed capital.

The farm indebtedness and its structure were also examined. The study used the following indicators:

$$\text{Level of farms debt [\%]} = \frac{\text{Total liabilities}}{\text{Total assets}} \text{ x } 100 \quad (1)$$

$$\text{Indebtedness structure indicator [\%]} = \frac{\text{Long-term liabilities}}{\text{Total liabilities}} \text{ x } 100 \quad (2)$$

The level of debt of farms shows what part of the value of assets of agricultural holdings are liabilities, hence it indicates the financial risk associated with running a production activity. The higher the ratio, the higher the financial risk. In individual farms, the value of this indicator should not exceed 50% [11]. The indebtedness structure indicator expresses the percentage share of the value of long-term liabilities in total liabilities. Higher result of this indicator means greater financial stability of farms [16].

RESULTS AND DISCUSSIONS

Productive potential of farms. The determinant of the productive potential of a farm are its resources. In order to assess the differences of the studied farms in terms of the size of existing resources, data describing agricultural land, labour resources and farm assets were used. According to Woś [19], farm resources involved intentionally in the production process and actively contributing to it are called production factors.

Data presented in Table 1 shows that the economic size of farms specializing in production of cattle for fattening in the countries included in the analysis differed quite significantly. On average, in 2010-2015, German farms had the greatest economic strength (EUR 122.4 thousand), and farms from Romania the smallest (EUR 7.8 thousand). Comparing these extreme values, the diversity was 15.7-fold.

The production factors were also different among farms. Workforce expressed by the number of annual work units (AWU) was the least diverse – only 1.2 times. Farms from France were characterised by the largest workforce (1.50 AWU), and the smallest – from Romania (1.30 AWU). In terms of labour intensity of production, the differences were greater, per 100 ha of UAA, Romania had the largest share of this production factor – 21.43 AWU, and France the smallest – 1.37 AWU. This means that in Romania the labour intensity of production was 15.6 times greater. Farms supported their activity with employed workforce to a different extent. The share of own labour input expressed in family work units (FWU), in annual work units (AWU), was the highest in Poland – it amounted to 96.6%, and the lowest in Germany – 83.4%.

The results indicate that the land resources in Romanian farms were the smallest, the average utilised agricultural area (UAA) was 6.07 ha and was 18.1 times smaller compared to French farms (109.76 ha), which were the largest in terms of the area. Utilised agricultural areas of Polish and Romanian farms consisted of own resources of agricultural families to the greatest extent (the share of leased UAA amounted to 23.0 and 26.5%, respectively). The smallest share of own land was recorded in French, German

and Italian farms (the share of leased UAA was 80.8, 64.8 and 63.9%, respectively).
Another element of the assessment of productive potential of farms are assets (total property). Research shows that total assets were dominated by fixed assets, their share ranged from 62.3% in Italian farms to 90.2% in farms in Great Britain. According to the literature, domination of the farms' property by fixed assets reduces the possibility of adjusting the size and structure of this property to market changes [2]. The consequence is small flexibility of farms, due to the fact that fixed assets are characterised by lower liquidity than current assets. However, it should be borne in mind that in agriculture there is a higher demand for fixed assets than in non-agricultural sector production enterprises and that the property structure of the analysed farms was the result of investment decisions taken much earlier.

Table 1. Productive potential of farms specializing in production of cattle for fattening in selected EU countries on average in 2010-2015

Specification		France	Germany	Italy	Great Britain	Poland	Romania
Economic size of farms	[thous. EUR]	98.2	122.4	71.0	88.2	17.9	7.8
Utilised agricultural area (UAA)	[ha]	109.76	67.38	35.31	104.49	17.24	6.07
The share of leased UAA	[%]	80.8	64.8	63.9	36.6	23.0	26.5
Number of annual work units	[AWU]	1.50	1.45	1.31	1.46	1.48	1.30
in this: the share of family work units (FWU)	[%]	92.7	83.4	90.0	84.2	96.6	93.1
Number of AWU per 100 ha of the UAA	[AWU]	1.37	2.15	3.72	1.40	8.60	21.43
Total assets	[EUR/farm]	423,508	660,270	524,989	1,263,050	142,384	30,661
Fixed assets	[EUR/farm]	286,101	565,491	327,026	1,139,383	126,340	24,866
The share of land [Z] in fixed assets	[%]	16.9	71.2	70.1	85.9	59.3	34.2
Fixed assets without land [Z]	[EUR/farm]	237,611	162,693	97,821	160,373	51,398	16,361
	[EUR/ha UAA]	2,165	2,415	2,771	1,535	2,982	2,694
Structure of fixed assets without land [Z]	[%]	100.0	100.0	100.0	100.0	100.0	100.0
of which: buildings [B]		28.6	43.6	50.3	20.2	58.0	71.0
machinery [M]		27.6	41.5	28.9	41.8	33.0	14.7
basic herd [S]		43.8	14.9	20.8	38.0	9.0	14.3
Current assets	[EUR/farm]	137,407	94,779	197,963	123,667	16,044	5,796

Explanations: [Z] – land, permanent crops and production quotas, [B] – buildings and their permanent equipment, [M] – machinery, equipment and means of transport, [S] – basic herd females.
Source: own study based on the FADN EU.

The value of fixed assets was highly diverse, comparing the extreme values – 45.8 times. The main reason was more than 115-fold variation of the land value (in Romanian farms, the land value amounted to EUR 8.5 thousand, while in Great Britain – EUR 979.0 thousand). A high share of land in the value of fixed assets was observed in the farms of almost all countries, ranging from 59.3% in Poland to 85.9% in Great Britain. The only exception were Romanian farms, where the share of land was 34.2%, and French farms – with only 16.9%. The relatively small share of land in French farms results from the land ownership structure – only 19.2% of the land used was owned by the farmer. The variation the value of fixed assets, omitting the value of land, was 14.5-fold. Buildings and machines had a large share in their structure, ranging from 56.2% in French farms to 91.0% in Poland. The share of the basic herd's values was quite high in France and Great Britain, where it amounted to 43.8% and 38.0%, respectively, while in other countries it was lower – from 9.0% in Poland to 20.8% in Italy. The land and basic herd are the productive part of the farmers' property, so the higher their share in the structure of assets, the greater the chances of obtaining high value of production.
The specificity of agricultural production in farms of individual countries also affects the

variation of current assets. A larger number of production lines is generally associated with the need to have, for example, larger stocks, while farm's specialisation allows optimising their size. In the studied farms, the share of current assets in total assets ranged from 9.8% in Great Britain to 37.7% in Italy.

Organisation of production on farms. Data presented in Table 2 indicates that in the studied farms – specializing in beef production, plant production was ancillary to animal production. This is evidenced by the share of area for fodder crops (i.e. forage area) in the utilised agricultural area, which ranged from 68.3% in Poland to 93.3% in Great Britain. Taking into account the share of cereals in the utilised agricultural area, significant differences between countries were found. In Romania and Poland, the share of cereals in the utilised agricultural area was relatively large, amounting to 20.4 and 28.3%, respectively. In contrast, in other countries, this share was much smaller, ranging from 5.9% in Great Britain to 17.8% in Germany. The larger share of cereals in the structure of the UAA indicates greater possibilities of securing concentrated feed from own production for cattle, which has an effect on the reduction of costs and increase in the profitability of production. On the other hand, due to larger share of cereals in the UAA, the share of fodder crops was smaller.

Table 2. Organisation of production in farms specializing in production of cattle for fattening in selected EU countries on average in 2010-2015

Specification		France	Germany	Italy	Great Britain	Poland	Romania
The share of cereal area in the utilised agricultural area (UAA)	[%]	10.0	17.8	11.0	5.9	28.3	20.4
The share of fodder crops in the UAA	[%]	89.2	79.5	86.1	93.3	68.3	73.8
Total animals	[LU/farm]	123.3	79.3	46.5	122.8	14.9	7.2
Total cattle	[LU/farm]	121.6	77.4	45.9	102.9	14.3	6.0
in this: other cattle		112.0	66.7	41.9	100.1	12.3	3.2
dairy cows		9.6	10.7	4.0	2.8	2.1	2.8
The other cattle per 100 ha of the UAA	[LU]	102.0	99.0	118.6	95.8	71.1	52.7
The share of livestock production in farm's total production value	[%]	86.3	69.5	69.8	71.2	68.2	61.6

Source: own study based on the FADN EU.

Due to the method of selecting sample farms, the group of animals classified as "total cattle" (expressed in livestock units – LU) was dominated by other cattle; their share ranged from 53.3% in Romania to 97.3% in Great Britain. The share of dairy cows was very diverse, the smallest share was recorded in Great Britain – 2.7%, slightly larger in France and Italy (7.9-8.7%), as well as in Germany and Poland (13.8-14.5%), and the largest in Romania – 46.7%. This may indicate that in some countries – especially in Romania, but also in Germany and Poland – produced beef came largely from animals from dairy herds.

The number of animals from the group "other cattle" per 100 ha of the UAA indicates the intensity of organisation of livestock production. Calculations show that in Romania and Poland the number of animals was the smallest, amounting to 52.7 and 71.1 LU, respectively. In Great Britain, Germany and France it was in the range of 95.8-102.0 LU, and in Italy it was 118.6 LU. The structure of the production value of farms was dominated by livestock production in all countries covered by the analysis. In France, its share was the largest – it amounted to 86.3%, and in other countries it was smaller but similar, ranging from 61.6 to 71.2% (Table 2).

Bearing in mind the differences in the productive potential of farms and the differences in the intensity of organisation of livestock production, it is interesting to know the economic results of farms in individual countries and the effectiveness of their production.

Economic results of farms. Research shows that the ownership structure of production factors in farms from the study sample was highly diverse. Polish and Romanian farms

bore the least burden of the cost of using external factors of production, taking into account its share in total costs and in terms of the value, and the most heavily burdened farms were those from France and Germany. The share of the cost of external factors in total costs of farms in Poland and Romania was 6.1 and 9.0%, respectively, while in France and Germany 12.5 and 14.0%, respectively (Table 3).

Table 3. Production and economic results of farms specializing in production of cattle for fattening in selected EU countries on average in 2010-2015

Specification		France	Germany	Italy	Great Britain	Poland	Romania
Total production value	[EUR/farm]	109,167	116,897	70,755	114,067	13,692	7,935
Total costs	[EUR/farm]	128,236	127,204	51,678	126,914	13,255	5,510
Farm income without subsidies	[EUR/farm]	-19,685	-12,621	17,613	-12,480	43	2,335
	[EUR/FWU]	-14,162	-10,430	14,905	-10,146	30	1,927
Subsidies to operating activity of the farm	[EUR/farm]	43,543	31,447	13,688	35,367	5,877	1,632
	[EUR/ha UAA]	397	467	388	338	341	269
Farm income with subsidies	[EUR/farm]	23,858	18,827	31,301	22,887	5,920	3,967
	[EUR/FWU]	17,164	15,559	26,488	18,608	4,135	3,274
The ratio of subsidies to operating activity to farm income with subsidies		1.83	1.67	0.44	1.55	0.99	0.41
Total costs of producing EUR 100 of production	[EUR]	117	109	73	111	97	69
The share of the cost of external factors in total costs of the farm	[%]	12.5	14.0	9.9	10.2	6.1	9.0

Source: own study based on the FADN EU (Farm Accountancy..., 2017).

Income of farms specializing in production of cattle for fattening in countries with the largest beef production in the EU was very diverse. Income without subsidies was obtained only in Italy (EUR 17.6 thousand), Romania (EUR 2.3 thousand) and Poland (EUR 43). Farms in remaining countries suffered a loss, and their income was a negative value. The largest loss was recorded by French farms (EUR -19.7 thousand), the loss of German (EUR -12.6 thousand) and British farms (EUR -12.5 thousand) was also large but smaller than in France.

Subsidies recorded at the farm level have a significant impact on the final amount of income. The strength of their impact is conditioned by the value of economic surplus obtained from production and the amounts of subsidies received. The results indicate that the ratio of subsidies to farm income with subsidies in two countries, i.e. Romania (0.41) and Italy (0.44), was the lowest. In Polish farms, this ratio was more than twice as high (0.99), which means that the impact of subsidies on the results was stronger. On the other hand, in farms from Great Britain, Germany and France, subsidies to operating activity of the farm covered the loss from production and farm income with subsidies exceeded 55, 67 and 83%, respectively. Production of farms in these countries was not profitable. In agriculture, income is generally lower than in other sectors of the economy, which is why it is supported by direct payments. Their goal is to compensate farmers for lower incomes compared to other sectors of the economy. Subsidies contribute to the increase in income on the farm, but this increase is not the result of the improvement in the efficiency of agricultural production [1].

The farm income is the economic effect of conducted economic activity, the level of meeting the consumer needs of the farmer's family and developmental capacities of the farm depend on its level. The aim of agricultural producers is striving for an increase in income, because its level determines the amount of payment for unpaid work of the farmer and its family members and the amount of payment for other production factors involved owned by the agricultural family, i.e. land and capital.

The research results indicate that the differences in income per one family work unit (FWU) between farms from individual

countries were very large. This was determined by the share of own work (FWU) in total inputs, but above all the pay rate of employed persons, which was taken as the measure of cost of 1 hour of farmer's work in individual countries. The calculations show that the remuneration of employed persons was the lowest in Romania (1.66 EUR/hour), followed by Poland (3.67 EUR/hour). In turn, the highest remuneration of employed persons was recorded in French farms (11.35 EUR/hour); compared to the Romanian farms, the difference was 6.8-fold (Table 4).

Table 4. Payment for farmer's own work in farms specializing in production of cattle for fattening in selected EU countries on average in 2010-2015 (estimate)

Specification		France	Germany	Italy	Great Britain	Poland	Romania
Remuneration of employed persons	[EUR/hour]	11.35	10.90	10.05	10.86	3.67	1.66
The level of payment for farmer's work by:							
farm income without subsidies	[%]	0.0	0.0	63.8	0.0	0.4	46.6
farm income with subsidies	[%]	94.3	63.0	113.3	70.4	49.7	79.3

Source: own study based on the FADN EU (Farm Accountancy..., 2017).

The results indicate that the farm income without subsidies provided a partial payment for farmer's work only in Italian (in 63.8%) and Romanian farms (in 46.6%). After taking into account the subsidies, payment for farmer's work exceeded the pay rate of employed persons only in Italian farms (by 13.3%). On farms in other countries, farmer's work was partially paid, at the highest level in French farms (in 94.3%), and at the lowest in Polish farms (in 49.7%) (Table 4).

Production efficiency. The ratio of costs to the production value was used to assess the economic efficiency of management. Total costs of producing EUR 100 of production differed quite significantly. The highest costs (EUR 117) were recorded in farms specializing in production of cattle for fattening in France, i.e. on farms where the loss of production was the greatest. Production of EUR 100 of production cost the least in Romanian (EUR 69), Italian (EUR 73) and Polish farms (EUR 97). The results of the calculations show that the level of costs exerted a strong influence on the efficiency of the studied farms (Table 3).

While analysing the production efficiency in farms from the study sample, the productivity of inputs was also assessed. The analysis of the productivity of current inputs, measured by the value of intermediate consumption, allows learning how their management translates into manufactured products.

The results included in Table 5 indicate a clear advantage of Romanian farms, where the productivity of current inputs was 189.9% (which means that the production value obtained exceeded the value of inputs by 89.9%). Italian farms also achieved a similar level of productivity – 184.5%. The next position was occupied by Polish farms, whose productivity of current inputs was 148.9%. The higher the value of this indicator, the better as it shows, among other things, better management of the production process. In the sample of French, German and British farms, the productivity of current inputs was smaller, ranging from 120.0 to 130.0%. These results are puzzling, especially as the subsidies had a significant impact on improvement of income of these farms (Table 5).

Literature discusses the impact of subsidies on technical efficiency and productivity. In research conducted in selected EU-15 countries (Germany, the Netherlands and Sweden), Zhu and Lansink [20] and Zhu et al. [21] demonstrated a negative impact of subsidies on technical efficiency of farms. Cechura et al. [3] came to similar conclusions in research covering dairy farms from 24 European Union countries. On the other hand, Kumbhakar and Lien [13] noticed a positive impact of subsidies on technical efficiency of Norwegian farms between 1991 and 2006. At the same time, the authors noticed a negative effect of subsidies on productivity. The recent research shows that higher payments from

Pillar II for physical capital investments, human capital development or agro-environmental measures cause increase of productivity. On the contrary payments related to rural development do not have significant impact on productivity. Results are similar in all EU Member States and do not change depending on the date of access to the European Union, spatial characteristics (i.e. being in the south, north or east) or size of the countries [6].

Table 5. Selected indicators characterising the production and economic situation of farms specializing in production of cattle for fattening in selected EU countries on average in 2010-2015

Specification		France	Germany	Italy	Great Britain	Poland	Romania
Productivity of current inputs	[%]	127.3	130.0	184.5	120.0	148.9	189.9
Productivity of fixed capital inputs	[times]	4.1	6.0	8.6	6.0	4.2	9.5
The share of depreciation charge in total costs	[%]	20.6	15.3	15.9	14.9	24.6	15.1
The level of debt of farms	[%]	32.4	16.9	0.6	7.0	3.8	0.5
Indebtedness structure indicator	[%]	70.3	68.8	89.9	55.2	73.3	64.4

Source: own study based on the FADN EU (Farm Accountancy, 2017).

Productivity of fixed capital inputs expresses the production value per PLN 1 of depreciation of fixed assets on the farm. This type of productivity reflects the degree of intensity of using fixed assets in the production process, thus characterises its activity. The results obtained indicate a clear advantage of farms from Romania and Italy, while French and Polish farms were characterised by a relatively low productivity of fixed capital. It should be added that the productivity of fixed capital shows a relation with the share of depreciation charge of fixed assets in total costs of the farm. In farms specializing in production of cattle for fattening in France and Poland, this share was the largest (amounted to 20.6 and 24.6%, respectively), while the productivity of fixed capital inputs was the lowest.

In order to assess the level of debt of farms, the indicator calculated as the ratio of liabilities to the value of total assets was used. The value of the indicator varied for farms in individual countries, however, it did not exceed 50% in either of them. This is important because it is assumed that the value of the indicator exceeding 50% is associated with a significant increase in the risk in financing the enterprise [22]. The results indicate that French farms were the most indebted, the indicator determining the indebtedness was 32.4%. Lower but also quite large indebtedness characterised German farms – 16.9%. This means that farmers in these countries were quite willing to use credits. Romanian and Italian farms were the least indebted, the indicator which determines the share of liabilities in financing farm assets amounted to 0.5 and 0.6%, respectively. Considering the structure of liabilities, it should be noted that long-term loans were dominating, their share ranged from 55.2% in farms from Great Britain to 89.9% in Italian farms – Table 5.

CONCLUSIONS

France, Germany, Italy and Great Britain are the largest beef producers in the European Union. On average, in 2010-2015, their total production accounted for 63.9% of beef produced in the EU-15. In turn, Poland and Romania are the largest beef producers among the EU-N13, the share of their total production was similar – amounted to 63.5%. However, there are differences in terms of participation in beef production in the EU-28. Beef produced in France, Germany, Italy and Great Britain accounted for 57.5%, and in Poland and Romania – only 6.4%. The economic situation of farms specializing in production of cattle for fattening in these countries was also different. Above all, there were large differences in the productive potential.

• Workforce was the least diverse, farms from France were characterised by the largest (1.50 AWU), and farms from Romania by the

smallest (1.30 AWU); the diversity was 1.2-fold. In terms of labour intensity of production, the differences were greater, per 100 ha of the UAA, Romania had the largest share of this production factor (21.43 AWU), and France the smallest (1.37 AWU).

• The largest land resources (109.76 ha) were owned by farms from France, and the smallest – from Romania (6.07 ha), the diversity was 18.1-fold. Farms used leased land to a varying degree. The smallest share in total utilised agricultural area was recorded by Polish farms (23.0%) and the largest by French farms (80.8%).

• The highest value of total assets was recorded on farms from Great Britain, and the smallest from Romania and Poland. The share of fixed assets in total assets was the smallest in Italian farms (62.3%), and the largest in farms in Great Britain (90.2%).

The intensity of organisation of the livestock production, determined by the number of animals from the group "other cattle" per 100 ha of the UAA, was the highest in Italy and France (118.6-102.0 LU), slightly lower in Germany and Great Britain (99.0-95.8 LU), and the smallest in Poland and Romania (71.7-52.7 LU).

Economic results and production efficiency in farms specializing in production of cattle for fattening in the countries with the largest beef production in the EU were very diverse.

• Farm income without subsidies was obtained only in Italy (EUR 17.6 thousand), Romania (EUR 2.3 thousand) and Poland (EUR 43). French, German and British farms suffered a loss, and their income without subsidies was negative.

• The subsidies were of the least importance to Romanian, Italian and Polish farms; this is proven by the amount of subsidies per EUR 1 of income without subsidies: EUR 0.41, 0.44 and 0.99, respectively. In farms from Great Britain, Germany and France, subsidies covered the loss from production, and the farm income with subsidies exceeded 55, 67 and 83%, respectively.

• Thanks to subsidies, payment for farmer's work was achieved: in Italian farms in 113.3%, in French farms in 94.3%, in Romanian farms in 79.3%, in British farms in 70.4%, in German farms in 63.0%, and in Polish farms in 49.7%.

• The measure of the production efficiency was the cost of producing EUR 100 of production value. The best results were obtained by Romanian (EUR 69) and Italian farms (EUR 73), followed by Polish farms (EUR 97). On the other hand, worst results were recorded by French (EUR 117), British (EUR 111) and German farms (EUR 109). Higher production efficiency of farms from Romania, Italy and Poland was affected by a lower burden of the cost of using external factors of production. This is evidenced, among others, by smaller indebtedness of these farms (from 0.5 to 3.8%) and, therefore, lower cost burden, while the level of debt of farms from other countries was much larger (from 7.0 to 32.4%).

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