Electronic Journal of Polish Agricultural Universities is the very first Polish scientific journal published exclusively on the Internet, founded on January 1, 1998 by the following agricultural universities and higher schools of agriculture: University of Technology and Agriculture of Bydgoszcz, Agricultural University of Cracow, Agricultural University of Lublin, Agricultural University of Poznan, Higher School of Agriculture and Teacher Training Siedlee, Agricultural University of Szczecin, and Agricultural University of Wroclaw.



ELECTRONIC
JOURNAL
OF POLISH
AGRICULTURAL
UNIVERSITIES

2002 Volume 5 Issue 2 Series ECONOMICS

Copyright © Wydawnictwo Akademii Rolniczej we Wrocławiu, ISSN 1505-0297 KACZOCHA E. 2002. EUROPEAN DAIRY FARMERS - COST COMPARISON ANALYSIS 2001 Electronic Journal of Polish Agricultural Universities, Economics, Volume 5, Issue 2. Available Online http://www.ejpau.media.pl

EUROPEAN DAIRY FARMERS - COST COMPARISON ANALYSIS 2001

Ewa Kaczocha
Department of Management, Agricultural University of Szczecin, Poland

ABSTRACT
INTRODUCTION
MATERIAL AND METHODS
RESULTS
CONCLUSIONS
REFERENCES

ABSTRACT

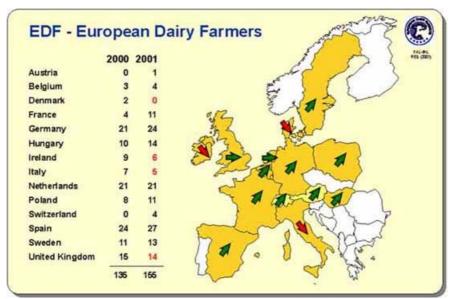
The article shows differences in costs of milk production between farms which are members of European Dairy Farmers. On the basis of data from 153 dairy farms in Europe, the analysis of their economic situation was carried out. Two main groups, EU-EDF countries and CEEC, were separated and the average results were presented. Most of Polish dairy farms, other EDF farms as well, presented in this article are leading farms in their region or country.

Key words: costs of milk production, costs for means of production, costs of production factors, productivity

INTRODUCTION

Generally milk production in Poland is extensive. Farms have unfavourable structure, low quantity of herd and poor technical equipment. Small scale of milk production does not bring satisfactory economic results, does not allow to recreate, assess and make new investments, which are key factors for farm competitiveness [6]. Costs of production determinate the level of competitiveness between producers in every country and between countries as well. In Poland 11 dairy farms were found, that were interested in analysis of cost of milk production and comparison of their results with other members of EDF (Fig. 1). Most of them are high yield dairy farms. The owners or managers of these farms wanted to improve their dairy farms continuously.

Fig. 1. Number of farms participating in EDF in 2000 and 2001



It can be done with European Dairy Farmers. The realisation of the aims has started at the 28th of November 1989. 67 dairy farmers from 7 European countries followed an invitation of the German Agricultural Society (DLG) to meet in Frankfurt and exchange experience between European milk producers. The conclusion of this meeting was that they should meet annually within the framework of a club. They further decided that they should not only exchange experience and ideas but also farm figures in order to compare production systems, costs and performance.

Up to now more than 250 farmers, advisors and companies have joined EDF. 150 farmers out of that join the analysis and enjoy the service EDF-STAR provides them. From the beginning Belgium, Ireland, the Netherlands, UK and Germany have analysed. These farms were not chosen in any kind. They were just interested in exchanging information with farmers from the other parts of Europe. They wanted to have a look abroad because they could not learn from their neighbours as they were one of the best farms in their working group anyhow (Fig. 2). This group of people usually is situated within the top-quarter of the distribution curve of their region or country. The reason for this is mainly the difference in the management. It is proven also that innovations can be observed much earlier on these farms. For this reason we can say that they are leading dairy farmers in their countries.

300 Distribution of **FADN Farms** 250 Number of Farms (n= 2420) EDF-Farms 200 150 100 50 Ø 10 'n < 25 < 75 20 Cost of Production (Euro / 100 kg FCM)

 $Fig.\ 2.\ EDF-leading\ farms\ in\ Europe$

Source: EDF-Report 2001. Cost comparison analysis. Time series analysis. Database. European Dairy Farmers. Lellens, Frankfurt, Braunschweig

The dairy farmers want to know different ways to achieve success in their branch of production. That is very important in changing conditions and problems with competitiveness in a world market. Competitive advantages and disadvantages of farm activities could be explained by differences in prices and/or in productivities [4].

With high clarity level the comparison of the costs of milk production for leading milk producers in EU have been done, within the limits of FADN (Farm Accountancy Data Network) [2, 5]. In the USA for the year 1986 the international comparison of production costs for seven main milk producing countries, was carried out for the USA, Canada, Germany, France, the Netherlands, Ireland and New Zealand [1].

The aim of this article is the presentation of Polish leading dairy farms, which are members of EDF and their results on the background of results of EDF-EU farms.

MATERIAL AND METHODS

Research of milk production costs in Poland and in the other. EU countries has carried out according to EDF methodology. The financial and technological data came from annual EDF report. The research is co-ordinated by FAL in Braunschweig – Germany.

Financial and technological data of milk production in farms in 2000 were collected, using the same questionnaire in each EDF country. Data were used for the analysis of the costs milk production. In 2001 the data from 153 dairy farms were taken for analysis [3] (Table 1).

Table 1. Number of farms from EDF countries

Country	AT	BE	СН	DE	ES	FR	HU	ΙE	IT	NL	PL	SE	UK
Number of farms	1	4	4	27	19	14	14	6	5	21	11	13	14

Source: EDF-Report 2001. Cost comparison analysis. Time series analysis. Database. European Dairy Farmers. Lellens, Frankfurt, Braunschweig

It is very important to note, that farms participating in researches are usually better than the average in a given country. For example, the average milk yield in Polish EDF farms is near to 59 % higher than average one in Poland.

Data of 11 Polish farms, which were used in analysis, came from the year 2000. The main features of them are presented below (<u>Table 2</u>). <u>Table 3</u> shows structure of milk production costs in Polish EDF farms in 2000.

Table 2. Milk yield, returns, milk production costs, productivities in Polish EDF farms in 2000

Farm No.	PL-01	PL-21	PL-02	PL-16	PL-23	PL-24	PL-17	PL-19	PL-18	PL-22	PL-20		
Farm size group		herd size < 100 cows					herd size 100 - 1500 cows						
1	2	3	4	5	6	7	8	9	10	11	12		
No. Cows	19	21	22	39	53	161	243	458	472	595	1252		
Returns from dairy	94%	47%	86%	100%	98%	53%	53%	27%	51%	45%	62%		
Milk yield													
Milk yield [kg/cow/year]	4360	4644	4673	7642	3712	5741	9042	8541	5806	6898	7787		
Fat content	4.1%	3.9%	4.0%	4.2%	4.2%	4.3%	4.4%	4.4%	4.2%	4.1%	4.0%		
Feeding system													
Forage area [ha]	24	28	17	49	99	709	313	420	440	1152	1961		
grassland [% of forage area]	70%	79%	17%	80%	35%	39%	35%	5%	43%	37%	41%		
Herd management													
First calving age [months]	25	29	27	26	28	25	27	27	30	27	28		
Time between calving [days]	420	450	420	390	420	395	428	417	418	415	413		
Prices excl. VAT													
Milk price [€/100 kg FCM]	23.1	20.1	23.7	23.2	22	23.9	22	21.3	27.6	23.4	20		
Cull cow price [€/kg]	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.5		
Male calve prices [€/piece]	65	75	67	60	70	75	60	50	50	87	62		
Labour prices [€/h]	1	1	1	1	1	2	1	1	1	1	1		
Returns [per/100kg milk FCM]													

Table 2 cont.

1	2	3	4	5	6	7	8	9	10	11	12
Milk returns	23.1	20.1	23.7	23.2	22.0	23.9	22.0	21.3	27.6	23.4	20.0
Cattle returns	3.2	10.6	6.1	1.9	6.5	1.5	1.5	2.3	3.1	3.0	4.0
Dir. payments, subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3	0.1	0.1
Other returns	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.0	0.1	3.0	0.0
Total returns	26.3	30.8	29.8	25.1	28.6	25.9	24.4	23.7	31.1	29.5	24.2
Costs [per 100kg milk FCM]	20.0	00.0	20.0	20.1	20.0	20.0	2 1.1	20.7	01.1	20.0	21.2
Animal purchases	0.0	1.8	0.0	1.1	0.0	0.0	0.0	2.1	0.0	4.5	0.5
Feed (purch., fert., seed, pesticides)	4.4	3.9	4.3	5.6	1.5	8.7	7.4	5.8	5.5	5.6	6.5
Machinery (maint., depr., contractor)	4.7	1.3	6.0	2.0	5.3	0.4	1.8	6.5	4.3	2.0	1.5
Fuel, energy, lubricants, water	2.0	2.5	2.6	1.0	3.4	1.2	0.4	1.5	2.8	1.5	3.3
Buildings (maint., depr.)	2.1	1.3	3.5	1.7	1.5	0.2	0.1	1.5	1.8	0.9	0.8
Vet & medicine, insemination	0.8	0.4	1.3	0.4	0.5	0.2	0.7	1.3	1.5	0.6	1.0
Insurance, taxes	0.6	0.5	1.6	0.4	0.6	0.4	0.1	0.2	1.6	1.1	1.3
Other inputs dairy enterprise	0.0	0.5	0.7	0.0	0.0	0.0	1.6	0.7	0.8	0.0	2.3
Other inputs	0.8	1.0	0.0	0.1	0.2	7.5	0.7	0.1	0.2	3.6	0.6
Costs for mean of production	15.5	13.3	19.9	12.3	13.0	18.5	12.7	19.8	18.6	19.8	17.9
Total land costs	2.4	1.3	1.5	0.8	2.5	2.4	0.2	0.6	0.1	0.0	0.2
Total labour costs	4.7	4.4	4.8	1.5	4.0	2.8	2.6	2.8	2.3	4.4	3.1
Total capital costs	1.2	1.5	2.0	1.5	3.4	2.1	1.1	1.4	1.3	1.2	1.0
Costs of production factors	8.3	7.2	8.2	3.8	9.9	7.3	3.9	4.9	3.7	5.6	4.3
Total costs (excl. quota costs)	24	20	28	16	23	26	17	25	22	25	22
Results of the dairy enterprise											
Family farm income per 100 kg FCM	10	16	10	12	15	4	9	1	10	4	3
Entrepreneurs profit per 100 kg FCM	2	10	2	9	6	0	8	-1	9	4	2
Return on labour input per total hours	2	4	2	14	4	1	15	1	9	5	5
Break even-points [per 100 kg milk FCM]											
Break even point 1 milk price to reach a positive family farm income	13	5	14	11	7	19	13	20	18	19	17
Break even point 2 milk price to cover all economic costs	21	10	22	14	16	24	14	22	19	19	18
Productivities											
Labour productivity [kg FCM/h]	32	24	31	134	37	49	141	74	85	65	106
Land productivity [kg FCM/ha]	3	3	6	6	2	1	7	9	6	4	5
Capital productivity [kg FCM/1000€]	2.82	2.99	1.57	2.08	0.94	1.43	3.3	2.29	2.86	3.81	3.59
Capital input [€/cow]	1544	1555	2982	3670	3964	4025	2739	3730	2030	1811	2171

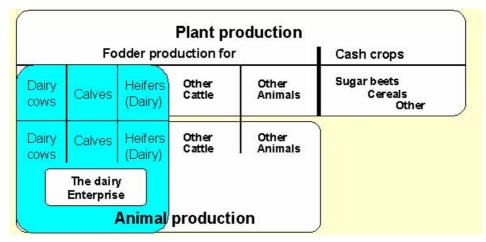
Table 3. Structure of milk production costs in Polish EDF farms in 2000 [%]

Animal purchases	0.0	8.8	0.0	6.8	0.0	0.0	0.0	8.5	0.0	17.7	2.3
Feed (purch., fert., seed, pesticides)	18.6	19.1	15.2	34.8	6.6	33.7	44.6	23.6	24.7	22.0	29.4
Machinery (maint., depr., contractor)	19.8	6.4	21.3	12.4	23.1	1.5	10.8	26.4	19.3	7.9	6.8
Fuel, energy, lubricants, water	8.4	12.2	9.1	6.2	14.8	4.7	2.4	6.1	12.6	5.9	14.9
Buildings (maint., depr.)	8.8	6.4	12.4	10.6	6.6	0.7	0.6	6.2	8.1	3.5	3.6
Vet & medicine, insemination	3.5	2.0	4.6	2.5	2.2	0.8	4.0	5.3	6.7	2.4	4.5
Insurance, taxes	2.6	2.5	5.6	2.5	2.6	1.5	0.6	0.8	7.3	4.3	5.9
Other inputs dairy enterprise	0.0	2.5	2.4	0.0	0.0	0.0	9.4	2.9	3.6	0.0	10.4
Other inputs	3.4	4.9	0.0	0.6	0.9	29.0	4.2	0.4	1.0	14.2	2.7
Costs for means of production	65.1	64.8	70.7	76.4	56.8	71.7	76.6	80.3	83.2	78.0	80.5
Total land costs	10.1	6.4	5.2	5.0	10.9	9.3	1.2	2.6	0.5	0.0	0.9
Total labour costs	19.7	21.5	16.9	9.3	17.5	10.9	15.5	11.4	10.3	17.3	14.0
Total capital costs	5.0	7.3	7.2	9.3	14.8	8.1	6.6	5.7	5.9	4.7	4.5
Costs of production factors	34.9	35.2	29.3	23.6	43.2	28.3	23.4	19.7	16.8	22.0	19.5
Total costs (excl. quota costs)	100	100	100	100	100	100	100	100	100	100	100

Source: Own calculations on the basis of EDF-Report 2001

To calculate the full economic costs of the milk production only, the whole farm data concern only the dairy enterprise with replacement and fodder production (Fig. 3).

Fig. 3. Definition of the 'Dairy Enterprise' as a part of the farm



Source: EDF-Report 2001. Cost comparison analysis. Time series analysis. Database. European Dairy Farmers. Lellens, Frankfurt, Braunschweig

All national data were converted into one currency (ϵ) and presented on the base of 100 kg fat corrected milk [FCM].

On the basis of the cost production analysis, all farms split into fallowing groups:

- 1. EDF-EU farms farms from European Union countries (n=124)
- 2. top 25% the best EDF-EU farms, splitted in dependence of grassland use:
- EDF-EU-grass based with 100% grassland,
- EDF-EU –high yield with high use of concentrates,
- 3. CEEC farms from Poland and Hungary.

In Figure 4 the legend of the country, which were used in analysis, was presented.

Fig. 4. Legend of the country - comparison

Central Western Europe	AT	Austria
	Dw	Germany West
	Do	Germany East
	BE	Belgium
	NL	Netherlands
British Isles	UK	United Kingdom
	IE	Ireland
Southern Europe	FR	France
	ES	Spain
	IT	Italy
Other - Western Europe	SE	Sweden
	CH	Switzerland
Central and Eastern Europe	HU	Hungary
	PL	Poland
EDF-Averages	EU-Ø	EDF-EU-Average
	++ high Y	Ø of Top - 25 % of High Yield farms
	++ grass	Ø of Top - 50 % of grass based farms
	EDF-CEEC-Ø	EDF-CEEC-Average

RESULTS

Comparison of the national EDF-averages

Among the farms analysed in 2000 Polish and Hungarian farms have the biggest herd size (Fig. 5). Average herd size in Poland amounted to 303 cows, the data come mainly from former agricultural co-operatives, producing good quality milk on a large scale. The average size of farm in Hungary (621 cows) is significantly higher than the average of the Hungarian large size farms (291 cows). At the same time the average herd size in dairy farm amounted to 123 cows in EU.

 $Fig. \ 5. \ Herd \ size-comparison \ of \ the \ national \ EDF \ averages$



Source: EDF-Report 2001. Cost comparison analysis. Time series analysis. Database. European Dairy Farmers. Lellens, Frankfurt, Braunschweig

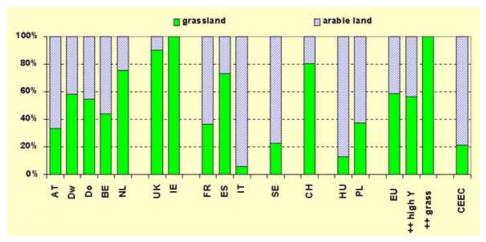
Average milk yield on EDF Polish farm (6259 l/cow/year) was about 20% lower than average one in the EU and only 3% lower than average one in CEEC. Generally the milk yield is at about 8000 kg FCM per cow per year on average but only around 6000 kg FCM on the grass based farms (Fig. 6).

Fig. 6. Milk yield - comparison of the national EDF - averages



Mainly the natural conditions determinate the feeding system in each country. The average share of grassland is about 60% in the EU and about 20% in the CEEC (Fig. 7). It is at about 80% on Dutch and Swiss farms. On British and Irish farms an average of 90 and 100 % can be observed.

Fig. 7. Structure of forage land - comparison of the national EDF - averages



Source: EDF-Report 2001. Cost comparison analysis. Time series analysis. Database. European Dairy Farmers. Lellens, Frankfurt, Braunschweig

Due to EU-policy the milk price in most of the countries is quite similar (Fig. 8). Just Italy and Sweden enjoy a higher milk price due to specialities (Italy) and due to consumer preferences (Sweden). Extraordinary high milk prices can be observed in Switzerland due to both reasons mentioned above.

Hungarian farms receive a milk price which is already close to the EU-level. The Polish farms get only about 74 % of the EU-price for their milk.

Rent and quota depreciation costs Opportunity costs Cash costs - non milk returns per 100 kg FCM URO 00 H ES H H MO BE H SE Ħ 교 ** high Y ** grass CEEC

Fig. 8. Break-even points of the milk production – comparison of the national $\ensuremath{\mathrm{EDF}}$ – averages

Cost comparison

Among the analysed countries, the highest milk production costs were observed in Switzerland – 69 \in , Sweden – 46 \in and France – 42 \in .

The share of costs for means of production in total production costs as 60%, in average in EDF (Table 5). The highest share of costs for means of production in total costs was observed in Hungary, more than 83% and the lowest in Switzerland - 43.3%. The most important items in costs for means of production were feed costs and machinery costs in each country. The feed expenditure took on average more than 25% of total milk production costs (51% in Hungary and 12.3% in Switzerland). The highest share of machinery costs (maintenance, depreciation, contractor) in total costs was in Netherlands - 18.1% and the lowest in Switzerland - 8.8%.

Cost of production factors was running at 40% of total costs of milk production. Their highest share in total costs was observed in Switzerland - 57%, the lowest in Hungary -16% of total costs of milk production. Main item in cost of production factors were labour costs. In Switzerland they were running above 38% of total costs of production, in Hungary they were only near to 17%.

On average Polish farms total cost of milk production amounted to 22.6 € per 100 kg FCM (<u>Table 4</u>). The share of costs for means of production in total production costs was higher than the average in the EU about 13 percentage points. The share of feed and machinery costs in total costs was very close to the average of the EU. Very important fact is that Poland had the highest share of fuel, energy, lubricants and water costs in total costs of milk production. It is almost 2.6 times higher than the average EU.

Table 4. Total costs of milk production in 2000 [€ per 100 kg FCM]

Farm No.	АТ	Dw	Do	BE	NL	UK	IE	FR	ES	IT	SE	СН	HU	PL-Ø	EU- EDF-Ø	CEEC-
Animal purchases	0.2	1.7	1.0	0.1	0.4	0.9	0.0	0.6	0.1	0.7	1.3	2.5	0.2	0.9	0.8	0.5
Feed (purch., fert., seed, pesticides)	9.1	7.2	8.8	6.8	6.1	6.4	4.9	8.4	11.9	11.6	10.6	8.5	15.0	5.4	8.3	10.8
Machinery (maint., depr., contractor)	4.0	5.0	5.5	4.3	6.5	3.6	2.2	6.2	3.0	3.1	4.8	6.1	3.4	3.3	4.7	3.4
Fuel, energy, lubricants, water	1.6	1.3	1.3	0.8	0.5	1.4	0.9	1.4	0.5	2.1	2.1	3.0	0.9	2.0	1.2	1.4
Buildings (maint., depr.)	2.7	1.7	2.2	2.1	2.4	1.1	1.0	2.9	1.2	1.7	1.8	1.5	0.5	1.4	1.8	0.9
Vet & medicine, insemination	1.5	1.6	1.8	1.0	1.8	1.4	1.2	2.1	1.8	1.3	2.3	3.2	1.3	0.8	1.8	1.1
Insurance, taxes	0.9	0.8	1.0	0.6	0.8	0.6	0.5	1.1	0.4	1.1	1.1	0.8	0.0	0.8	0.8	0.3
Other inputs dairy enterprise	0.0	0.9	1.0	0.5	0.2	0.9	0.8	1.8	0.3	0.6	1.4	2.2	0.9	0.6	0.8	0.8
Other inputs	0.5	0.6	0.6	0.4	1.8	0.7	1.2	1.1	0.5	0.0	1.7	2.0	1.9	1.3	1.0	1.6
Costs for mean of production	20.8	20.8	23.3	16.7	20.6	17.0	12.7	25.6	19.8	22.2	27.2	29.9	24.2	16.5	21.1	20.8
Total land costs	1.5	2.1	1.0	1.3	2.8	3.7	3.1	1.4	1.8	2.1	2.2	5.4	0.4	1.1	2.2	0.7
Total labour costs	8.2	7.8	7.0	10.4	7.8	7.2	6.7	11.8	9.8	8.6	13.1	26.3	3.4	3.4	9.1	3.4
Total capital costs	4.9	2.7	2.5	3.1	4.3	1.8	1.7	3.3	1.8	1.4	3.5	7.8	1.1	1.6	2.8	1.3
Costs of production factors	14.6	12.5	10.5	14.7	14.9	12.8	11.5	16.5	13.4	12.1	18.8	39.6	4.9	6.1	14.1	5.4
Total costs (excl. quota costs)	35.4	33.3	33.8	31.4	35.5	29.8	24.2	42.1	33.2	34.3	46.0	69.5	29.1	22.6	35.2	26.2

Table 5. Structure of total costs of milk production in EDF countries in 2000 [%]

Farm No.	АТ	Dw	Do	ВЕ	NL	UK	IE	FR	ES	IT	SE	СН	HU	PL-Ø	EU- EDF-Ø	CEEC-
Animal purchases	0.6	5.2	2.9	0.3	1.1	3.0	0.0	1.4	0.3	2.1	2.8	3.6	0.7	3.9	2.3	1.9
Feed (purch., fert., seed, pesticides)	26.0	21.8	25.9	21.9	16.9	21.3	20.4	20.0	36.1	34.1	23.0	12.3	51.7	23.5	23.6	41.2
Machinery (maint., depr., contractor)	11.4	15.2	16.2	13.9	18.1	12.0	9.2	14.8	9.1	9.1	10.4	8.8	11.7	14.3	13.4	13.0
Fuel, energy, lubricants, water	4.6	3.9	3.8	2.6	1.4	4.7	3.8	3.3	1.5	6.2	4.6	4.3	3.1	8.7	3.4	5.3
Buildings (maint., depr.)	7.7	5.2	6.5	6.8	6.7	3.7	4.2	6.9	3.6	5.0	3.9	2.2	1.7	6.1	5.1	3.4
Vet & medicine, insemination	4.3	4.8	5.3	3.2	5.0	4.7	5.0	5.0	5.5	3.8	5.0	4.6	4.5	3.5	5.1	4.2
Insurance, taxes	2.6	2.4	2.9	1.9	2.2	2.0	2.1	2.6	1.2	3.2	2.4	1.2	0.0	3.5	2.3	1.1
Other inputs dairy enterprise	0.0	2.7	2.9	1.6	0.6	3.0	3.3	4.3	0.9	1.8	3.0	3.2	3.1	2.6	2.3	3.1
Other inputs	1.4	1.8	1.8	1.3	5.0	2.3	5.0	2.6	1.5	0.0	3.7	2.9	6.6	5.7	2.8	6.1
Costs for mean of production	59.4	63.0	68.5	53.9	57.2	56.7	52.9	61.0	60.0	65.3	59.1	43.3	83.4	71.7	59.9	79.4
Total land costs	4.3	6.4	2.9	4.2	7.8	12.3	12.9	3.3	5.5	6.2	4.8	7.8	1.4	4.8	6.3	2.7
Total labour costs	23.4	23.6	20.6	33.5	21.7	24.0	27.9	28.1	29.7	25.3	28.5	38.1	11.7	14.8	25.9	13.0
Total capital costs	14.0	8.2	7.4	10.0	11.9	6.0	7.1	7.9	5.5	4.1	7.6	11.3	3.8	7.0	8.0	5.0
Costs of production factors	41.7	37.9	30.9	47.4	41.4	42.7	47.9	39.3	40.6	35.6	40.9	57.4	16.9	26.5	40.1	20.6
Total costs (excl. quota costs)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own calculations on the basis of EDF-Report 2001

Table 6. Costs of milk production, milk price [€ per 100 kg FCM]

Farm	Cost of milk production	Milk price	Cost/Milk price
No.			
AT	35.4	29.8	118.8
Dw	33.3	28.9	115.2
Do	33.8	29.6	114.2
BE	31.4	30.4	103.3
NL	35.5	30.4	116.8
UK	29.8	27.8	107.2
IE	24.2	29.4	82.3
FR	42.1	31.0	135.8
ES	33.2	30.3	109.6
IT	34.3	39.1	87.7
SE	46.0	35.1	131.1
CH	69.5	49.6	140.1
HU	29.1	26.2	111.1
PL	22.6	22.8	99.1

Total costs of production are higher than the milk price of 100 kg FCM only in Ireland, Italy and Poland (<u>Table 6</u>). Ireland is one of the countries where grassland is almost 100% of forage area. Dairy grassland based farms are able to produce milk for very low costs per kilogram. Feed, machinery and building costs play a major role in the differences between direct costs.

Competitive advantages and disadvantages of farm activities could be explained by differences in prices and/or in productivities. Key indicator to measure the success of the dairy farms is the return to labour.

The highest labour cost was observed in Switzerland (Fig. 9). In most countries the opportunity cost of family labour is incomparably higher than the paid wages. East German and Hungarian farms have very big herd size and milk production based on contract labour.

Wages paid Unpaid family labour costs

Fig. 9. Labour cost – comparison of the national EDF – averages

Source: EDF-Report 2001. Cost comparison analysis. Time series analysis. Database. European Dairy Farmers. Lellens, Frankfurt, Braunschweig

Polish and Hungarian farms have near to eleven times lower wages measured in national average wage rate than Swedish farms and near 6 times lower than average in the EU (Fig. 10).

Fig. 10. Labour prices - comparison of the national EDF - averages



Two pictures above show the large differences in wage rates and labour costs between CEEC and the EU. The level of productivity is the main production factor, influencing the economic situation of analysed farms and can be used to make comparisons between countries (Fig. 11).

Fig. 11. Labour productivity - comparison of the national EDF - averages



Source: EDF-Report 2001. Cost comparison analysis. Time series analysis. Database. European Dairy Farmers. Lellens, Frankfurt, Braunschweig

The labour productivity in CEEC is about 3 times lower than in the Netherlands and 2 times lower than the average in EU farms (<u>Table 7</u>). It is mainly caused by poor technology and management problems. Polish and Hungarian farmers needed about 1.4 hour to produce 100 kg FCM. EU-EDF farmers needed only 0.67 hour. However EDF farmers in the Netherlands needed 0.49 hour to produce 100 kg FCM.

Table 7. Labour, land and capital productivities

Farm No.	Labour productivity [kg FCM/h]	Land productivity [t FCM/ha]	Capital productivity [kg FCM/1000 €]
AT	115	13	751
Dw	164	9	1969
Do	170	12	2103
BE	131	17	2418
NL	205	16	1805
UK	180	10	2351
IE	133	14	2507
FR	103	9	1410
ES	82	15	2218
IT	142	11	2691
SE	151	8	1863
СН	56	9	763
HU	70	6	3698
PL	71	5	2.516

The average land productivity in EU-EDF farm amounted to 12 t FCM per hectare. The highest milk production per ha was observed in Belgium (17 t FCM) and in Netherlands (16 t FCM). The lowest land productivities were in Poland (5 t FCM/ha) and Hungary in(6 t FCM/ha).

The average capital productivity in EU-EDF farms amounted to 2018 kg FCM per 1000 €. In Poland it was about 498 kg higher.

CONCLUSIONS

- 3. The farmers from Switzerland, Italy and Sweden got the highest prices for 100 kg FCM: 49.6 €, 39.1 € and 35.1 €. respectively. However the lowest prices were in Poland 22.8 € and Hungary 26.2 €.
- 4. Labour and feed costs had the biggest share in total costs of milk production. Average labour cost in EU-EDF amounted to 25.9% of total milk production costs and feed prices amounted to 23.6%.
- 5. The highest total cost of production of 100 kg FCM was in Switzerland 69.5 €, in Sweden 46 € and in France 42.1 €, however the lowest costs were observed in Poland 22.6 €, in Ireland 24.2 € and in Hungary 29.1 €.
- 6. The share of costs for means of production in total costs of production was 60% on average in EU-EDF, the highest in Hungary 83,2% and the lowest in Switzerland 43%.
- 7. Polish dairy farms are characterised by very low labour productivity. It is mainly due to poor technology equipment, which needed high labour consumption, low labour prices and low milk yield as well.

REFERENCES

- 1. Backer D., Hallberg M.C., Tanjuakio R., Elterich J., Beck R.L., Liebrand C.B., 1990. Estimates of the Costs of producing Milk in Seven Major Milk-Producing Countries, 1986. International Economic Division, Economic Research Service, USDA, Washington: ss. 19.
- Doyle C.J. 1979. A comparative study of agricultural productivity in the UK and Europe. J. Agric. Econ. 30, 261– 275
- 3. EDF-Report 2001. Cost comparison analysis. Time series analysis. Database. European Dairy Farmers. Lellens, Frankfurt, Braunschweig
- 4. Hemme T., Heinrich I., Isermeyer F., 1997. Wettbewerbsfahigkeit von Milchkuhbetrieben in Ost- und Westdeutschland im internationalen Vergleich, FAL-Arbeitsbericht 3/97, Braunschweig.
- 5. Milk production in the European Community. 1981. National Economic Development Office (NEDO), London: ss.132.
- Przepióra A., Krajewski K., Pietrzak M., 2000. Milk and diary products market, In: The strategic option for Polish agro-food sector in the light of economic analyses. Warsaw Agricultural University, Research and Implementation Centre, Warsaw: 436–468.

Ewa Kaczocha Department of Management University of Agriculture in Szczecin 16 Monte Cassino Street, 70-466 Szczecin Phone (+48 91) 423 10 12 ex. 55

Fax (+48 91) 422 46 52 e-mail: ewka@e-ar.pl

<u>Responses</u> to this article, comments are invited and should be submitted within three months of the publication of the article. If accepted for publication, they will be published in the chapter headed 'Discussions' in each series and hyperlinked to the article.

[BACK] [MAIN] [HOW TO SUBMIT] [SUBSCRIPTION] [ISSUES] [SEARCH]