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MILK PRODUCTION QUOTA SYSTEM IN POLAND AS AN EXAMPLE OF MECHANISMS ON THE MILK MARKET

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ABSTRACT. The main stimulating factor for changes on the milk market was the prospect of joining the Single European Market. The preparation for the open competition had its consequences on raw material production and food processing industry. The implementation of Common Agricultural Policy was the first direct effect of EU accession. Because of key importance for the milk market the production quota system was analysed.

Key words: milk industry, milk quotas, regional analysis

Introduction

The EU accession affected the whole Polish economy, but particularly the food sector. The changes on animal products markets were observed significantly earlier. It was the result of undertaken adaptation. The transformation of dairy sector was guided to fulfil minimal quality conditions and standard guarantee of products due to EU requirements. The preparation for direct results of CAP was the next important factor stimulating changes of raw material production and its processing. According to **Seremak-Bulge** (2004 a) the accession will increase the competitive pressure from economically strong and well organized European Union companies. On the other hand it is an impulse to create and utilize strong competitive advantages.

Material and methods

The unpublished data from Agricultural Market Agency (ARR) was the main data source used in the paper. The data from Central Statistical Office and The Institute of Agricultural and Food Economics (IERiGŻ) were used to verify and discuss the results. Analysis of structure and regional diversification were applied.

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Results

Milk production and dispensing in Poland

The key issues of Polish dairy sector are the changes in milk production and dispensing during the period before EU accession. According to **Report...** (2004) there were 875 thous. cow farms and it was almost 30% of all agricultural farms in Poland. Based on research by **Kapusta** (2004) only 380 590 milking farms delivered milk to food processing industry in 2002. This number is decreasing systematically (from around 600 thous. in 1999 year). It proves ongoing concentration process and changes in milk production but the concentration of cows stock is still very small. In 2002 around 83% of farms (from all the dairy farms) had less than four cows and 43% of cows stock was placed on those farms. As the result the milk production had relatively low percentage of market production. Market sale is 3/4 production and deliveries to the milk factories are slightly over 60% (Table 1).

Table 1

Dispensing of milk production in Poland (Seremak-Bulge 2004 b, Rocznik... 2004)
Rozdysponowanie krajowej produkcji mleka (Seremak-Bulge 2004 b, Rocznik... 2004)

Year Rok	Production Produkcja	Farm use Zużycie w gospodarstwie				Sell Sprzedaż				Total expenditure Razem rozchody
		total ogółem	fodder na pasze	consumption na spożycie	other inne rozchody	total ogółem	milk factory do przemysłu mleczarskiego	other industries do innych przetwórców	other inna sprzedaż	
1989	15 926	4 232	738	3 351	143	11 723	11 385	0	338	15 955
1995	11 355	3 400	680	2 700	20	7 955	6 315	81	1 559	11 355
2000	11 494	3 280	650	2 620	10	8 263	6 487	96	1 680	11 543
2001	11 538	3 096	636	2 450	10	8 442	6 832	193	1 417	11 538
2002	11 527	2 930	630	2 300	0	8 597	7 007	212	1 378	11 527
2003	11 546	2 850	600	2 250	0	8 696	7 150	166	1 380	11 546
2004*	11 840	2 750	550	2 200	0	8 750	7 500	200	1 050	11 500
2005*	11 500	2 530	530	2 000	0	8 970	8 000	200	770	11 500

*Forecast of Institute of Agricultural and Food Economics.
*Prognoza Instytutu Ekonomiki Rolnictwa i Gospodarki Żywnościowej.

As an effect of changes in dispensing milk (Table 1) the quantity of deliveries to the industry is increasing with simultaneous limiting of internal milk consumption. Those changes were stimulated by milk processing factories. The high quality and quantity requirements caused the smallest farms to stop producing the product. It can be noticed, that significant processes of the concentration of production structures are occurring despite small changes of the agricultural structure (**Polski przemysł...** 2000). The EU integration will possibly accelerate and deepen this process.

The changes stabilized the milk production on the level of 11.5 M. t in the years 2000-2003 (**Seremak-Bulge** 2004 b). It was around 8% of milk production in EU-25 and over half of milk production of 10 countries that joined the EU in 2004. The number of cows in Poland was around 60% of stock in EU-10 and 12% UE-25 (**Parzonko** 2004). It proves the big importance of Polish dairy sector in the European Union. Thanks to high production Poland is self-sufficient in milk – production is exceeding consumption by about 15%. Import is significantly smaller than export and it is only a small percentage of the market supply.

Quota system as an example of mechanism on the milk market

EU accession caused the implementation of CAP mechanisms on the Polish market. Present instruments on milk market are:

– stabilizing the domestic market – price system (price setting for milk, intervention prices for butter and skimmed milk powder) intervention system (butter and skimmed milk powder), private storage (butter, skimmed milk powder, long-keeping cheeses),

– stimulation of the domestic demand – special aid for butter and cream, also butter concentrated milk for industry use, buttermilk and buttermilk powder for fodder, skimmed milk processed into casein and caseinates, the purchase of cream, butter and concentrated butter by non-profit organisations, institutions and bodies, school milk aid,

– trade with third world countries – import and export licences, taxes, tariff quotas, export charges and import duties,

– production limiting (quota system) – wholesale sale quota, direct sales quota, the restructuring reserve, overproduction payments,

– direct income support.

The milk quotas are one of the most important mechanisms on the milk market. The quota system, which was introduced in 1984 only for the transformation period, was so effective that it was only maintained through the next 30 years. The quota system is planned to function till 2015 year. The milk quotas awarded to the countries of the EEC were based on the domestic outcomes of milk production from 1981 and it was increased by 1% (**Parzonko** 2004). Presently Germany and France possess the biggest amounts of milk quotas (**Seremak-Bulge** 2004 b). The granted amount of milk quotas of these two countries is 44% of current limits of the EU-15 and 38% of the total amount for the EU-25 (Table 2).

Before EU enlargement in 2004 Poland (as all other applicant countries) negotiated its accession conditions. The milk quotas for Poland were placed as one of the major points of Polish position paper in the area of "Agriculture". According to the declaration made during the inauguration of accession negotiations (**Informacja...** 2003), Poland requested the production quotas at the level of natural potential for environment friendly agricultural production on the one hand, and ensuring maintenance of stable income sources for agricultural population on the other. The total milk quota for Poland was 9 380 000 t, of which 8 500 000 t of deliveries (wholesale) and 464 000 t of direct sales.

Due to the ongoing concentration changes, some producers will cease dairy production and market purchases will become the source of milk for them. It will increase domestic demand. Additional arguments for expected increase of milk demand were high income elasticity and government campaign for milk consumption. Therefore an extra restructuring reserve was granted on the level 416 000 t. This extra restructuring reserve will allow

Table 2

The level of national milk quota* for EU member countries (thous. t) (Seremak-Bulge 2004 c)
Wysokość narodowych kwot mlecznych* przyznanych poszczególnym krajom UE (tys. t) (Seremak-Bulge 2004 c)

Country – Kraj	2004/05	2008/09-2014/15
Germany – Niemcy	27 864,8	28 282,8
France – Francja	24 235,8	24 599,3
Great Britain – Wielka Brytania	14 609,7	14 828,6
The Netherlands – Holandia	11 074,7	11 240,8
Italy – Włochy	10 530,1	10 530,1
Spain – Hiszpania	6 117,0	6 117,0
Ireland – Irlandia	5 395,8	5 395,8
Denmark – Dania	4 455,3	4 522,2
Belgium – Belgia	3 310,4	3 360,1
Sweden – Szwecja	3 300,0	3 352,5
Austria – Austria	2 749,4	2 790,6
Finland – Finlandia	2 407,0	2 443,1
Portugal – Portugalia	1 870,5	1 948,6
Greece – Grecja	820,5	820,5
Luxembourg – Luksemburg	269,0	273,1
Total EU-15 – Razem UE-15	119 010,0	120 505,0
Poland – Polska	8 964,0	9 380,1
Czech Republic – Czechy	2 682,1	2 737,9
Hungary – Węgry	1 947,3	1 990,1
Lithuania – Litwa	1 646,9	1 704,8
Slovakia – Słowacja	1 013,3	1 040,8
Latvia – Łotwa	695,4	728,7
Estonia – Estonia	624,5	646,4
Slovenia – Słowenia	560,4	576,6
Cyprus – Cypr	145,2	145,2
Malta – Malta	48,7	48,7
Total EU-10 – Razem UE-10	18 327,9	18 999,4
Total EU-25 – Razem UE-25	137 337,9	139 504,4

*The national quota is a sum of wholesale and direct sale.
*Kwota narodowa stanowi sumę kwoty hurtowej i kwoty sprzedaży bezpośredniej.

for the acknowledgement of expected increase of milk demand caused by the restraint of direct milk consumption on farms. The negotiated amount of the wholesale quota was over 1 M. t higher than the milk purchase made by creameries (in the negotiation period, that is in 2000-2002). It is estimated that the total amount of milk quota will ensure chances of creamery sector development in the nearest years (**Informacja...** 2003, **Warunki członkostwa...** 2003, **Smolarek** 2003). However, fears are caused by the fact of goods production limitation to the amount of granted quota (**Seremak-Bulge** 2004 c). Perhaps it will turn out, that achievement in the two-three next years in the milk production corresponding to the granted milk quota (along with the restructuring reserve) will become the barrier of the further modernization in the dairy sector (**Seremak-Bulge** 2004 b).

Implementation of milk quota system in Poland

Poland obtained the transition period for determining individual farmers' quotas. In the referential year 2003 the milk producers delivered 7 467 000 t of milk and this amount was about 1 M. t lower than the awarded wholesale quota. It means that still exists an opportunity for improvement of milking per cows and the increase of milk production on farms.

From the regional apprehension it can be noticed that the biggest importance had the region mazowieckie, podlaskie and wielkopolskie (Table 3, Fig. 1). It is the function of the cows' number in the given region and the milk efficiency per cows. In case of the province mazowieckie and podlaskie the high production prejudged the number of cows. It is an effect of good conditions for breeding of milk cows in these regions. However in the Wielkopolska region the average milk production per cow was significantly higher than the country average (**Warunki członkostwa...** 2003). The distinctive feature of milk production in these provinces is well bigger than average in Poland participation of sale to the purchase in the total balance of milk dispensing. The further

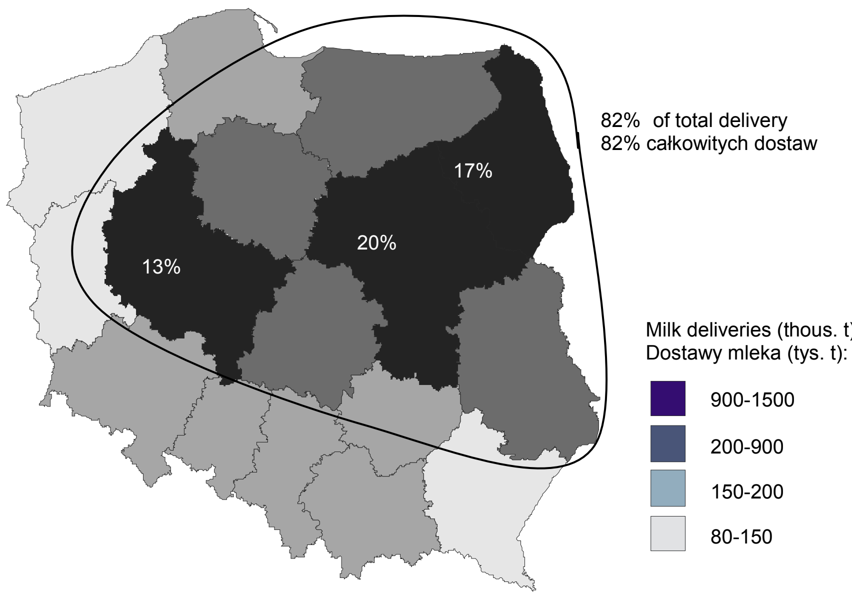

Fig. 1. Milk delivery in referential year
Ryc. 1. Dostawy mleka w roku referencyjnym

Table 3

Total milk quantity delivered to the milk factories in the referential year (unpublished data from Agricultural Market Agency)
Łączna ilość mleka sprzedanego podmiotom skupującym w roku referencyjnym (niepublikowane dane Agencji Rynku Rolnego)

Region Województwo	Number of registered application from wholesalers Liczba zarejestrowanych wniosków dostawców hurtowych	Total milk quantity* delivered to milk factories in the referential year (kg) Łączna ilość mleka* sprzedanego podmiotom skupującym w roku referencyjnym (kg)	Share of total milk quantity* delivered to milk factories in the referential year (%) Udział w łącznej ilości mleka* sprzedanego podmiotom skupującym w roku referencyjnym (%)
Dolnośląskie	4 810	160 963 965	2.2
Kujawsko-pomorskie	16 296	544 063 792	7.3
Lubelskie	50 124	570 730 966	7.6
Lubuskie	1 596	80 255 985	1.1
Łódzkie	47 749	679 759 722	9.1
Małopolskie	22 373	166 995 493	2.2
Mazowieckie	75 929	1 478 218 525	19.8
Opolskie	4 323	196 384 096	2.6
Podkarpackie	18 368	116 222 890	1.6
Podlaskie	42 861	1 294 900 054	17.3
Pomorskie	4 239	197 261 394	2.6
Śląskie	9 823	159 074 562	2.1
Świętokrzyskie	19 929	159 609 461	2.1
Warmińsko-mazurskie	14 433	552 391 197	7.4
Wielkopolskie	21 111	975 943 288	13.1
Zachodniopomorskie	2 069	133 720 829	1.8
Total – Razem	356 033	7 466 496 219	100.0

*Converted to representative for country fat content of 3.9%.
*Przeliczonego na reprezentatywną dla kraju zawartość tłuszczu (3,9%).

supremacy of these regions will be the effect of maintenance (or of development) of natural conditions, which are favourable for milk production and for creameries agreeable to maintain the high purchase and pay the sufficient price for the raw material.

In Poland a dispersion of production it still observed. In the referential year the group of smallest milk producers, who sell less than 20 thous. kg of milk per year, was 3/4 of the total number of manufacturers (Table 4). In spite of the number, those farms do not play an important role in milk deliveries. The quantity of milk delivered from the smallest farms was only 27% of total deliveries. On the other side there were only 8 237 (2%) of big milk manufacturers, who sell more than 100 thous. t per year. But participation of milk delivered from those biggest farms was over 1/4 (Table 5). Despite the changes, a participation of the smallest herds in the domestic structure of heads number is still around 10 times higher than the average in the European Union (**Rybicki** 2004). It can be assumed that in process of direct quota implementation the biggest farms will

Table 4

Number of milk deliveries because of milk production size during first referential year (unpublished data from Agricultural Market Agency)
Liczba dostawców hurtowych ze względu na wielkość wypracowanej produkcji w pierwszym roku referencyjnym (niepublikowane dane Agencji Rynku Rolnego)

Region Województwo	The size of supplies (thous. kg) Poziom dostaw (tys. kg)							Total Razem	Share (%) Udział (%)
	0-10	10-20	20-50	50-100	100-250	250-500	> 500		
Dolnośląskie	2 970	919	598	179	91	35	66	4 858	1.4
Kujawsko--pomorskie	4 979	4 177	4 798	1 755	496	48	59	16 312	4.6
Lubelskie	36 146	8 297	4 131	1 322	381	32	14	50 323	14.1
Lubuskie	646	372	372	121	59	12	19	1 601	0.4
Łódzkie	28 216	10 610	7 025	1 559	333	29	9	47 781	13.4
Małopolskie	18 705	2 532	964	151	38	10	8	22 408	6.3
Mazowieckie	36 072	18 952	14 817	4 773	1 261	94	22	75 991	21.3
Opolskie	1 739	1 086	1 007	312	105	36	44	4 329	1.2
Podkarpackie	15 875	1 673	652	136	27	5	4	18 372	5.1
Podlaskie	12 741	11 797	11 656	5 148	1 937	128	22	43 429	12.2
Pomorskie	1 110	920	1 300	609	220	43	39	4 241	1.2
Śląskie	6 266	2 062	1 093	265	108	21	24	9 839	2.8
Świętokrzyskie	15 853	2 733	1 120	216	37	1	3	19 963	5.6
Warmińsko--mazurskie	3 092	3 959	4 713	1 844	740	100	48	14 496	4.1
Wielkopolskie	6 223	4 529	6 420	2 697	952	166	156	21 143	5.9
Zachodniopomorskie	755	460	517	200	79	30	46	2 087	0.6
Total Razem	191 388	75 078	61 183	21 287	6 864	790	583	357 173	x
Share (%) Udział (%)	53.6	21.1	17.2	5.8	1.9	0.2	0.2	x	100.0

Table 5

Milk quantity delivered to the milk factories because of milk production size during the first referential year (thous. kg) (unpublished data from Agricultural Market Agency)
Podział ilości mleka sprzedanego podmiotom skupującym ze względu na wielkość wypracowanej produkcji w pierwszym roku referencyjnym (tys. kg) (niepublikowane dane Agencji Rynku Rolnego)

Region Woje-wództwo	The size of supplies (thous. kg) Poziom dostaw (tys. kg)							Total Razem	Share (%) Udział (%)
	0-10	10-20	20-50	50-100	100-250	250-500	> 500		
Dolnośląskie	13 905	13 144	19 871	12 736	13 501	11 604	71 948	156 708	2.1
Kujawsko-pomorskie	29 632	60 999	154 839	115 881	64 312	14 625	94 335	534 621	7.2
Lubelskie	166 856	117 461	130 188	89 549	47 143	8 236	9 842	569 275	7.7
Lubuskie	3 344	5 430	11 587	8 319	8 873	3 187	40 357	81 097	1.1
Łódzkie	146 779	149 924	215 190	97 789	42 067	8 660	13 790	674 199	9.1
Małopolskie	76 253	35 343	28 436	9 968	5 333	3 340	14 608	173 282	2.3
Mazowieckie	196 594	274 178	476 561	328 648	158 061	27 314	25 926	1 487 283	20.1
Opolskie	9 011	15 900	31 345	20 699	15 049	10 141	86 321	188 465	2.5
Podkarpackie	57 445	23 509	19 738	9 382	3 421	1 419	3 681	118 596	1.6
Podlaskie	72 075	169 289	378 082	360 577	258 940	37 379	14 382	1 290 722	17.4
Pomorskie	6 287	13 414	43 304	41 788	30 663	14 036	45 382	194 874	2.6
Śląskie	31 016	29 835	33 800	19 436	14 583	6 793	25 035	160 500	2.2
Świętokrzyskie	68 547	39 133	34 009	14 149	5 240	252	1 657	162 987	2.2
Warmińsko-mazurskie	18 573	56 998	153 979	130 898	104 228	29 197	54 601	548 475	7.4
Wielkopolskie	33 740	66 448	210 414	181 082	128 253	50 739	263 014	933 690	12.6
Zachodnio-pomorskie	4 110	6 680	17 219	13 238	11 490	9 170	69 833	131 739	1.8
Total Razem	934 165	1 077 685	1 958 563	1 454 139	911 155	236 092	834 712	7 406 512	x
Share (%) Udział (%)	12.6	14.6	26.4	19.6	12.3	3.2	11.3	x	100.0

overtake the majority of milk deliveries. The only needed element is the free market of milk quota. As the smallest farms will give the production up the biggest ones will buy the limits. Significant process of the structure concentration may occur. The EU integration will possible accelerate and deepen this process through high milk quantity and quality requirements by milk factories.

Deliverers' structure, because of the production volume, presents relatively better for the regions: zachodniopomorskie, pomorskie, warmińsko-mazurskie, wielkopolskie or lubuskie. In these regions is the smaller participation of supplies directed from the smallest entities in favour of deliverers who have a bigger production scale (Tables 4, 5). In the regions like zachodniopomorskie, lubuskie, dolnośląskie the percentage of milk delivered form the biggest farms exceed 60%.

Conclusions

The number of farms that deliver milk to the food processing industry is systematically decreasing (from around 600 thous. in 1999 year to 380 thous. in 2002 year). This situation is proof of existing changes in the concentration of milk production. At the same time the number of cows is much dispersed. As the result the milk production is characterized by the relatively low percentage of market production. The changes in the milk production are stimulated by milk factories which, through high quality requirements, cause some households not able to meet requirements and give up milk production. Therefore significant processes of the concentration structure occur and it can be believed that the EU integration will possibly accelerate and deepen this process.

The negotiated quota of the delivery exceeded about 1 M. t of the milk purchase to the milk factories during the referential year. It is estimated that there is an opportunity to improve the milk production per cow and the increase of milk production on farms, as well as that total amount of Polish milk quotas ensures the development of the milk sector in the coming years. But it may happen that in the next two-three years the milk production, will reach the production limits (along with the restructuring reserve) and these quotas will become the barrier for the further modernization of this sector.

From the regional apprehension it can be notice that the milk production concentrates mainly in mazowieckie, podlaskie and wielkopolskie regions.

In the milk supplies prevailed entities which have a smaller annual yield of milk. In spite of the number of small farms, those farms do not play an important role in milk deliveries. Participation of milk delivered from those biggest farms was over 1/4. However, the deliverers' structure and the quantity of delivered milk is better for the regions: zachodniopomorskie, pomorskie, warmińsko-mazurskie, wielkopolskie and lubuskie.

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SYSTEM KWOT MLECZNYCH W POLSCE JAKO PRZYKŁAD MECHANIZMÓW NA RYNKU MLEKA

S t r e s z c z e n i e

Czynnikiem stymulującym przemiany rynku mleka w Polsce było przygotowanie producentów surowca i przetwórców do bezpośredniej konsekwencji wynikającej z włączenia mleczarstwa w obszar Jednolitego Rynku Europejskiego. Bezpośrednim efektem akcesji do UE było objęcie krajowego mleczarstwa mechanizmami Wspólnej Polityki Rolnej. Ze względu na kluczowe znaczenie kwot mlecznych dla rynku mleka ocenie poddano ich wpływ na możliwości rozwoju produkcji tego surowca.

W ujęciu wojewódzkim można zauważyć, że największe znaczenie w produkcji mleka mają województwa: mazowieckie, podlaskie i wielkopolskie. Wynegocjowana kwota sprzedaży hurtowej przekraczała mnie więcej o 1 M. t skup mleka w mleczarniach. Ocenia się, że nadal istnieje możliwość poprawy mleczności krów i zwiększania produkcji mlecznej w gospodarstwach, a łączna wielkość kwot zapewni możliwości rozwoju sektora mleczarskiego w najbliższych latach. Może się jednak okazać, że osiągnięcie w kolejnych dwóch-trzech latach produkcji mleka odpowiadającej przyznanej kwocie mlecznej (wraz z rezerwą restrukturyzacyjną) stanie się barierą dalszej modernizacji sektora mleczarskiego.