DIRECTIONS OF CHANGES IN PRODUCTION OF CEREAL IN POLAND AND UKRAINE

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Abstract. In the study an economic importance of cereal crops and tendencies of changes in the world take were presented, and then on the level of two neighbourly states: of Poland and Ukraine. Changes in the area of sowings, sets and crops were presented. Directions of allocating cereal crops in the last period were compared. They stated, that directions of changes on the market of cereal crops in Poland and for Ukraine were different. In Poland reducing the surface of their crop dominated, at simultaneous increasing crops and changes in the genre structure of cereal crops. In Ukraine the area of the cultivation and the level of sets were stable.

Keywords: production of cereal, having at disposal of cereal, cultivation

Introduction. Grain farming is one of the leading sectors of agriculture, due to the fact that nowadays grain defines food security of the society and affects the sustainable development, plays a significant role in the formation of export deliveries and foreign currency incoming in the world economy of countries, provides employment for the rural population.

Cereal crops play an important economic role as a source of income for producers, as a human nutrition product, co-creator of jobs in agriculture and in other areas such as food processing and the production of non-food products.

Grains and derivatives of these cultures are the main raw material in many industries. We can mention the following areas of industry and processing of agricultural products as mills, distilleries, bakery factories, breweries, confectionery plants, and recently there also appeared ones associated with the production of renewable fuels.

Grain crops are also the main ingredient in livestock feed. Thus, changes in the scale of their production is an important factor affecting the economic situation of large groups of people and countries.

The purpose of research. The aim of this study is to determine the changes in acreage, yield and grain distribution trends in grain markets of Poland and Ukraine.

Materials and methods. In our research we used different methods: method of analysis, comparison method, correlation analysis, empirical method of scientific research and method of logical summarizing.

Using these methods, we identified the main trends of production and consumption of cereals in the world and in some regions, considered the issues of consumption and balances of cereal crops, analyzed the cereal crops market.

Results and discussion. Grain crops are one of the main agricultural products, especially in the crop production. For example, in 2014 in Poland, the cost of grain crops amounted to 36.5% of the global crop production and 32% of commodity production, and wheat occupied about half of the total grain production.

In the 2014 Ukraine exported 32.3 million tons of crops. According to this index, our country is among the top three largest world grain exporters. Only the United States (72.3 mln. tons) and the European Union (38.5 mln. tons) are ahead of Ukraine. Over the last decade, the grain export from Ukraine increased by 77% and it managed to outnumber such recognized "breadbasket of the world" as Canada (28 mln. tons per year), Argentina (21.9 mln. tons) and Brazil (20.1 mln tons).

Statistics of the world market usually analyzes two grain groups: wheat and coarse grains. Areas of cultivation and grain production are presented in Table 1.

Name of the	Area of cultivation [mln ha]					
region	2000/01-	2003/04 -	2000/89 -	2012/13 -		
	2002/03	2007/08	2011/12	2014/15		
		Wheat				
CIS	42,7	45,8	49,7	46,8		
South Asia	37,5	38,6	40,7	43,1		
North America	31,0	29,9	30,0	29,4		
EU	26,0	25,4	26,2	26,3		
East Asia	24,8	23,4	24,7	24,7		
Middle East	18,5	19,6	17,5	18,4		
Oceania	12,0	12,6	13,8	13,4		
Africa	9,5	9,7	9,8	10,3		
South America	9,5	9,5	8,7	7,6		
Other	1,2	1,1	1,0	1,0		
		Coarse grains				
Africa	72,8	77,7	84,8	85,1		
North America	51,0	51,4	50,8	52,8		
East Asia	27,9	30,6	34,6	39,2		
EU	33,6	33,0	31,8	31,0		
CIS	29,8	28,5	26,6	28,9		
South Asia	32,4	31,4	30,5	28,8		
South America	20,8	22,4	23,9	26,5		
Middle East	9,0	10,0	8,7	9,3		
Southeast Asia	8,2	8,7	8,8	9,1		
Oceania	5,7	6,5	5,9	5,4		
Other	4,7	4,6	4,8	4,7		

1. Area of cultivation of wheat and coarse grains in the regions of the world*

*Source: Szajner P. (eds.), 2015: The situation on the world market for cereals, oilseeds, sugar and biofuels and its impact on national markets plant products and their possible developments. Institute of Agricultural and Food Economics - National Research Institute, Warsaw [1]. Wheat is grown on the largest scale in the CIS, the Americas, the European Union and East Asia. There is a prevailing tendency to increase the area (by 3.9% over the period under study), though the highest growth rate was in South Asia (up to 14.9%), Oceania (11.2%). Reduction of sown area (to 20.5%) was recorded in South America and in North America (to 5.3%).

The area of cultivation of coarse grains has increased significantly worldwide, namely by 8.4%, the fastest growth was seen in East Asia (up to 40.9%) and South America (about 27%). The reduction occurred mainly in South Asia (up to 11.3%) and the European Union (up to 7.7%).

The area of crops cultivation is not the best indicator of their importance. For further analysis we will consider the gross yield, which is presented in Table 2.

Region Name	Gross yield [min t]						
-	2000/01-	2003/04 –	2000/89 -	2012/13 –			
	2002/03	2007/08	2011/12	2014/15			
Wheat							
EU	125,5	131,8	141,6	147,5			
East Asia	93,7	103,0	116,3	126,1			
South Asia	95,7	98,4	110,9	125,9			
the CIS	77,8	88,3	106,4	103,0			
North America	80,0	82,3	90,3	91,1			
Middle East	37,0	42,3	36,8	38,6			
Africa	17,4	21,7	23,3	25,8			
Oceania	21,0	18,2	25,5	25,1			
South America	21,4	23,8	24,2	20,7			
Other	3,7	4,0	3,8	4,1			
		Coarse grains					
North America	313,6	366,0	383,7	404,7			
East Asia	125,1	153,3	183,3	225,2			
EU	145,1	149,3	153,8	156,2			
South America	70,8	85,1	103,2	133,1			
Africa	81,3	94,0	108,2	115,4			
the CIS	56,9	58,1	68,2	83,3			
South Asia	36,9	42,1	47,2	50,5			
Southeast Asia	18,6	23,9	27,0	31,0			
Middle East	17,0	19,4	18,8	20,3			
Oceania	11,6	11,6	12,4	12,7			
Other	11,4	14,3	13,4	13,4			

2. The gross yield of wheat and coarse grains in regions of the wor

*Source: Szajner P. (eds.), 2015: The situation on the world market for cereals, oilseeds, sugar and biofuels and its impact on national markets plant products and their possible developments. Institute of Agricultural and Food Economics - National Research Institute, Warsaw[1].

The largest producer of grains in the world is invariably the European Union, but most rapid increases in the size of the yield is seen in Africa (by 48.4% over the period under study), East Asia (34.6%) and South Asia (31.6%) and the CIS (32.4%). These regions affected the increase in global

crop yields by 23.6% (in the EU only 17.6%). Overall, wheat production increased in all regions except South America (-3.3%).

Analyzing the production of feed grains it can be said that the major producers are North America, East Asia and the European Union. The fastest growth is in production in South America (up to 88.1%), East Asia (80%) and South-East Asia (by 66.6%). The reduction in yield of these crops was not recorded in any of these regions, while the global growth was by 40.2%, in contrast to wheat, where the growth was observed at the level of 23.6%.

The most important producers of wheat and coarse grains are presented in Table 3.

Region	Gross yield [mln t]							
Name	2000/01-	2003/04 -	2000/89 –	2012/13 –				
	2002/03	2007/08	2011/12	2014/15				
Wheat								
EU	125,5	131,8	141,6	147,5				
China	92,6	101,8	115,0	124,8				
India	71,1	71,5	81,7	93,3				
USA	55,3	55,2	60,4	57,6				
Russia	41,5	46,8	55,8	52,5				
Canada	21,5	24,0	26,0	30,0				
Australia	20,7	17,9	25,1	24,7				
Pakistan	19,4	21,4	23,5	24,5				
Ukraine	13,9	16,0	21,5	22,4				
Turkey	16,8	17,5	17,8	17,4				
		Coarse grains						
USA	263,4	312,0	331,2	348,7				
China	122,9	151,1	181,1	222,7				
EU	145,1	149,3	153,8	156,2				
Brazil	145,1	48,9	62,0	84,3				
India	42,9	35,5	39,8	41,6				
Russia	32,2	29,0	30,6	36,1				
Ukraine	15,7	18,7	26,4	35,9				
Argentina	19,1	24,6	28,3	34,7				
Mexico	27,0	28,7	28,6	31,3				
Canada	23,2	25,4	23,9	24,7				

3. The main producers of wheat and coarse grains in the world*

*Source: Szajner P. (eds.), 2015: The situation on the world market for cereals, oilseeds, sugar and biofuels and its impact on national markets plant products and their possible developments. Institute of Agricultural and Food Economics - National Research Institute, Warsaw [1].

The largest producer of wheat in the world is the European Union, but its advantage over other countries is rapidly declining. With the increase in production in the EU by 17.6% this indicator is observed in China at the level of 34.8% and 31.1% in India. Important wheat producers are the CIS and the United States, however, the highest growth among the top ten producers of wheat was recorded in Ukraine (by 61.2% compared to 23.6%, which occurred in the world). The lowest progress was in Turkey (3.6%) and the USA (4.2%).

The largest producers of coarse grains are the USA, China and the European Union. The greatest increase in the production of coarse grains is observed in Ukraine (by 128.8%), Brazil (96.6%), Argentina (82.1%) and China (81.3%), as compared to the global growth of 40.2%. Changes in grains production affected their consumption (Table 4).

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Specification	Consumption [mIn t]					
	2000/01-	2003/04 –	2000/89 –	2012/13 –		
	2002/03	2007/08	2011/12	2014/15		
Wheat						
Stocks	110,2	111,3	127,8	133,9		
Consumption, industry, etc.	478,9	502,4	529,4	564,4		
Together	589,1	613,7	657,2	698,3		
Coarse grains						
Stocks	600,6	644,7	655,0	735,0		
Consumption, industry, etc.	308,3	364,8	456,9	492,4		
Totally	908,9	1009,5	1111,9	1227,4		

4. World consumption of wheat and feed grains*

*Source: Szajner P. (eds.), 2015: The situation on the world market for cereals, oilseeds, sugar and biofuels and its impact on national markets plant products and their possible developments. Institute of Agricultural and Food Economics - National Research Institute, Warsaw[1].

Just as productivity feed grains consumption (35.5%) grows faster than of wheat (18.6%). It is astonishing that in the case of wheat grain stocks for sowing are more rapidly increasing (21.5%) than consumption and industrial consumption (17.9%). In the context of the coarse grains it was the opposite, namely there clearly predominates increase in consumption and industrial use (59.7%) as compared to the stocks (22.4%). In our opinion, the reason for this is the increase in the share of consumption of fooder plants allocated for industrial processing.

Production of grain crops in Poland and Ukraine. Climatic and environmental conditions in Poland and Ukraine are particularly suitable for crop production. Areas under grain crops in these countries are presented in Tables 5 and 6.

		J			=		
Year	Sown area		of which [%]				
	under the	Grain crops	Wheat	Rye	Corn		
	crop [mln ha]	-					
1990	14,2	59,9	16,0	16,3	0,4		
1995	12,9	66,5	18,7	19,0	0,4		
2000	10,8	77,1	22,4	14,5	3,0		
2005	11,2	74,4	19,8	12,6	3,0		
2010	10,4	73,3	20,5	10,2	3,2		
2015	10.8	69.9	22.3	6.7	6.2		

5. Sown area of grain crops in Poland in 1990–2015*

*Source: Land use and sown area in 2015. Statistical information and reports the Central Statistical Office, Warsaw, 2016, p. 92 [2].

In Poland, the sown area under crops reduced rapidly since 1990 from more than 14 to less than 11 million hectares. In recent years, however, they managed to stabilize the sown area. In addition, the structure of crops changed, especially in the 90's, when there was the organization of extensification of crop production, and in the peak period, the share of grain crops amounted closer to 4/5, that is, from the standpoint of agrotechnical farming was very wrong. Over the past fifteen years, however, the share dropped to a proper level of about 70%.

At the same time it changed the structure of crops, such as reducing the proportion of plants with lower yields such as rye in favor of a more efficient, such as wheat or triticale. A very important element that was unexpected was widespread occurrence of corn, the share of which in the crop area increased in the period of 1995–2015 from 0.4 to 6.2%, and this trend is growing. This can be very beneficial, as the corn with improved indicators is well grown on poor soils that prevail in Poland.

Year	Sown area	of which [%]				
	under the	Grain crops	Wheat	Rye	Corn	
	crop [mln ha]	_				
1990	32,4	45,0	23,4	1,6	3,8	
1995	30,9	45,7	17,8	2,0	3,8	
2000	27,1	50,2	20,7	2,5	5,0	
2005	26,0	57,6	25,6	2,4	6,6	
2010	26,9	56,0	23,9	1,1	10,0	
2015	26,9	54,8	25,5	0,6	15,3	

6. Sown area of grain crops in Ukraine in 1990–2015*

*Source: Crop production of Ukraine. 2015. Statistical Yearbook. State Statistics Service of Ukraine [3].

From the year 1990 in Ukraine the crop area slightly decreases from more than 32.0 to less than 27.0 million hectares. In recent years, however, the crop areas managed to stabilize. The sowing structure also changed during the peak period, the share of grain crops amounted about 57.6%.

At the same time it changed the structure of grain crops, as reducing the share of plants with lower crop yield such as rye for a more efficient crop, such as corn, which was a very important element, whose share in acreage increased in the period 1990–2015 years from 3.8% to 15.3%, and this tendency is growing.

One of the elements characterizing the production of crops, which is the result is the gross yield of products. Its levels in the analyzed countries are presented in tables 7 and 8.

Over the studied period, an increase in yield of 16.9% is observed, although the direction and rate of change varied. The most evident was an increase in corn yield, which is becoming increasingly important product of Polish agriculture (by a factor of 2.5) and triticale (1.7). Slightly slower is the growth in the yields of wheat (16.2%) and barley (8.4%). At the same time there was a decrease in rye cultivation (30.6%) and a mixture of cereals (17.4%).

Crop	Grain yield [thous. t]					
	2000/01- 2002/03	2003/04 – 2007/08	2012/13 – 2014/15			
Wheat	8737	8510	10152			
Rye	3967	3358	2753			
Barley	3079	3580	3338			
Oat	1261	1313	1332			
Mixtures	3647	3969	3012			
Triticale	2615	3742	4535			
Corn	1533	1818	3019			
Totally	24838	26290	29040			

7. Grain yields in Poland in 2000/2001 – 2012/2013*

*Source: Szajner P. (eds.), 2015: The situation on the world market for cereals, oilseeds, sugar and biofuels and its impact on national markets plant products and their possible developments. Institute of Agricultural and Food Economics - National Research Institute, Warsaw[1].

Crop	Grain yield [thous. t]					
	2000/01 – 2002/03	2003/04 – 2007/08	2012/13 – 2014/15			
Wheat	10197	17520	26532			
Rye	969	1593	391			
Barley	6872	11085	8285			
Oat	882	1007	489			
Millet	426	459	213			
Buckwheat	481	294	128			
Rice	90	81	63			
Corn	3848	8867	23328			
Sorghum	17	65	0			
Leguminous	652	812	502			
Others	25	25	194			
Totally	24459	41808	60125			

8. Grain yields in Ukraine in 2000/2001 – 2012/2013*

*Source: Crop production of Ukraine. 2015. Statistical Yearbook. State Statistics Service of Ukraine[3].

Over the study period, an increase of yield by 2.5 times is observed, while the direction and pace of change varied. The most noticeable was an increase in corn yield, which is becoming increasingly important product of Polish agriculture (6.6 times) and wheat (2.6 times). The yield of barley is growing slightly slower (20.6%). For all other types of crops the decrease is observed.

The dominant use of grain for the entire period of study in Poland was their use as animal feed. The proportion of use of grain ranged from 61.9% in 2000 / 01-2002 / 03 to 59.6% in 2012 / 13-2014 / 15. The proportion trend in consumption has decreased, but its level was quite high.

The second direction in the use of cereals, albeit in a lesser extent, was human consumption (percentage dropped from 22.0 to 18.5%, and in volume terms there was a decrease by 13.7%). The direction in which the use of grains increased is the industrial consumption (by 2.3 times), in particular for the production of ethanol (5.4-fold increase). The proportion of grain

consumption for industrial purposes increased from 4.9% to 11.0%, or more than 2 times, and for the production of bioethanol from 0.5% to 2.4%, which is almost 5 times more.

Tables 9 and 10 present the balances of grains on the Polish and Ukrainian markets, taking into account the resources of the national and international exchange.

U						
Specification	Volume [mln. t]					
Specification	2010/11	2011/12	2012/13	2014/15		
Opening stocks	5,1	4,6	4,5	1,9		
Production	27,1	26,6	28,4	31,8		
National resources	32,2	31,2	32,9	33,7		
Imports	2,2	2,8	1,7	1,5		
Total resources	34,4	34,0	34,5	35,2		
Domestic consumption	27,8	27,3	26,0	27,7		
including stocks	16,8	16,4	15,3	16,6		
Export	2,0	2,2	4,5	5,5		
Closing stocks	4,6	4,5	4,0	2,1		

9. Balance of grains in Poland in 2010/11-2014/15*

*Source: Rynek zbóż, stan i perspektywy. Analizy rynkowe. IERiGŻ-PIB, Warszawa, maj 2015 [4].

The situation in Poland indicates that the study period was relatively stable, although with a further reduction in closing stocks. This was due to the increase in exports and the increase in external surplus grain trade from abroad (in 2010/11, the volume of imports exceeds that of exports, and in 2014/15 the country exported about 4 million tons of grain over imported). Domestic consumption remains at the same level, so that almost the entire yield increase was intended for export. This phenomenon is positive because it leads to an increase in the share of Polish international trade.

U				
Specification		Volume	[mln. t]	
	2010/11	2011/12	2012/13	2014/15
Opening stocks	5,8	5,3	12,8	6,8
Production	39,5	56,7	44,5	71,0
Imports	0,2	0,2	0,2	0,1
Domestic demand	25,8	26,3	26,3	29,8
The fund consumption	7,0	5,5	5,5	7,0
Seeds	2,6	2,2	2,7	3,1
Feed	14,4	15,2	14,9	17,2
Recycling for food purposes	1,2	1,3	1,3	1,5
Loss of circulation	0,6	2,0	1,9	1,0
Export	11,5	23,2	22,6	35,0
Strategic global stock	0,0	-	-	7,0
Closing stocks	8,2	12,8	8,5	6,1

10. Balance of grains in Ukraine in 2010/11-2014/15 respectively*

*Source: Sectoral program "Grain of Ukraine -2015". K .: Dia, 2011. 48 pp.[5].

The situation in Ukraine indicates that the study period was relatively stable, although with a further reduction in ending stocks. This was due to the increase in exports and the increase in external grain trade balance from abroad (in 2010/11, the volume of import exceeds the volume of exports, and in 2014/15 the country exported about 35,0 million tons of grain more than imported). Domestic consumption remains approximately at the same level; so almost the entire yield increase was intended for export. This phenomenon is positive because it leads to an increase the share of Ukraine international trade.

Conclusions. The study undertaken indicates the existence of some similarities as well as differences in the development of the grain market in Poland and Ukraine.

1. Wheat is grown mainly in the CIS countries, North and South America, the European Union and East Asia, but the highest dynamics of increase in sown areas was recorded in South Asia and Oceania. Fodder grain cultivation area increased rapidly in East Asia and South America. The largest producer of grains is the European Union, but the highest rate of harvest increase was in Africa, East and South Asia and the Commonwealth of Independent States. Wheat production increased in all regions except South America. In the case of coarse grains the largest manufacturers are North America, East Asia and the European Union. Grain production was at higher rates in South America, East and South-East Asia.

2. The largest producer of wheat in the world is the European Union, but its advantage over other countries will continue to decline rapidly. It is foreseeable that the first place will be taken by China and India. Important wheat producers are also the CIS and the United States, however, the highest growth among the top ten producers is recorded in Ukraine. The major producers of feed grains are the US, China and the European Union. The greatest growth in profitability, however, was registered in Ukraine, Brazil, Argentina and China. The largest increase is in the consumption of feed grain than of wheat. In the case of wheat stocks have increased rather than industrial and consumer consumption. In the context of the feed grains the growth in consumption and industrial consumption prevailed.

3. In Poland, the sown area has decreased as compared to 1990; extensification of crop production has been introduced, although last year the share of cereals declined slightly. In the structure of grain crops the proportion of more productive plants (yielding) such as corn increased, with the concurrent decline in the harvest of rye and grain mixtures.

4. The dominant area of the use of cereals in Poland was their consumption as animal feed and human consumption. The direction in which there was an increase in the industrial use of grains was the bioethanol production. There was also growth in exports, which should be seen as a positive development, as market share gains of Polish international trade.

5. In Ukraine, the distinct upward trend was toward gross grain production during the latest period, and is forecasted for the next 10–15 years. Following the increase in manufacturing, the export of grain from Ukraine will also increase, which will increase the flow of foreign exchange funds in the

country. Accordingly, the grain subcomplex has the considerable development potential that will improve the economic situation not only in agriculture, but also in the economy. However, the capacity building of grain subcomplex and its further development should occur under the conditions of elaborate state policy for support of agricultural sector and the grain sector in particular.

References

1. Szajner, P. (eds.) (2015). The situation on the world market for cereals, oilseeds, sugar and biofuels and its impact on national markets plant products and their possible developments. Institute of Agricultural and Food Economics – National Research Institute, Warsaw.

2. Land use and sown area in 2015. Statistical information and reports the Central Statistical Office, Warsaw, 2016, 92.

3. Crop production of Ukraine. 2015. Statistical Yearbook. State Statistics Service of Ukraine.

4. Rynek zbóż, stan i perspektywy. Analizy rynkowe. IERiGŻ-PIB, Warszawa, maj 2015.

5. Sectoral program "Grain of Ukraine -2015". K .: Dia, 2011, 48.

НАПРЯМИ ЗМІНИ У ВИРОБНИЦТВІ ЗЛАКОВИХ У ПОЛЬЩІ ТА УКРАЇНІ

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Анотація. Подано економічне значення зернових культур і тенденції їх змін у світі, а потім — на рівні двох сусідніх держав: Польщі й України. Представлено зміни в області посіву, наборів та культур. Здійснено порівняння напрямів розподілу зернових культур за останній період. Заявлено, що напрями змін на ринку зернових культур у Польщі та в Україні були різні. У Польщі зменшення поверхні врожаю переважає, при одночасному збільшенні врожаю і зміни в жанровій структурі зернових культур. В Україні площа культивації та рівня наборів були стабільними.

Ключові слова: виробництво зернових, мати в розпорядженні зернові, культивація

НАПРАВЛЕНИЯ ИЗМЕНЕНИЙ В ПРОИЗВОДСТВЕ ЗЛАКОВЫХ В ПОЛЬШЕ И УКРАИНЕ

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Аннотация. Представлено экономическое значение зерновых культур и тенденции их изменения в мире, а затем — на уровне двух соседних государств: Польши и Украины. Представлены изменения в области посева, наборов и культур. Сравнивали направления распределения зерновых культур за последний период. Заявлено, что направления изменений на рынке зерновых культур в Польше и на Украине были разные. В Польше уменьшение поверхности преобладает при одновременном увеличении урожая и изменения в жанровой структуре зерновых культур. В Украине площадь культивации и уровня наборов были стабильными.

Ключевые слова: производство зерновых, располагать зерновыми, культивация

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STRUCTURAL CHANGES IN POLISH AGRICULTURE AFTER ECONOMIC TRANSITION AND EUROPEAN INTEGRATION

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Abstract. Developments in the agricultural sector in Poland after 1989, which are to a large extent policy driven (transition to a market economy, EU accession and the introduction of the CAP) resulted in significant changes in all dimensions of the agricultural structure. Despite still fragmented farm structure, processes of concentration of agricultural land and livestock became visible. The smallest sized herds have continued to disappear, and livestock has moved to larger scale herds on specialized farms. A significant increase in investments in fixed assets in the years that followed accession to the EU should be noted.

In response to market requirements, and due to the modernization processes that took place in Polish agriculture, the total agricultural output has consistently grown over a long period. Technological advancements in Polish agriculture, productivity increases and positive prices trends in the postaccession period have also resulted in increased farm incomes. A noticeable increase of agricultural outputs and farm incomes characterizes changes also in other new Member States after the EU accession due to the introduction of the Common Agricultural Policy and new market opportunities as a result of growth in domestic demand and increased exports.

Keywords: Poland, structural changes, economic transformation, European integration

Introduction

Economic transition and European integration have contributed significantly to the restructuring of the agricultural sector in Central and Eastern Europe. Poland, like other countries which went through the transition