SIGNIFICANCE OF WHEAT PRODUCTION IN WORLD ECONOMY AND POSITION OF HUNGARY IN IT

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Abstract: This article intends to introduce the significance of wheat production in world economy and role of Hungary in it on the basis of statistic database of FAO. Importance of wheat production in world economy is proven by its share of 15% from 1500 million hectares arable land in the world. This rate is equivalent to 225 million hectares of wheat area based on FAO figures for 2009. From its world economy significance viewpoint, on the basis of some significant features it sets order of ranks among wheat producing countries, accompanied by Hungary too. Setting of rank orders is based on the quantity of wheat produced by countries, cultivated area and exported, imported wheat quantity. As regards wheat export in 2008, Hungary was placed as 11. in the world while on the basis of produced quantity and cultivated area it did not achieve any of top 20 countries. Wheat import of Hungary is negligible since its wheat production is greatly over the self-sufficiency level in one production year. Our logistics disadvantages indicate one of considerable difficulties of market access for primary materials in domestic plant production.

Key words: plant production, wheat, quantity produced, export, import

1. Introduction

World economy role of wheat production is significance both in terms of cultivated land and food supply, feeding and commerce. In my opinion this significance has to be tried to make clear as well as it is worth to examine the role and importance of Hungary in it.

Hungary has 4.5 million hectares of arable land. Shares of cereals' sowing area from Hungarian arable land fluctuated between 68.4% and 69.9% in period of 2004 and 2008. Difference between different years is negligible. Significance of wheat and corn is nearly the same within cereals. Both plants meet with approximately rate of 28% in comparison to entire arable land. (KSH, 2009)

In connection with international trade of Hungarian wheat production our country has to cope with considerable competitive disadvantages. Since we have to cope with logistics handicap, the reason of it is that due to geographical situation of Hungary in many cases we are not able to transit our agricultural products at a competitive price. Other countries, such as the United States, with maritime transport, by much more logistics costs, stay easier competitive at international markets. In spite of this, Hungary as regards exported wheat quantity is placed as 11. of the world in 2008.

2. Materials and Methods

This study shall be considered as a secondary research. For its completion I called FAO statistics database. This study is based on FAO database due to the existing differences among the available statistics. I performed statistical evaluation on this data and in terms of some change, tendencies I did logical argumentation. Aim of the study is to prove significance of wheat production in world economy and introduction, revelation of Hungary's role in wheat production of the world.

I deemed it necessary to introduce and analyse of sowing structure in the world. Ranking of top 10 countries on the basis of yield quantity of wheat, cultivated land, imported and exported quantity. According to the meaning different countries are included in each rank. In ranks beside top 10, Hungary also appears with its own rank and value representing the basis of ranking. For completing the article, I presented the previously mentioned results by the means of coloured figures.

3. Results and Discussion

3.1. Production

World has plant production area of around 1500 million hectares. Figure 1. shows the sowing structure of the world in 2009. In this figure it can be properly seen that growers are producing cereals on 48% of sowing area in the world. Corn, rice and wheat have to be pointed out within cereals. Share of these three plants is 36% from entire sowing area, which is equivalent to 546 hectares. Wheat has the largest proportion within cereals. Owing to its sowing area of 225 million hectares it occupies 15% of area being under plant production in the world. Proportions of three main cereals are stable on average of number of years. As per me in the future significant displacement are not expected in sowing structure.

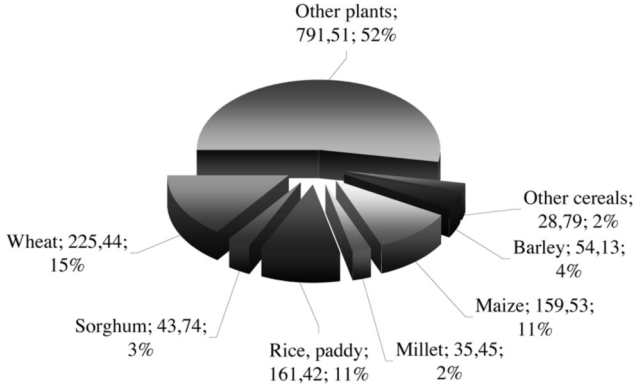


Figure 1. Division of sowing area in the world in 2009 (in million hectares and percentage)
Source: FAO, 2011

Beside wheat, proportion of the previously mentioned rice and corn is also significant. Proportion of remaining cereals in comparison to entire sowing area of the world is under 5%.

From Hungary's point of view wheat and corn production have highlighted role. These two plants occupy approximately 58–60% of 4.5 million hectares of domestic arable land. Considering the territorial proportion of rice production in Hungary its significance is negligible, however in terms of the utilization of areas having poor productivity its role is deemed to be significant. Further in this article I specifically intend to concentrate on wheat production.

Table 1: Wheat production is between 1990 and 2009

Years	Area harvested *(million hectars)*	Production *(million tonnes)*	Average yield *(t/ha)*	Area/capita *(hectar/capita)*	Production/capita *(kg/capita/year)*
1990	231,26	592,31	2,56	0,0437	111,9880
1991	223,35	546,88	2,45	0,0416	101,8027
1992	222,49	565,29	2,54	0,0408	103,5951
1993	222,95	564,47	2,53	0,0403	101,9122
1994	215,12	527,04	2,45	0,0383	93,7892
1995	216,32	542,60	2,51	0,0379	95,1881
1996	226,85	585,20	2,58	0,0392	101,2357
1997	226,25	613,36	2,71	0,0386	104,6855
1998	220,11	593,53	2,70	0,0371	99,9768
1999	213,34	587,62	2,75	0,0355	97,7170
2000	215,44	585,69	2,72	0,0354	96,1781
2001	214,60	589,82	2,75	0,0348	95,6557
2002	213,81	574,75	2,69	0,0343	92,0721
2003	207,66	560,13	2,70	0,0329	88,6559
2004	216,88	632,67	2,92	0,0339	98,9515
2005	219,74	626,84	2,85	0,0340	96,8895
2006	211,82	602,89	2,85	0,0324	92,0959
2007	216,65	612,61	2,83	0,0327	92,4841
2008	222,76	683,41	3,07	0,0332	101,9860
2009	225,44	681,92	3,02	0,0333	100,6256

Source: FAO, 2011

Table 1. shows the tendency of world's wheat production from 1990 to 2009. There are minimal differences in case of sowing area regarding each year.

There is a little increase in yearly crop yield comparison to the year 1990. The reason for this is not in development of sowing area, but the slow and successive increasing of the average yield. Average 2.5 tons wheat was produced on one hectare crop land in the world in the first half of 1990s, however this value was about 3 tons in 2009.

In the world per capita wheat producing area continuously decreased between 1990 and 2009 considering the change of world population. There was no significant change in wheat producing area in this period. However due to the improvement of average yields there is some fluctuation in each year considering the per capita production, but there is no considerable decline. In 1990 per capita production was 111.98 kg/capita/year, while it was already 100.62 kg/capita/year in 2009. The decline is evident and the per capita production level of the year 1990 can not be feasible simultaneously with the growth of world population in spite of the increased average yields. In the whole period the lowest per capita production was in 2006.

Figure 2. shows the hierarchy based on produced amount of wheat by EU 27 countries in 2009. The European Union produced 138.7 million tons wheat in 2009 and the first 10 countries produced the 86% of this amount. France is the biggest wheat-producer in the EU. The French produced 38 million tons wheat in 2009. Germany stays on the second place with its 25 million tons. The UK is the third with its 14 million tons yield. In the hierarchy based on produced amount of wheat France and Germany take place within the top 10 list of the world's wheat-producer countries.

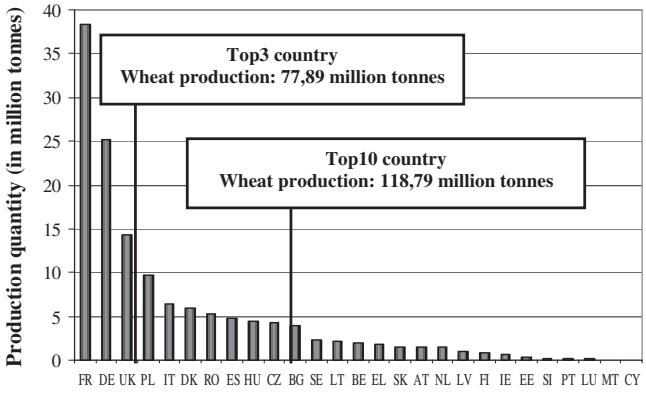


Figure 2. The EU's 27 countries ranked in terms of wheat production in 2009
Source: FAO, 2011

The harvested production of 4th placed Poland was 9.7 million tons in the examined year. There are not so many differences between the productions of the countries in the 5th to 10th places of the list, than in case of the top 3 countries. Italy produced 6.3 million tons wheat in 2009, while Czech Republic made 4.3 million tons. Hungary stays in the 9th place in the hierarchy in the examined year. Czech Republic has been overtaken by our country with minimal difference. Our country produced 4.4 million tons in 2009.

Figure 3. demonstrates the production quantity produced by the ten largest wheat producing country in the world in comparison to Hungarian volume in production year 2009. In the given year 681 million tons were produced, from which share of top 10 countries is 69.6%. 659.8 million tons were consumed from the wheat produced in the given year. 69.8% of the total consumed quantity used for food supply, 18.5% used for feeding, the remaining 11.5% were used for other purposes. (FAO, 2010)

In ranks of leading wheat growers in the world the participants are the same apart from minimum deviation between the period of 2000 and 2009. In relation to different years there are not significant differences in sequences. In the given period there was an example that two large wheat producing countries changed their place in the rank certain years. Considering an exact case is for example the USA and Russia. Between 2003 and 2008 the USA were the third largest wheat producing country of the world while in 2009 Russia gained the third place of the imaginary stage. The position reached in the rank of the above-mentioned two countries will also be interesting in 2010, thus significant yield decrease is experienced in both countries due to unusual weather.

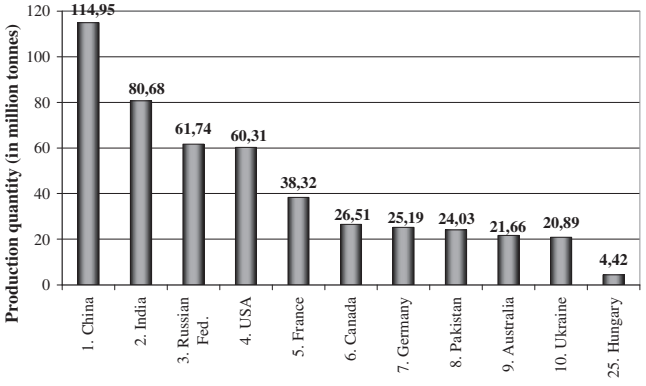
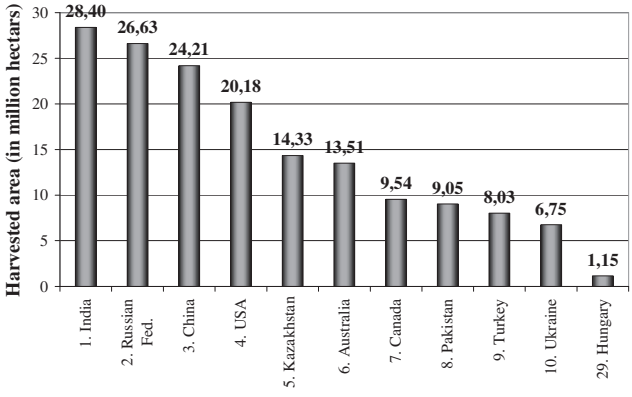


Figure 3. Production quantity of the top 10 wheat producing countries in the world and situation of Hungary in comparison to them in 2009
Source: FAO, 2011

In connection to the given year Hungary was placed as 25th considering the wheat production of the world. This position of Hungary is comparatively stable between the period of 2000 and 2009, in the given period Hungary was between 20th and 25th in the quantity rank of the wheat production in the world in various years. Between 2000 and 2009 the domestic produced wheat quantity was around 2.9 and 6 million tons each year. The reason of this fluctuation is the different amount of precipitation fallen in different production year. It is clear that wheat quantity of 2.9 million tons is in droughty year while quantity of 6 million tons is the result of a good year.

Figure 4. shows the rank of top ten 10 countries occupied largest harvested area in the world. There are differences in consideration of rank between produced quantity and cultivated area. Not the country with the largest production produces wheat on the largest territory. The reason of this can be searched in various natural endowments of each country and various technological level of its production.

In the given year wheat were produced on 225 million hectares in the world, from which the share of 10 countries occupied the largest harvested area is 71.3% that is equivalent to 160.6 million hectares.



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From both the produced quantity's and cultivated area's viewpoint it can be stated that the production is considerable concentrated at international level.

In 2009, Hungary with 1.15 million hectares of wheat producing area was placed at 29th in the world rank. Minimum differences are experienced regarding area being under wheat production in Hungary. Sowing area of the wheat decreased in Hungary compared to 2009 both in 2010 and 2011. This had various reasons on behalf of growers. Profitability of wheat production was low in 2009, due to it a number of growers decided for the change of sowing structure, causing disadvantages of the wheat. Sowing period in autumn, 2010 was exposed to various meteorological conditions and varied by internal water troubles; due to these a number of growers could not sow the previously planned wheat areas. To sum up it has to be stated that compared to 2009 both in 2010 and 2011 wheat production area in Hungary decreased in Hungary, however there were completely different reasons of decrease in case of two years. In 2010 the profitability of the wheat, in case of honest average yield due to increased buying-in prices, considered to be satisfied.

3.2. Consumption

Table 2. presents the wheat consumption by regions and it also illustrates the per capita wheat consumption in the regions.

Per capita wheat consumption is the highest in Europe its value is 108.24. (FAO, 2011) Wheat consumption in Europe is 18% from the world's all culinary uses of wheat consumption.

Asia represented the biggest rate (58%) of the culinary uses of wheat in the world. However the wheat consumption per capita per year is 63.62 kg. (FAO, 2011) This amount is much lower than the consumption in Europe, whereas the rice plays much bigger role in their diet.

Table 2: Global wheat consumption by region in 2007

Regions	Consumption (kg/capita/year)	Consumption (million tonnes)	Share (%) world consumption
Asia	63,62	252,16	58%
Europe	108,24	79,08	18%
EU 27	*102,89*	*50,77*	*12%*
America	63,16	57,22	13%
Africa	45,58	43,48	10%
Oceania	70,66	1,94	0,45%
World	**65,92**	**433,88**	**100%**

Source: FAO, 2011

The consumption is 63.16 kg/capita/year in the American continent, its share 13% from the world's consumption. In Oceania's consumption is 70.66 kg/capita/year, witch means a negligible part from the world's wheat consumption. (FAO, 2011)

Africa's wheat consumption per capita per year is low, exactly 45.58 kg/capita/year. Africa's rate is only 10% from the world's wheat consumption.

In 2007, 433.88 million tons was used for culinary purpose on the world. The average wheat consumption of the world is 65.92 kg/capita/year. (FAO, 2011)

In 2007 per capita wheat consumption was 20.15 kg in the least developed countries. It was 53.32 kg/capita/year in developing countries. (FAO, 2011) In comparison with the European consumption there is a huge gap between the life of us and the third world.

3.3. Trade

In *Figure 5.* the rank of 10 largest wheat importer countries can be seen in relation to imported quantity. In 2008, 2008-ban 139.1 million tons wheat got into the world trade, 39.7% of it got into the 10 largest wheat importer countries in the world. From Hungary's point of view it is important to highlight that among the 10 largest wheat importer countries three EU members can be found, which can mean buyer's market for domestic primary materials.

Wheat import of Hungary is negligible. The rank set on the basis of quantity imported by countries of the world, Hungary occupies the position 144 in the given year. In 2008 22 thousand tons wheat were imported. Between 1990 and 2009 on the basis of FAO data wheat import of Hungary in relation to each year changed between 0 and 89 thousand tons. In the light of the several million tons product quantity per year it can be stated that such amount of import wheat is not significant in terms of domestic grain market. Hungary will not need special amount of import wheat in the future either, thus it produces greatly over the self-sufficiency level.

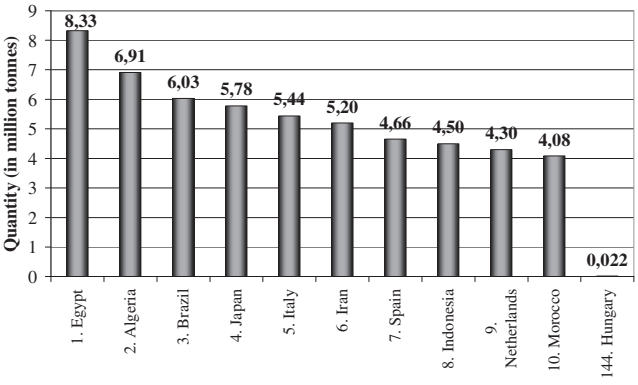

Figure 5. 10 largest wheat importer countries in the world and quantity of wheat import in Hungary in 2008
FAO, 2011

Figure 6. shows the rank of the 10 largest wheat exporter countries of the world and position of Hungary in production year, 2008. 81.4% of 139.1 million tons wheat got into the trade in 2008, came from the 10 largest wheat exporter countries of the world. In relation to this, it can be stated that the fact of concentration expressed previously in connection with production is increasingly true for the international trade of wheat too. There are minimum differences in the rank of top 10 countries concerning each year. Between 2000 and 2008 the United States were the largest wheat exported in the world every year.

In 2008, Hungary is placed as 11th in the list of wheat export of the world, which is respectable performance from such a small country in international relations. According to the rank set on the basis of product quantity and area being under wheat production, it can be stated that for example the stressed role of the USA in international trade is not surprising. However Hungary was left behind from top 10 countries in this rank. In ranks set based on exported quantity, Hungary achieved position 14th and 11th among wheat exporter countries of the world in period of 2000 and 2008.

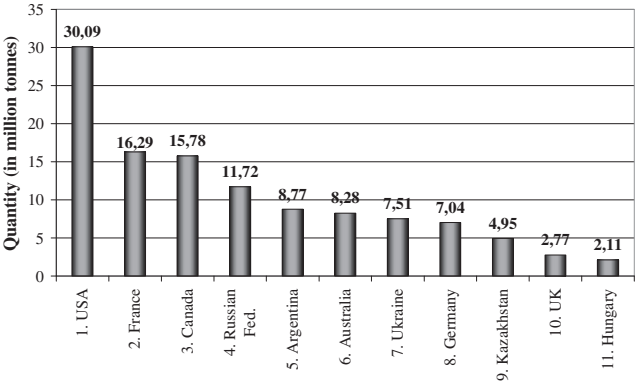

Figure 6. 10 largest wheat exported countries of the world and quantity of wheat export in Hungary in 2008
Source: FAO, 2011

In 2008 2.11 million tons Hungarian wheat got into the international trade that is except from Great- Britain considerably behind from quantity exported by top 10th This

is not surprising as our facilities are in many respects limited. On this I especially mean our logistics disadvantages. „Besides the distance of goal market, the available forwarding infrastructure and trend of freight cost, competitiveness and market access of agricultural products are considerably influenced by the existing storing, loading, drying, cooling, freezing etc. capacities. In the first place the agricultural development programme was production-centred, aimed development of value-added logistical systems (transport, forwarding, storing, distribution) of agricultural production did not get into the priorities, without this the agriculture got into considerably competitive handicap." (*Potori,* 2009)

3.4. Prices

Figure 7. demonstrates the tendency of producers' prices of wheat between 2000–2008 in different countries. The selection of the countries can happen by based on the role in EU 27, as well as on the basis of proximity to our country in the export market.

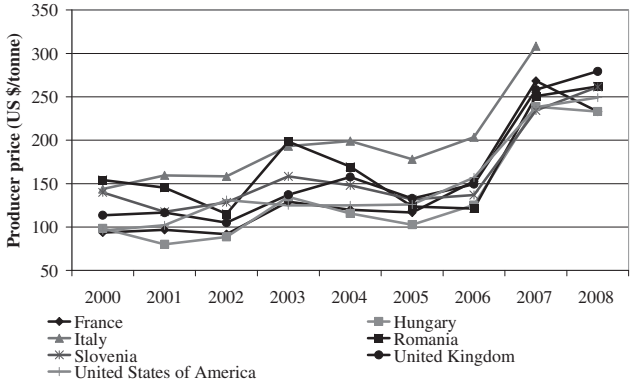

Figure 7. Producer price of wheat is between 2000 and 2008
Source: FAO, 2011

In total, according to the chart the Italian producer' prices were the highest in several years. In my view the reason for higher Italian prices is that the FAO does not record the tendency of durum wheat prices, which can distort the tendency of Italian prices.

The Hungarian producer' prices expect some years the were the lowest. The reasons for domestic low producer's prices can be the subject of later examination. It is imaginable, that price is low because of geographical position of Hungary. May be, it can be another reason, that in our country the milling-industrial cartel more years of directly influenced the trend of pieces

Based on AKI PÁIR database wheat price in June 2010 was around 31 to 33 thousand HUF/tonne. Wheat price in the Budapest Stock Exchange is 76,500 HUF/tonne with transportation in March 2011, while with transportation in May it is 80,000 HUF/tonnes. Calculating with 200,37 HUF/US $ MNB central rate this price in dollar is 381.79 and 399.26. "The Middle East and North African Countries – mainly Algeria, Tunisia and Egypt – are behind this price increase, where continually growing food prices cause disorders and it will probably lead to increase in their wheat import." Although Egypt (the world's largest wheat importer) announced he would not chance his purchasing strategy, but the market did not take it granted. Currently Egypt has sufficient wheat stock for 6 months. (*Agrárszektor,* 2011) High wheat price leads to increase in food price in the near future. High price of bread can remain in 2012 as well due to the extreme weather conditions in Hungary which result that sawing area of wheat fall even further in 2011 as well.

3.5. Conclusion

Considering the world wheat production there was no significant change in wheat producing area of the last 20 years, but average yields improved over the years. World market position of Hungary is not favourable due to its specific geographical situation. In case of transportation we have to calculate with high shipping expenses towards Rotterdam and Constanta as well. In spite of this fact our wheat export is respectable. Hungary has negligible market share in world trade of wheat in spite of its favourable place among wheat exporter countries. In the future we might have to calculate with the decline of wheat producing area because wheat production was not able to compete with maize production in income-generating capacity. The year of 2010 can be an exception; however the major part of the increased prices on the product market will not be realized by the producers but by the corn-merchants at the end of 2010 and in the beginning of 2011.

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