**Executive Summary About Flour**

This report reports the findings of "Analysis of Structural Properties and Determination of Competence Strategies in Agricultural Industry", funded by Mevlana Development Agency (MEVKA) and executed by Konya Commodity Exchange (KTB) and Economic Policy Research Foundation of Turkey (TEPAV).

The aim with this Project is to develop strategic approach towards regional development and increase regional competitiveness through Analyzing data derived from product groups operand in KTB and also from the assessments of field studies. For this purpose, 10 sectors of KTB (seeds, cereals, pulses, silage, milk and eggs, flour, livestock, butchery, raw leather, fleece, etc.) are listed in detail and also the sectors of flour production and milk and milk and dairy products which are critically important for Konya are analyzed in detail. This report in particular contains detailed analyses on flour production.

**Wheat in the World**

1. Total acreage of wheat, the most cultivated plant in the world, is decreasing. 15% of total cultivated land if reserved for wheat, 11% for corn and 10,5% for rice. Cultivated area for wheat decreased from 231 million hectares to 111 in 2011. It is observed that farmers are turning towards alternative product cultivation. It is possible to say the change of relative change of prices for the agricultural products play in important role on the decrease in areas of wheat cultivation.
2. India, China and Russia own the largest cultivated lands for wheat. While China's share of the acreage decreased in 2000-2011 period, India and Russia have increased theirs in a slow pace. Within the countries in top 10 cultivated lands, Turkey and Canada have lost their shares the most. On the other hand, Australia, Pakistan, Kazakhstan and Iran have increased their shares.
3. Despite the decrease in acreage, the amount of wheat produced is increasing. During 1990-2011 period World wheat supply has increased from 588 million tons to 694. The main reason for this is the increase in world population. World wheat supply is fluctuating over the course as the wheat producers decide cultivation in accord to the prices and changes in the climate.
4. The biggest producers of wheat are China, India and Russia. Their shares of the world wheat supply is over 8%. While the share of the USA from the world supply has decrease, the change in China and India's shares have been positive. The fastest country to increase their share is Kazakhstan. Parallel to its decreasing acreage, Turkey's share in wheat production has decreased as well.
5. The main reason for the increase in wheat production while the acreage have been decreasing is the increase in yieldance. Wheat harvest per hectare increased from 255 kg in 2990 to 313 kg in 2011. Proliferation of certified seeds, increase in consciousness of the farmers and agricultural mechanization have increased yieldance. It can be seen that the increase in yieldance holds utmost importance in meeting the high demand of increasing world population, considering negativities like the misusage of agricultural areas and draught.
6. The top 10 countries having the highest yieldance are situated in different parts of the world. The country that has the most yieldance is New Zealand with 769kg per hectare in 2011. After New Zealand comes Zambia with 718kg and Egypt with 650 kg. Turkey is 6$^{th}$ in the list of biggest producers with 244 kg but trails Uzbekistan by 206kgs per hectare regarding yieldance, which is the 10$^{th}$ most efficient producer of wheat.

7. Wheat is used in the production of three main product groups of foodstuff, silage and biomass. In 2003 72,4% of the cultivated land of what was used for food production. But with wheat's importance increasing in alternative field, the ratio fell down to 68,3% in 2011. OECD predicts by 2021 the number will go down to 66,8%.
8. The highest wheat consumption per capita is observed in developing countries. According to this indicator, in 2009, Azerbaijan, Tunisia and Algeria share the top three spots with around 200kg per person per year. Turkey comes 4$^{th}$ 199 kg.
9. Like for many other agricultural products, it is not possible to say international wheat trade is liberal. In 2011, 22% of total wheat production was subject to foreign trade. Global wheat trade increase from 82 million tons in 1990 to 143 million tons in 2011. Monetary equivalent of total wheat trade increased from $20 million to $45 million within the same period. The reason why the amount subject to trade stayed relatively linear despite the monetary equivalency increased is the rapid increase in wheat prices.

**Wheat in Turkey**

10. Turkey is one of the leading producers of cereals with her houmous rich soil and low-temp and humid climate which establishes a suitable environment for cereal production. Total share of cereal production in value within total vegetative production is around 20%. Wheat holds the highest share in cereal production with around 70%. Barley and corn have the highest shares after wheat with 20% and 7% respectively. In the light this, it is possible to say wheat is the most critical cultivated plant for Turkish agriculture.
11. The cultivated area and production of wheat is inclined to decrease every year. Turkey's total area for wheat cultivation decreased from 9,6 million hectares in 1991 to 6,7 in 2011. Among the reasons for this are urbanization, industrialization and soil erosion.
12. As a reflection of the decrease in cultivated area, Turkey's total wheat production is decreasing. Total wheat production decreased from 20 million tons in 1991 to 18 million tons in 2011. The decrease in production has been slower than the decrease in acreage. The main reason for this is the increase in yieldance.
13. Turkey's wheat yieldance has increased from 212kg in 1992 to 266 kg by 2011. Despite the increase in recent years, Turkey's wheat yieldance stays behind many other contries. Using certified seeds and right agricultural techniques and developing irrigation opportunities play a big part in increasing yieldance.
14. Wheat acreage, production and yieldance vary within regions. The largest acreage is in Mid-Anatolian Region. It is seen that the total production of West and Mid-Anatolian regions is over 2,3 million tons and these two regions have the highest production. Regarding yieldance Mid-Anatolian region comes to the fore.
15. Excepting the years 2000 and 2001, Turkey is a net importer of wheat. Turkey's imports since 2006 is within the extent of Inward Processing Regime. The main reason of high exports in 2007 is draught in that year. Other than that, imports of high-protein wheat and producing and exporting flour as a intermediate product or baked goods as the end product also affects wheat foreign trade. Turkish wheat imports increased from $450m to $1.6b from 1996 to 2011. The biggest wheat exporters to Turkey are Russia, the USA, Ukraine, Kazakhstan and Brazil.

16. In wheat and wheat products sector, prices are determined from the supply side. Prices go down during the summer, which is the reaping season, and rise in fall. These price fluctuations are in relatively smaller scale compared to world markets. Wheat pricing is also affected by TMO's base prices and world demand. The fluctuations in wheat prices affect flour prices as well.

**Wheat in Konya**

17. Konya is the cereal center of Turkey. As the climate being ideal and many industrial facilities operating in wheat based sectors, the role of wheat in regional economy has historically been important. Konya holds 8,8% of cultivated land and biggest wheat acreage in Turkey with 5,24 million decares. Around 3,5 million tons of cereal is produces in Konya every year, with wheat making up 1,5 million of it.
18. Wheat yieldance has relatively been stable until 2009 but numbers show it increased during 2010-2011. Compared to other producers in Turkey and Turkey and world averages, Konya's wheat yieldance is over Turkey's and world averages.

**Flour in the World**

19. Wheat is the basic raw material of bread and pastries. Wheat bread is a staple food in many countries which makes flour a vital product. Production process of flour is not a complicated one. Most of production cost is made up by the purchases of wheat.
20. It is not possible to reach tangible data for world flour production. Although it is possible to say flour production is increasing considering the increases in world population. According to the UN, 200 million tons of flour was produced throughout the world in 2008. The biggest producers of flour are also the biggest producers of wheat. The USA, Russia, India, Japan, China, Pakistan, Germany and Turkey are among the biggest producers of flour.
21. Every country that grows wheat and has an albeit limited industrial infrastructure can produce flour. For this reason local producers are able to meet the demand. Consequently flour foreign trade is limited. World total flour exports increased from 8,3 million tons to 9,7 million during 1996-2011.
22. Biggest exporters of flour in the world are Turkey, EU27, Argentina, the USA, Russia, China and Canada. Looking at the market shares for the period of 200-2011, Turkey has the biggest share, has increased it's the most and biggest exporter of 2011. Among the countries increasing their exports are Argentina, Russia and England. The shares of the USA, Belgium and France, leading among the world exporters has stayed rather unchanged.
23. Biggest importers of flour are countries that have low or no wheat yieldance but also have high demand. The biggest importers of flour in 2011 are Brazil, Indonesia, the USA, France, Thailand, Malaysia, Bolivia, Belgium and Ireland. Among these countries, Brazil and Indonesia come forward with their import capacities and Malaysia with its great increase of imports during 2000-2011. France has important less wheat in 2011 than in 2000.

**Flour in Turkey**

24. The enterprises which produces or uses wheat as an intermediary good hold a very important place in food industry. Out of 34 thousand firms operating in food industry, the number of

enterprises that use produce of use wheat is over 29 thousand. Among these the firms, the ones producing bread, fresh pastries and fresh cake base hold a dominant place.

25. It is seen that Turkey's flour demand will increase exponentially in the coming period. In Turkey, factories that employ 20 or more increased their bread wheat flour and einkorn production from 4,5 million to 6,3 million between 2005-2011.the main reason behind the increase in production of flour is the increase in demand for basic foodstuff.
26. There are around 700 flour production facilities active in Turkey. Looking at the regional distribution, these facilities are concentrated in Mid-Anatolia, Marmara and Black Sea regions. The most number of flour producers are in Mid-Anatolia, followed by Black Sea and Marmara regions.
27. Turkey's wheat production capacity is not fully measured. Turkey's established wheat production capacity is around 22 million tons, although actual production is around 12 million tons. The main reason for this unutilized capacity is wrongful incentive policies of the past.
28. Analyzing wheat sector in developed countries, the number of producers in Turkey is over the normal amount. There are small and traditional enterprises along with large and modern ones. The number of what producing enterprises is 47 in England, 422 in France, 478 in Germany and 165 in the United States, the biggest producer of flour. In the light of this data, it seems possible that wheat sector in Turkey will go under a consolidation process.
29. Turkey, one of the biggest exporters in the world is a net exporter. Enterprises' efforts to utilize their excess capacity with export is shows how important export is for the sector. Turkey's wheat exports increased from $64 million to $900 million from 2000 to 2011.
30. All of Turkey's wheat exports are to developing countries. Regional distribution of wheat exports indicate a distinct increase in shares Middle East and North Africa region regarding wheat exports. Share of flour exports to Middle East and North Africa increased from 30% to 62% from 2000 to 2011. Turkey's flour exports to Europe is close to none. Exports to rest of the world decreased from 70% in 2000 to 38% to 2011.
31. Flour demand will increase in Middle East and North Africa market in the coming period. The best way to predict flour demand in these countries is to analyze consumption data for bread in which the most of the production is used. It is expected that the demand for bread and baked products will increase rapidly in the coming years.

**Flour in Konya**

32. Konya is one of the prominent provinces regarding flour production. According to 2011 numbers, Flour producers in Konya make up 10% of food industry production and 12,6% of employment in the sector.
33. The largest production expense of flour producers in Konya is raw materials. According to a survey conducted by TEPAV, 70% of all the expenses are made up by wheat purchases. 2$^{nd}$ largest expense is work force costs with 13% of all the expenses. Another production expense regarding flour production is logistics, making up 9%.
34. According to the survey flour producers in Konya import only 4,7% of the wheat they process. The reasons presented for importing is the quality of wheat (47,8%), low amount of production of imported wheat (30,7%), low prices of imported wheat (26,1%) and the lack of production for imported wheat (21,7%)
35. The distribution of flour produced in Konya to local grocery stores is very limited. Flour is not delivered to the end user directly but through wholesalers, intermediaries and distributors.

62,9% of flour produced is sold to such retailers and only 4,3% to local grocery stores or factory outlets.

36. Flour producers point out the most important problem regarding wheat production is the low quality of wheat. This is followed by cultivated lands being in small scale and shattered lack of wheat yieldance and weather condition. The lack of agricultural hardware such as tools and equipment and insufficient licensed storage opportunities are not seen as important problems.
37. Regarding flour production, other problems are noticed. Flour producers stress illicit production as the biggest problem. According to the enterprises answering to the survey, illicit production is the main source of unfair competition. Low quality of wheat again appears as a problem in flour production. Also, high prices, seasonality of wheat production and high storage costs are also observed as problems.
38. Predominantly, highways are used to transport wheat to internal markets. Affecting this decision is current transportation infrastructure rather that relative logistics costs. Because of the lack of alternative transportation opportunities, producers prefer highways for transporting their goods. Improving freight rail infrastructure is stated to facilitate reaching tot the markets.