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**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS**

**PROCESSOR DRIVEN INTEGRATION OF SMALL-SCALE FARMERS  
INTO VALUE CHAINS IN TURKEY**

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2013

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## *EXECUTIVE SUMMARY*

In Turkey, small farms are being replaced by large farms, which is an effect globalization and multinational corporations gaining control over markets. At the same time, agricultural markets have changed drastically. Small-scale farmers now find it harder to compete with larger farmers who can provide consistent quantities of high quality products and services. The value chain and agricultural activities are also facing similar challenges. For this reason, the relationships between processors and small-scale farmers are becoming more and more important in terms of food security.

According to Michael Porter, a value chain is defined as a sequence of production, processing and marketing activities: products pass through all stages of the chain in a certain order and, with each activity, the product gains value. In a well-managed value chain, the value of the end-product is often greater than the sum of valued-added. This report addresses the linkages between small-scale farmers and agricultural production processors in national and international value chains. It also examines factors affecting the competitiveness of small-scale farmer-processor business linkages by using some concrete cases from the agri-food industry in Turkey.

In order to analyze these relationships, various sources were used. This report is based on existing studies, statistical material and statistical data.

The process of European Union accession is having a considerable effect on agricultural policy in terms of sustainable food security and safety issues in Turkey. Although the area of cultivated agricultural land is very large (24.5 million ha), the average farm size is only 5.9 ha. This is well below than EU and US averages (174 and 180 da respectively). In the process of EU accession , Turkey has developed a typology classification, which is divided into eight categories by TurkStat. Farms are mostly specialized in field crop production (25.7 percent), mixed crop and livestock production (21.8 percent), and fruit and vineyards (19.8 percent).

Turkey plays an important role in terms of food supply and is a major world producer and exporter of some agricultural products. Turkey is one of the rare countries that are able to produce a wide range of agricultural products including grains, pulses, fruit, vegetables and livestock. The Turkish government has played an essential role in supporting the agricultural sector.

On the consumption side, there are also positive developments between processors and small-scale farmers in Turkish value chains. Turkish consumers are becoming increasingly demanding, driven by the multitude of choices offered by large retail outlets. Along with growing disposable income and changing consumption patterns, an increase in the number of women in full-time employment has led to an increase in interest in packaged and processed food, such as ready-to-eat meals and frozen food. Capacity utilization rates in Turkey have reached 71.68 percent in the food industry and 66.62 percent in the beverage industry (Central Bank, 2010). According to statistics, in 2012, employment in agriculture accounted for 23.28 percent of the total, while industry, construction and services accounted for 19 percent, 7.2 percent and 50 percent, respectively. In 2012 there were 4 377 enterprises in the food industry, employing 406 091 people. In the beverage industry there were 607 enterprises employing 12 695 people.

Organic food and the halal food industry are new trends in the food sector. Turkey has potential to grow in the organic food industry. It currently exports almost all of its organic food production, and Europe is the destination for 85 percent of total organic food exports. Being a Muslim country, Turkey also has potential to sustain growth from the halal food industry. According to the World Halal Forum, the global halal food industry aimed to reach USD 650 billion in 2010 (BMI, 2010).

The income of small-scale farmers tends to fluctuate seasonally, which can easily tip them into poverty. By providing financial services, farmers' organizations can help to reduce the risks that individual farmers face. The Agricultural Bank of Turkey, Ziraat Bankasi, the country's largest commercial bank, is the main provider of agricultural credit and it also carries out various types of public support payments. Credit is distributed to farmers through agricultural credit cooperatives. Farmers' organizations also help mobilize capital and contribute to the growth of the local economy. Agricultural producers' organizations in Turkey can be classified under three broad categories, namely: agricultural producers' unions, chambers of agriculture and cooperatives.

This study takes a close look at value chains of the food and beverage industry in Turkey. Turkey has the means to dominate world trade in many foodstuffs thanks to its advantageous climate and ecological conditions. According to data, volume of food and beverage production has increased four-fold over last decade. The value of exports increased from 2018 million USD to 9523 million USD over the last decade.

While investigating the relationships between processors and farmers it became clear that the strongest relationships that processors have is with farmers themselves, who are responsible for providing quality raw materials for processing. However, producers are not always able to do this. In Turkey, an average of 30 percent of agricultural production is used by the processing industry, while in the EU this number is between 60 and 80 percent. The high price of agricultural raw materials is a real problem in Turkey, which causes high costs and low productivity in the sector.

Market entry barriers for new businesses are also quite low, thanks to an open and increasingly liberal trade and investment climate. Privately owned SMEs make up the majority of the Turkish food and beverage sector. The capacity utilization rate is around 70 percent for the food and beverage sector (Central Bank, 2010).

The increasing number of women in full-time employment has supported the trend towards packaged, frozen and ready-to-eat food. Therefore, considering that Turkey still has the lowest per capita consumption of packaged food in Europe, there is considerable potential in these sub-sectors. Globally, Turkey is one of the largest markets for baked goods, since these goods make up a significant part of Turkish people's diets. With rising incomes, packaged bread consumption is on the increase while demand for different bread varieties, such as high-fiber and specialty artisan breads offers an opportunity for what is a higher profit market than that of traditional baked products.

According to EIU statistics from 2012, total household expenditure on food and non-alcoholic beverages accounted for around 26 percent of all expenditure in 2009. Estimates indicate that total food consumption in Turkey is expected to grow by 34 percent and per capita food consumption by 21 percent between 2009 and 2014.

Expenditure on food varies significantly between regions and the large cities. Major food consumption patterns have not changed as much in rural areas and are still based on wheat and grain products and a variety of meat products (lamb and beef). Milk consumption has not increased as quickly as milk

production, although the variety of milk products such as yogurt and cheese has increased. The most consumed traditional foods are pekmez, pestil, cezerye, lokum, and baklava (tagem.gov.tr).

A study by FAO (2012) stated that the main target of Turkish food and agricultural production is currently to harmonize related activities and regulations with the EU *acquis communautaire*. The Turkish food sector is becoming more advanced due to retailer demands for higher standards and investments by food manufactures. The liberalization of the alcoholic drinks sector since 2003, after the privatization of the former state alcohol and tobacco monopoly encouraged new companies to enter the market. Turkey's packaged food industry is highly fragmented.

The global food and beverage market is expected to reach EUR 2.8 trillion in 2010, growing around 3 percent annually, thanks to increasing demand for healthy products and rising disposable incomes in emerging economies such as China, India and Brazil (Anonymous, 2010b). The global agro-food products industry is expected to reach approximately EUR 800 billion by 2018, with good growth over the next five years. Small industry players are involved in strategies such as product differentiation and higher service level delivery to customers, to compete with the large players that enjoy economies of scale (<http://www.marketresearch.com>). Significant sub-sectors within the Turkish food and beverage industry include meat and meat products, baked products, dairy products, fruit and vegetables, oils, confectionery, alcoholic and non-alcoholic drinks, soft drinks, ready-made food and baby food.

Turkey has a very strategic location in terms of food production, processing and export to large European and Middle Eastern markets. Its agricultural diversity and amenable climate allow it to produce a sustainable supply of raw inputs for its processing industry, facilitating its status as a large net exporter of food and beverages.

The Turkish Grain Board (TMO) is the main organization for the post-harvest period. Founded in 1938, it is a limited liability and autonomous state economic enterprise running on state capital in accordance with the provisions on State Economic Enterprises. The Turkish Grain Board has local branch offices and agencies under them. In addition, TMO provides its services to agricultural industry, through its facility teams and temporary receiving centers throughout the country, which become operational during peak procurement periods. The Turkish Grain Board has a share of 48 percent ownership in a network of about 100 grain commodity exchanges around the country that account for a significant share of farmgate sales.

Turkey is ranked fifth in terms of the attractiveness of its food and beverage industry to investors by taking into consideration the market size, current consumption levels, future potential growth and the legislative and political environment (BMI, 2010). One of the most important factors in terms of creation of value added for the food and beverage industry is incentives and investments. Turkey has quite a good environment for foreign direct investments in the food and beverage industry. Between 1954 and 2012 520 foreign firms invested in the food and beverage industry. In the distribution of foreign firms by countries, Germany is leads with 18.3 percent (95 firms). The next biggest investors are the Netherlands (9 percent), the United States (6 percent), France (5 percent), Italy (5 percent), Switzerland (5 percent), the UK (4 percent), Greece (4 percent) and the Russian Federation (4 percent). According to statistics, the numbers of companies in the food and beverage industry in 2005 was 30 717, which had reached 35 631 by 2010. Of these companies 98.7 percent are food companies, with the remainder being beverage companies (TurkStat, 2012). The number of companies in food and beverage industry increased by 16 percent between 2005 and 2010, while total number of companies in industry as general decreased by 0.7 percent.

According to latest statistics on concentration ratios (CR4 and CR8 companies) in the food and beverage sector, 11 sub-sectors have high concentrations, seven have medium and six have low. While the sub-sectors in the beverage industry have a very high concentration ratio, the sub-sectors in the food industry have mostly medium and low level concentration ratios. In other words, due to lower numbers of enterprises in the beverage industry, there are high concentration levels. Although there are over 100 ice-cream, coffee and tea producers, the concentration ratio of these products is high. It is because the top 4 companies are having an exceptionally high market share in that sub-sector.

## 1. INTRODUCTION

There are an estimated 450 million small-scale farms worldwide. Small-scale farms are defined by IFAD as farms with a land area of two hectares or less (IFAD, 2008). These 450 million farms are thought to support a population of roughly 2.2 billion people (Singh, 2009). Small farms are faced with markets in an unprecedented state of instability. Rising urbanisation, changes in consumer preferences and income levels are probably the first priorities in developing and emerging countries due to competitiveness issues faced by small-scale farmers.

The main objective of this study is to investigate the relationship between processors and small agro-enterprises and their situation in the value chains in Turkey. It also investigates some factors which affect the interaction between small-scale farmers and processors, especially in terms of developing the competitiveness of small agri-processors.

The survey uses existing data from the World Bank, the Food and Agriculture Organization, the Turkish Statistical Institute, the Ministry of Food, Agriculture and Livestock, and relevant secondary information from literature on the agricultural and industrial sector in Turkey and national agriculture surveys. Descriptive statistics were used to describe both the agricultural and processing sectors. The report also presents some case studies that can shed light on the status of agriculture in individual countries. This report is organized based on the structure of the linkages between processors and small-scale farmers into value chains in Turkey. Several indicators are used to analyse the structure of markets, policies and institutions. This information combines information gathered from primary and secondary sources with qualitative case studies.

This document is divided in four sections. The first section focuses on an overview of major production and market trends in Turkish agriculture and the structure of the farming sector and rural areas is investigated in depth. The roles and importance of small-scale farmers and small and medium sized agri-processors on the domestic market are studied by showing linkages with market channels and trends. The organic and halal food industries are also investigated. This section concludes by mentioning small farm commercialisation and development of small and medium sized agri-processing enterprises in rural areas like agricultural finance, market channels, market regulations, food safety and quality standards, research, development and innovation bodies and agricultural institutions in the Turkey.

The second section is a collation of comparative analyses on performance and information on the importance of agro-industrial branches such as the food and beverage trade, food consumption, mass grocery retail markets, destination and origin of agro-food trade, quality control, certification and supporting institutions, post harvesting technologies and their capacities, management, marketing and promotion.

The third section of the study focus on case studies which were conducted with several agri-food companies to determine the relationship between processors and small-scale farmers. Two of these case studies were selected according to different sub-sectors of the agri-food sector. One of companies focuses on the flour and pasta sector and other on the dried fruit and vegetable sector.

The final section consists of a conclusion and recommendations. All information collected on processor driven integration of small-scale farmers into value chains in Turkey has been comparatively analysed using the two case studies chosen.

### 3. CONTEXT AND ENABLING ENVIRONMENT FOR THE DEVELOPMENT OF PROCESSOR-FARMER RELATIONSHIPS

#### 3.1. Overview of major production and market trends:

Historically, the agricultural sector has been Turkey's largest employer and a major contributor to the country's GDP, exports and economic growth. According to World Bank estimates, Turkey was the world's seventh largest agricultural producer in 2009, with agricultural GDP estimated by TurkStat at USD 51 billion in 2010 (World Bank, 2010, TurkStat). However, as the country has developed, and with increasing urbanization, the economy has experienced a marked change in structure, with more urban-based manufacturing and service sectors now displacing agriculture as the main drivers of economic growth (OECD, 2011).

The strategic objectives of agricultural policies are to ensure sustainable food security and safety and to form an agricultural structure that is harmonized with that of the European Union. The 2010-2014 Strategic Plan defines five strategic areas in the agricultural sector; (i) agricultural production and supply security; (ii) food safety; (iii) phytosanitary and animal health; (iv) rural development; and (v) institutional capacity building (OECD, 2012). Considering the high agricultural population and low per capita agricultural GDP, agriculture has a special role in the Turkish economy (Table 1).

Table 1. Brief Macroeconomic Indicators (2012)

	Turkey	Agriculture	Share of Agriculture (%)
Population (Million)	75.6	17.2	22.7
Employment (Million)	24.8	6.1	24.6
GDP (Billion USD)	786.3	62.5	7.9
Per Capita GDP (USD)	10.504	3.622	34.5
Exporting (Billion USD)	152.5	16.0	10.4
Importing (Billion USD)	236.5	16.3	6.8

Source: TurkStat.gov.tr

Even though agriculture's contribution to total GDP often decreases during the long term development of countries, slight growth in agricultural production in real terms may constitute a problem for the agricultural sector itself. One of the reasons for this is that agricultural productivity is considered quite low, which will be mentioned in the following sections (Anonymous, 2010a).

Agriculture in Turkey has an important role in terms of food supply. It is a major world producer and exporter for some agricultural products. As seen in Table 2, the total land utilized for agriculture in Turkey is 39 122 000 hectares, 15 464 000 hectares of which is sown and 4 286 000 of which is fallow. The average area occupied by a Turkish farm is 61 decares. There are only 57 farms in Turkey that are larger than 5 000 decares (Anonymous, 2010a). Turkey is one of the rare countries that are able to produce a wide range of agricultural products including grains, pulses, fruit, vegetables and livestock.

Table 2. Agricultural land and forest area in Turkey, 2010- 2012 (thousands hectares)

	2010	2011	2012
Area of cereals and other crop products	20 582	19 709	19 750
--Sown area	16 333	15 692	15 464
--Fallow land	4 249	4 017	4 286
Area of vegetable gardens	802	810	827
Area of ornamental plants <sup>1</sup>	-	4	5
Area of vineyard	478	473	462
Area of fruits, beverage and spices crops	1 749	1 820	1 937
Area of olive trees	784	798	814
Permanent meadow and pasture	14 617	14 617	14 617
Forest area	21 537	2 1537	21 537

Note. Statistical Classification of Products by Activity in European Economic Community (CPA 2002) has been using for crop products since 2006.

(1)Data have been compiled since 2011.

Source: TurkStat.gov.tr

According to the 2001 census there are approximately 3 million farms in Turkey, most of which are family farms employing family labour. Subsistence and semi-subsistence farming is an important characteristic of Turkish agriculture. These farms are typically characterized by productivity of the factors of production being low and only a small fraction of production being marketed. These farms, however, are important for providing income security and livelihoods to the majority of the rural population in Turkey (OECD, 2012). In Turkey, agricultural land (including long life plants such as fruit trees) of 24.5 million hectares was cultivated in 2008. Arable land on which grains and vegetables, excluding long-life plants, are cultivated constitute 21.5 million hectares of the total cultivated agricultural land. It is observed that the area of cultivated agricultural land recessed considerably, particularly between 2004 and 2008. In Turkey, in accordance with the legal situation, 3 076 650 farms cover a total land area of 184.3 million decares. The average farm size is 59.9 decares, which is lower than the average in Europe and the United States (174 and 180 decares respectively). However, it should be emphasized that farm sizes also visibly differ from each other in the EU. Farms that are smaller than 100 decares, account for 85 percent of the total number of farms. One of the most important problems in the transition from extensive agriculture to intensive agriculture is the ownership of fragmented small pieces of land (Anonymous, 2010a) (Table 3).

Table 3. Distribution of Farm Size by Proportions of Number and Area

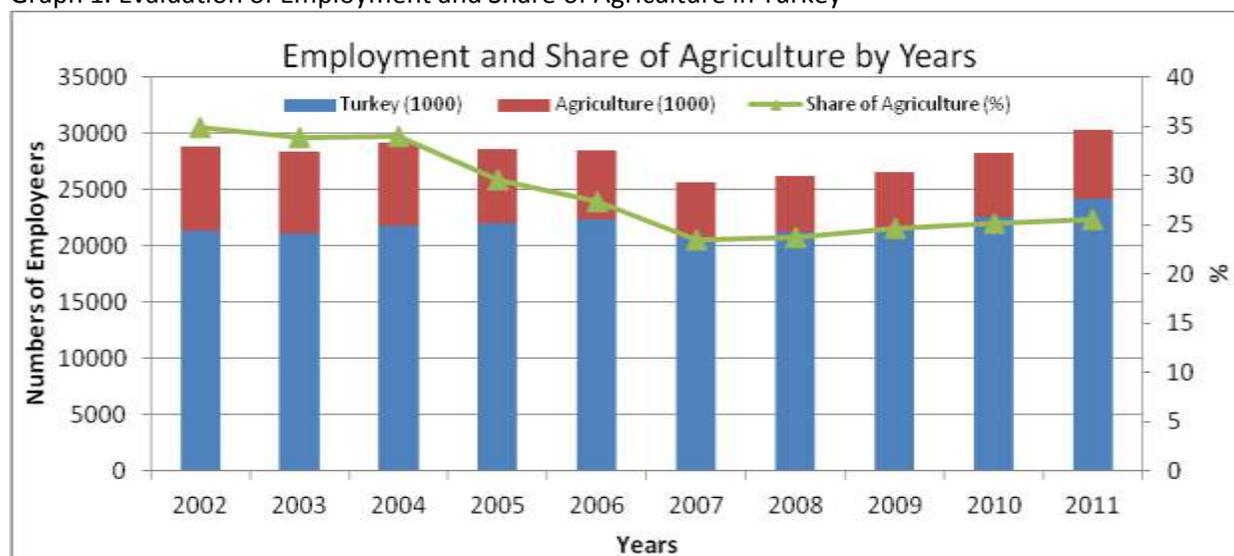
Farm size (ha)	Number of Farms (%)	Area (%)
1.0-2.0	33.4	5.3
2.1-5.0	31.5	16.0
5.1-10.0	18.5	20.7
10.1-20.0	10.8	23.8
20.1-50.0	5.1	22.8
> 50.0	0.7	11.3

Source: TurkStat.gov.tr

According to the agricultural census results, 35.68 percent of holdings had 1-3 parcels and 64.32 percent of holdings had four or more parcels in 1980; while 43.27 percent and 56.73 percent of total holdings had 1-3 parcels and four or more parcels in 1991, respectively (Engindeniz and Yercan, 2002).

Agriculture accounted for about 10 percent of GDP in 2011. The evaluation of employment and share of agriculture by years is shown in Graph 3.1. The relatively high number of agricultural employees however also might put upward pressure on the already significant inflation. The level of unemployment is also relatively high. Turkey is largely self-sufficient in foodstuffs. Agricultural production, particularly crop production, has grown rapidly over the past two decades. Notwithstanding various structural bottlenecks, such as the predominance of small-sized and subsistence/semi-subsistence farms, and the high rate of illiteracy among farmers, Turkey ranks, globally, as a significant agricultural exporter (the world's seventh largest agricultural producer). Turkey's main trading partners are the European Union, the United States and middle eastern countries (OECD, 2012).

Graph 1. Evaluation of Employment and Share of Agriculture in Turkey



According to the farm typology classification, farms in Turkey are divided into eight categories by TurkStat (as shown in Table 4). Farms are mostly specialized in field crop production (25.7 percent), mixed crop and livestock production (21.8 percent) and fruits and vineyard (19.8 percent).

Table 4. Economic Size Group by products in Turkish Agriculture (%)

Typology Class	%
Specialist crop cultivation	25.7
Specialist horticulture	1.0
Specialist fruits and vineyard	19.8
Specialist livestock (cattle and small ruminant)	16.7
Specialist poultry production	0.1
Mixed crops cultivation	9.1
Mixed animal production	6.1
Mixed crop and livestock production	21.7

Source: TurkStat.gov.tr, 2006.

Turkey holds the top rank in many different agricultural products. It is the top producer of hazelnuts, figs, apricots and cherries by far; it is second in melons, leeks and sour cherries, and third in 14 other products such as spices, chilies and peppers, strawberries, chestnuts, chick peas, pistachios, walnuts, vetches, lentils, green beans, cucumbers, watermelons and natural honey (FAO, 2013). In past decades

the Turkish government played an important role in the promotion of agricultural production. Cereal production in Turkey is highly dependent on agricultural support. The Turkish government supports grain production through price intervention and by subsidies on fertilizer and fuel costs. The main cereal products are wheat and barley. Turkey has high potential of fruit and vegetables in terms of production and export. In terms of livestock numbers, the most important animal sector is sheep and goats. Poultry is the most extensively produced type of meat. In particular, chicken is one of the most popular meat types for Turkish society since it is much more affordable than beef. Production figures of selected agricultural production in Turkey are shown in Table 5.

Table 5. Selected Agricultural Productions in Turkey (2010-2012)-Tonnes

	2010	2011	2012
<b>Selected field crop production</b>			
-Wheat	19 674 000	21 800 000	20 100 000
-Maize (seed)	4 310 000	4 200 000	4 600 000
-Barley	7 250 000	7 600 000	7 100 000
-Sunflower	1 320 000	1 335 000	1 370 000
-Tobacco	53 018	45 435	80 000
-Sugar beet	17 942 112	16 126 489	15 000 000
-Cotton (raw)	2 150 000	2 580 000	2 320 000
<b>Selected vegetable production</b>			
-Tomatoes	10 052 000	11 003 433	11 350 000
-Watermelon	3 683 103	3 864 489	4 022 296
<b>Selected fruit production</b>			
-Grapes	4 255 000	4 296 351	4 185 126
-Oranges	1 710 500	1 730 146	1 661 111
-Apples	2 600 000	2 680 075	2 888 985
-Hazelnuts	600 000	430 000	660 000
-Olive	1 415 000	1 750 000	1 820 000
<b>Selected animal production</b>			
-Milk (thousand tonnes)	13 544	15 056	17 401
-Meat (tonnes)	780 718	776 915	915 844
-Chicken meat (thousand tonnes)	1 444	1 613	1 724
-Number of hen eggs (thousand)	11 840 396	12 954 686	14 910 774

Source: TurkStat.gov.tr

### Organic agriculture

Although far from being fulfilled, Turkey has high potential in organic agriculture thanks to its farming experience, various climatic conditions and biodiversity. Organic agricultural activities are increasing with the spreading of organic land in all regions. A total of 141 752 hectares of land is planted with organic crops and the number of organic farmers reached 9 384 in 2008, more than double the number in 1996. The variety of products also increased in less than 15 years from 37 to 247 in 2008. These 247 kinds of products are categorized into nine groups; namely, dried fruits, edible nuts, spices and herbs, fresh/processed fruits and vegetables, pulses, cereals, industrial crops, oil seeds and other raw or processed products. Total organic production in 2008 was 415 380 tonnes, with cotton (68 000 tonnes) and wheat (49 000 tonnes) giving the largest yields. In 2008, Turkey exported 8 629 tonnes of organic products to 33 countries, most of them being members of the EU (IGEME, 2009).

## The food and beverage industry in Turkey

Turkey's food industry has registered steady growth in recent years, with Turkish consumers becoming increasingly demanding, driven by the multitude of choices offered by mass grocery retail outlets. Rising disposable income and changing consumption patterns, along with an increase in the number of women in full-time employment, have all led to an increase in interest in packaged and processed food, such as ready-to-eat meals and frozen food. The food, beverage and tobacco industry also has the highest share in household consumption in Turkey, with 27 percent in 2010. The strengths of the industry include the size of the market in relation to the country's young population, a dynamic private sector economy, substantial tourism income and a favorable climate (Anonymous, 2010b).

Production in the food and beverage sector reached USD 6.71 billion in 2010 which constitutes 6 percent of the country's exportation as a whole. In 2011, Turkey became the 15<sup>th</sup> largest food exporter in the world. Since bread is a staple food, cereals have a considerable role and potential within the food industry in Turkey. Significant sub-sectors within the Turkish food and beverage industry include meat and meat products, baked products, dairy products, fruit and vegetables, oils, confectionery, alcoholic and non-alcoholic drinks, soft drinks, ready-made food, and baby food (Anonymous, 2013). Capacity utilization rates in Turkey have reached 71.68 percent in the food industry and 66.62 percent in the beverage industry (Central Bank, 2010). According to statistics in 2012, employment in agriculture (percentage of total employment) is 23.28 percent, and industry, construction and services are 19 percent, 7.2 percent and 50 percent, respectively. There are 4 377 companies in the food industry, employing 406 091 people. In the beverage industry these figures are 607 and 12 695 respectively ([www.sgk.gov.tr](http://www.sgk.gov.tr)).

Market entry barriers for new businesses are also quite low, thanks to an open and increasingly liberal trade and investment climate. According to data issued by the Industry Database of Union of Chambers and Commodity Exchanges of Turkey (TOBB), the number of active companies in the food and beverage industry decreased from 23 276 in 2007 to 22 092 by the end of 2008. The majority of the Turkish food and beverage sector is made up of SMEs, which are mostly privately owned. The capacity utilization rate is around 70 percent for the food and beverage sector (Central Bank, 2010). Turkey was ranked fifth in the Business Monitor International (BMI) Q3 2010 CEE Business Environment Ratings for the food and drinks industry on account of its large population size, lack of market maturity or saturation, favorable long-term economic structure and per capita GDP (Anonymous, 2010b).

According to research results (Bignebat et al, 2009), producers are not aware of the final buyer of their produce, because intermediaries hinder the visibility of the marketing channel, thereby restricting a producer's choice of first intermediary. Besides, producers who are indirectly linked to supermarkets are more sensitive to their requirements in terms of quality and packaging than to the price premiums that compensate for the efforts to meet standards. Therefore, the results show the role of the wholesale market agents who act as a buffer in the chain and protect small producers from negative shocks, but who stop positive shocks as well, and thereby reduce incentives. An important issue for example in the dairy sector regards marketing and processing of milk. Only 20 percent of the milk produced is processed by modern dairy processors while 80 percent is sold either to simple and small dairy enterprises or directly to households in streets by farmers (Tugrul, 2006).

## **Organic food industry**

Organic agriculture started in 1985 with the production of İzmir grapes followed by figs and apricots. Organic products are mainly produced in the Aegean region, which accounts for 39 percent of total organic production followed by the Black Sea region with 18 percent and Central Anatolia with 13 percent (<http://www.orguder.org.tr/eng/>). Turkey exports almost all of its organic food production, with Europe occupying a dominant position as the destination for 85 percent of the total organic food exports (BMI, 2010). With this strong demand from Europe and ongoing reforms for promoting organic agriculture, Turkey has the potential to grow in the organic food industry.

## **Halal food industry**

Being a Muslim country, Turkey also has the potential to sustain growth in the halal food industry. According to the World Halal Forum, the global halal food industry is expected to reach USD 650 billion in 2010 (BMI, 2010).

### **3.2. Enabling environment for small farm commercialization and development of small and medium sized agri-processing enterprises in rural areas**

Over the last two decades, Turkey has implemented a number of structural adjustment programmes, and changed the economic structural priorities from agriculture to manufacturing sectors. However, the agricultural sector has remained the most important sector, as it employs almost 29.5 percent of the population. Despite this, the share of agricultural production in total value added has drastically declined (Günçaydı et al, 2013). Although contributing less to GDP, the amount of land under cultivation has remained relatively stable over the last two decades at about 27 million hectares, around 50 percent of which is given over to the cultivation of cereals. Of these, over half or nearly 20 million tonnes, is wheat. Crop production as a whole constitutes around 75 percent of the sector's output, with yields highest in the Mediterranean provinces and lowest in eastern Anatolia. Turkey is the world's largest producer of figs, apricots, hazelnuts, lentils, watermelons and cucumbers; although cotton, sugar beet, and tobacco constitute major industrial crops as well (Jacoby, 2008).

## **Agricultural finance**

Small-scale farms produce mainly for their own consumption and they are not strongly linked to the market. Market forces are not reflected in these farms. Their access to information is limited (or they have no demand for such information). They cannot benefit from agricultural support policies, which disproportionately benefit large farms. Farms with 0.1-3 hectares of land cannot create sufficient income for sustainable livelihoods, while farms with 3.1-20 hectares of land create enough income for their family needs. Only farms with over 20 hectares of land are able to save money. Since the majority of farms in Turkey are small (6 hectares of land on average), they are not able to save. Therefore, there is a need for mechanism to support small-scale farms to improve agriculture and to reduce the pressure of the heavily populated agricultural sector on the economy. Credit could be an important tool in this regard. The main problem for small family farms is a lack of sufficient operating capital under proper conditions. Limited capital in agriculture also limits the input supply, technology transfer, and investments. In these conditions, problems surrounding productivity, input supply, saving and capital accumulation in agriculture greatly increase, while the income and living standards of rural areas cannot increase rapidly enough (OECD, 2012).

## **Market channels**

Producers tend to use only a few marketing channels and choosing multiple channels is rare. Most farmers are highly specialized, selling only to commissioners, merchants or processors. We observed few organizational innovations in terms of alternative modes of marketing or direct procurement from supermarkets. First, the surveys underline how difficult it is to organize to act collectively. The incentives set by public authorities have not proved to be strong enough to bring people together to collectively market their products. This may be due to the reputation of the cooperatives that were established during Turkey's socialist period (before 1980). They were run by the state and got producers to join; but they were also highly corrupt and did not develop successful investment strategies at village level. Their image in the eyes of producers is still one of lethargy, which is a strong disincentive to the adoption of similar ways of working (Bignebat et al, 2008).

## **Market regulations**

Although the reform programme included the privatization of ÇAYKUR, it still maintains its old status in the tea market: it is still attached to MARA; and its purchase price of green tea from farmers is still announced by the government. Although ÇAYKUR's financial performance between 2004 and 2007 was profitable, it registered losses in 2008 due to a large increase in the purchase price of green tea and a shift in workers' status from temporary to permanent, in the wake of the 2007 general election (UT, 2009). ÇAYKUR's share in the market is close to 50 percent; while the private sector and illegal imports constitute the remainder, with approximately 35 percent and 15 percent respectively. For tobacco, the privatization of TEKEL was a major achievement. Following the privatization of the major alcoholic beverages and tobacco assets of TEKEL in 2008, market prices in the tobacco sector are now determined by market forces, either through contract negotiations between farmers and buyers, or open auction sales for non-contractual production. While the number of tobacco farmers; the volume of transactions and, to a lesser extent, the area, declined steadily between 2003 and 2010, the quality increased in 2008 (Çakmak and Dudu, 2010). In addition, in the regional distribution of tobacco farmers, the privatization of TEKEL had a more profound impact than the tobacco reduction programme. In the meat market, the Meat and Fish Organization (EBK), a state-owned enterprise established in 1952, was included in the 1992 privatization programme, and became the Meat and Fish Products Company the following year. However, in 2005 it was removed from the privatization programme and once again became a public entity. The EBK possessed 37 establishments in 1990, including 30 cattle and small ruminant slaughterhouses; one meat- and broiler-processing plant; one meat-processing plant; one fish-processing plant; and one cold-storage facility. During 1995-2004, 18 slaughterhouses were privatized, five plants were transferred to other public institutions (i.e. army, state university and municipalities) and three plants were closed down. In 2010, the EBK possessed seven slaughterhouses and one meat and poultry processing plant. The EBK also has 10 retail shops in six provincial centres. The EBK's market share in meat is rather small. For cattle meat production, including buffalo, its share declined, on average, from 15 percent (48 000 tonnes of annual production) before privatization (taking the annual average over 1988-1992) to 2.5 percent (9 300 tonnes of annual production) in 2005-09. The role of the EBK in the meat market has gained further importance since May 2010, as, with the lifting of import restrictions on slaughtered animals, fattening animals and meat imports, the EBK has assumed responsibility for management of the tariff rate quota, bids for importation, and inspection. The overall performance of the agricultural SEEs improved during the reform process, but ample scope for government intervention remains. TMO continues to be the major market regulatory agency and can be called upon whenever necessary. Should world prices fall, TMO may need financial support from the government, as has occurred in the recent past. Although TEKEL has now been privatized, the burden of past duty losses

persists. Supply control in the sugar sector has been achieved, and the government has taken the necessary steps to limit potential transfers from the budget. The privatization TURKSEKER has not yet been accomplished. Since most of its factories are located in the relatively less-developed regions, this will require particular consideration (OECD, 2011).

### **Food safety and quality standards**

A number of regulations control water and soil pollution, and provide protection to wetlands. The government plays a major role in providing infrastructure investment, especially for irrigation. Harmonization of food safety, veterinary services and phytosanitary legislation with the EU *acquis* and international standards are proceeding within the scope of the opening criteria of Chapter 12, which is the negotiation chapter on Food Safety, Veterinary and Phytosanitary in EU accession process (OECD, 2012).

Turkish Decree-Law No. 560 and the Turkish Food Codex were prepared in 1995. Accordingly, the Ministry of Health and the Ministry of Agriculture and Rural Affairs (TKB) were both responsible for registering and giving production permission to food manufactures and also for food safety controls at selling and serving points, as well as onsite inspections of food plants, retailers and markets. The EU accession process has called for the conversion of food legislation. After the new Food Law No. 5179 was published in 2004, TKB became the competent authority for food inspection at all stages from production to consumption and took over the sole responsibility for food safety inspection; on the other hand, the inspection and analysis of drinking water remained in the responsibility of the Ministry of Health (Koç, A.A. et al, 2009).

### **Agricultural market regulations**

There were many changes to Turkish food and agriculture regulations in late 2011. For example, various Implementation regulations of *Veterinary Services, Plant Health, Food and Feed Law* (No: 5996) were published in December 2011 with the intention of better harmonizing Turkey's regulations with those of the EU. Another major change has to do with pre-notification requirements for imports. Another major change is that the Biosafety Board approved three biotech soybean events so that biotech soy can now be imported for feed use only. As of March 2012, no other biotech agricultural commodities may enter Turkey. The majority of regulations on food and agricultural products are prepared and published by the Ministry of Food, Agriculture and Livestock. However, there are also regulations published by other Ministries, such as the Ministry of Finance and the Ministry of Health. Most Turkish agriculture-related regulations, laws, communiqués, directives, and notifications are available on the website of the General Directorate of Protection and Control (GDPC) of MARA: Currently, the main target of Turkish food and agriculture policy is to harmonize relevant laws and regulations with the EU *acquis communautaire*. Sometimes it appears that this concern overwhelms other concerns such as national interest and farmers' interests. Moreover, the Turkish government only rarely informs the public or international bodies such as the World Trade Organization (WTO) about possible or actual regulation changes (Erkut, 2012).

### **Research, development and innovation bodies in Turkey**

The main political actors in the agricultural sector are the Ministry of Agriculture and Rural Affairs (MARA). In the 9th development plan (2007-2013) of State Planning Organization, measures are planned to be taken to improve the efficiency of a highly organized and competitive agricultural structure in

Turkey: The priorities of the plan are: to achieve food security and safety and sustainable use of natural resources, to increase the quality and quantity of agricultural statistical data, to establish resource utilization balance in fishery production by conducting stock assessment studies in line with the EU *acquis*, to protect the natural ecosystem of forests, to conduct rehabilitation work (for utilizing lands better through urban and agro forestry and for developing private plantations and to create public awareness), to support producers in increasing their productivity and competitiveness in marketing by reviewing the legislation concerning producer organizations. Services provided by the public sector in the areas of phytosanitary, animal health and food safety will be carried out within an integrated framework. In line with the EU *acquis* and coordination among the relevant institutions will be ensured in order to increase efficiency in control and inspection activities and to this end to realize the monitoring and interventions by a single authority (Anonymous, 2009)

### **Agricultural institutions**

Agricultural loans are mainly financed by state-owned banks, although from the beginning of the century, some private financial institutions (private banks, leasing companies, etc.) – which had been discouraged from offering credit to the agricultural sector, due to the past interest rate subsidies and frequent debt write-offs and debt restructurings – have also started to emerge. The Agricultural Bank of Turkey, Ziraat Bankasi, the country's largest commercial bank, is the main provider of agricultural credit and it also carries out all kinds of public support payments. Credit is distributed to farmers through agricultural credit cooperatives (ACCs). The Agricultural Bank deals mainly with large farmers, State Economic Enterprises (SEEs) and Agricultural Sales Cooperatives Unions (ASCUs), while the ACCs focus on smaller farmers. Agricultural producers' organizations in Turkey can be classified into three broad categories, namely: agricultural producers' unions; chambers of agriculture; and cooperatives (ABGS, 2005). Agricultural producers' unions – which are usually established for certain specialized products or product groups, or on the basis of geographical area – represent farmers in their dealings with the government and other stakeholders (MARA, 2007). A key group of institutional players in the agricultural policy arena are the State Economic Enterprises (SEEs). SEEs carry out manufacturing and commercial activities on behalf of the state, in line with strategic plans and annual directives from relevant government bodies. They influence the determination of prices in the market by providing price support through commodity purchasing and stockpiling, disbursing subsidies, procuring and supplying input to farmers, or importing and exporting agricultural commodities. Commodities traded by SEEs regularly receive implicit support, as the Treasury covers the difference between the export price and the intervention price ("duty losses") (OECD, 2011).

## 4. VALUE CHAIN PERSPECTIVE OF PROCESSOR-FARMER BUSINESS LINKAGES

Agriculture in Turkey is of high importance and manufacturing is of medium importance, accounting for 9.2 and 18 percent of value added to GDP respectively in 2011. The share of employment accounted for by agriculture remained stable at 25.5 percent in 2011. According to report by the European Bank for Reconstruction and Development Transition 2012, agricultural reforms have been accelerated. After identifying around 30 agricultural areas designated to receive differentiated support in 2010, the government has stepped up its commitments in 2012. Turkey's diverse manufacturing sector satisfies domestic demand for a wide variety of products. SMEs in Turkey play a crucial role in economic development, accounting for 76.7 percent of employment, almost 40 percent of investments, 26.5 percent of total value added and 25 percent of bank credit (FAO, 2012). The food and beverage industry forms a large part of Turkey's economy, generating 4.2 percent of GDP and 12.3 percent of manufacturing output. In 2008, the food and beverage industry generated USD 45 billion of output and USD 7.4 billion of value added, which represents about 0.7 percent of GDP and 10.3 percent of manufacturing value added. Per capita output was USD 634.60. The industry experienced a decline in 2001 but an increase of 54 percent in 2002. Between 2003 and 2008 the industry was growing steadily at about 16 percent annually. While the volume of food products increased over this period, the performance in terms of share of output and value added declined until 2007, after which there was a slight increase in 2008 (Anonymous, 2010b).

Parallel to the growth rate in Turkish Economy, the situation of companies in the Turkish food and beverage industry has been improving. According to statistics, food and beverage companies accounted for about 30 percent of the top 500 firms in Turkey between 2005 and 2012. Their share of net sales was growing by 211 percent and total turnover by 135 percent. Besides, sales share of food companies in the total sales increased from 10.1 percent to 13.3 percent in the same time period (Table 7.)

Table 6. Some Indicators on Manufacturing Sector by Years

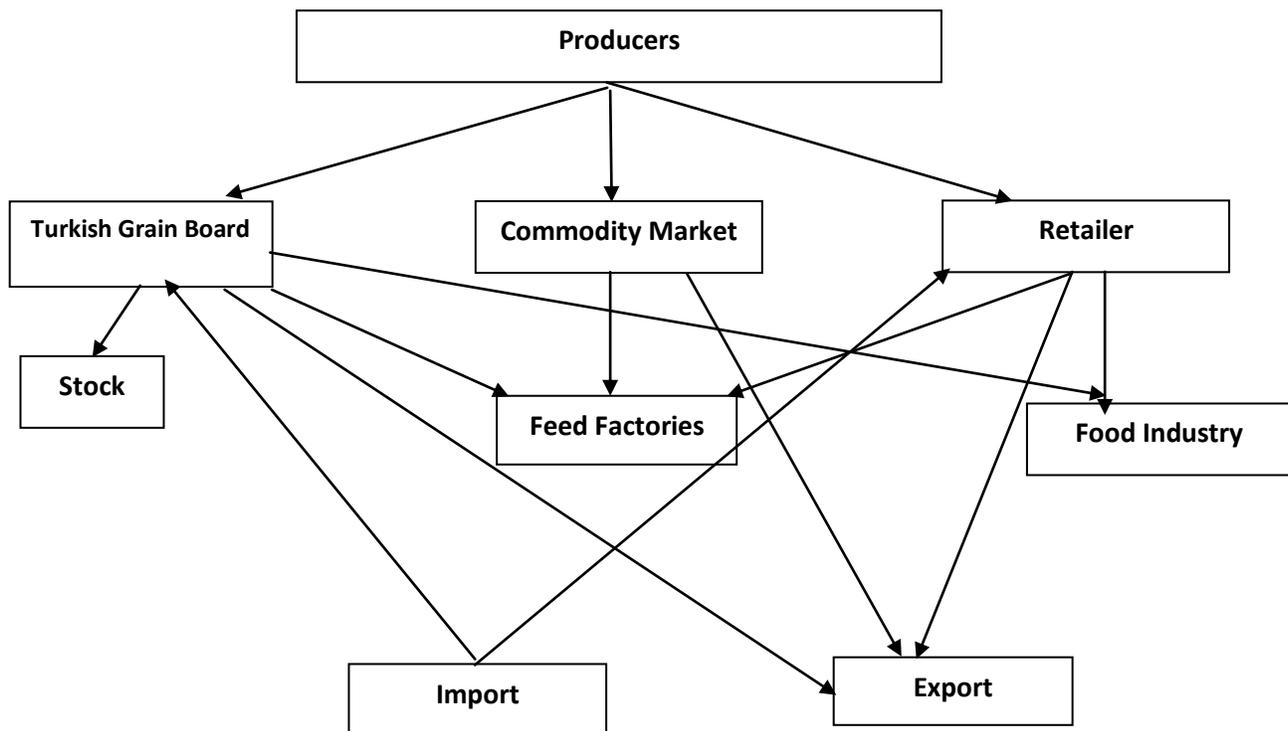
Indicators of Sector	2005	2010	2011	2012	Change (%)
Numbers of Firms in Food and Beverage Industry	67	85	79	87	30
Turnover of Food and Beverage (Billion USD)	7.7	16.5	17.2	24.0	211
Total Turnover ( Billion USD)	76.1	128.4	163.2	178.6	135
Sales of Food and Beverage Industry (%)	10.1	12.8	10.6	13.4	33
Turnover per firm (Million USD)	115	194	233	276	140

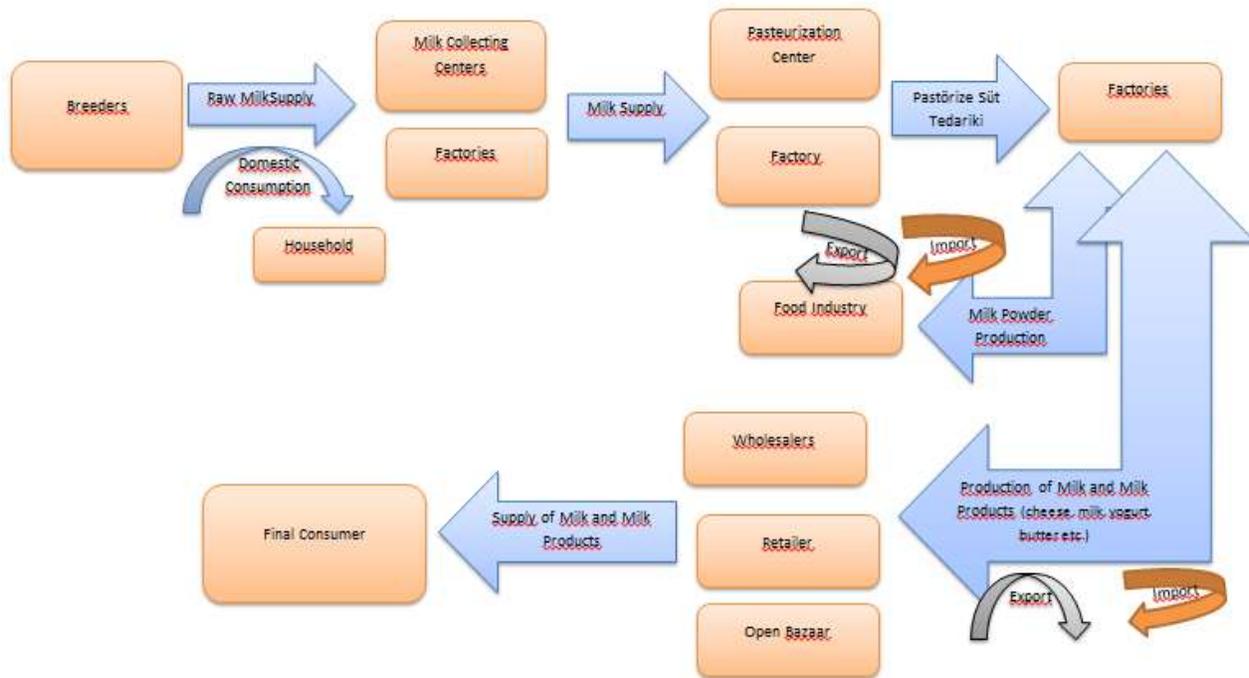
Source: Calculated from Top 500 Company Statistics in Turkey.

According to official statistics, the total number of **agricultural producers' unions** has now reached 310, with approximately 96 000 members, which can be considered rather low, but growing. **Chambers of agriculture**, through which the government's consultations and contacts with different professions are conducted, have a broad mandate, which includes providing farmers with vocational services and representation, and assisting the government in the formulation and implementation of agricultural policies. They are also involved in issuing farmer registration certificates and sales of agricultural inputs (e.g. pesticides, seeds, etc.) There are over 700 chambers of agriculture in Turkey, with a total membership of approximately 5 million. **Agricultural cooperatives** provide a wide range of commercial services to farmers, such as input supply (mostly on credit), purchasing, and processing and selling farmers' crops. Over the years, the government has given priority to making cooperatives more

independent from government, and has rationalized operations and improved the services provided to farmers. Agricultural cooperatives are composed of agricultural development cooperatives, irrigation cooperatives, fisheries cooperatives and sugar beet cooperatives. Agricultural development cooperatives undertake activities mainly related to production and marketing including crops, livestock and husbandry. These are commonly multi-purpose organizations that do not usually specialize in any particular product or product group. The main aims of the irrigation cooperatives are to manage or establish irrigation facilities (OECD, 2012).

For each production has a different marketing channel in agricultural sector in Turkey. But one of the most important marketing channels for the cereal and milk industry in Turkey is represented below.





Since farm sizes are small, the Turkish Grain Board plays a key role in preserving the benefits of small producers, to obtain cash for following agricultural session (TZOB, 2010). The food and beverage industry in Turkey is growing alongside the Turkish economy. On the other hand, acquisitions by and mergers with foreign companies are taking place and consumers are being greeted with new brands. Considering the latest data on per capita consumption over the last five years, Turkish people are consuming more milk, fruit and fish than in 2007 (Table 8).

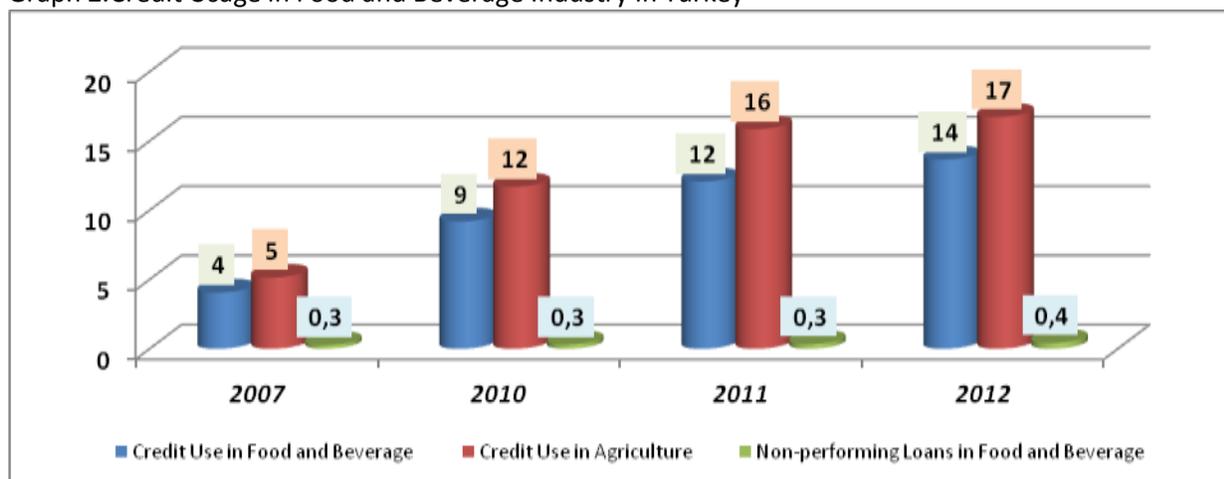
Table 7. Evaluation of per capita consumption between 2005 and 2012

Consumption (per capita/kg/lt)	2007	2012	Change (%)
Meat	23.9	24.1	0.84
Fish	7.2	7.3	1.39
Fruit	109.4	112.5	2.83
Vegetable	230.4	231.1	0.30
Milk	134.5	138.9	3.27
Coffee	0.7	0.7	-
Tea	2.7	2.7	-

Source: Economic Intelligence Unit, 2013.

According to statistics (Graph 4.1), there was an increasing trend in credit usage in the food and beverage industry in the 2007-2012 period. It reached USD 14 billion in 2012. Agricultural credit volume in the same period reached USD 16 billion.

Graph 2. Credit Usage in Food and Beverage Industry in Turkey



### Food and beverage trade

Due to its climatic and ecological conditions, Turkey has the means to dominate world trade in many food stuffs. The food and beverage industry has an important role in Turkey's industrial sector. The value of exports increased from 2018 to 9523 million USD in last decade (Table 9).

Table 8. Export values in the food and beverage industry (million USD)

	2001	2005	2010	2011	2012
Turkey	31 335	73 476	113 883	134 907	152 561
Industry	29 198	69 726	108 335	128 961	146 641
Mining and Quarrying	349	811	2 687	2 806	3 162
Manufacturing	28 828	68 812	105 467	126 007	143 290
Food and Beverage Industry	2 018	4 272	6 703	8 884	9 523
Electricity, Gas and Water	21	103	181	149	190

Source: TurkStat

The trade balance of food and beverage industry in Turkey is presented by years. According to data, the volume of food and beverage balance increased four times in the last decade (Table 10).

Table 9. Foreign trade balance in Turkey (million USD)

	2001	2005	2010	2011	2012
Turkey	-10.064	-43.299	-71.661	-105.879	-83.976
Industry	-10.228	-40.822	-62.985	-92.379	-72.089
Mining and Quarrying	-6.227	-15.511	-23.245	-34.526	-39.085
Manufacturing	-3.859	-25.395	-39.900	-57.915	-32.939
Food and Beverage	1.005	2.158	3.273	3.979	4.400
Electricity Gas and Water	-142	84	161	62	-65

Source: TurkStat

R&D infrastructure in Turkey is considered “sufficient” in terms of seeds, seedlings, saplings, and breeding; “weak” in terms of gene technology; and “sufficient” in terms of processed product diversity and food processing methods and processes. There is sufficient research potential, R&D infrastructure and competence in the related basic sciences concerning the areas of protection, control and treatment methods and in fighting diseases and in activating integrated campaigns.

However, companies’ innovative capability for biotechnology, gene technology, methods for protection, control, and treatment, fighting diseases and effectively implementing integrated efforts to that end and the existence of competitive firms with respect to these issues have been evaluated as weak or non-existent. This reveals the weakness of the research background of the companies in the sector. To use the current R&D infrastructure with the aim of increasing the competitiveness of the companies, it is necessary to increase university-industry cooperation in the sector. Most companies stated that they perform technological innovations and do not apply for registry. For example, it has been determined that among the companies claiming to perform product or process innovation, less than 25 percent of these companies have applied for patents. It was found out that one third of the companies that did not apply for patents had no information about patents, and one third of them did not care about patent protection. Also, as technological innovation resources; universities or other educational institutions, special institutions that are not public or private institutions in nature, and patents were considered the least important information resources. The strongest relationship that the food industry has is with the agricultural sector, which provides an adequate quantity of quality raw material resources to processors. While 30 percent of Turkish agricultural production is processed, in the EU this figure is more like 60-80 percent. The high price of agricultural raw materials is a real problem in Turkey and leads to high costs and low productivity in the sector. The food industry has close cooperation and communication with transportation (main roads, railway transportation), energy (electricity, gas and water), package, machine and equipment and communication, banking and insurance sectors. which provide necessary services and goods however agricultural raw material remains a problem. Besides, relationship with retail, logistic and packaging sectors is on the rise (Anonymous, 2006).

Table 10. Sector establishments and institutions

Establishment/ Institution	Code	Description
Federation of Food and Drink Industry Association	TGDF	Comprises more than 23 sectoral associations and 1 000 companies. Its mission is to pioneer the development of the country on the basis of scientific principles and criteria and establish a free market environment
Vegetable Oils & Fats Industrialists Association	BYSD	The organization has 57 members. The main objective of the association is to supply vegetable oils and fats demand of the country through domestic production using domestically grown oilseeds and to enhance solidarity among members, protecting their rights and interests
Pasta Industrialists Association of Turkey	TMSD	The organization has 25 members. Its mission is to provide assistance to the pasta manufacturers regarding the professional, social, technical and economic issues
Tomato Paste Exporters and Manufacturers Association	SIID	The organization has 26 members representing 14 companies. Its objective is coordination and communication with governmental organizations to preserve the rights of its members as well as the sector they operate in
All Food Importers Association	TÜGİDER	The organization has 115 members. The objective of the Association is to provide cooperative achievements of the whole foodstuffs importer firms.
Dairy, Meat, Food Industrialists and Producers Union of Turkey	SETBİR	The organization has 74 members. The mission of association is to ensure the development of the sector.
Agricultural Products, Cereals and Pulses Processing and Packaging Industrialists Association	PAKDER	The organization has 76 members
Organic Product Producers and Industrialists Association	ORGUDER	The organization has 32 members. The association ensures the regular functioning and development of the organic products market and develops export possibilities in the foreign markets, and works in collaboration with the relevant public institutes/institutions in the preparation of regulations and guidelines.

Source: Anonymous, 2010b.

Market entry barriers for new businesses are also quite low, thanks to an open and increasingly liberal trade and investment climate. According to data issued by the Industry Database of the Union of Chambers and Commodity Exchanges of Turkey (TOBB), the number of active companies in the food and beverage industry decreased from 23 276 in 2007 to 22 092 by the end of 2008. The majority of the Turkish food and beverage sector is formed of SMEs, which are mostly privately owned. The capacity utilization rate is around 70 percent for the food and beverage sector (Central Bank, 2010).

Additionally, distribution is in place in the form of the well-developed and growing Mass Grocery Retail (MGR) sector. However, food consumption growth has been dampened by the recent recession (i.e. real GDP growth of -4.7 percent in 2009). According to OECD forecasts, real GDP growth in Turkey is expected to recover to 6.8 percent in 2010 and reach 4.5 percent in 2011 (OECD, 2010). The growth forecasts of the BMI for 2012, 2013 and 2014 are 5.2 percent, 5.7 percent and 5.6 percent respectively (BMI, 2010).

Turkey has traditional eating habits that remain stable in the majority of households. However, the Turkish food sector is becoming more elaborate as retailers require higher standards from food manufacturers, and investments accompanied by improvements in the sector take place. Through the widespread presence of modern MGR outlets and rising disposable incomes, consumption patterns have been shifting to packaged and processed foods, such as ready-to-eat meals and frozen foods. Additionally, increases in the number of women in full-time employment have supported the trend towards packaged, frozen and ready food. Therefore, considering that Turkey still has the lowest per capita consumption of packaged food in Europe, there is considerable potential in these sub-sectors. Globally, Turkey is one of the largest markets for baked goods, and they account for a significant share of Turkish people's diets. With rising incomes, packaged bread consumption presents an increase and at the same time, demand for different bread varieties, such as high-fiber and specialty artisan breads offer an opportunity for this higher profit market compared with traditional baked products (Anonymous, 2010b).

Global market forces are driving the continual evolution of the food and beverage industry. Consolidation, changing consumer preferences and increasing government regulations are dramatically impacting manufacturing and business strategy. In this fiercely competitive marketplace, it is necessary to offer a greater variety of products to meet consumer demand. At the same time, entities must consistently and cost-effectively produce high quality products. To be successful, it is necessary to focus on three key business issues: financial performance, sustainability, and brand equity (Bradley, 2008).

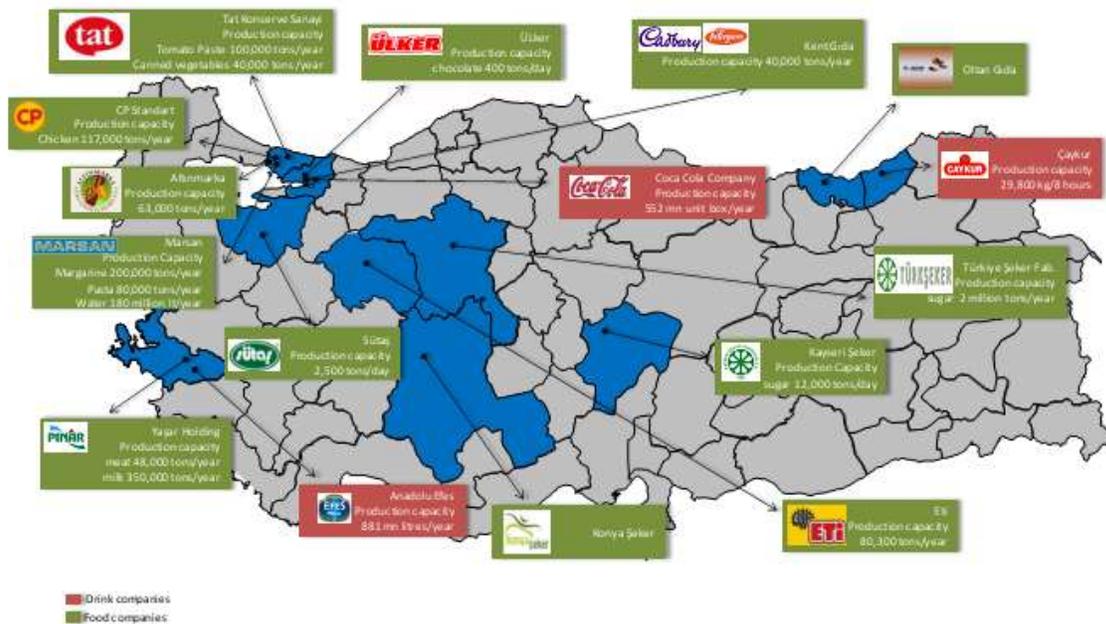
Total household expenditure on food and non-alcoholic beverages accounted for around 26 percent of all expenditure in 2009. According to BMI estimates, total food consumption in Turkey is expected to grow by 34 percent and per capita food consumption by 21 percent between 2009 and 2014 (EIU, 2012) Expenditure on food varied significantly between regions and large cities. Major food consumption patterns have not changed as much in the rural areas and are still based on wheat and grain products and a variety of meat products (lamb and beef). Milk consumption has not increased as quickly as milk production, although the variety of milk products such as yogurt and cheese has increased. The most consumed traditional foods are pekmez, pestil, cezerye, lokum, and baklava ([www.tagem.gov.tr](http://www.tagem.gov.tr)). Consumption of soft drinks is much higher than that of alcoholic drinks and is dominated by sales of bottled water. Turkey is ranked seventh globally in terms of tea cultivation, fifth in terms of dry tea production, and fourth in terms of annual per capita tea consumption. Packaged food sold from modern retail outlets only accounts for around 20 percent of all consumer spending on food. Demand for higher-value food products that take less time to prepare is expected to rise in urban areas. High-end market segments such as health and organic foods only have a niche presence in Turkey. The latest trends are to develop halal food production (food permissible under Islamic law). Turkey has experienced a continuation in its economic transformation from agriculture towards industry and the services sector. Currently, the main target of Turkish food and agricultural production is to harmonize the related activities and regulations with the EU *acquis communautaire*. The Turkish food sector is becoming more advanced due to retailer demands for higher standards and investments by food manufactures. The liberalization of the alcoholic drinks sector since 2003, after the privatization of the former state alcohol

and tobacco monopoly, has encouraged new companies to enter the market. Turkey's packaged food industry is highly fragmented (FAO, 2012).

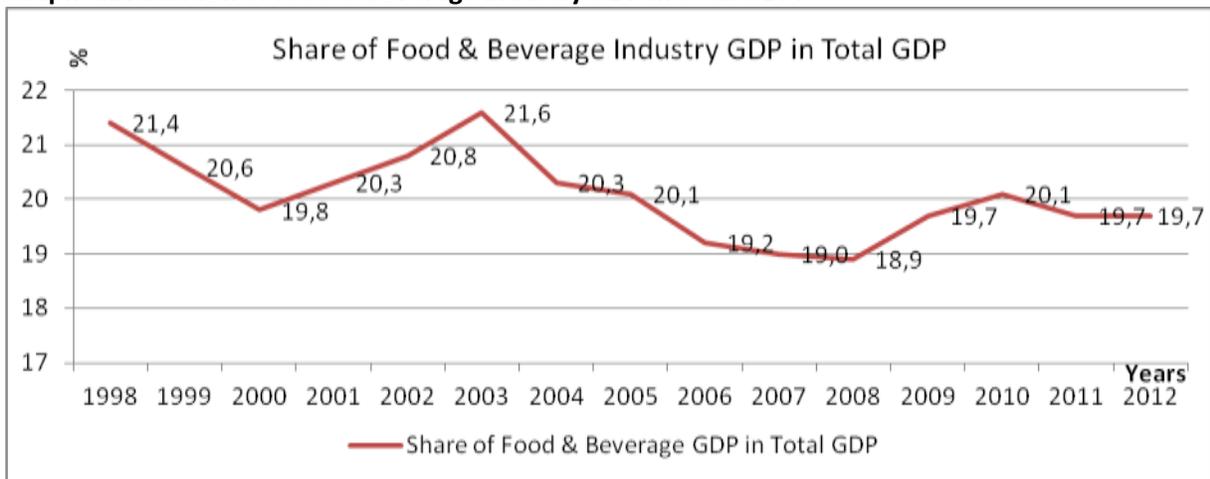
Although Turkish consumers have traditionally done their shopping primarily from small markets and grocery stores, the market share of those traditional retailers has been steadily eroded, as consumers move towards mass grocery retailers (supermarkets and hypermarkets), which offer a wider range of products and higher quality goods (Anonymous, 2010b).

Thanks to increased urbanization, rising disposable incomes and the higher number of women in the workforce, the retail sector has been slowly shifting towards these more Western-style operations, particularly in the larger cities. Despite this trend, the small, traditional retailers still currently account for the majority of food retail sales in the country at around 60 percent (BMI, 2010). In Graph 3, the map below shows the production facilities of key players in the Turkish food & drink sector.

Graph 3. Positioning Map



**Graph 4. Evaluation of food & beverage industry GDP in total GDP.**



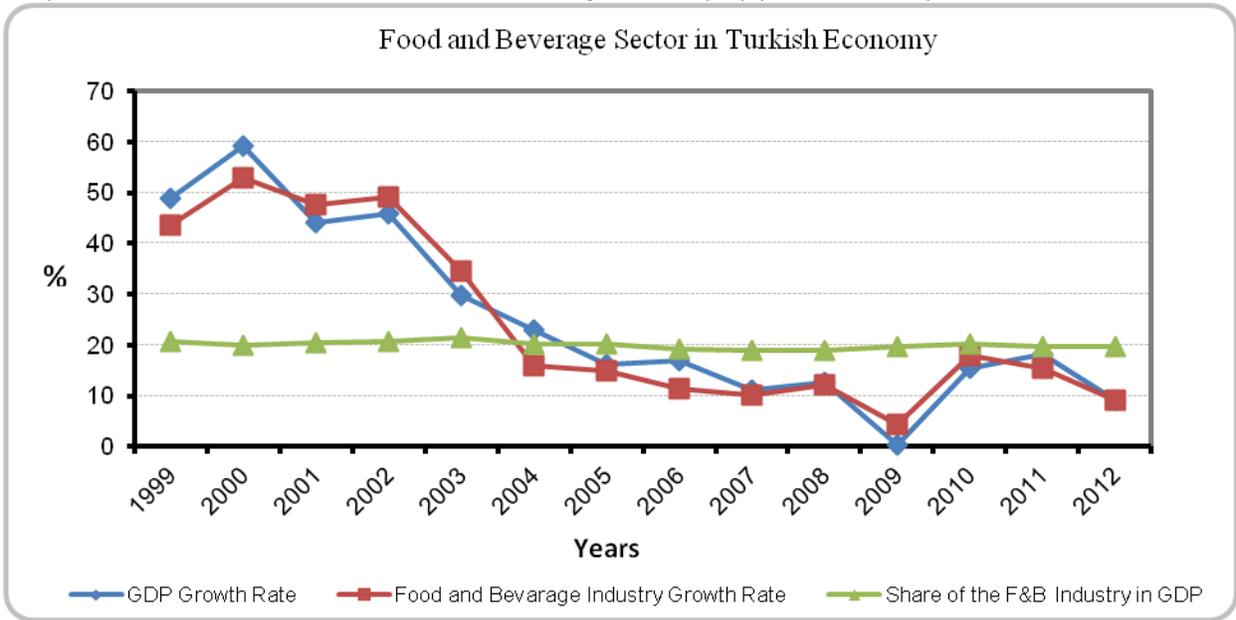
#### *Market demand projection and consumer behavior*

The global food and beverage market exceeded USD 3.84 trillion in 2010, growing around 3 percent annually, thanks to the increasing demand for healthy products and rising disposable incomes in emerging economies such as China, India and Brazil (Anonymous, 2010b). The global agro-food products industry is expected to reach USD 1.15 trillion by 2018, with good growth over the next five years. The industry is fragmented with the top 10 companies totaling less than 20 percent of the market share. Rising disposable income, increasing awareness of health and wellness, higher population, expanding urbanization, and consumer spending are the major drivers of the industry. Small industry players are involved in strategies such as product differentiation and higher service level delivery to customers, to compete with the large players that enjoy economies of scale (<http://www.marketresearch.com>).

Significant sub-sectors within the Turkish food and beverage industry include meat and meat products, baked products, dairy products, fruit and vegetables, oils, confectionery, alcoholic and non-alcoholic drinks, soft drinks, ready-made food and baby food (Anonymous, 2010b).

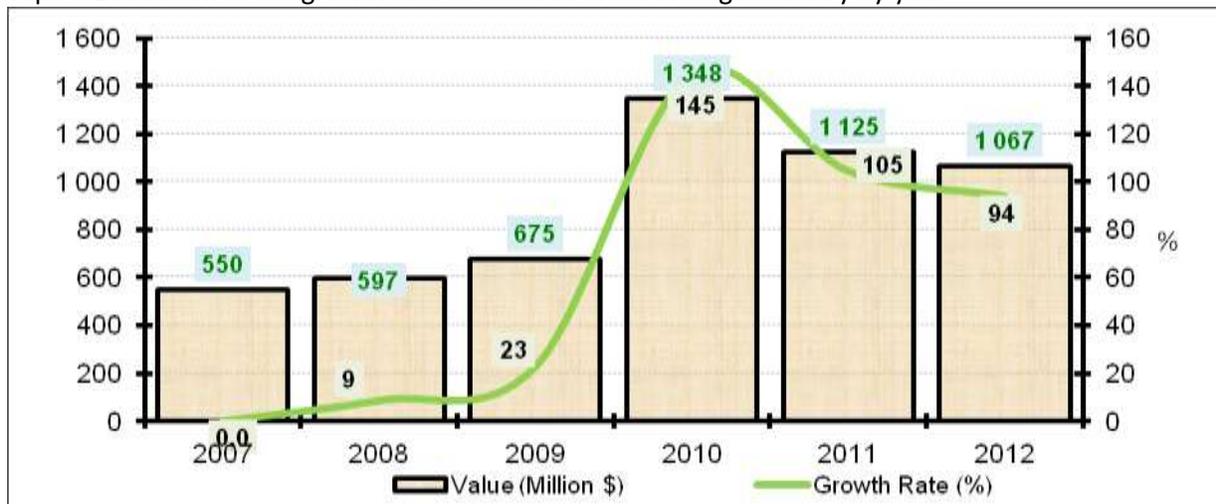
The food and beverage Industry in Turkey is the most dynamic sector in terms of investment, production and employment. While in developing countries 60 percent of agricultural produce is processed, in Turkey the figure is between 25 and 30 percent. The agricultural sector provides essential resources for the food industry. Thus considerable increases in agricultural production between 2002 and 2012 (3.1 percent in wheat, 119 percent in maize, 144 percent in rice, 57.1 percent in sunflower, 61.2 percent in apple, 141.3 percent in apricots, 20.1 percent in tomatoes, 123 percent in cherry, 31.8 percent in oranges and 48.3 percent in mandarins) will help the food and beverage industry in terms of raw materials. When the role and contribution of the food and beverage industry in the economy is evaluated, it is clear that while the food and beverage industry grew by 9.2 percent in 2012, its contribution to GDP decreased to 19.7 percent.

Graph 5. Growth and GDP share food and beverage industry by years in Turkey



In recent years the Turkish government has notably increased incentives and support to the food and beverage industry. While this amounted to USD 550 million in 2007, it reached to USD 1.07 billion in 2012.

Graph 6. Evaluation of the growth rate in the food and beverage industry by year



During the global economic crises in the EU-28, agriculture in Turkey saw a positive annual growth rate (3.5 percent) in 2012 (This percentage is higher than total growth; i.e. 2.2 percent, and lower than the growth rate for industry; i.e., 2 percent, and for services). However, between 2002 and 2012, the agricultural sector's contribution to GDP decreased from 10.3 percent to 7.9 percent while the agricultural GNP itself increased from USD 23.7 billion to USD 62.5 billion. Overall, 65.1 percent of this value added comes from crop production and 33.9 percent from livestock production (TurkStat.gov.tr)

In this period, the agricultural population and agricultural employment decreased by 18.2 percent and 10.3 percent, respectively. Between 2002 and 2012, agricultural GDP per capita increased from USD 1 064 to USD 3 622, agricultural exports increased from USD 4 to USD 16 and food exportation increased by 5.8 percent. This proves that agriculture is an important player in the Turkish economy in terms of the global supply chain.

While the agricultural trade balance was USD 369 million in 2012, the balance of the trade in food products was USD 4.6 billion (USD 15.1 billion for exports and USD 10.4 billion for import). The main agricultural products that Turkey exports are tobacco, hazelnuts, raisins and tomatoes. More than half of Turkey's agricultural exports between 1986 and 2007 consisted of citrus fruits, tomatoes and dried fruit and nuts. Turkey is the third largest fruit and vegetable exporter after the US and the EU.

However, Turkish agricultural exports are not diverse. Fruit, dried fruits and derivative processed agricultural products consist of 60 percent of total agricultural trade in Turkey. The remainder consists of tobacco, cereals and sugar. On the other hand, agricultural imports are diverse. More than half of agricultural imports come from agricultural raw materials. The remainder consists of cereals, animal forage, tobacco and tobacco productions, animal and vegetable oils, oils and waxes, oil seeds and oily fruits.

While the food and beverage industry employed 10.5 percent of the population in 2005, it reached to 12.4 percent in 2012 (a 32.2 percent increase). The food industry played the key role in this increase.

Table 11 . Evaluation of employment contribution of the food and beverage industry

Sectors	2005		2010		Changes (%)
<b>Industry</b>	<b>2 765 172</b>	<b>100.0</b>	<b>3 105 928</b>	<b>100.0</b>	<b>12.3</b>
Mining and Quarry	85 123	3.1	113 383	3.7	33.2
Energy	96 302	3.5	140 193	4.5	45.6
Manufacturing Industry	2 583 747	93.4	2 852 352	91.8	10.4
<b>Food and Beverage Industry</b>	<b>290 810</b>	<b>10.5</b>	<b>384 484</b>	<b>12.4</b>	<b>32.2</b>
Food Industry	280 210	10.1	371 624	12.0	32.6
Beverage Industry	10 600	0.4	12 860	0.4	21.3

Source: TurkStat (USD 1 = TRY 1.95)

The production volume of sector increased by USD 24 billion to USD 44 billion between 2005 and 2010. Both sub-sectors made similar progress. For example, the beverage industry increased by 76 percent in the same period.

Table 12. Production potential of food and beverage industry in Turkey (USD Billion)

Sectors	2005	2006	2007	2008	2009	2010	Change (%)
<b>Industry</b>	<b>186</b>	<b>225</b>	<b>247</b>	<b>291</b>	<b>266</b>	<b>325</b>	<b>74</b>
Mining and Quarrying	4	5	6	8	7	9	128
Energy	22	25	29	38	43	46	109
Manufacturing	160	194	213	245	216	269	68
<b>Food and Beverage</b>	<b>24</b>	<b>26</b>	<b>29</b>	<b>34</b>	<b>36</b>	<b>44</b>	<b>85</b>
Food Industry	22	24	27	32	33	41	85
Beverage Industry	2	2	2	2	2	3	76

Source: TurkStat (USD 1 = TRY 1.95)

Value added in the food and beverage industry increased by USD 3.8 billion to USD 6.7 billion between 2005 and 2010. This increase is higher than the industry average (70 percent) and has been increasing over time.

Table 13. Sales turnover in the food and beverage sector in Turkey (USD Billion)

Sectors	2005	2006	2007	2008	2009	2010	Change (%)
<b>Industry</b>	<b>195</b>	<b>235</b>	<b>258</b>	<b>302</b>	<b>280</b>	<b>340</b>	<b>74</b>
Mining and Quarrying	4	5	6	8	7	10	140
Energy	22	25	29	38	43	47	109
Manufacturing	169	204	224	256	230	283	68
<b>Food and Beverage</b>	<b>25</b>	<b>27</b>	<b>30</b>	<b>36</b>	<b>38</b>	<b>46</b>	<b>84</b>
Food Industry	23	25	28	34	35	43	85
Beverage Industry	2	2	2	2	3	3	78

Source: TurkStat (USD 1 = TRY 1.95)

Table 14. Share of sales turnover in the food and beverage sector in Turkey (%)

Sectors	2005	2006	2007	2008	2009	2010	Changes (%)
<b>Industry</b>	<b>37.9</b>	<b>44.6</b>	<b>47.2</b>	<b>56.6</b>	<b>54.0</b>	<b>64.6</b>	<b>70</b>
Mining and Quarrying	1.5	2.0	2.3	3.7	2.8	3.8	153
Energy	5.5	4.3	4.4	4.8	7.7	10.0	81
Manufacturing	30.9	38.4	40.5	48.1	43.5	50.9	65
<b>Food and Beverage</b>	<b>3.8</b>	<b>4.1</b>	<b>4.7</b>	<b>5.6</b>	<b>6.1</b>	<b>6.7</b>	<b>77</b>
Food Industry	3.4	3.7	4.2	5.0	5.4	6.0	76
Beverage Industry	0.4	0.4	0.5	0.6	0.7	0.7	79

Source: TurkStat (USD 1 = TRY 1.95)

The number of trademarks applied for in the food and beverage industry has increased considerably between 2005 and 2010 (by 70 percent). One of the most important reasons for this is that consumers are now brand aware and interested in trademarked products, and food and beverage companies are fighting for the position of their trademarks to survive on the market. Branding in the restaurant sector is another area of development. The number of restaurants with registered trademarks has increased by 351 percent in the same period.

Tobacco and tobacco products, cereals and oil seeds are major export products in Turkey. The United States is Turkey's most important partner for agro-food exports. Turkey has trade surplus with European Union. The EU receives half of all agricultural export from Turkey. One third of agricultural exports from Turkey are composed of tobacco products, fruit and dried fruits and go to Germany. Italy, UK, Holland and France are also important countries. The agricultural sector in Turkey is becoming more important in terms of supply chain, and the food industry contributes greatly to the Turkish economy, including in rural development (Anonymous, 2010b).

Table 15. The Most important export partners by year

	2008	2009	2010	2011	2012
	Total (million USD)				
	9 960	9 761	11 200	13 540	14 109
	Share (%)				
EU (27)	41.5	39.8	38.6	34.3	32.0
Germany	10.6	10.1	10.0	9.3	8.5
Italy	5.8	5.8	4.9	4.5	4.2
France	3.8	3.4	3.9	3.6	3.3
Netherlands	3.7	3.5	3.4	3.1	3.2
United Kingdom	3.3	3.4	3.1	3.1	2.9
Iraq	11.8	13.6	13.5	19.7	23.1
Russian Federation	8.4	7.9	8.7	7.7	7.1
United States	2.7	2.7	2.7	2.4	2.6
Saudi Arabia	2.3	3.0	3.1	2.5	2.2
Libya	1.5	0.9	0.7	2.1	2.0

Source: Trade map ITCS Database, 2013.

Table 16. The most important import partners by year

	2008	2009	2010	2011	2012
	Total (million USD)				
	7 436	5 264	6 115	8 507	7 909
	Share (%)				
EU (27)	23.6	25.6	27.3	27.0	20.4
Netherlands	2.4	2.9	3.2	2.7	3.0
Germany	2.9	5.0	4.7	4.7	2.7
Bulgaria	3.8	3.1	3.1	3.0	2.2
Poland	1.0	1.5	3.3	4.3	2.2
Italy	2.2	1.7	1.7	1.3	1.6
United States	11.1	12.2	14.1	11.6	10.5
Ukraine	8.7	9.7	7.7	12.0	8.7
Indonesia	2.6	2.9	3.2	3.0	4.4
Malaysia	6.1	4.9	4.8	5.7	3.9
Kazakhstan	6.1	1.3	1.9	1.3	3.3

Source: Trade map *ITCS Database*, 2013.

While the share of building and rent in the Turkish consumer's expenditure is 25.8 percent, it was 21 percent for food and beverages in 2011.

Table 17. Share of consumer expenditure by year

Expenditure Types	2006	2007	2008	2009	2010	2011
Food and non-alcoholic drink	24.8	23.6	22.6	23.0	21.8	20.7
Food	23.3	22.0	21.1	21.4	20.3	19.3
Non-alcoholic drink	1.5	1.6	1.5	1.6	1.5	1.4
Alcoholic drink, cigarette and tobacco	4.1	4.3	3.8	4.1	4.5	4.1
Alcoholic drink	0.2	0.2	0.2	0.3	0.2	0.3
Food and Beverage Industry	25.0	23.8	22.8	23.3	22.0	21.0

Source: *TurkStat, Household Consumer Expenditure Survey, 2012*

However, average monthly food and beverage (alcoholic and non-alcoholic) expenditures in the last five years have increased from USD 167 to USD 228 (36.9 percent). In this period, total household consumer expenditure also increased from USD 699 to USD 1 087 (Table 19).

Table 18. Evaluation of consumer expenditures in Turkey (Monthly USD)

	2007	2008	2009	2010	2011
Food and Beverages	167	190	201	209	228
Food	154	176	186	192	210
Non-alcoholic beverages	11	13	13	14	15
Alcoholic beverages	2	2	2	2	3
Total Household Expenditure	699	834	866	945	1.087

Source: *TurkStat, Household Consumer Expenditure Survey, 2012*

### *Quality control, certification and supporting institutions:*

The Turkish Standards Institute (TSE) became a full member of the European Committee for Standardization (CEN) in January 2012 and the Turkish standardization system is now fully integrated into the European system. The adoption of European standards by the TSE is ongoing and so far a total of 17 422 standards have been adopted. The overall rate of harmonization with European standards stands at around nine percent in terms of New Approach Directives. The TSE runs 82 operational committees and almost 1 750 standards related to food quality and sanitary aspects have been prepared by Turkish Standards Institute. Implementation of geographical indications started in 1995 and some agricultural and food products have been registered with GI certificates. Halal food certification activities began in 2011.

The Turkish Accreditation Agency, TURKAK, is a member of the European Cooperation for Accreditation and is the Monitoring Authority in the area of Good Laboratory Practice. The number of TURKAK accreditations reached 647 in 2011. TURKAK was affiliated with the Ministry of EU Affairs rather than the Ministry of Science, Industry and Technology in 2012. There are nine institutions involved in food quality assurance, although three of them have no direct responsibility. The recent establishment of a risk assessment unit, scientific committees and commissions within the responsible ministry is aimed at supporting and strengthening a scientific risk-based advisory system. In Turkey the following quality assurance systems internationally recognized have been applied by the food manufacturing firms: HACCP-ISO or HACCP-TS, ISO22000, 14001 or 9001, IFS, BRC, SQF or GLOBALGAP. The Government subsidizes quality improvement. The HACCP quality assurance system was introduced in 1995 in Turkey and since 2008 all food manufacturers have been obliged to apply HACCP, according to the Regulation on Inspection and Control of Food Safety and Quality (FAO, 2012). Turkey's plentiful natural resources create an opportunity for its food processing industry to grow and reach new export markets. Continued Foreign Direct Investment (FDI) may also help to foster a growing agricultural R&D industry. Turkey's climb up the value-chain over the next thirty years may be further enhanced by a shift towards alternative energies, where foreign investors may look to take advantage of Turkey's abundant renewable energy sources (PWC, 2012).

Turkey currently acts as a regional hub for the production, processing and export of foodstuffs to large European and Middle Eastern markets. Its agricultural diversity and amenable climate allow it to produce a sustainable supply chain of raw inputs for its processing industry, facilitating its status as a large net exporter of food and beverages. Turkey has already begun its transition up the value chain, moving from the export of raw foodstuffs to processed food products. Statistics shows that Turkey's manufactured food and beverage export industry has tripled in size over the last ten years (PWC, 2012).

### *Value addition, prices costs and margins*

Turkish farms are 61 da in size on average, which is small. They tend to have low productivity and are largely fragmented. This section analyses the value added and the cost of creating this value.

The USD per da profit margin for small farms of Turkey varies according to products. While the profit margin for wheat increased from USD 13 per da to USD 21 per da between 2011 and 2012, it decreased from USD 16 per da to USD 8 per da for barley and no changes for maize as well as presented in Table 20.

Table 19. Profit margins by product on small farms (USD per da)

Products	2011	2012
Wheat	13	21
Barley	16	8
Maize	49	41
Rice	221	200
Rye	19	10
Oats	19	14
<b>Average</b>	<b>56</b>	<b>49</b>

USD 1= TRY 1.95

Value added created by small farms in 2012 changed somewhat from 2011. For example, value added in wheat increased to 51 percent ( USD 1.59 billion) while value added for maize fell by 10.8 percent ( USD 257 million) It is estimated that total value added for these products will be USD 388 million in 2012 (TurkStat.gov.tr.)

Table 20. Value added created in products of main food and feed raw materials

Products	Total Value Added (USD million)		% Change (2011/2012)
	2011	2012 (estimation)	
Wheat	1 050	1 594	51.8
Barley	431	213	50.5
Maize	288	257	-10.8
Rice	219	239	9.0
Rye	24	14	-41.6
Oat	16	13	-23.3
Average	338	388	14.9

Source: Calculated from farm survey by author

All food companies face the same market pressures, but larger companies often enjoy some advantages. For example, they have more power with major retailers and food service distributors and operators. Their broad product lines, greater geographic coverage, and typically stronger brands result in customers finding it easier and more effective to deal with them than with their medium sized counterparts (Thompson, 2005).

### Post-harvest technologies

The Turkish Grain Board, founded in 1938, is a limited liability and autonomous state economic enterprise running on state capital in accordance with the provisions under Decree Law No 233 of 08/06/1984 on State Economic Enterprises. TMO has capital of TRY 2 050 000 000. The Afyon Alkaloid Plant in Bolvadin also belongs to the Turkish Grain Board. The rural structure of Turkish Grain Board has been organized into branch offices with agencies under them. In addition, TMO provides its services in agricultural industry with its facility teams and temporary receiving centers throughout the country, which become operational during peak procurement periods. The Turkish Grain Board has a 48 percent share in TMO-TOBB (The Union of Chambers and Commodity Exchanges of Turkey) Tarım Ürünleri Lisanslı Depoculuk Sanayi ve Ticaret Anonim Şirketi /TMO- TOBB Agricultural Products Licensed Warehousing Industry and Trade Inc. was founded on in February 2010 in cooperation with The Union of

Chambers and Commodity Exchanges of Turkey in order to carry out licensed warehousing operations in the country (TMO, 2013).

According to statistics, while there were 30 717 companies in the food and beverage industry in 2005, by 2010 there were 35 631. Food companies account for 98.7 percent of this total and the rest are beverage companies (TurkStat, 2012). While the number of companies increased by 16 percent between 2005 and 2010, total number of companies in industry sector decreased by 0.7 percent.

Table 21 . Number of companies in the food and beverage industry by year

Sectors	2005		2010		Changes (%)
	Numbers	%	Numbers	%	
Industry	307 949	100.0	305 862	100.0	-0.7
Food and beverage industry	30 717	10.0	35 631	11.6	16.0
Food	30 429	99.1	35 172	98.7	15.6
Beverage	288	0.9	459	1.3	59.4

Source: Turkstat

Turkey is ranked fifth according to the food and beverage industry's attractiveness to investors by taking into consideration the market size, current consumption levels, future potential growth and the legislative and political environment (BMI, 2010). One of the most important factors in terms of creation of value added for the food and beverage industry is incentives and investments. Turkey is quite suitable for foreign direct investments in the food and beverage industry. Between 1954 and 2012 520 foreign firms invested in the food and beverage industry. In the distribution of foreign firms by countries, Germany is leads with 18.3 percent (95 firms). The next biggest investors are the Netherlands (9 percent), the United States (6 percent), France (5 percent), Italy (5 percent), Switzerland (5 percent), the UK (4 percent), Greece (4 percent) and the Russian Federation (4 percent).

Table 22 shows the concentration ratio ( $CR_4$  and  $CR_8$ ) in the food and beverage industry sub-sectors. The concentration in 11 of the sub-sectors is high, while seven are medium and six are low. While sub-sectors in the beverage industry have a very high concentration ratio, sub-sectors in the food industry tend to have medium and low concentration ratios. In other words, as there are fewer enterprises in the beverage industry but there are high concentration levels. Although the number of enterprises in ice-cream, coffee and tea manufacturing is over 100, the concentration ratio of those products is high. This is because top 4 companies have overwhelming market coverage in that sub-sector. Concentration ratios ( $CR_4$ ) and ( $CR_8$ ) in the study are calculated as follows: The share of the top four and eight enterprises' turnover in the total turnover of the subsector.

Table 22 . Concentration ratios and levels of firm by sub sectors in the food and beverage industry

Class name	CR <sub>4</sub>	CR <sub>8</sub>	Number of enterprises	Concentration level
Manufacture of beer	99.92	100.00	5	Very high
Distilling. rectifying and blending of spirits	97.57	100.00	7	Very high
Manufacture of margarine and similar edible fats	97.35	100.00	5	Very high
Manufacture of prepared meals and dishes	96.75	100.00	6	Very high
Manufacture of prepared pet foods	95.23	100.00	7	Very high
Manufacture of ice cream	93.88	96.59	330	Very high
Processing and preserving of potatoes	91.23	98.11	22	Very high
Manufacture of homogenized food preparations and dietetic food	88.97	95.86	19	Very high
Manufacture of starches and starch products	85.50	99.51	13	Very high
Manufacture of sugar	82.16	91.80	73	Very high
Processing of tea and coffee	71.73	80.12	147	Very high
Manufacture of wine from grapes	68.87	79.95	94	High
Manufacture of rusks and biscuits	58.96	78.32	1.533	High
Processing and preserving of meat	56.91	68.69	189	High
Manufacture of other food products n.e.c.	55.59	79.37	71	High
Manufacture of soft drinks	55.02	66.29	360	High
Manufacture of fruit and vegetable juice	46.17	64.31	110	Medium
Manufacture of cocoa. chocolate and sugar confectionery	46.11	68.10	824	Medium
Processing and preserving of poultry meat	45.43	74.39	44	Medium
Production of meat and poultry meat products	44.49	59.13	260	Medium
Processing and preserving of fish. crustaceans and mollusks	44.18	59.25	59	Medium
Manufacture of macaroni. noodles. couscous and similar farinaceous products	41.52	68.00	36	Medium
Operation of dairies and cheese making	34.37	46.07	1.196	Medium
Manufacture of oils and fats	28.65	42.06	792	Low
Manufacture of condiments and seasonings	24.70	42.88	137	Low
Manufacture of prepared feeds for farm animals	23.04	32.77	300	Low
Other processing and preserving of fruit and vegetables	13.60	20.94	1.391	Low
Manufacture of grain mill products	8.78	14.88	4.309	Low
Manufacture of bread	8.26	11.80	24.272	Low

Source: Şahin, 2013.

The most pressing problems regarding food safety in the sector are: the inability to perform regular audits with the appropriate level of care; the existence of too many disorganized food enterprises and unregistered production in some sub-sectors; the weak capital structure of most enterprises; the dearth of trained employees and difficulties in establishing food self-control (such as HACCP and GMP) due to weaknesses in agriculture-food industry integration. Food safety in Turkey is regulated by mandatory food codices. With the aim of efficient application of regulations related to food control, studies on Turkish food legislation have been imitated under the supervision and observation of the Ministry of Agriculture and Rural Affairs. The Turkish Food Codex has recently been revised in accordance with European Union criteria. The responsibilities of food companies will increase with new systems in the next period. In addition, the HACCP, Good Manufacturing Practices, Good Hygiene Practices and Good Laboratory Practice systems will be widespread and the ISO quality and security systems supporting these issues will improve. Carrying out the necessary auditing functions for all these issues will enable the formation of accredited private companies in addition to public ones (Anonymous, 2010c).

Organic products are now popular and expensive commodities in developed countries. Both the area of land under organic crops and the number of producers in Turkey have increased from 0.23 percent and 14 401 respectively in 2005 to 1.58 percent and 43 096 respectively in 2010. Organic production is highly diversified and the main products are textile crops, protein crops, and cereals. Turkey is on the list of the top ten countries globally in terms of the number of organic producers (43 000 farmers compared with 400 000 in India). It also accounts for half of all organic farmers in the EECA region (IFOAM, 2012). At the same time, Turkey is an important producer of organic export-oriented products (nearly 250 kinds of agricultural products) (FAO, 2012).

Another growing trend is edible packaging material, which is a product of research by Turkish Scientists and uses more flexible film compared to competing products on the market. The flexible film is made using egg white, corn protein and other natural substances, and is able to kill microbes in food. The new packaging is 500 percent more flexible than those currently available on the market, and will be in production three to four years from now (Dorado and Otterdijk, 2011; FAO, 2012).

#### Management, marketing and promotion

Turkey does not have any legislation regarding the promotion of agricultural products in third countries. And it does not provide any financial support to the promotion of agricultural products in third countries. The Hazelnut Promotion Group, established in 1997, has been promoting Turkish hazelnuts on selected foreign markets. The activities of the group are financed by voluntary private sector contributions. UFT takes part in this group. Recently a similar Promotion Group was also established for pistachios (MARA, 2006).

#### *4.1. Overall assessment of value chain performance and constraints for improved processor-farmer linkages*

The purpose of this assessment is to present the various literature and statistics relating to investigations into value chain performance and constraints between processor-farmer linkages. The findings are as follows:

- Producers have considerable problems in terms of access to market, meaning they have to sell their products to mediators at lower prices.