Key figures about turkish agribusiness economics essay

Economics

With its favorable geographical conditions and climate, Turkey is considered to be one of the leading countries in the world in the field of agriculture and related industries. This impressive position is best attested by rising exports in almost every kind of agricultural products, placing the country amongst the world’s largest producers. The restructuring efforts that began in the early 1980s, alongside a series of reforms such as privatizations and the reduction of trade barriers in the agriculture sector, resulted in a domestic market that is an integral part of the world economy today. Subsequently, agricultural exports, excluding processed food, increased to USD 5 billion in 2010, up from USD 1. 7 billion in 2002. As of 2010, the share of the agricultural sector in Turkey’s GDP is 8. 4 percent, down from 10. 1 percent in 2000, and the sector recruits around 25 percent of the total workforce in the country.

Around 40 percent of Turkey’s land area is arable and this ample potential offers a large range of products such as grains, pulses, oil seeds, fruits and vegetables, cut flowers, poultry, milk and dairy products, fishery, honey and tobacco. Crop production, livestock and fishery/forestry account for 67 percent, 26 percent and 7 percent of the total agricultural production respectively.

Internationally, Turkey has a strong dominance in production and exportation of many agricultural products such as hazelnuts, dried apricots, sultanas and dried figs. In addition, Turkey’s food industry is much better developed than that of the neighboring countries. Given these factors, the country is one of the largest exporters of agricultural products in the Eastern

Europe, Middle East and North Africa (EMEA) region, while its trade balance is significantly positive.

Turkey has a population of 74 million people and is growing with a rising income. This makes Turkey one of the largest markets in its region, and the changing consumer habits of the younger generation boost domestic consumption.

Turkey offers a fertile agricultural investment environment to the entrepreneurs on the back of the following:

Strong geographical location, e. g. favorable climate conditions and proximity to major marketsCompetitive labor force which is particularly important for labor-intensive food producing activitiesAvailability of almost all raw materials for the industryContinued government investments in the form of major irrigation projects, infrastructure improvements and consolidation of small-sized farm landsGovernment support for agricultural investmentsIncreasing production efficiency due to progressive automation

Key figures about Turkish agribusiness:

Turkey is the world leader in the production of dried figs, hazelnuts, sultanas/raisins and dried apricots. The total exports of agricultural products (including processed foods) reached USD 12 billion in 2010. Turkey has the largest milk and dairy production in its region. Turkey has an estimated total of 11, 000 plant species, whereas the total number of species in Europe is 11, 500. The agricultural production in 2010 was USD 62 billion, up from USD 24 billion in 2002.

Turkey’s ambitious vision of 2023, the centennial celebration of the Republic, envisages grandiose targets for the agriculture sector in Turkey. These targets include:

USD 150 billion gross agricultural domestic productUSD 40 billion agricultural exportBecoming one of the top 5 countries in terms of agricultural production8. 5 million hectare irrigable area (from 5. 4 million)Ranking number 1 in fisheries as compared with the EU

StrengthsSuitable ecological conditions and good climate for agricultural productionGovernment support for investments in agricultureTurkey’s increased importance in the region due to the size of its population: 73 million people as of December 2009Turkey has a more developed agricultural production industry than neighboring countries, signaling important export opportunitiesIncreased interest in Turkish agriculture in recent years from investors from the Middle East and elsewhereIncreasing production efficiency due to progressive automationWeaknessesHighly fragmented structure with a large number of small businesses which are highly dependent on government subsidies for their survivalSince the harmonization process with the EU is still in progress, Turkey’s ability to export livestock to EU countries is an unresolved issueHigh cost of machinery prevents small-scale farms from increasing their production efficiencyThe increase in feed prices positively affects feed producers (i. e. corn), but negatively affects the livestock sectorhttp://www. invest. gov. tr/images/v2/swotBottomBG. pnghttp://www. invest. gov. tr/images/v2/swotBottomBG. pnghttp://www. invest. gov.

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Opportunities

Turkey’s strategic geographical position offers significant opportunities for tradeTurkey’s likely EU membership could introduce significant new export opportunitiesCompetitive labor pricesIncreased interest in organic farming due to the rising focus on health issuesThreatsWeather conditions like droughts or flooding threaten agricultural productionUnstable feedstock pricesPressure on the government to reduce agricultural subsidieshttp://www. invest. gov. tr/images/v2/swotBottomBG. pnghttp://www. invest. gov. tr/images/v2/swotBottomBG. pngAgriculture--the occupation of the majority of Turks--continued to be a crucial sector of the economy in the mid-1990s, although industrial production was rising. Turkey's fertile soil and hard-working farmers make the country one of the few in the world that is self-sufficient in terms of food. Turkey's great variety of microclimates and adequate rainfall permit a broad range of crops. Farming is conducted throughout the country, although it is less common in the mountainous eastern regions, where animal husbandry is the principal activity. In the mid-1990s, crop cultivation accounted for about two-thirds and livestock for one-third of the gross value of agricultural production; forestry and fishing combined contributed a minimal amount. Agriculture's share in overall income has fallen progressively, declining from almost 50 percent of GDP in 1950 to around 15 percent of GDP by 1993. During the same period, the sector grew only about 1 percent faster than the country's population, and per capita food production declined in absolute terms. The

relatively poor showing of the agricultural sector reflected in part government policies that had made rapid industrialization a national priority since the 1930s. In addition, farmers were slow to adopt modern techniques, with agricultural output suffering from insufficient mechanization, limited use of fertilizer, excessive fallow land, and unexploited water resources. The result has been low yields. Despite agriculture's relative decline in the 1980s as a percentage of GDP, the sector played an important role in foreign trade. Turkey enjoys a comparative advantage in many agricultural products and exports cereals, pulses, industrial crops, sugar, nuts, fresh and dried fruits, vegetables, olive oil, and livestock products. The main export markets are the European Union and the United States--to which Turkey primarily exports dried fruit and nuts, cotton, and tobacco--and the Middle East, which primarily imports fresh fruit, vegetables, and meat from Turkey. As late as 1980, agricultural exports accounted for nearly 60 percent of the total value of exports. In the early 1990s, agricultural products accounted for 15 percent of total exports. Around 50 percent of manufactured exports originate in the agricultural sector; counting these exports, the agricultural sector's contribution to exports again would rise to around 60 percent. Agriculture has great potential for further development, provided that the state can implement successful agrarian reforms and development projects. Observers believe that to achieve balanced growth, Turkey needs to improve the training of farmers, make better seed available, upgrade livestock herds, standardize products, expand food-processing facilities (including cold storage and refrigerated transport), and reorganize marketing networks. Since 1980 the government has encouraged investments in packaging,

processing, livestock, and slaughterhouses, and has imported new seed varieties. These efforts had a modest impact on overall production by the mid-1990s. The failure to exploit the country's great agricultural potential has contributed to Turkey's periodic economic crises and poses serious problems for future development. Glaring inequalities of income between urban and rural residents--and among segments of the farm population--have created social tensions and contributed to emigration from rural to urban areas. Malnutrition continues to threaten segments of the rural population, especially children. The Kurdish insurgency in eastern Turkey has added to problems in some rural areas. Rising incomes in the urban areas have caused increased demand for more " exotic" foodstuffs, especially meat and poultry. Since 1984 Turkey has liberalized its policy on food imports, partly to meet this urban demand and partly to offset domestic price pressure. Many previously banned luxury food imports and imports that compete with domestically produced staples are permitted for these reasons; in turn, the growth of these imports has contributed to pressures on foreign trade accounts. Overall, agricultural output needs to expand along with the rest of the economy to maintain adequate supplies for industry and exports. Longer-term economic growth prospects and macroeconomic stability, therefore, depend on the performance of Turkey's agricultural sector and rural incomes.

Agricultural Policy

By 1980 Turkey was self-sufficient in food, and agricultural output was growing at a respectable rate, albeit more slowly than the economy as a whole. Starting in the early 1970s, crop intensification resulted from a

reduction of fallow areas and increased use of fertilizer, fuel, and pesticides. The livestock industry, however, showed little improvement in productivity, and the later years of the decade saw the stagnation of all agriculture. Although production became less dependent on the weather as a result of irrigation and high-yielding varieties of seeds, these methods required adequate supplies of fertilizers, chemicals, equipment, and fuel, much of which had to be imported. Productivity shortcomings, along with the new export-oriented development strategy, led to the adoption of different agricultural policies after 1980. Under the new approach, the government switched from promoting food self-sufficiency to maximizing agriculture's net contribution to the balance of trade. The incentive system was partially dismantled, fertilizer and pesticide subsidies were curtailed, and the remaining price supports were gradually converted to floor prices. The tight monetary policy limited agricultural credit, but real interest rates on loans to farmers remained negative. Nonetheless, a high proportion of defaults by farmers occurred on loans with high interest rates. In some cases, this led to the confiscation of land, tractors, or other property by the state, prompting one Turkish daily, Milliyet , to run an article entitled, " Bailiff Officer: The New Lord of the Peasants." The elimination of export licenses and minimum export prices, along with currency devaluation, an export-incentive system, and flat domestic demand, encouraged agricultural exports. In addition, a wider range of food imports was permitted, providing competition for domestic products. The government's hope of rapidly increasing agricultural exports was slow in materializing, and total values fell sharply in the mid-1980s. This decline reflected both softer demand abroad (especially in the

Arab oil-producing countries) and Turkey's own attempts to increase the share of agricultural products processed prior to export. Still, by the early 1990s agricultural exports had risen, with the most dramatic increase occurring in textiles and clothing, which depend on indigenously grown cotton. Despite the turn toward liberal agricultural policies, government intervention in agriculture remained pervasive in the mid-1990s. Many of the institutions established between 1930 and 1980 continue to play important roles in the daily life of the farmer, and many old attitudes and practices remain. A large number of ministries, agencies, SEEs, and banks administer government price supports, credit measures, extension and research services, and irrigation projects. In the past, overlapping responsibilities and lack of coordination had often diluted the effectiveness of government activities. Some progress was made in the 1980s, however, when the Ministry of Agriculture, Forestry, and Rural Affairs reorganized its eleven departments into five general directorates. Subsequently, the ministry was divided into the Ministry of Agriculture and Rural Affairs and the Ministry of Forestry. After 1980 the government reduced budget transfers to agricultural SEEs and decreased the level of price supports, but the state still controlled most markets in the sector. Public marketing agencies and marketing or credit cooperatives administered prices and handled a large share of exports. Several of the SEEs involved in agricultural production had been slated for privatization in the early 1990s. The Meat and Fish Board, the Fodder Industry (Yem Sanayili), and the Milk Industry Board (SEK) were targeted for immediate privatization when they were placed under the control of the Public Participation Administration. However, officials in 1994

stated that they lacked sufficient funds to pay the sizable debts these organizations had accumulated, a necessary step before privatization. Nearly all farm produce except livestock and fresh fruits and vegetables has support prices, which became more effective when the ministry started announcing them in the fall, giving farmers time to choose which crops would be most profitable. For most crops (except tea, sugar beets, and opium, for which the state is the only buyer), farmers can choose between selling to private buyers or to the state. Supports stabilize crop prices and improve aggregate farm income but add to the disparities of income between large and small farmers. Support prices grew slowly in the 1980s and did not keep up with inflation. However, in the summer of 1991, in anticipation of the forthcoming elections, Özal's Motherland Party government raised all support prices by 60 to 70 percent. Subsequent governments under Demirel and Çiller maintained increases in support prices roughly in line with the high inflation rate. During 1994, however, these increases were not maintained. In addition, the Agricultural Supply Organization provides many farm materials at subsidized prices, including fertilizers, pesticides, and insecticides. The Agricultural Bank of Turkey (Türkiye Cumhuriyeti Ziraat Bankasi--TCZB) provides most loans to farmers and cooperatives and closely watches agricultural credit. Although the TCZB was intended to favor small farmers in the distribution of credit, its loan requirements restrict credit for the many small farmers who either rent or lack a secure title to land or other properties needed as collateral. Much of the bank's lending consists of short-term loans extended to cooperatives for commodity price support. Farmers also obtain credit from merchants, wealthy farmers, and money lenders,

often at extortionate interest rates. Much of the World Bank's lending for agricultural projects in Turkey is channeled through the TCZB. Agricultural extension and research services are poorly organized and generally inadequate because of shortages of qualified advisers, transportation, and equipment. Well-trained personnel willing to work in the field are difficult to find, and agricultural research is fragmented among more than ninety government and university institutes. Research is organized by commodity, with independent units for such major crops as cotton, tobacco, and citrus fruit. Observers note that coordination of the efforts of different research units and links between extension services are inadequate. During the mid-1980s, the government attempted to strengthen and rationalize research and extension services, but the organizational complexity of the entities involved made reform difficult.

Irrigation

Getting enough water to crops is a major problem for many Turkish farmers. Rainfall tends to be relatively abundant and regular in the coastal areas because of the mountains behind them. However, the bulk of the agricultural land is on the Anatolian Plateau, which receives less rainfall because it is ringed by mountains. Although rainfall on the plateau varies considerably among regions, it is barely adequate over large areas. In addition, the amount and time of rains vary sharply from year to year, causing sharp fluctuations in harvests. Since World War II, officials have stressed irrigation as a means of increasing and stabilizing farm output, and irrigation projects have consumed more than half of public investment in agriculture. In the mid-1980s, observers estimated that private irrigation, depending on weirs

and small barrages to direct water into fields, reached up to 1 million hectares. In addition, some farmers pumped water from wells to irrigate their own fields. Development of large-scale irrigation was delayed until the 1960s. Public-sector irrigation systems, built and operated by the General Directorate of State Hydraulic Works (Devlet Su Isleri--DSI) under the Ministry of Energy and Natural Resources, tend to be large and costly. Most provide water for entire valleys, and some large projects--for example, the Southeast Anatolian Project (Güneydogu Anadolu Projesi--GAP)--combine water supplies for urban areas, protection from flooding, hydroelectric power, and irrigation. Irrigation projects are dispersed throughout the country, but most are concentrated in the coastal regions of the Aegean and Mediterranean seas, where the longer growing seasons are particularly favorable to crops. Public irrigation water was available to 3. 7 million hectares in the mid-1990s, although the area irrigated with public water totaled about 3 million hectares. Deficiencies in irrigation included a serious lag between the construction of the main parts of an irrigation system and the completion of land leveling and drainage on farms. Also, crop research and farmer training were inadequate to assure the planting of suitable crops to obtain maximum yields from irrigated land. In the late 1970s, government officials estimated that only one-third of the irrigated land was being cultivated to its full potential. Moreover, low user fees did not initially permit the authorities to regain their initial investments; the fees were adjusted in the 1980s, however. Major projects were planned to expand the irrigation system because government surveys had indicated that irrigation of up to 8. 7 million hectares was possible. The most important project of the late 1980s

and early 1990s is the GAP, which is linked with the 2, 400-megawatt Atatürk Dam on the Euphrates River and is expected to irrigate 1. 7 million hectares when it is completed in 2002. The system consists of a twin-bore 24. 6-kilometer tunnel, which will take water from the reservoir to irrigate the plains around Harran, Mardin, and Ceylanpinar in southeastern Turkey. In the GAP region, farmers face a six-month dry season allowing them only one cash harvest per year. Irrigation will probably enable expansion to two or even three harvests. Crop rotation, which is largely unknown in areas without irrigation, has been introduced in the GAP region. Winter vegetables are expected to alternate with cotton as the summer crop. Although wheat and pulses dominate cropping patterns, cotton could take a larger share as access to water increases. The government projects that the GAP will increase Turkish wheat production by more than 50 percent, barley by a similar figure, and the region's production of cotton by more than four times by 2005, thus increasing national cotton production by 60 percent. The value of food surpluses expected to result from this project is estimated at US$5 billion.

Land Use

Turkey's land surface totals about 78 million hectares, of which roughly 48 million hectares were being used for some form of agriculture by 1991. There were almost 24. 2 million hectares in field crops, of which 5. 2 million lay fallow. Another 3. 7 million hectares were in use as vineyards, orchards, and olive groves, and 20. 2 million hectares were covered by forests and other woodlands. Other land areas accounted for about 29 million hectares; included in this figure was land classified as lakes, marshes, wasteland, and

built-up areas. The " other" category also included about 9 million hectares of permanent pastureland. During the twentieth century, population pressure resulted in the expansion of farmland. The cultivated area increased from about 8 million hectares in the 1920s to nearly 19 million hectares in 1952 and to almost 28 million hectares by 1991. Using Marshall Plan credits that first became available in 1948, Turkey began to import large numbers of tractors, which made it feasible to expand cultivation of marginal lands, especially on the Anatolian Plateau. Although total production grew rapidly, average yields did not. By about 1970, nearly all arable land was under cultivation. Cultivation increased primarily at the expense of meadows and grasslands, which diminished from about 46 million hectares in the mid-1920s to about 14 million hectares in the mid-1980s. Although cultivation of the larger area made greater agricultural production possible over the short run, it created long-term problems for livestock production. It also resulted in the destruction of tree cover and the plowing of marginal fields that were too steep and that received barely sufficient rainfall even in normal years. By the early 1960s, government agents were encouraging farmers to practice contour plowing and to take other measures to minimize erosion, but to little effect. By the late 1970s, more than half the country's land was judged to have serious erosion problems, and some plains regions were experiencing dust-bowl conditions. All of Turkey was affected, with the mountainous eastern provinces hit hardest. Some areas lost all topsoil and could support few plants. In the 1970s, the government conducted land-use studies and found that more than one-fifth of the land should have been used differently to achieve optimum long-term production. Misuse was greatest in rain-fed

cropped fields, but some grazing land and wasteland were found better suited to other uses such as cropping and forestry. Turkey's unusually high proportion of fallow land also limited production; in 1981 the government began encouraging double cropping and the planting of feed crops on fallow fields. The government also was considering a broad land-use policy. However, reform proved difficult because of government inefficiency and the lack of alternative crops in areas cut off from markets, where farmers had little choice but to use their land to grow grain to feed their families. Expansion of the road network, irrigation facilities, and extension services continued to offer hope for eventual improvements in land use.

Land Tenure

From the time of Atatürk, it has been generally recognized that land reform would speed rural development. Most attention focused on land redistribution--a highly charged political issue. People who favored land reform pointed to the higher yield achieved by owner-operators and attacked absentee landlords. Opponents pointed out that land reform would not solve the difficulties of the rural population because there was insufficient land to establish farms large enough to support families. Whatever the merits of land reform proposals, large landowners effectively blocked most action, and governments often lacked the will to implement those measures that were enacted. Moreover, landless peasants continued to migrate to the cities in sufficient numbers to reduce the pressure for reform. Historically, Turkey has been a land inhabited by independent peasants. The Ottoman state restricted the growth of a landowning class; and in the early years of Ottoman rule, the central government retained ownership of most of the

land, which was leased to farmers under relatively secure tenure arrangements. To maintain farms large enough to support a family and a pair of oxen, the Ottomans exempted land from Muslim inheritance policy, a practice subsequently reversed as the state reinstituted Islamic inheritance practices, sold land to gain revenues, and authorized land transfers. These changes favored the growth of a class of large landowners during the latter decades of the empire. By 1923 landownership had shifted in favor of a small group with large holdings. However, during the republican period land concentration declined, a development that perhaps reflected the effects of division through inheritance or the attraction of alternative investments. At the same time, the opening of new areas to cultivation made land available to those farmers without holdings. Because no comprehensive cadastral surveys have been carried out, landownership data are still poor in the mid-1990s, but a general picture of ownership patterns emerges. According to the 1980 agricultural census, about 78 percent of the farms consisted of five hectares or less and together accounted for 60 percent of farmland. About 23 percent of the farms were between five and twenty hectares in size, accounting for another 18 percent of the land. Fewer than 4 percent of the farms covered more than twenty hectares, although these occupied more than 15 percent of the farmland. Few farms exceeded 100 hectares. Although experts believed that landownership was more concentrated than data on farm size implied, it was clear that Turkey had more equal distribution of land than did many other developing countries. Some observers estimate that, despite widespread leasing and sharecropping, a majority of farms are owner operated. However, tenure patterns vary

significantly among regions, reflecting different geographical conditions and historical developments. In general, Islamic inheritance practices, which establish set shares for each male and female child, cause fragmented holdings and make leasing and sharecropping extensive. Joint ownership of land is common, and even very small farms normally consist of several noncontiguous plots. Farmers often rent out some of their own land while leasing or sharecropping other plots in order to till areas reasonably close together and large enough to support their families. Owners of small plots may rent out their land and work on other farms or in town. Owners of large holdings, sometimes whole villages, usually rent out all or most of their land. Between one-tenth and one-fifth of farmers lease or sharecrop the land they till, and landless rural families also work as farm laborers. Tenancy arrangements are many and complex. Some leaseholds can be inherited, but many tenants lack sufficient security to make a long-term commitment to the soil they till. Sharecroppers generally receive about half of the crop, with the owner supplying inputs such as seed and fertilizer. Grazing rights are often held by groups rather than individuals. Many villages have common pastures open to the village herd. Cultivated areas have expanded as individuals appropriate village pastureland to grow grains, a process that not only has caused village strife but also has worsened erosion. After 1950 the commercialization of agriculture accelerated changes in land-use and tenure patterns. Many of the large holdings on the coastal plains of the Aegean Sea and Mediterranean Sea were converted to modern farms, often benefiting from irrigation projects and specializing in high-value fruits, or industrial crops. Landless families supplied the labor for such modern farms, while

sharecroppers and owners of small farms tilled the adjacent land. In these more fertile areas, a five-hectare farm might produce as much income as a twenty-hectare farm in the semiarid central Anatolian Plateau. Southeastern Anatolia, one of the poorest regions of Turkey, included feudal-style landlords who controlled entire villages and many landless families. Although Atatürk had stressed the need for upper and lower limits on landownership, the latter to halt the fragmentation process, little in the way of effective land reform had been carried out by the early 1990s. Nevertheless, more than 3 million hectares had been distributed to landless farmers between the 1920s and 1970, most of it state land. The problems of land tenure remain, and some have worsened. Many farms are too small to support a family and too fragmented for efficient cultivation. Tenancy arrangements foster neither long-term soil productivity nor the welfare of tenants. In many areas, the rural poor are becoming poorer while land better suited to grazing continues to be converted to grain fields. At the same time, however, many large landholdings have been turned into productive modern farms that contribute to the country's improved agricultural performance. Major irrigation projects in the Euphrates River Valley and elsewhere offer the prospect of increasing the supply of productive land. The declining population growth rate has reduced the pressure for land reform, and industrialization offers an alternative for landless farm workers, who prefer city life to that of rural areas.

Cropping Patterns and Production

Turkey's varied ecology allows farmers to grow many crops, yet the bulk of the arable land and the greater part of the farm population traditionally have

been dedicated to producing cereal crops, which supply 70 percent of Turkey's food consumption in terms of calories. As of 1992, cereal crops occupied 12. 5 million hectares or more than half of the country's cultivated area. Wheat accounted for about 9 million hectares of this area, and barley for about 3 million hectares. Other grain crops include rye, millet, corn, and rice. Grains are produced in most parts of the country (see fig. 9). Small or subsistence farmers produce most of Turkey's grain. Because most fields depend on rainfall, production varies considerably from year to year. Farmers traditionally have left grain fields fallow for a year to allow water to accumulate in the soil. Although the government encourages planting soybeans as a secondary crop following the wheat crop, farmers have been slow to adopt the practice. The integration of forage crops into crop rotation and the elimination of fallow periods offer the possibility of increased soil fertility and moisture retention. Wheat has long been the basic food in the Turkish diet, generally eaten in the form of bread--of which Turkish per capita consumption ranks among the highest in the world. Farmers consume about half of the crop; the other half moves through commercial channels. The Soil Products Office buys up to one-fifth of the crop at support prices, which largely determine the prices for the open market, and handles most imports and exports of grain. Production increases in the late 1970s turned the country into a wheat exporter. After 1980 the country also imported small amounts of high-quality wheat to improve baked products. Steady increases continued in the 1980s, with wheat production averaging 15 million tons. Even in the drought-stricken 1989 harvest, wheat production totaled 16. 2 million tons. By the early 1990s, wheat production was

averaging 20 million tons per year. Barley production did not rise substantially after the 1960s; crops averaged 6 million tons per year in the 1980s and 7 million tons in the early 1990s. One reason for the slow growth in barley production was a change in dietary habits: whereas barley previously had been a staple food, it came to be used almost exclusively as animal feed or for export. Harvests of corn, which is also used for feed, increased from an average of about 1. 1 million tons per year during the 1970s to around 2 million tons per year in the early 1990s (see table 7, Appendix A). Turkey is the main pulse producer in the Middle East, and pulse output increased dramatically from an annual average of 617, 000 tons in the 1970-75 period to more than 1. 1 million tons in the 1980-85 period. By the early 1990s, however, pulse output had fallen to about 860, 000 tons in 1990 and 610, 000 tons in 1992. The country made a major effort to meet the increased demand for dry beans, lentils, and peas in the Middle East, and exported increasing amounts during the 1980s. Nevertheless, declining export demand in the 1990s and better opportunities in raising other crops led to falling output. Cotton is the major industrial crop in terms of value, supplying seed for vegetable oil and fiber for textiles, a major export. In the 1950s and 1960s, cotton cultivation increased rapidly following the introduction of new varieties and the extension of irrigation. The main cotton areas are on the coastal plains of the south and southwest, where yields have exceeded international averages since the 1950s. Annual output of cotton lint rose from about 145, 000 tons in the early 1950s to about 600, 000 tons in the early 1990s. Exports averaged 10 percent of production in the early 1990s, having fallen from around 30 percent in the 1980s. Tobacco

is a classic industrial crop, but output rose relatively slowly after World War II, reaching about 200, 000 tons per year by the 1980s and 300, 000 tons by the early 1990s. European consumers' preference for Virginia tobacco was a factor in the slow expansion, although foreign investment in the domestic tobacco industry in the 1980s spurred production. Sugar beet production expanded in the 1950s and 1960s, leveling off at a rate sufficient to produce an annual average of 677, 000 tons during the first half of the 1970s. The yield met domestic needs and allowed limited exports. Production jumped sharply, to about 1. 5 million tons in 1981, and ended the decade at around 11 million tons in 1989. The annual average in the early 1990s was 14 million tons. Oilseed cultivation expanded during the 1980s and 1990s, but harvests averaging about 2 million tons in the latter half of the 1980s and early 1990s continued to lag behind consumption, causing Turkey to import vegetable oils. Production of sunflower seeds, the main source of edible oil, declined, and the use of degenerated seed resulted in lower oil production. In 1987 Turkey produced 1. 1 million tons of sunflower seeds; by 1992 production had declined to 950, 000 tons. Olive production has experienced a two-year cycle with small crops every other year. Cultivation of opium poppies as a field crop traditionally was fairly extensive in parts of the Anatolian Plateau. The opium gum had cash value, and the plant served villagers as food, forage, and thatch. Official figures showed that during the second half of the 1960s, annual production of opium gum averaged about 110 tons per year. During this period, the crop played an important role in the international illegal drug trade. With the United States pushing for a ban on poppy cultivation, after 1974 the Turkish government strictly controlled

poppy harvesting, requiring that the mature pod be removed and processed at a state-run plant. During the first half of the 1990s, the area sown with opium ranged from 7, 000 to 19, 000 hectares, producing between 3, 700 and 13, 700 tons of opium pods. Most observers believed that government measures were effective in keeping opium derivatives in legal channels without causing undue hardship to farmers. During the mid-1990s, cultivation of fruit, nuts, and vegetables contributed nearly 33 percent of the value of crop production, although such cultivation occupied only about 13 percent of cultivated land. Improved export possibilities led to the expansion of fruit and vegetable hectarage during the 1980s and 1990s; in 1991 about 593, 000 hectares were devoted to green vegetables, tomatoes, and other produce, of which about 20, 000 hectares were grown in greenhouses. Turkey is a major producer of high-quality hazelnuts, despite stiff competition in international markets from rising production in Spain, the United States, and Italy. The annual crop averages 400, 000 tons per year, roughly half of which is exported. Turkey is also a major producer and exporter of various fruits, including grapes, sultana raisins, citrus fruits, and melons. Total fruit and vegetable exports yielded Turkey nearly US$1 billion per year in the early 1990s.

Livestock

Animal husbandry is an important part of Turkey's agricultural sector and economy. Livestock products, including meat, milk, eggs, wool, and hides, contributed more than 33 percent of the value of agricultural output in the mid-1990s. Sheep and cattle are kept mainly on the grazing lands of Anatolia. Despite growing demand for animal products in Turkey's cities as

incomes rose, animal numbers were static in the 1980s and fell in the early 1990s. Although yields were growing, traditional methods kept the livestock industry from achieving its considerable potential. Only 20 percent of cattle, for example, were high-yielding variety breeds. The oil boom in the Persian Gulf, however, led to an expansion of export markets and to major investments in the meat industry of the eastern Turkish towns of Erzurum and Van. In 1992 meat exports totaled US$140 million; exports, however, were being hurt by the UN embargo on Iraq. Wool is also a significant export. Traditional Turkish sheep varieties produce a coarse wool suitable for carpets and blankets rather than clothing. Merino sheep, which produce a finer wool, have been introduced in the Bursa region. During the 1950s, officials expected that livestock production would decline as grain cultivation increased at the expense of grazing lands. In fact, the period of most rapid expansion of grain cultivation also saw an upswing in the number of farm animals. One result was overgrazing of grasslands, wasteland, forests, and mountain meadows, which damaged the soil, although not enough to reduce the size of herds. Another result was smaller, less productive animals. Cattle, which process coarse forage less efficiently than sheep and goats, suffered most from the loss of grazing land, but nearly all animals produced less meat and milk and fewer offspring. Farmers made a modest beginning toward improving livestock production techniques in the 1980s, but traditional practices were hard to change. Even if they have no land, most village families own a few animals. Animals essentially scrounge for an existence, foraging on crop stubble, weeds, and grass on fallow land, and on uncultivable grazing areas. Few farmers integrate livestock production with

cropping activities or match feed supply to their animals' requirements. Rural families raise livestock on land that lacks alternative uses, but the system does not allow the high levels of production necessary to meet the needs of the rapidly expanding population. Moreover, overgrazing has caused environmental damage that is difficult to repair. Data on the livestock industry are poor but indicative of general trends. Official statistics reveal that recent years have seen changes in the relative roles of various animals in the farm economy. Given Turkish dietary preferences, sheep have relatively high value and increased in number from about 36. 8 million head in 1970 to about 40. 4 million head in 1992. The number of goats declined during the same period, from about 18. 9 million to about 10. 7 million because of grazing restrictions in forests and government policies encouraging herd reduction. The use of tractors probably has caused the decline in the number of oxen. Cattle, which have risen in value as farmers strive to meet the growing urban demand for milk, increased in number from about 2. 1 million in 1970 to about 11. 9 million in 1992. Livestock output has increased over the years, although less rapidly than demand. In the early 1980s, the country was essentially self-sufficient in milk products, producing about 5. 2 million tons per year. By the early 1990s, milk output had doubled, to 10 million tons per year. Annual meat production averaged 660, 000 tons per year; this figure, however, represents only an estimate because most slaughtering occurs outside official slaughterhouses. During the 1980s, the price for red meat increased sharply, leading to a fall in domestic meat demand and an increase in poultry consumption. However, meat demand was partially sustained by exports of live animals--some of them smuggled

over borders--to Middle Eastern countries, especially Iran and Iraq. The UN embargo on Iraq hurt domestic meat exporters after 1990. Poultry production expanded rapidly after 1980 and appears capable of rising with demand as incomes increase and diets begin to include animal products. Poultry exports to Iran and Iraq also grew in the 1980s but fell somewhat in the 1990s. Many Turkish poultry operations are small, producing between 5, 000 and 10, 000 fowl at a time. However, larger, integrated operations have also been established, particularly in urban areas. One, Yupi of Izmir, claims to be one of the largest poultry producers in the world. By 1992 Turkey had 134 million head of poultry, double the number that it had had in 1987.

Forestry and Fisheries

Forestry contributes little to the economy, but it holds potential for future development. In the early 1990s, Turkey's forests covered an estimated 20. 2 million hectares, or 201, 990 square kilometers (26 percent of the land area). Official statistics indicate that forests have doubled in size since 1950; the figures do not reflect actual growth in forested areas but rather continuing survey efforts and the inclusion of less productive wooded areas under the jurisdiction of the forestry administration. The most productive lumber area is the Black Sea region, followed by central, western, and southern Anatolia, where mostly pine wood is produced. The forests in the eastern part of the country are in poor condition and yield little besides firewood. Many forests are overmature because of poor management and infrequent cutting, and thus only about 20 percent of the total forested area is commercially exploitable. By the mid-1950s, the state had taken over all forest areas from private owners. Compensation was largely in the form of

access to fuel wood at low prices. The one-third of the rural population that lives in or near forests includes many of the country's poorest families. The bulk of their income comes from farming; forest products provide supplemental income and fuel. The main objective of forest management is control of traditional logging and grazing rights; the lack of alternative fuel supplies makes it impossible to stop illegal wood harvests in state forests. The General Directorate of Forestry in the Ministry of Forestry has assumed responsibility for logging and reforestation operations and for reducing erosion. Whereas wood production has been substantially below potential, partly because of a lack of equipment and roads, reforestation efforts increased Turkey's wooded area by about 2 percent between 1977 and 1981. During the early 1980s, annual wood production averaged 5. 2 million cubic meters of lumber. By 1991 production had risen to about 6. 5 million cubic meters. Despite the country's long coastline and large freshwater bodies, fishing is an underdeveloped industry. The Black Sea and the Sea of Marmara constitute the main fishing grounds. The tonnage of the fishing fleet has increased, but in the early 1990s it still included about 7, 000 traditional boats, some 1, 500 of which lacked motors. The annual catch rose from around 430, 000 tons in 1981 to about 625, 200 tons in 1988, but declined to about 365, 000 tons in 1991. Frogs' legs, snails, shrimp, and crayfish are exported to Europe. Historically, the agriculture sector has been Turkey's largest employer and a major contributor to the country's GDP, although its share of the economy has fallen consistently over several decades. In 1999, it accounted for 15 percent of GDP, while employing about half of the labor force . Although the sector has grown over time, the growth

has been only about 1 percent faster than the country's population, and much slower than that of the industrial and services sectors. Farmers have been slow to adopt modern techniques, and much of the potential land and water resources are inefficiently managed. Nevertheless, Turkey is one of the few countries in the world that is self-sufficient in terms of food. The country's fertile soil, access to sufficient water, a suitable climate, and hard-working farmers, all make for a successful agricultural sector. In addition, a broad range of crops can be raised because of the variety of different climates throughout the land. This has allowed Turkey to become the largest producer and exporter of agricultural products in the Near East and North African regions. In fact, according to The Economist 's world rankings, Turkey is one of the top 10 producers of fruit, wheat, and cotton in the world. More impressively, it ranks among the top 5 producers of vegetables, tea, and raw wool. As a result of this massive production base, Turkey enjoys a comparative advantage in many agricultural products, and a positive trade balance in agriculture that contributes significant relief to an overall trade deficit . The country's main export markets are the EU and the United States, to which Turkey exports dried fruit and nuts, cotton, and tobacco. Another major export market is the Middle East, which buys fresh fruit, vegetables, and meats from Turkey. By 1999, the value of agricultural exports had risen to US$2. 4 billion and accounted for 9 percent of Turkey's export earnings (down from 60 percent in 1980). However, these figures could be misleading insofar as almost 50 percent of the manufactured exports also originate in the agricultural sector (primarily textiles and clothing). Therefore, the agricultural sector's direct and indirect total contribution would still account

for 50 percent of total exports. Of Turkey's agricultural sector, crops account for 55 percent of the gross value, livestock represents 34 percent, and forestry and fishing make up the rest. The vegetal (of, or relating to, plants and vegetables) production is primarily made up of cereals, pulses (edible seeds of various pod-bearing plants such as peas, beans, or lentils), industrial crops, and perishables. Of these, cereal crops occupy more than half of the cultivated land. The main species of cereal crops produced in Turkey are wheat, barley, oats, rye, maize, millet, and rice. These crops are produced in most parts of the country, with a heavier concentration in the central regions. Of all these, wheat has a special place in the Turkish economy. Turkey is both a top 10 producer and a top 10 consumer of wheat in the world. It is the essential food element in the Turkish diet, generally eaten in the form of bread. Production increases in the late 1970s enabled the country to become a wheat exporter and, although the output slowed down in the early 1980s, renewed efforts have seen wheat production continue to expand. In 1998, the total wheat production was 21 million tons. Turkey is also the main pulse producer in the Middle East and one of the leading producers in the world. The pulse output increased from 617, 000 tons in the early 1970s to 1. 1 million tons in the 1980s and 1. 6 million tons in 1998. Since the mid-1990s, over 60 countries import Turkish pulses, primarily chickpeas and lentils. The major industrial crops produced in Turkey are cotton, tobacco, and sugar beets. Cotton is crucial to the wider economy since it provides the fiber for textiles, the leading category of Turkish exports. Cotton is primarily grown on the coastal plains of the Mediterranean and Aegean seas, in the south and southwest. Cotton

production in 1999 was 855, 000 tons. Only 10 percent of cotton is exported in raw form, while the rest feeds the domestic textile industry. The Southeastern Anatolian Project is Turkey's largest development project. It seeks improvements in energy production, tourism, mining, gasoline, education, health, communications, industry and transport, and in active farming by means of extensive irrigation systems. When the project is completed, it is estimated that Turkey's cotton production will expand to twice the level of production in the year 2000. Another industrial crop, sugar beets, saw a dramatic increase in production in the 1980s and 1990s. In the 1970s, annual production was around 650, 000 tons, meeting only domestic needs. In the 1980s, this increased to 1. 5 million tons, and in 1998 the total production of sugar beets was 22 million tons. Tobacco has been grown in Turkey for many centuries, and the tobacco industry is a major player in the Turkish economy, contributing 18 percent of total agricultural exports. Turkey ranks as the fifth largest tobacco-producing country in the world, and its number-one producer of Oriental tobacco, of which it grows over half of the world's supply. The country is also the world's fourth largest tobacco exporter. The crops are primarily concentrated on the Aegean coast and Black Sea regions, but eastern Anatolia also contributes to the output. The crop yield varies considerably from year to year due to climatic changes, but averages around 200, 000 to 300, 000 tons annually. On average, 30 percent of this output is exported to the United States and another 20 percent to the EU. Perishable fruit and vegetables are also important to the Turkish economy. Out of the 140 perishables grown in the world, the country produces 80 varieties of fresh fruits and vegetables and exports 30 kinds of

vegetable and 20 kinds of fruit. These include grapes, citrus fruit, melons, potatoes, onions, tomatoes, olives, and cucumbers. These exports are worth over US$1 billion annually to Turkey. Turkey is prominent, too, in the world trade of edible nuts and dried fruits. In this category of agricultural products, hazelnuts, pistachios, sultanas, dried apricots, and dried figs are important exports. Records indicate that hazelnuts have been grown along the Black Sea coast since 300 B. C. and Turkey is a major producer, competing with Spain, Italy, and the United States in the international markets. In 1998, Turkish hazelnut production reached 580, 000 tons. Turkey also leads the world in figs, producing 36 percent of the world's total production and accounting for 70-75 percent of total world exports. Animal husbandry is also significant in the agricultural sector. Turkey has traditionally been an important supplier of live sheep, lamb, and mutton to the Middle East, especially Iran and Iraq, but the United Nations (UN) embargo on Iraq, following the Gulf War, adversely affected domestic meat exporters and led to a significant decline in exports in the 1990s. Sheep constitute 59 percent of the existing animal total in Turkey, followed by cattle (22 percent) and goats, both the common goat and the Angora breed (16 percent). Most livestock is grazed in the central and eastern Anatolian plains, as well as in the western Anatolian region. Turkey is self-sufficient in milk products, supplying around 10 million tons per year. Turkey's basic agricultural resources are vast and offer considerable potential for expansion. However, to maximize this potential and increase efficiency, the agricultural sector needs government involvement in structural reforms and development projects. One of the several aims of the Southeastern Anatolian Project (GAP)

is to strengthen and expand the agricultural resource base for one of the most underdeveloped parts of the country. Indeed, GAP is possibly one of the most crucial projects for Turkey, since the large economic disparity between urban and rural areas has created social tension, and contributed to damaging levels of migration from the countryside to the cities, primarily in the southeast. This situation poses a serious threat to future agricultural development and to the general economic health of Turkey.