

An Introduction to Jordan's Agriculture Sector and Agricultural Policies

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An Introduction to Jordan's Agriculture Sector and Agricultural Policies

Introduction

After decades of strong economic growth, the Hashemite Kingdom of Jordan faced an economic crisis in the late 1980s. By the mid-1980s, real income growth had slowed and the economy actually contracted in 1988. Debt was extremely burdensome at more than 200 percent of gross domestic product (GDP), and foreign exchange reserves were at historic lows, covering less than one month's import needs. The Government of Jordan (GOJ) took preemptive action by implementing a long-term structural adjustment process and as a result, many substantial and far-reaching changes in overall economic and sectoral policies have been made. The agriculture sector, a traditional recipient of subsidies in most countries, was the largest contributor to the government's subsidy expenditures and therefore was an early candidate for reform. Since the mid-1990s, the agricultural sector in the Kingdom has undergone a process of restructuring that is resulting in one of the least distorted agriculture sectors in the world.

Jordan is now an observer at the World Trade Organization (WTO) and is currently negotiating its accession to the WTO. The Agreement on Agriculture negotiated by the members of the General Agreement on Trade and Tariffs (GATT) during the Uruguay Round requires a commitment to continuous liberalization of agricultural trade through reductions in tariff and non-tariff barriers to trade. In addition, the agreement also stipulates that member countries must reduce trade-distorting policies in agriculture such as domestic support programs. In virtually every way possible, Jordan's reforms under its restructuring program have exceeded the requirements of the WTO Agreement on Agriculture.

The pace of reforms in the agriculture sector has been phenomenal and that is the primary reason for this document. Policies that were in place as recently as the fall of 1997 are no longer valid and so many documents and descriptions of Jordan's agricultural sector and its policies are no longer correct. This document will correct that situation by presenting the progression of policies in Jordan's agriculture sector, emphasizing current policies and even further changes already targeted.

In the following sections, a brief perspective on the size of Jordan's agriculture sector is presented followed a discussion of the major objectives of Jordan's agricultural policy. That is followed by a description of each of the government programs or expenditures related to agriculture or specifically directed at agriculture. Each of these policies is discussed in terms of compliance with WTO guidelines and mandated reforms. Existing bilateral trade accords with agriculture components are also identified. Finally, Jordan's agriculture-related state trading enterprises are examined for compliance with WTO regulations.

Jordan's Economic Situation

Jordan, with an average per capita income in 1997 of 1,200 Jordanian Dinars (JD) or about US\$1,700 (*Central Bank of Jordan*¹), is officially classified by the World Bank as a lower middle-income developing country. The population in 1997 is estimated at 4.6 million persons. More than half the population is under the age of 16 and so the labor force is less than one-quarter of the population. The population growth rate is about 3.6 percent per annum, one of the highest rates in the world. The high rate of growth in population was exacerbated in 1990 and 1991 with the return of 300,000 Jordanians from Gulf States in the aftermath of the Gulf War (see Table 1).

Table 1. Macroeconomic Indicators, 1980-1997

	Population growth rate (percent)	Real GDP growth (percent)	Real GDP growth per capita (percent)	Months of import coverage 1/ (months)	Total debt as a share of GDP (percent)
1980	n/a	n/a	n/a	4.1	36.8
1981	3.9	10.3	6.2	3.0	38.1
1982	3.9	2.5	-1.3	2.3	40.7
1983	3.9	2.5	-1.3	2.4	45.1
1984	3.9	1.4	-2.4	1.5	49.0
1985	3.9	4.1	0.2	1.3	54.3
1986	3.9	7.0	3.0	1.4	57.9
1987	3.9	2.9	-1.0	1.3	69.2
1988	3.9	-1.8	-5.5	0.3	209.4
1989	3.9	-13.4	-16.6	1.7	189.4
1990	10.3	1.0	-8.5	2.7	203.0
1991	6.7	1.8	-4.6	2.8	187.4
1992	3.9	16.1	11.7	2.1	140.8
1993	3.9	5.6	1.7	4.3	124.5
1994	3.7	8.1	4.3	4.6	119.4
1995	3.7	6.9	3.1	4.8	104.5
1996	3.6	5.2	1.6	3.9	n/a
1997	3.6	5.0	1.4	n/a	n/a

Note: n/a denotes not available.

1/ Computed as foreign exchange reserves divided by the average monthly value of imports.

Source: Calculated from data in Annex A.

At the end of the 1980s, Jordan's economy was on rocky ground. After strong growth in the 1970s and even into the early 1980s, economic growth fell to such low rates that real per capita GDP declined in all but two years between 1981 and 1989. Jordan's foreign exchange reserves in terms of months of import coverage were falling steadily, reaching a critical point in 1989 when only a few days worth of imports could be paid for with reserves. At the same time, the government's total debt as a share of GDP nearly doubled between 1980 and 1988.

¹ Sources are noted in parentheses.

The poor state of Jordan's economy was due to a number of factors. First, Jordan had benefited from the oil boom in the 1970s—not directly but indirectly through provision of labor to oil producing countries and through development assistance. As the global oil economy cooled, Jordan's exports, which primarily went to neighboring countries, also slowed. Second, investment in Jordan's economy had fallen significantly in nominal and real terms each year between 1982-85. Although investment did rise again later in the 1980s, it remained JD100 million below the peak investment of 1982.

The critical condition of Jordan's economy in 1989 led to negotiation with the International Monetary Fund (IMF) for assistance in restructuring the economy. A structural adjustment loan was approved and Jordan began the long process of restructuring. The government has not waived in its commitments to a complete reform of the economy. It began with a major devaluation of the Dinar in 1989, accompanied by trade liberalization through tariff reductions and removal of import barriers. In 1994 a World Bank loan to restructure the agricultural sector was procured. In 1995, the general economic reforms broadened to encompass the financial system, modernization of the regulatory environment, and privatization. The restructuring program has been moderately successful. While real income growth on a per capita basis declined in 1990-1991, real growth since then has averaged about 6 percent per annum, the months of import coverage has returned to the levels of the 1970s, and government debt has consistently been repaid.

Characteristics of Jordan's Agriculture Sector

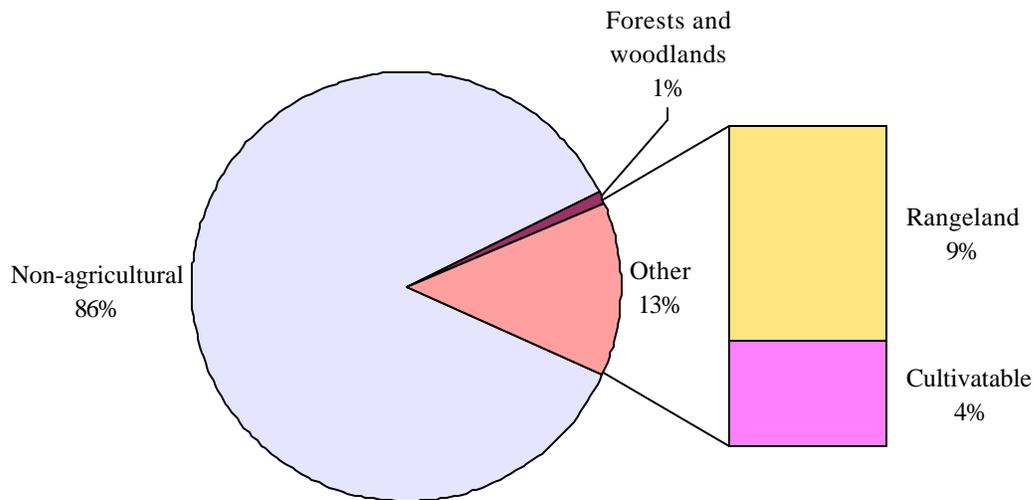
Agriculture's direct contribution to GDP has been around 5 percent since 1995, about 2-3 points less than its contribution in 1992. It is estimated, however, that 25-30 percent of economic activity depends on agriculture. In 1997, the average GDP per agricultural holding (roughly equivalent to a farmer) was estimated at about JD2,700 or, on a per capita basis, around JD450². This is only one-third of the national average per capita income.

Of Jordan's total land area of about 8 million hectares, only a small portion is suitable for producing crops (see Figure 1). It is currently estimated that there are only 380,000 hectares of land that may be cultivated (*Ministry of Agriculture*). Tree crops are planted on about 90,000 hectares, leaving arable land—land that can be used to produce annual crops—at about 4 percent of the total land base. Less than 20 percent of cultivatable land is irrigated (*Department of Statistics*). Most vegetable land is irrigated, one-third of tree crops are produced with the benefit of irrigation, but only seven percent of field crop area is irrigated. Thus, variation in rainfall from year to year mostly effects field crops such as wheat, barley, and pulses.

The eastern half of Jordan is desert or pre-desert plains with very little rainfall. Rainfall is somewhat higher in the western part of the country—the highlands and the Jordan Valley—but even then, it is highly erratic. The climate favors year-round production of horticultural products and so, where irrigation water is available, vegetables and annual fruits are the primary crops.

² Average farm income is computed as agriculture GDP (*Central Bank of Jordan*) divided by the number of holdings as reported in preliminary reports of the 1977 Agriculture Census (*Department of Statistics*). Per capita income is derived from the authors' estimate of farm population and average size of farm household.

Figure 1. Land Use in Jordan, Average 1994-96



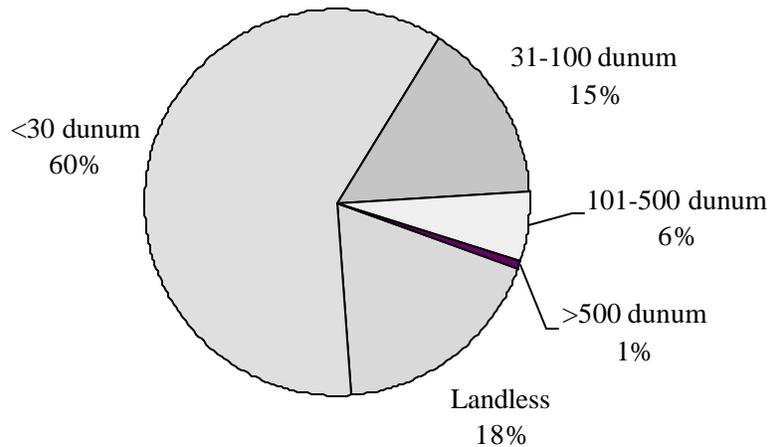
The Jordan Valley and the Ghors of Karak form the “breadbasket” (actually, the “fruit and vegetable” basket) of Jordan. A large share of the land in these two areas is irrigated with water supplied by the government from dams and other water works. Land productivity in these two areas has declined in recent years as a result of decades of intensive farming and continuous irrigation. Traditional canal irrigation systems are being replaced with water efficient systems and so salinity problems should decline. However, intensive use of the land is likely to continue, especially if Jordan’s horticultural exports expand as expected after admission to the WTO.

In the 1950s, the government developed the original irrigation systems in the Jordan Valley and then distributed the land to farmers. Each holding is limited to 30-40 dunum (3-4 hectares) and cannot be divided into smaller holdings. However, because of inheritance laws, there can be, and often are, several owners of a single holding. The Jordan Valley land law has recently been amended to permit leasing of land for up to 30 years as compared to the original regulation which limited leasing to a 10 year time horizon. This is expected to increase producer incentives to invest and further develop holdings in the Jordan Valley.

Much of the land in the Badia and western highlands is irrigated from groundwater. These regions are very productive as long as rainfall is sufficient each year to replenish groundwater reserves. The reliance on rainfall for the continual replenishment of water resources makes long term sustainable agricultural production risky in these areas.

In 1983, the average farm size was 6.3 hectares; preliminary data from the 1997 Agriculture Census suggests that the average size has fallen to 4.2 hectares. As shown in Figure 2, Jordan’s farm sector is composed primarily of farms of less than 30 dunum (3 hectares). The smallest farms are often found in the highlands where inheritance customs result in smaller and smaller holdings. Larger farms are located in the dry plains bordering the desert that occupies the eastern two-thirds of the country. Neither of these farms—the very smallest or the larger farms—are likely to be highly profitable unless water is available from ground or other sources.

Figure 2. Size Distribution of Agricultural Holdings, 1997



Cash crop farms dominate in the valleys along the western border. These farms produce vegetables, citrus fruits, or bananas under irrigation and sell the bulk of their products. They tend to be the more profitable than farms in other areas of the country and therefore also tend to be early adopters in terms of technological advances. In irrigated areas of the highlands, farmers typically produce vegetables, fruits, and olives while some farmers are experimenting with cut flowers and other non-traditional agricultural products. Farmers in the irrigated highlands also sell the bulk of their output. In rainfed areas of the highlands (the area between the Jordan Valley and the plains bordering the desert), farmers typically produce cereals, olives, tobacco, grapes, apples, and nuts. Subsistence farms are usually the smallest holdings and are located in rainfed areas with few alternative employment opportunities. Most subsistence farmers, produce both livestock and crops but primarily for family consumption.

Livestock producers generate about 30 percent of the total income from farming. Preliminary data from the 1997 Census of Agriculture suggests there are about 16,300 holdings (farmers) producing livestock on public or rented land. Modern broiler and laying farms are usually found on rented land located in or near major cities.

Marketing Agricultural Products

Jordan's agricultural marketing system is still in a development stage. While mechanisms to get products to markets or slaughterhouses are well established, storage facilities are limited. This is especially true of cold storage and cold transport is costly. These deficiencies in the marketing system are a constraint to Jordan's greater participation in exporting higher-value agricultural products.

Most small farmers (without their own or easy access to other financial resources), fund their operational costs through commission agents or middlemen. Therefore, at harvest, most farmers are obliged to sell products to their agents. The farmer sorts his produce on the basis of size of the fruit or vegetable and then takes the product to the agent in central market. The agent will combine lots from many farmers and then sell the products at the market auction.

Buyers in the central markets include exporters, processors, and wholesalers. Agents maintain records of quantities delivered by farmers and at the end of the harvest season, accounts are settled. Farmers receive proceeds from the auction less fees and the cost of any inputs or other services provided by the agents. If market prices are very low due to large supplies of a product, some farmers may take away only enough money to purchase inputs for the next season.

Small quantities of horticultural products are sold directly off the farm to exporters or, in rare cases, to commission agents. Exporters buy in large quantities from contract producers and then move the goods to exporter workshops. At the workshops, the products are graded and packaged for export. Commission agents that buy at the farmgate take the produce to any of the large central markets in major cities around Jordan. Commission agents charge farmers about 5 percent of their market proceeds for transport and sales services if they collect the produce from the farm. They also charge farmers for their share of the “market facilities” tax of 4 percent.

Live animals are marketed either through traders who buy animals from grazing areas or, in the case of large livestock holders, at a large central market specifically for live animals. When animals are purchased directly from grazing areas, a trader or butcher will select from among mature animals and pay the holder on the spot. Butchers may then slaughter the animals for sale in their shops. Traders will buy from several livestock holders and take large consignments to the live animal central market. Buyers in the livestock market are principally slaughterhouses who then sell carcasses and cuts to retailers. Slaughterhouses are registered with the government and have inspection services that grade and certify both the live animal and the carcasses. Live animals are often imported, inspected for health at the port, and then usually slaughtered at a government port slaughter facility. About 25 percent of sheep are slaughtered outside of regulated slaughterhouses in the traditional way—on the farm in rural areas. This is especially true just before the Haj when families slaughter sheep to distribute to the poor. About one-third of annual slaughter occurs at that time of the year.

Crop and livestock producers appear to have little information upon which to base their production decisions. Lack of information on variables such as anticipated marketings, current and projected market prices, domestic and foreign demand, and such, puts producers at a disadvantage. Without appropriate market indicators, production and prices of vegetables fluctuate considerably from year to year and on a seasonal basis. For example, the price of potatoes between 1994 and 1996 varied by JD100/ton. Similar problems have been reported in the egg and broiler sector. Data are not available to examine this phenomenon in ruminant markets but it is likely that the same problem exists in such markets simply due to the biological lag in producing animal products. This pattern is less evident for tree fruits although again, it is likely that it is a problem for those products as well because of the biological lag in tree fruit production after the decision to plant the trees is made.

Production Profile

Tomatoes are by far the largest crop in Jordan, accounting for 30 percent of the volume of output. Other major vegetable and fruit crops are watermelons, potatoes, and olives, and major field crops are wheat and barley. These crops account for almost 45 percent of the land used in agriculture.

Tomato production has been growing rapidly thus far in the 1990s, rising at 8.4 percent per year compared to about 5.5 percent per year in the 1980s. This growth can be attributed to several factors. The first is that Jordan has a natural comparative advantage in producing tomatoes because the growing season is long, which permits up to two plantings per year, and agronomic conditions favor high yields, even with scarce water resources. The historically low price of water has encouraged expansion of area planted to this crop. The rescheduling of water prices to reflect its cost has led to the conversion of traditional irrigation systems in the Jordan Valley to drip irrigation. The latter has significantly increased the efficiency and effectiveness of irrigation in tomato production, enabling sustained increases in area. Finally, the popularity of the table tomato in traditional and international dishes and the establishment of three tomato processing facilities in Jordan have also contributed to expanded domestic production.

Jordan's potato production is between 25 and 35 percent of its tomato production. Growth in potato production in Jordan has been fairly consistent since 1980, averaging about 10 percent per year. In the past three years, production rose significantly and the farmgate price of potatoes plummeted from a high of JD180/ton in 1994 to JD80/ton in 1996. This extreme variation in prices is a consequence of factors such as disease, frost, differences in planted varieties, and variations in planted area.

Watermelon production has expanded rapidly in the western highlands, resulting in an annual average growth of 13.1 percent in production. As is the case with potatoes, watermelon output is quite variable because of the dependence on rainfall. Yields in 1996 averaged about 45 tons per hectare but were only 25 tons in 1995. The large increase in production in the past 5 years has put strong downward pressure on market prices—farm prices fell by about 40 percent between 1994 and 1996. As a result, area planted to watermelons has been declining but if prices rise again, production is likely to do so.

Jordan, along with many of the Mediterranean nations, produces olives. Olive trees are very hardy, well suited to the hilly terrain of the highlands, and can withstand the extreme variation in rainfall. However, the trees are quite susceptible to wind and other weather disturbances. While Jordan may not be the most competitive producer of olives and olive oils, the growing of olives is steeped in tradition and most Jordanians consider olive oil a national treasure and an essential food.

Jordan produces durum wheat only—no bread wheat is produced. The domestic wheat is used for ferekh³, pasta, and for blending with imported wheat. Domestic wheat covers only about 15 percent of the total demand for wheat and wheat products. Imported wheat is typically hard winter wheat that is used to produce flat and other leavened breads. Soft wheat flour, used to produce cake and cookies, is imported by bakeries.

Most wheat producers in Jordan are small subsistence farmers without access to irrigation. Losses of planted area have ranged from 20-40 percent in recent years, a testament to the power of rainfall in Jordan. Even so, production of wheat has been fairly constant in the past 5 years at around 50,000 tons. However, that is 30,000 tons less than the levels of the late 1980s.

³ Ferekh is durum that has been picked while still green, slightly roasted, and then crushed after thorough drying. There are two grinds available—coarse, which is cooked like rice, and fine, which is used in soup.

In addition to subsistence farmers, there are some large commercial wheat farms in the south. In 1988, the GOJ implemented a dual-purpose program to 1) increase production of cereals and fodder and 2) to develop semi-marginal land for irrigated agriculture. At that time, the government offered low cost long-term (25-year) leases on large tracts of land in the south to commercial operations that would build the necessary irrigation facilities on the land. The commercial operations signed contracts with the GOJ to produce wheat and fodder only. These operations are controversial today because studies have suggested that the opportunity cost of using the water for agriculture is extremely high relative to the cost of using it for households.

Barley is produced on small mixed crop-livestock farms. Barley is valued not only for its grain but also the stalks that are fed to livestock. Most production is for consumption on the farm or for sales to local livestock producers. Production has ranged from about 30,000-40,000 tons annually in the past five years.

The livestock sector is well balanced given the resources available within the Kingdom. Broilers, eggs, and beef are generally produced using the latest fed-animal production techniques. Note that there is no swine industry as the population is predominantly Muslim. Broiler, layer, and fed-beef operations are typically located on the outskirts of major cities so as to have easy access to consumers. Broilers are traditionally roasted whole and consumer preferences favor production of small broilers weighing 1-1.5 kilogram per bird. The chicken fast-food industry has not yet developed to the point where large birds are preferred.

Between 1985 and 1991, poultry meat production was stagnant at 50-60,000 tons annually. However, since 1990, output of broilers and other poultry meat has risen an average of 15.4 percent annually. Egg production has followed a similar pattern and is now growing at 8.5 percent per year. Jordan is roughly self-sufficient in eggs and poultry meat. Most foreign sales are to neighboring Arab countries. Beef and veal production is very limited, supplying only 15 percent of total demand.

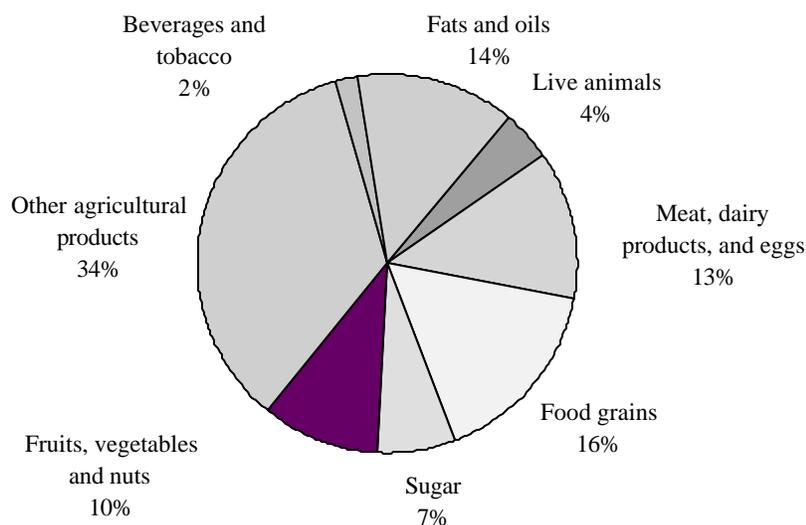
Milk from cows, sheep, and goats and lamb, mutton, and goat meat are generally produced on the rangeland in the eastern half of the country. Local goats are very tolerant of the often harsh conditions of heat, sun, and low quality range fodder. The Shami goat is a specially bred native animal that is far less tolerant of grazing conditions and therefore must be stabled. The breed usually has multiple births and is a high milk producer. Milk from the Shami goat is usually consumed in fluid form as it is lean and not well suited to cheese or yogurt production. Milk from Shami goats can be combined with sheep milk to produce white cheese, ghee, butter, and jamid (dry yogurt). Only limited quantities of fresh milk are marketed in the country. Milk is typically available in powder form and as sterilized, homogenized boxed milk.

Sheep are small—about 20 kilograms per carcass—a reflection of the consuming population's belief that meat from a small animal is superior. Lamb is typically purchased in butcher shops from displayed carcasses that are graded relative to the age of the animal at slaughter. Since the animals are grazed, weight and age are highly correlated and therefore consumers prefer small animals. Only a small amount of lamb is purchased pre-packaged.

Trade Profile

With its limited water resources and geographic characteristics, Jordan is a net food importing country. The most important imported commodities are raw foodstuffs and feeds (see Figure 3). Imports of wheat, the staple food grain, averaged about 500,000 tons in the mid-1990s, costing an average of US\$80 million. Imports of major feed products, including maize, barley, soybean meal, and compound feeds, amounted to about 970,000 tons during the same period with an average cost of US\$144 million. Other major imported agricultural products are sugar, powdered milk, crude palm oil, rice, lamb and mutton, cheese, and beef and veal. Prepared foodstuffs are also imported but they account for less than 5 percent of the total value of food and agricultural imports.

Figure 3. Agricultural Import Value, Average 1995-97

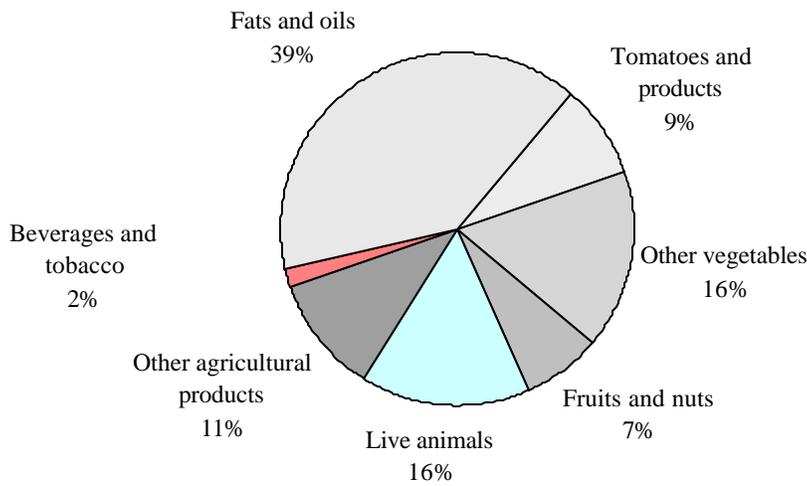


Jordan's major agricultural exports are hydrogenated oils, live animals (mostly sheep and goats), tomatoes and products, and other horticultural products (see Figure 4). Tomatoes and products account for 9 percent of the total value of exports. The other horticultural crops account for about 23 percent of agricultural export revenue. The fastest growing export products are hydrogenated oils (mostly from crude palm oil), live sheep, and tomato paste. The top 12 products account for more than two-thirds of the value of Jordan's agricultural exports.

Consumption Profile

Staple foods in Jordan are yogurt, olive oil, and bread. Jordan is self-sufficient in yogurt, poultry, eggs, vegetables, and fruits and mostly self-sufficient in olives and olive oil. Jordan does import some vegetables and fruits but primarily for the purpose of diet diversification. Jordan's production of red meat satisfies about one-third of consumer demand. Similarly, domestic production of staples such as wheat and pulses covers only 15 percent of demand. Jordan does not produce rice and sugar, importing all of its needs.

Figure 4. Agricultural Export Value, Average 1995-97



The United Nations (FAO) has estimated per capita consumption of major foodstuffs by deducting net trade from production and allocating use to feed, seed, food, and other non-food uses. Examination of trends in estimated per capita food consumption in Jordan suggests that wheat, vegetables, yogurt, and pulses are staples in the diet. Cereals account for the bulk of food consumption (see Figures 5a and 5b). Both cereal and pulse consumption are trending downward only slightly, suggesting that even with moderate income growth, consumers are not yet ready to replace these staples with other foods. Fruit and vegetable consumption are rising, as is consumption of animal proteins. However, note that consumption of milk, milk products, meat, poultry, and fish have not yet recovered to the pre-Gulf War levels.

Figure 5a. Per Capita Consumption of Staple Foods

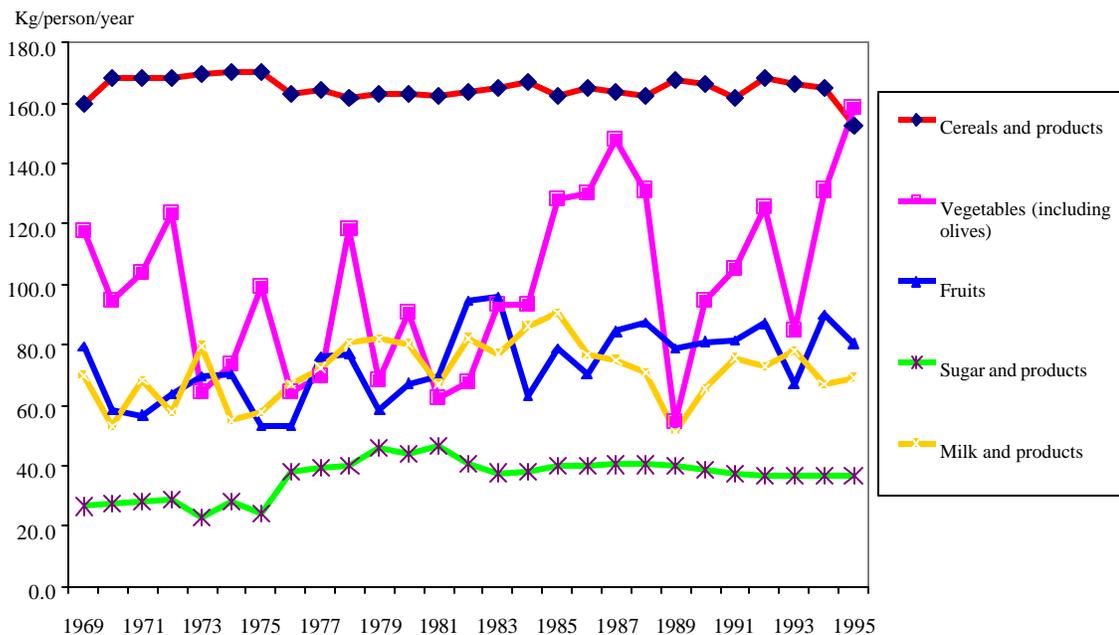
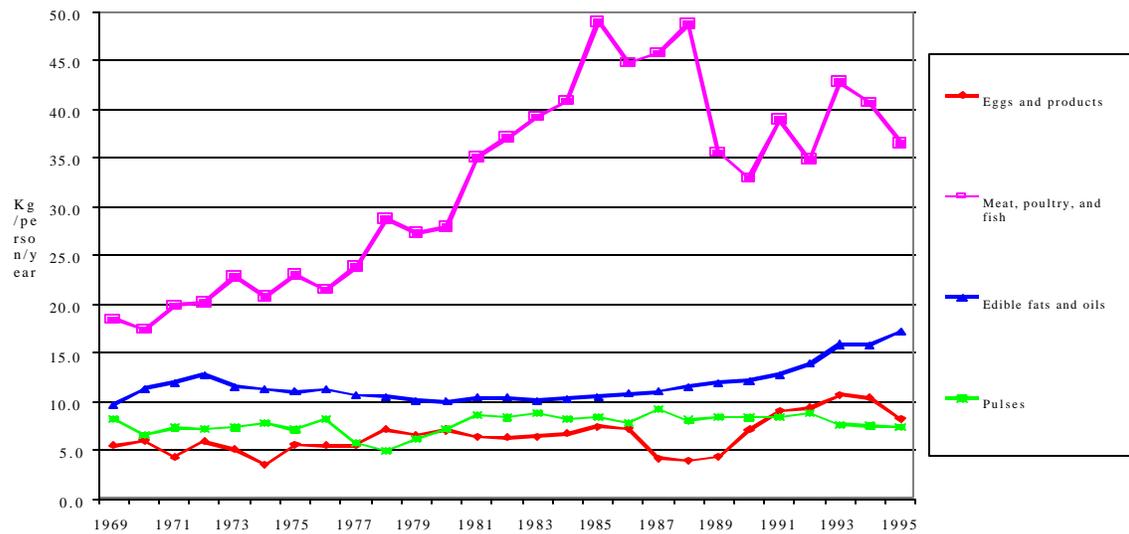


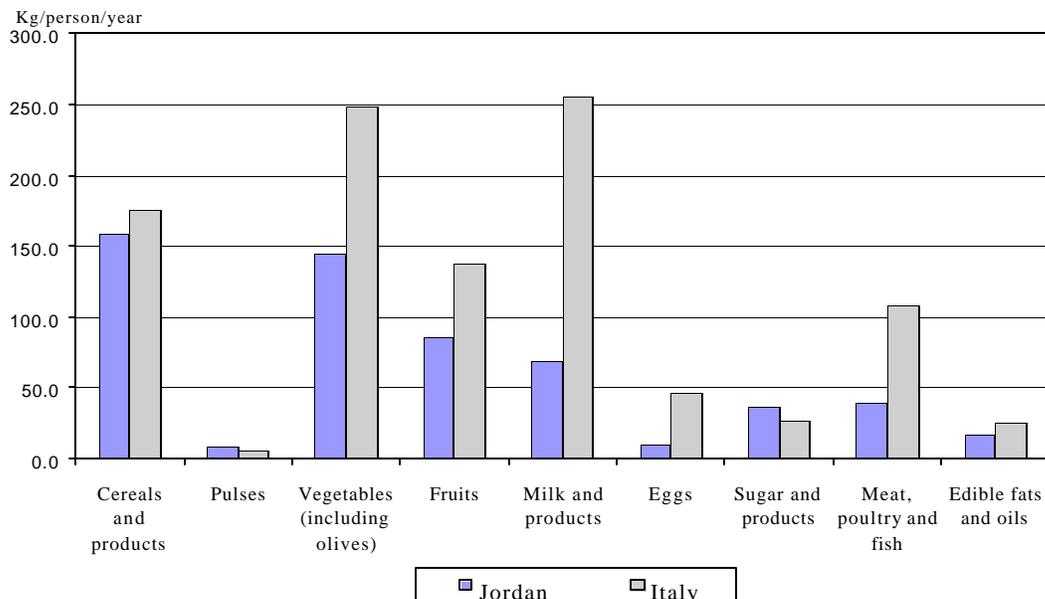
Figure 5b. Per Capita Consumption of Meats, Eggs, Fats and Oils, and Pulses



Jordan's average caloric availability in the mid-1990s was about 2800 calories per person per day. The average is above sedentary minimums but still quite a bit below that of European or North American countries (for example, the caloric availability in Italy is about 3300 calories per day). The bulk of calories consumed by the poorest consumers are derived from sweet tea and bread. The sugar provides energy (calories) and the bread fills the stomach

The composition of the average diet in Jordan is quite different from that in western countries. Jordan's consumers get about half of their calories from cereals and products and only 12 percent of their calories from animal protein (dairy, eggs, meat, poultry, and fish). In contrast, animal protein accounts for 22 percent of the average caloric intake in Italy (see Figure 6).

Figure 6. Per capita consumption in Jordan and Italy, Average 1993-95



Broad Objectives of Agricultural Policy

Like most countries, Jordan has conflicting interests in terms of its agricultural sector policies. Because some portion of the population is very poor and therefore vulnerable to high food prices, the government is very sensitive to the price of food staples. At the same time, in the interest of food security, it is also important to provide farmers with positive production incentives that maximize efficient and sustainable production of suitable agricultural products. In the past, subsidies were widely used to support the rural sector. However, under Jordan's agricultural sector restructuring program, subsidies have been abolished and support is now provided through other, non-market distorting means.

In November 1996, the legislature enacted *The Agricultural Policy Charter* (the Charter) which institutionalizes the policy reform undertaken as part of the restructuring program and establishes long term goals and objectives for the Kingdom's agricultural sector and agricultural policies. The Charter is developed on the premise that rural areas in Jordan and the holding of farm land links current generations to a "homeland and natural and cultural habitat." In addition, because of the fragility of the environment in much of the country, rural peoples can play important roles in protecting the environment and managing natural resources efficiently. Agricultural policy therefore aims to promote efficient and sustainable use of rural resources while increasing economic opportunities in rural areas so that farm incomes are more equitably distributed within the sector and are closer to urban incomes.

The GOJ also faces the absolute necessity of ensuring that the population has access to basic foodstuffs at stable prices that preserve the living standards of limited opportunity and the lowest-income groups. As a result, policies also are directed at increasing Jordan's food self-sufficiency through export of high-value agricultural products and import of lower value goods. To support a growing horticultural export economy, the government is promoting production of quality products at internationally competitive prices. This is being implemented through provision of more water for irrigation, an enhanced research and extension program, and expanded marketing services such as grading and residue testing using internationally accepted measures of quality assurance.

Another mandate in the Charter is the expansion of private sector participation in the agricultural sector. This is being supported in several ways. The most important means is removal of the government from the role of both primary buyer and supplier of feed and food grains and pulses. In addition, economic incentives, such as exclusion of 75 percent of investment expenditures on agricultural projects from trade and domestic general sales taxes, are being provided to the private sector to encourage investment. Overall, the idea is to limit government's role in agriculture to provision of institutional support such as extension, research and infrastructure investments.

The transition from a government-dependent or highly subsidized sector to a completely free market oriented sector under the agricultural adjustment program is not without costs. For example, most livestock holders have reduced, or in some cases liquidated, their holdings in the last 3 years because the reduction in, and then subsequent elimination of, feed subsidies resulted in non-cost effective production. Vegetable farmers have faced significantly higher prices for water, challenging their competitive export position. Even so, the government has not slowed its pace of reforms.

Producer Support Policies

Institutions Providing Support

GOJ has supported producers through a combination of means including procurement of domestic production and provision of inputs (seeds for cereals, water, credit, and livestock feed). The institutions that have been involved in producer support are the Ministry of Supply (MOS), the Agricultural Marketing Organization (AMO), the Agricultural Marketing and Processing Company (AMPCO), the Jordan Cooperatives Corporation (JCC), the Jordan Valley Authority (JVA), and the Agricultural Credit Corporation (ACC).

The MOS's primary function has been to implement the general agricultural supply policy for the Kingdom and to provide the Kingdom's needs of basic food products as well as ensuring a strategic reserve of these products. To encourage production of basic foodstuffs and fodder, the Ministry purchased wheat, lentils, chickpeas, and barley from farmers at prices announced during the planting season. The Ministry no longer purchases commodities from farmers but does maintain a strategic food reserve. As of the end of May 1998, MOS no longer has Ministry status and has become a directorate within the Ministry of Industry, Supply, and Trade.

The Agricultural Marketing Organization or AMO is a government agency that was formed in 1987 with a mandate to organize and develop agricultural marketing systems for processed and non-processed agricultural products. In practice, because of funding limitations, the lead role of the MOS in field crop marketing and trade, and the strength of the horticultural sector in exporting, the Organization focuses almost exclusively on horticultural products. Prior to January 1, 1998, AMO was responsible for planning monthly and quarterly imports of horticultural products under bilateral trade agreements with four neighboring countries. AMO no longer does this as a result of the agriculture sector restructuring program that began in 1994.

There are four directorates in AMO. The role of AMO's inspection services is to ensure that Jordanian produce meets standards in the European Union and other export markets. The Research and Information Directorate conducts studies on marketing, collects market information, and maintains databases on local and foreign horticultural production, prices, and trade. The Post-Harvest Technology group provides training and otherwise promotes efficient production of horticultural products in Jordan. The Export Promotion Directorate supports exporters by publishing directories and providing import-export contacts, promoting Jordanian produce at trade fairs, and conducting trial shipments to test market receptivity, transportation techniques, and other factors associated with successful marketing of produce in foreign markets. Funding for the Export Promotion Directorate has generally been provided by foreign countries.

AMPCO is another government entity focusing on horticultural products. It was formed in 1987, a partnership between the ACC, Jordan Investment Corporation, and the Social Security Corporation. Today the GOJ owns 88 percent of the company but it is scheduled for full privatization by the end of 1999. The company was formed to stimulate production of tomato and citrus fruits for value-added domestic and export markets. Prior to 1995, AMPCO was given special rights and privileges with respect to the importation of four primary

horticultural crops. AMPCO's monopoly power in the import of these crops was removed in 1995.

In the early 1990s, AMPCO was a vehicle for support of tomato producers through payment of guaranteed prices to farmers, regardless of market conditions. That practice is no longer followed and AMPCO now competes with two other processing companies for available supplies of processing tomatoes. One of the other processing companies—Shafa—is a fully-owned government entity and the other is fully private. AMPCO and Shafa do not compete directly for producer output because their processing facilities are located more than 100 kilometers from one another. Since 1994, processing tomatoes purchased by AMPCO are priced relative to solid matter content with a higher price for higher solids. The other processing companies follow AMPCO's lead in establishing offer prices for processing tomatoes. The maximum price being paid to producers is set relative to processing costs and international price trends for processing tomatoes.

The JCC focuses on provision of inputs and supplies to farmers at its outlets throughout the country. Producers who are members of the JCC can purchase inputs at a slight discount relative to market prices. The JCC does not participate in any marketing functions. Prior to 1989, the JCC made below-market interest loans to members. Many of those loans remain outstanding today and so the JCC has offered at various times to forgive some portion of the principal and interest on outstanding loans. In 1997, the value of forgiven loans was about JD32,000. One of the primary functions of the JCC is to distribute certified seeds to farmers at subsidized prices. This role will be abolished in 1999.

The Ministry of Water and Irrigation oversees the supply of water to Jordanian citizens, municipalities, industry, and agriculture. Within the Ministry, the Jordan Valley Authority (JVA) provides water to agriculture and oversees development within the Valley to ensure that water demand does not exceed availability. JVA water has been supplied to horticultural producers at below cost until recently. Producers in other areas of the country do not have access to subsidized water, relying instead on tube wells or rainfall.

The Agricultural Credit Corporation or ACC makes soft loans available to farmers and investors in agribusiness. The loans fall into one of two classes—either operational or developmental. Operational loans are from 12-24 months in duration while development loans may be made for up to 15 years (although the bulk of long term loans are for 8 years). ACC functions are explained in more detail below.

Wheat Producer Support

Prior to the fall of 1997, the MOS announced a minimum and maximum purchase price for durum wheat before or during the planting season. Announced prices would have had little effect on subsistence farmers' planting decisions—instead rainfall expectations are the most important factor. However, large-scale commercial operations in the south would base their planting decisions on those prices. After harvest, most farmers with surplus wheat transported the grain to MOS collection centers located throughout the country. At the MOS centers, the grain is tested for quality, priced between the minimum and maximum based on its quality, and the farmer is issued a check. A very small proportion of farmers sold wheat to traders at the farmgate who then in turn took it to MOS collection centers.

The subsidy to wheat producers under the announced purchase program has varied from JD0.05 million to JD2.5 million since 1990 (see Table 2). The value of the subsidy varies because domestic prices are measured against fluctuating world prices for wheat. For example, in 1996, when world commodity prices were quite high, wheat producers were actually taxed but then in 1997, a subsidy of about JD2 million was given to producers.

No procurement price was announced during the 1998 planting season for non-seed durum wheat. However, as the main harvesting season began, the government did announce that it would purchase wheat from producers at a maximum price of JD160/ton. This purchase price is well below that of previous years and reflects international wheat prices. The GOJ does not anticipate that any such purchases this year will be subsidized.

The only remaining specific subsidy to wheat producers is the sale of certified seed. The MOS purchases seed at announced prices from registered seed producers. The seeds are then sold to farmers through the JCC in the next planting season. The seed discount had been about 10-15 percent of the average cost of seeds purchased by MOS. In 1997, seeds were sold at a price higher than the procurement price. However, for the past five years, the JCC has spent about JD32/ton for cleaning, fumigating, and other handling costs associated with preparing the seeds for sale to farmers. These costs generally were not recovered by JCC when selling to farmers. For example, in 1997, wheat producers received a subsidy equivalent to about JD100,000.

Table 2. Subsidy to Wheat Producers From the GOJ Announced Price Procurement Program

	Average price paid to producers (JD/ton)	External reference price (JD/ton)	Value of subsidy to wheat farmers (1,000 JD)
1990	145	126	1,621
1991	146	105	2,522
1992	145	124	1,588
1993	147	127	1,127
1994	146	124	1,029
1995	160	159	56
1996	190	208	-762
1997	197	161	2,016

Note: The average price paid to producers is the price for local durum wheat. It is compared to a durum-equivalent external (world) reference price. The external reference price was computed based on the total cost of imported wheat (delivered to Amman), plus any price discounts from wheat exporters (1995 only), and an estimated durum price premium of 12.5 percent relative to the price of the most commonly imported wheat.

Sources: Computed by the authors from data in Annex A and from data supplied by official request from the Ministry of Supply, May 1998.

In 1998, seeds are being purchased from farmers at JD230/ton. The sale price for seeds for the 1998 planting season has not been announced. In addition, official notifications suggest that seed will no longer be purchased from farmers after this season at guaranteed prices.

Barley Producer Support

Barley is the major feed grain produced in Jordan. A very small amount of sorghum is grown but no corn, other than sweet corn for human consumption, is produced. As noted above, barley farmers are generally subsistence farmers with mixed holdings and so they tend to keep the bulk of their crop for livestock consumption. For those producers with surplus barley, the MOS bought offered barley that met minimum quality requirements at prices announced during the planting season. However, in 1997, the government abolished its barley purchasing program.

The subsidy to barley producers has generally been smaller than that to wheat producers for two reasons: barley production is usually less than wheat and surplus quantities are also smaller. Between 1990 and 1996, the subsidy ranged from JD1.2 million to a low of JD2,700.

As is the case with wheat, the Ministry of Supply will maintain strategic reserves of barley to ensure adequate feed stocks for the livestock sector. Barley had been sold to farmers and feed mills at subsidized prices. In 1996, when international barley prices were especially high, domestic feed consumers were paying only 70 percent of the cost of barley. However, in 1997, consumers who purchased barley from the MOS paid above acquisition cost. See the section below on livestock feed subsidies for more details.

Table 3. Subsidy to Barley Producers From the GOJ Announced Price Procurement Program

	Average price paid to producers	External reference price	Value of subsidy to barley farmers
	(JD/ton)	(JD/ton)	(1,000 JD)
1990	104.9	104.9	3
1991	104.7	91.9	508
1992	104.5	86.9	1,213
1993	105.0	83.8	673
1994	104.7	79.5	690
1995	124.2	87.5	1,164
1996	159.2	136.9	650
1997	0.0	115.0	0

Note: Calculations in last column may differ from implied values due to rounding.

Sources: Computed by the authors from data in Annex A and from data supplied by official request from the Ministry of Supply, May 1998.

Barley seed is being purchased this year by the MOS. As is the case with wheat, seed sales in the past have been subsidized and are likely to be subsidized again this year by the amount of JCC handling costs. However, at this time the GOJ does not plan to continue barley seed purchases beyond this year.

Lentils and Chickpea Producer Support

The policies that had been in place for wheat and barley farmers were also extended to lentil and chickpea producers. That is, MOS bought offered quantities of lentils and chickpeas at prices that were announced during the planting season. These products were in turn sold to domestic consumers. If domestic supplies were insufficient to fulfill demand, MOS would also import lentils and chickpeas. The imported and domestically supplied lentils and chickpeas were usually sold to consumers at above acquisition cost. Lentil and chickpea seed are still being purchased by the MOS and may be sold at a discount to farmers in the 1998 planting season.

Table 4. Subsidy to Lentil and Chickpea Producers From the GOJ Announced Price Procurement Program

	Average price paid to lentil producers	External reference price for lentils	Value of lentil producer subsidy	Average price paid to chickpea producers	External reference price for chickpeas	Value of chickpea producer subsidy
	(JD/ton)	(JD/ton)	(1,000 JD)	(JD/ton)	(JD/ton)	(1,000 JD)
1990	266	364	-405	340	383	-15
1991	255	365	-131	333	381	-69
1992	289	444	-440	341	348	-11
1993	301	302	0	350	297	138
1994	1/	272	0	317	314	5
1995	331	344	-28	1/	500	0
1996	377	342	69	444	377	165
1997	2/	361	0	2/	313	0

1/ Farmers did not sell any quantity to MOS.

2/ MOS stopped buying lentils and chickpeas for consumption purposes in 1997.

Sources: Computed by the authors from data in Annex A and from data supplied by official request from the Ministry of Supply, May 1998.

Processing Tomato Producer Support

As noted above, AMPCO had been used as a vehicle for providing support to processing tomato producers. The last year that AMPCO purchased processing tomatoes at other than a scientifically and market-based price was in 1993. Since then, AMPCO has been moving toward a fully commercial operation, pricing processing tomatoes on the basis of production value. There is a significant variation in AMPCO purchases from year to year. This is in part due to competition from other processors but also because processing tomatoes can be sold in the central markets for export or table consumption. Therefore, if table tomato prices are high relative to AMPCO offer prices, processing tomato producers will sell their products as table tomatoes.

AMPCO does contract with processing tomato producers to purchase some unspecified portion of their crop. The terms are beneficial to farmers, yet do not ensure AMPCO sufficient supplies of tomatoes for processing. AMPCO rents contract producers boxes for

gathering tomatoes from fields at a significant discount, gives contract producers priority during the delivery season, and pays contract farmers within 15 days. However, if a contract producer can find a better price elsewhere, he may sell his produce elsewhere with no penalty.

Agricultural Inputs Policy

Jordan has a long history of providing farmers with subsidized water, electricity, credit, and livestock fodder. In contrast to many countries, fertilizer has not been subsidized directly nor has it been offered at discount prices for the past decade. As noted previously, the pricing of water in the Jordan Valley has been, and continues to be, adjusted gradually to reflect the actual costs of supplying irrigation water to agriculture. The livestock feed subsidy has been phased out. The credit subsidy today remains the largest expenditure by the government. Each of these subsidies are described in greater detail below.

Water Policy

Water is the scarcest agricultural resource in Jordan. The annual per capita renewable fresh water availability in the Kingdom is about 175 cubic meters per year. Jordan's per capita consumption of water is far less than the recommended average of 1,000 cubic meters per person per year required to sustain the health of the population (Ghezawi and Dajani). Even so, the price of water in the Kingdom for households, industry, and agriculture had been subsidized for decades.

Under current water policy directives, agriculture is the residual claimant of water. That is, the highest priority water use is allocation of basic human needs at a minimum of 100 liters per capita. Additional water is then allocated to municipalities, then tourism and industry, and finally agriculture. Agriculture may receive additional water through water reclamation and recycling efforts. It is estimated that 58 million cubic meters of recycled water, equivalent to about 8 percent of total agricultural water demand, was used in agriculture in 1996. Long term plans to increase the capacity for use of recycled water are in place and it is expected that by 2020, the availability of recycled water to agriculture will reach 237 million cubic meters.

While less than 25 percent of arable land is irrigated, agriculture consumes about 75 percent of all available water. In 1989, the price of water to agriculture was doubled but even then the subsidy to agriculture was considerable. As a result, there were few incentives to use irrigation water efficiently and for that reason, most irrigation water was delivered via open channels. Not only was water use inefficient, the low price encouraged production of some water intensive crops in one of the most water deficit countries of the world. In 1994 the price was again adjusted, this time more than doubled and a block tariff was introduced. This finally began to increase the efficiency of water usage.

The ever increasing scarcity of water in Jordan is putting pressure on farmers and households to use water efficiently. For example, irrigation efficiency in the Jordan Valley is rising, reaching 70 percent in 1996 versus 57 percent in 1994. A dramatic restructuring of water pricing has helped to increase this efficiency. In order to ease transition to market pricing of water, the rescheduling of water prices has been spread out over a number of years. A graduated rate schedule for each of households, agriculture, and industry was introduced in

1994. As you can see in Figure 7, the average price to agricultural users has risen from about 4 fils per cubic meter in 1989 to 26 fils per cubic meter last year. This has resulted in a significant decline in the subsidy to agriculture as shown in Table 5.

Figure 7. Average Price of Water to Agriculture, 1990-1997

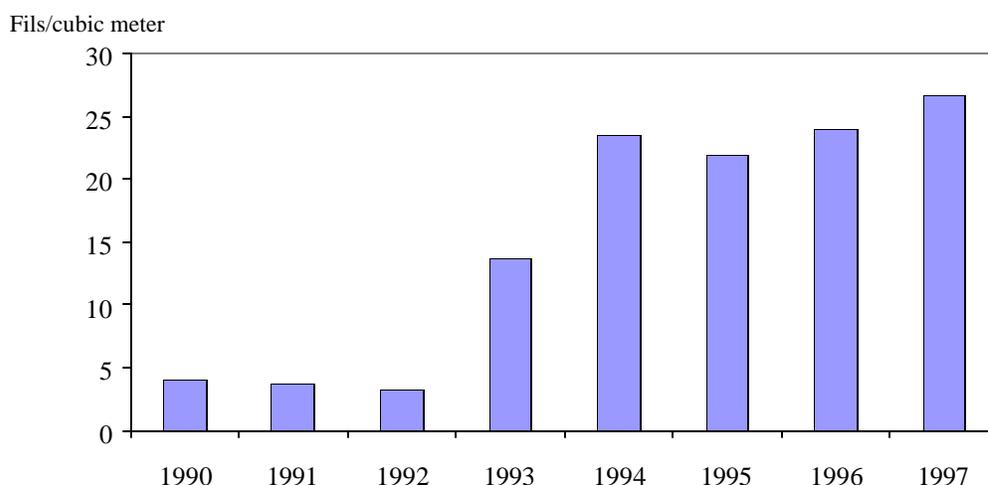


Table 5. Value of Water Subsidy to Jordan Valley Agricultural Producers, 1990-97

	Average operating and maintenance cost	Average price paid by agriculture	Average subsidy to agriculture	Total subsidy to agriculture
	Fils/CM	Fils/CM	Fils/CM	(1,000 JD)
1990	17.24	3.99	13.26	2,905
1991	21.98	3.82	18.16	3,233
1992	22.04	3.19	18.85	4,007
1993	17.66	13.75	3.91	670
1994	24.53	23.48	1.06	144
1995	22.53	21.91	0.63	78
1996	24.55	24.05	0.50	62
1997	27.27	26.58	0.68	85

Note: CM denotes cubic meters. Totals may not add to due rounding.

Source: Computed from data in Annex A.

The water price is still being adjusted upward to cover operation and maintenance (O&M) costs. The current price of water for agricultural purposes ranges from 8 to 35 fils per cubic meter (see Table 6). Average operating and maintenance costs are estimated at 25-28 fils per cubic meter. In 1993, producers in the Jordan Valley were subsidized in the amount of about JD670,000 but by 1997, the subsidy had been virtually eliminated.

Table 6. Prices for Irrigation Water in the Jordan Valley
According to the Block Tariff

User class	Water consumed per month	Water cost 1995-1998
	Cubic meters	Fils/CM
1	0-1000	8
2	1001-2000	12
3	2001-3000	20
4	>3500	35

Note: CM denotes cubic meters.

Source: Jordan Valley Authority.

Credit Policy

The agriculture sector benefits from reduced interest loans through the Agricultural Credit Corporation (ACC). The ACC is a government corporation currently funded through the Central Bank of Jordan. It does not have deposit authority. The government has decided to privatize the ACC, allowing it deposit accounts, withdrawals, and other financial services. The ACC will be fully privatized within the next three years.

The ACC provides seasonal and short-term loans for operational purposes (including livestock fodder) and medium- and long-term loans. The seasonal and short-term loans, which in 1996 amounted to JD8 million or about 39 percent of the total value of loans, are primarily to finance production and therefore are considered operational loans. The longer-term loans are for capital improvements which are classified five ways: land improvement and development in rainfed areas; land improvement and development in irrigated areas; livestock development; mechanization, farm, and agricultural manufacturing; and rural housing and farm buildings. Rural housing loans are limited to homes with a maximum area of 150 square meters, must be built within an integrated agricultural enterprise, and the loans are limited by maximums established by the Board of Directors of the ACC. In 1996, of the JD13 million in longer-term loans, 40 percent was for land improvements and 44 percent for livestock development.

Farmers may obtain credit from the ACC or from commercial banks. Loans from the ACC are at discounted interest rates and free of commissions and fees and so many farmers obtain loans from the ACC. Essentially all long-term loans are provided by the ACC because commercial banks strongly resist making loans with maturity dates beyond three years. Most loans by commercial banks to agriculture are made to agribusiness rather than producers. At the end of 1997, agriculture and agricultural manufacturing sector debt stood at JD181 million with a little more than half that debt owed to commercial banks.

The cost of ACC loans varies with the amount and the term of the loan. In 1997, operational loans to the smallest farmers cost 6.33 percent per annum while operational loans in excess of JD50,000 cost 9.85 percent. In 1997, the smallest developmental loans cost 6.99 percent while borrowers of more than JD50,000 for developmental purposes paid 8.80 percent. The weighted average interest rate charged under each of these types of loans is less than the

prevailing market or average lending rate for short-term loans from commercial banks by 3.5-5.5 percentage points (see Figure 8).

The value of the credit subsidy for operational loans in 1997 was about JD350,000 while borrowers for developmental purposes were financed at a subsidy of JD330,000 (see Table 7). The interest rate discount on operational loans is clearly a subsidy to borrowers. However, the discounted cost of developmental loans cannot be considered such. As is noted in the WTO Agreement on Agriculture in Part IV, Article 6, paragraph 3:

“[It is agreed that] government measures of assistance, whether direct or indirect, to encourage agricultural and rural development are an integral part of the development programmes of developing countries, [and] investment subsidies which are generally available to agriculture in developing country Members and agricultural input subsidies generally available to low-income or resource-poor producers in developing country Members shall be exempt from domestic support reduction commitments that would otherwise be applicable to such measures...”

In its current Agricultural Policy Charter, in the GOJ mandate to the ACC, and in prior policy directives, the GOJ has consistently recognized the critical importance of low-cost agricultural credit to the development process. For example, in Chapter 1, Section 5 of the Charter, it is stated that “agricultural development will constitute the core of integrated development of Jordan’s rural areas.” Therefore, the cost of developmental loans to agricultural producers and manufacturers are similar to basic expenditures on infrastructure that are necessary for further development of the economy.

Figure 8. Comparison of ACC and Short Term Market Interest Rates

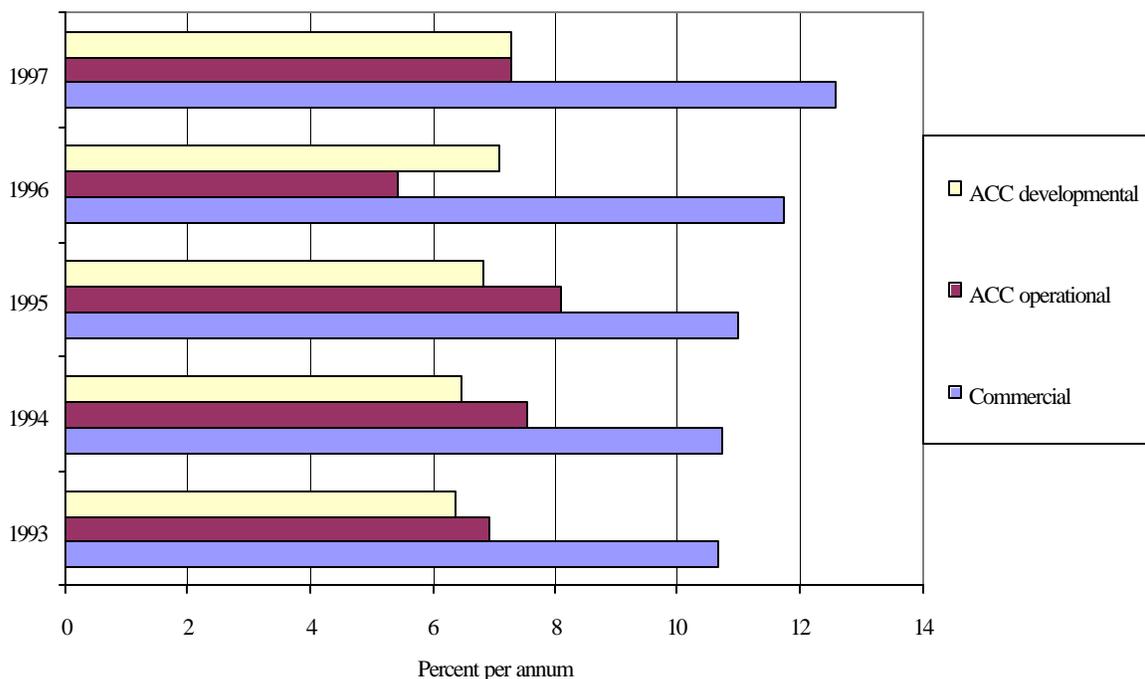


Table 7. Value of Below Market Interest Rate Loans by ACC

	Average interest rate subsidy for seasonal loans	Average interest rate subsidy for developmental loans	Total value of interest rate discount on operational loans	Total value of interest rate discount on developmental loans
	(points)	(points)	(JD)	(JD)
1990	4.75	n/a	103,447	n/a
1991	3.63	n/a	77,268	n/a
1992	3.83	n/a	138,952	n/a
1993	1.96	n/a	52,905	n/a
1994	3.17	4.04	127,480	573,502
1995	2.91	4.16	192,398	785,328
1996	3.65	4.42	301,385	923,096
1997	5.35	4.22	348,683	331,060

Source: Computed from data in Annex A.

Livestock Feed Subsidy

Jordan has supported its livestock sector through the sale of fodder (barley, corn, and wheat bran) to producers at discounted prices. The products that had been sold to farmers were obtained from domestic procurement and imports. In the case of wheat bran, the product was either imported or the byproduct was returned to the government by flour mills which purchased subsidized wheat. The sale prices for these products have at times been well below the average cost of procuring the products from domestic and international sources.

However, a consequence of the restructuring of the agricultural sector has been virtual elimination of this subsidy (see Table 8).

Consumer Policies

According to the 1992 household expenditure survey, a typical Jordanian household spends from 35-45 percent of their income on food (excluding beverages and tobacco). Since food requires such a substantial share of income, the GOJ has had a long history of subsidizing the price of food staples to ensure that the poorest consumers can afford basic foodstuffs. In particular, bread, sugar, rice, and powdered milk have been consistently subsidized and remain so today for at least part of the population.

As recently as last year, the Ministry of Supply (MOS) purchased essential foods (wheat, rice, sugar, and powdered milk) from local and foreign markets and resold them to private traders who in turn sold them to retail outlets. Retailers were permitted to charge a marketing margin of 17 percent above their purchase cost from MOS. To ensure that these prices were not exceeded, the "fixed" retail prices (i.e., market determined wholesale prices plus the 17 percent margin) were published every day in the newspapers. Locally produced commodities that were priced in this manner included bread, vegetables, fruits, mineral water, cigarettes, yogurt, white cheese, tea, eggs, and poultry meat. In addition, imported goods such as

powdered milk, frozen, chilled and canned meat, sugar, and corn and barley were priced in a similar manner. In April 1997, the fixed margin pricing for local fruits and vegetables was abolished. Later in the same year, fixed margin prices for eggs, poultry meat, white cheese, and tea were eliminated.

A coupon system permitting reduced-price purchases of sugar, rice, and powdered milk was implemented in September 1990. Under that system, a coupon holder purchased the specified items from retailers for a reduced price and the coupon. The coupons were then turned into the government for reimbursement. Each coupon holder was limited to 18 kg per person per year for sugar (1.5 kg/month per person) and for rice. The powdered milk allowance was 3 kilograms per person per year. Beginning in 1995, coupons were given only to those families that had an average monthly income of JD500 or less. This resulted in 200,000 families losing their discounts on essential foodstuffs.

The fixed margin pricing for essential imported products was maintained until late 1997 when prices for sugar, rice, and powdered milk were freed. Today, only two kinds of bread, barley for fodder, and locally produced cigarettes remain subject to a fixed margin retail price. Even so, the prices of these goods are significantly higher than in the past. For example, in August 1996, the price of the most common type of bread was nearly tripled from 85 fils per kilogram to 220 fils per kilogram.

A few commodities—fresh cow milk, yogurt, and imported fresh meat—are subject to ceiling prices today. Ceiling prices are set by negotiation between MOS and representatives of the private sector. Some of the factors taken into account when setting ceiling prices are the costs of handling the products, necessary processing, and a reasonable profit to retailers. The ceiling price system is very new (it began this year) and, although it is recognized that these ceiling prices may have to be adjusted periodically, there currently are no regularly scheduled meetings between retailers and MOS to review and possibly adjust the ceiling prices. In fact, MOS would like to phase out ceiling prices but the timeframe for doing so has not been set.

When the fixed bread price was nearly tripled in 1996, the government instituted a direct cash subsidy program for all consumers to reduce the shock of the price increase. The system worked well and so in the last quarter of 1997, a cash subsidy program was initiated to replace the coupon system for sugar, rice, and powdered milk. In the case of government employees, the cash subsidy is added to monthly payroll checks. For non-government employees, bank drafts are issued quarterly. The bread subsidy is JD1.28 per person per month. Consumers earning less than JD500 per month are also entitled to a sugar, rice and powdered milk subsidy of JD0.720 (US\$1.08) per month.

Note that at this time, Jordan is in the very early stages of a completely free consumer market. The government is closely monitoring the private sector's performance in making essential foods available to consumers. Over the next several years the government may maintain a strategic reserve of essential food items to counter disasters and other uncertainties. Wheat stocks during this transition phase are targeted at 3-4 months of consumption and stocks of other essentials such as fodder, rice, and sugar, are also targeted at about that quantity.

Table 8. Value of Livestock Feed Subsidy, 1990-97

	Average unit cost	Average sale price	Quantity sold to livestock producers	Value of subsidy to livestock producers
	(JD/ton)	(JD/ton)	(1,000 tons)	(1,000 JD)
All feed				
1990	--	--	458,279	6,920
1991	--	--	715,039	20,014
1992	--	--	746,722	7,372
1993	--	--	986,912	5,963
1994	--	--	1,112,031	28,016
1995	--	--	1,057,006	-4,344
1996	--	--	1,154,261	25,996
1997	--	--	793,957	-13,956
Barley				
1990	105	60	207,303	9,313
1991	92	60	303,792	9,862
1992	90	60	309,321	9,240
1993	84	65	474,587	9,135
1994	80	70	595,267	6,017
1995	89	85	527,538	2,190
1996	137	100	683,136	25,769
1997	115	120	466,376	-2,338
Maize				
1990	72	75	175,633	-565
1991	120	75	271,087	12,126
1992	103	106	294,341	-912
1993	102	106	339,629	-1,524
1994	172	106	350,674	23,158
1995	104	114	367,459	-3,829
1996	147	134	308,132	4,027
1997	116	140	194,410	-4,678
Wheat bran				
1990	16	40	75,343	-1,828
1991	26	40	140,160	-1,974
1992	33	40	143,060	-957
1993	32	42	172,696	-1,648
1994	38	45	166,090	-1,159
1995	36	53	162,009	-2,705
1996	48	71	162,993	-3,801
1997	38	90	133,171	-6,940

Note: Calculations in last column may differ from implied values due to rounding.

Source: Computed from data supplied through official request to MOS, May 1998.

These reforms in consumer subsidization of essential foodstuffs have reduced GOJ subsidy expenditures significantly. In 1995 and 1996, the subsidy on bread, sugar, rice, and

powdered milk cost the government about JD72.5 million (see Table 8). In 1997, that figure was cut by more than half to JD31 million.

Table 8. Expenditures on Consumer Food Subsidies, 1990-97 (1,000 JD)

	Total four major foods	Bread	Sugar	Rice	Powdered milk
1990	72,000	44,400	16,800	7,200	3,600
1991	40,910	34,700	1,900	10	4,300
1992	53,300	43,300	-1,900	5,300	6,600
1993	51,200	43,300	-2,700	6,700	3,900
1994	47,800	39,500	500	4,800	3,000
1995	70,000	53,700	4,100	7,000	5,200
1996	75,000	49,100	8,800	10,000	7,100
1997	30,900	700	12,700	10,900	6,600

Source: Official request from the Ministry of Finance, May 1998.

Agricultural Trade Policy

Imports of Agricultural Products

Import regulations have changed dramatically in the past several years in Jordan. The MOS was the sole importer of essential foodstuffs until 1997 when importing was opened up to the private sector. Today, almost any agricultural product may be imported into Jordan if prevailing customs duties and taxes are paid and if the product meets local quality standards. There are two exceptions to this general rule: mineral water and fresh milk. Mineral water is currently banned from import because local mineral water is mined in disadvantaged areas and that activity is considered critical from a development standpoint. Fresh milk is banned from import to protect domestic milk producers.

Import licenses are required for most imported goods and especially for those that originate in and are being imported from countries that have trade agreements and protocols with Jordan (see the section on agenda trade for more details on the latter). Imports of some agricultural goods also require prior approval from either the Ministry of Agriculture (MOA) or the Ministry of Supply (MOS). The agricultural products for which prior approval is required from the MOA are live animals; fresh, chilled and frozen meat; and frozen animal semen. Prior approval is required to ensure that the animals and animal products meet local health standards.

The MOS must be contacted for prior approval for import of rice, powder milk, wheat and wheat derivatives, sugar, barley, corn, and milk for manufacturing purposes. Prior approval is necessary to ensure that the supply of these essential foods is sufficient in the country. If MOS determines that insufficient quantities of essential foodstuffs are being imported by the private sector, MOS may purchase necessary goods in international markets. This process is viewed as a temporary measure to ease transition to private sector supply of all food stuffs. The GOJ plans to abolish the prior approval requirement on imported staple foods once the private sector is fully responsive to market price signals.

Exports of Agricultural Products

There are no restrictions on exports of agricultural products with the exception of some fruits and vegetables exported under bilateral trade agreements with Lebanon and Israel. These “agenda trade” quantity restrictions are described in more detail below. In general, exporters must satisfy any standards or other requirements of the importing country. For example, to export horticultural products from Jordan, the typical process is:

1. The Chamber of Commerce issues a receipt to exporters which includes a certificate of origin of the product and the quantity, value, and types of products to be exported;
2. The certificate from the Chamber of Commerce is stamped (approved) by AMO;
3. If necessary, an EURI certificate (for EU market), which shows the final weight and number of packages being exported is obtained from the Customs Department at either the airport or border;
4. A health certificate is issued by the Plant Protection Department of the MOA at the border or airport; and
5. The shipment is released for international transport.

Bilateral Trade Agreements with Agriculture Provisions

Agenda Trade

Jordan has several bilateral trade agreements with neighboring countries, including:

- Bahrain
- Egypt
- Iraq
- Israel
- Kuwait
- Lebanon
- Libya
- Morocco
- Oman
- Palestine National Authority (PNA)
- Saudi Arabia
- Sudan
- Syria
- Tunisia
- United Arab Emirates

Five of these agreements have annexes or “agendas” with specific terms for trade in selected agricultural products. Within the agendas, the time periods during which specific agricultural products may be exported to the trading partner or imported from the trading partner with exemption from customs duties and other fees and taxes is stated. Most of the commodities listed in the agendas are horticultural products that are produced in both countries. The idea behind the agendas is to provide protection to domestic producers in both countries during peak harvest periods.

The agreements with the Palestine National Authority, Yemen and Oman do not limit the quantity of trade at any time during the year. However, for Lebanon and Israel, exports or imports of some commodities have been subject to maximum quantities (quotas). Trade between Jordan and its agenda trade partners during non-specified time periods is permitted with no quantity restrictions but prevailing duties must be paid.

For some commodities, the time period during which tariff free trade is permitted is identified as “as required.” This notation means that if domestic supplies are judged sufficient to satisfy market demands, imports of the specific commodity may not be exempt from customs duties. However, if market supplies were expected to be low, trade is permitted with the tariff exemption during a mutually agreed upon time period.

Prior to 1998, all trade in agricultural goods under these agreements was subject to quarterly plans stipulating the maximum quantity of locally produced commodities that could be imported. However, as of 1 January 1998, the quarterly plan was eliminated but quantitative restrictions within the domain of the agendas remain. Agenda trade will be subsumed under the Arab Free Trade Agreement (AFTA) when that agreement is in full force.

Jordan, along with other Arab League member states, is in the process of negotiating the specific terms of the AFTA. The objective of the AFTA is to permit duty-free trade among Arab countries within 10 years. Tariffs are to be reduced up to 10 percent per year on products originating in member countries. During that transition period, some agricultural products are likely to warrant special treatment because of the sensitivity of governments to food security issues. Jordan implemented the terms of the agreement (i.e., reduced import tariffs by 10 percent) on January 1, 1998 but only on a reciprocal basis. That is, Jordan’s tariff reductions are only available to the other Arab League member states that also began their tariff reductions.

EU-Jordan Partnership Agreement

The EU-Jordan Partnership Agreement is expected to be implemented on January 1, 1999. Under the agreement, Jordan and the EU will have a maximum of 12 years to reduce current bilateral tariffs to zero. The agreement contains specific import procedures and safeguards with respect to agricultural product trade. Agricultural products being exported to the EU are categorized in up to nine classes with distinct tariff reduction, quantity restrictions, and/or restricted time periods for duty-free trade. The possible configurations for duty-free or reduced duty-trade are:

1. Products without a quantity ceiling and exempt from ad valorem tariffs at the end of the implementation period but only during a specified period;
2. Products with a quantity ceiling and exempt (at the end of the implementation period) from ad valorem tariffs during the entire year;
3. Products with a quantity ceiling and exempt (at the end of the implementation period) from ad valorem tariffs but only during a specified period;
4. Products without a quantity ceiling and with a reduction of 40 percent in ad valorem tariff rates (at the end of the implementation period) but only during a specified time period;
5. Products without a quantity ceiling and with a 40 percent reduction in the ad valorem tariff rate (at the end of the implementation period) during the entire year;
6. Manufactured products with a 2,000 ton ceiling for each good and exempt from ad valorem tariffs within the quota during the entire year;

7. Tomato concentrates are limited to 3,000 yearly and exempt from ad valorem tariffs with a 3 percent annual increase during the first four years of the agreement;
8. For specified products, the EU may impose a quantity restriction if it finds during its annual review of trade under the agreement that unrestricted imports of one or more products may cause difficulties in the EU market; and
9. For products with quantity restrictions, if the quota is exceeded, the tariff rates on the above quota quantities may be completely or partially reduced from the current MFN ad valorem tariff rate.

The specific commodity trade provisions are outlined in the tables in Annex B.

State Trading Enterprises

WTO member countries define state trading enterprises (STEs) as:

Governmental and non-governmental enterprises, including marketing boards, which have been granted exclusive or special rights or privileges, including statutory or constitutional powers, in the exercise of which they influence through their purchases or sales the level or direction of imports or exports.

Under this definition, the Agricultural Marketing and Processing Company of Jordan was an STE prior to 1995. In addition, the Ministry of Supply (MOS) would have to be considered an STE but only prior to 1998. In 1997, the MOS relinquished its remaining special rights or privileges in the area of foreign trade. For example, as noted above, the private trade is no longer prohibited or in any other way restricted from importing or exporting agricultural products. Therefore, the MOS can longer be considered an STE.

As noted elsewhere, the Ministry of Supply will continue to import commodities as needed for food security reasons but not with any special privileges or rights. MOS may import goods if it determines food security stocks are falling to insufficient levels. It is the Government's expectation that MOS's role will diminish considerably over time as the private sector builds storage capacity. In fact, the MOS will lose its status as a ministry this year and will become a directorate within the Ministry of Industry and Trade.

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ANNEX A

Statistical Profile of Jordan's Economy and Agricultural Sector

Table A1. Macroeconomic Indicators, 1980-1997

	Population	Rural population share of total 1/	Real GDP	Real per capita GDP	Real per capita private consumption	GDP deflator	Cost of living index, all goods	Cost of living index, food	Exchange rate 2/	Foreign exchange reserves
	(1,000)	(percent)	Mil 1985JD	1985JD/person	1985JD/person	1985=100	1985=100	1985=100	JD/US\$	(mil JD)
1980	2,233	n/a	1,651	739	583	71	44	47	0.297	1,107
1981	2,319	n/a	1,821	785	610	81	47	51	0.329	1,049
1982	2,409	n/a	1,867	775	664	91	51	53	0.352	848
1983	2,502	n/a	1,914	765	661	96	54	55	0.362	798
1984	2,599	n/a	1,941	747	621	102	56	56	0.384	500
1985	2,700	n/a	2,020	748	665	100	57	57	0.393	399
1986	2,805	n/a	2,162	771	612	100	57	58	0.349	413
1987	2,914	n/a	2,224	763	577	99	57	57	0.338	413
1988	3,027	n/a	2,183	721	518	104	61	60	0.374	110
1989	3,144	n/a	1,890	601	414	126	77	73	0.572	460
1990	3,468	n/a	1,908	550	408	140	89	87	0.662	848
1991	3,701	23.2	1,943	525	375	147	96	97	0.680	825
1992	3,844	23.0	2,255	587	445	155	100	100	0.679	750
1993	3,993	22.9	2,381	596	425	160	103	102	0.692	1,632
1994	4,139	21.1	2,575	622	411	163	107	108	0.698	1,692
1995 p	4,291	21.7	2,754	642	417	169	110	110	0.700	1,972
1996 p	4,444	21.7	2,898	652	430	178	117	118	0.708	1,759
1997 e	4,602	n/a	3,044	661	n/a	184	120	126	0.710	2,200

Table A1. Macroeconomic Indicators, 1980-1997--Continued

	GDP at market prices	Imports of goods and services	Exports of goods and services	Domestic absorption	Public consumption	Private consumption	Gross fixed capital formation	Change in stocks
	(mil JD)	(mil JD)	(mil JD)	(mil JD)	(mil JD)	(mil JD)	(mil JD)	(mil JD)
1980	1,180	962	448	1,699	340	930	418	11
1981	1,469	1,393	589	2,260	456	1,141	635	28
1982	1,701	1,556	670	2,587	478	1,458	627	24
1983	1,829	1,453	640	2,642	473	1,579	536	54
1984	1,981	1,519	746	2,754	535	1,648	527	44
1985	2,020	1,503	782	2,742	532	1,795	385	30
1986	2,163	1,200	634	2,729	567	1,718	409	35
1987	2,209	1,320	756	2,773	587	1,670	449	67
1988	2,264	1,520	1,021	2,764	604	1,627	513	19
1989	2,372	1,805	1,360	2,817	619	1,635	554	9
1990	2,668	2,474	1,652	3,491	664	1,977	694	156
1991	2,855	2,363	1,698	3,520	742	2,040	678	61
1992	3,493	2,975	1,820	4,648	791	2,648	1,049	160
1993	3,802	3,152	1,962	4,991	858	2,711	1,304	119
1994	4,201	3,108	2,093	5,215	990	2,774	1,391	60
1995 p	4,655	3,435	2,438	5,651	1,081	3,023	1,480	68
1996 p	5,147	3,839	2,597	6,389	1,194	3,394	1,717	84
1997 e	5,606	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note: n/a denotes not available; p denotes preliminary, and e denotes estimate.

1/ In 1991, the standard for rural was changed from towns of 3,000 or less to 5,000 or less and so a consistent measure of rural population is not available

2/ Average of the monthly buying rates.

Sources: *Statistical Yearbook, 1996* and earlier issues, Department of Statistics; *Monthly Statistical Bulletin*, Central Bank of Jordan; *International Financial Statistics, March 1998*, CD-ROM, International Monetary Fund.

Table A2. Agricultural GDP and Per Capita Income

	Agriculture GDP at market prices	Agriculture share of GDP	Agriculture GDP deflator	Real agriculture GDP at market prices	GDP per farmer (holding)	Per capita income on farms
	(mil JD)	(percent)	1985=100	(Mil 1985JD)	(JD/farm)	(JD/person)
1980	83.0	7.0	n/a	n/a	n/a	n/a
1981	79.6	5.4	n/a	n/a	n/a	n/a
1982	92.7	5.4	n/a	n/a	n/a	n/a
1983	109.8	6.0	n/a	n/a	1,766	220
1984	97.4	4.9	n/a	n/a	n/a	n/a
1985	98.4	4.9	100.0	98.4	n/a	n/a
1986	114.3	5.3	109.1	104.8	n/a	n/a
1987	137.8	6.2	111.0	124.2	n/a	n/a
1988	134.5	5.9	81.7	164.7	n/a	n/a
1989	139.8	5.9	112.4	124.4	n/a	n/a
1990	187.8	7.0	115.1	163.1	n/a	n/a
1991	213.5	7.5	119.5	178.7	n/a	n/a
1992	246.9	7.1	117.8	209.6	n/a	n/a
1993	193.3	5.1	125.3	154.3	n/a	n/a
1994	197.2	4.7	140.5	140.4	n/a	n/a
1995	213.3	4.6	146.1	146.0	n/a	n/a
1996	232.9	4.5	154.9	150.4	n/a	n/a
1997	250.5	4.5	164.9	151.9	2,716	454

Note: n/a denotes not available.

Sources: *Statistical Yearbook, 1996* and earlier issues, Department of Statistics; *Census of Agriculture, 1983*, Department of Statistics; preliminary data from *Census of Agriculture, 1997*, Department of Statistics.

Table A3. Exports of Total and Agricultural Goods

	Total goods exports	Agriculture share of total goods exports	Total agricultural exports	Total food and live animals	Vegetables	Fruits and nuts	Other food and live animals	Beverages and tobacco	Animal and vegetable oils and fats
	(1,000 JD)	(percent)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)
1985	255,346	17.9	45,671	43,558	16,628	7,458	19,472	1,937	176
1986	225,650	19.9	44,836	41,932	13,377	8,475	20,080	1,390	1,514
1987	248,773	15.0	37,311	33,837	14,765	5,246	13,826	3,037	437
1988	324,788	9.9	32,130	30,010	15,168	4,400	10,442	1,488	632
1989	534,166	10.1	53,914	48,623	27,914	4,592	16,117	2,845	2,446
1990	612,252	10.6	64,849	59,756	36,790	7,937	15,029	4,450	643
1991	598,627	16.0	95,723	86,041	43,531	10,929	31,581	7,370	2,312
1992	633,755	15.6	98,824	92,033	39,563	10,453	42,017	4,935	1,856
1993	691,282	21.0	145,412	140,033	47,720	21,419	70,894	3,662	1,717
1994	793,919	19.9	157,968	91,200	43,820	21,443	25,937	4,070	62,698
1995	1,004,534	25.1	251,750	99,509	53,821	14,393	31,295	5,232	147,009
1996	1,039,801	22.0	228,606	160,122	65,256	16,792	78,074	4,103	64,381
1997	1,065,977	25.5	271,671	181,373	69,604	21,878	89,891	3,640	86,658

Source: *Monthly Statistical Bulletin, March and April 1998*, and earlier issues, Department of Research and Studies, Central Bank of Jordan, April, 1998.

Table A4. Imports of Total and Agricultural Goods

	Total goods imports	Agriculture share of total imports	Total agricultural imports	Total food and live animals	Live animals	Meat, dairy products, and eggs	Wheat, wheat flour, and rice	Sugar	Fruits, vegetables and nuts	Other food and live animals	Beverages and tobacco	Animal and vegetable oils and fats
	(1,000 JD)	(percent)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)	(1,000 JD)
1985	1,074,445	17.7	189,972	175,784	8,599	51,091	35,486	3,640	25,361	51,607	4,036	10,152
1986	850,149	21.4	181,657	165,568	2,923	41,336	25,594	8,696	25,367	61,652	6,672	9,417
1987	915,545	18.8	171,736	155,719	3,627	42,818	35,966	9,307	16,506	47,495	7,999	8,018
1988	1,022,469	18.6	190,594	172,909	4,334	45,382	35,987	8,251	17,410	61,545	6,822	10,863
1989	1,230,010	17.4	213,702	197,650	3,575	37,567	25,508	12,036	24,534	94,430	8,855	7,197
1990	1,725,828	25.2	435,569	403,896	21,293	62,486	102,324	54,030	27,027	136,736	9,777	21,896
1991	1,710,463	26.4	450,849	417,668	37,483	89,993	88,713	45,926	33,407	122,146	9,505	23,676
1992	2,214,002	20.9	462,975	416,023	26,061	84,652	75,105	28,819	41,501	159,885	9,324	37,628
1993	2,453,625	19.9	487,451	435,146	27,937	99,660	96,609	33,084	26,123	151,733	9,652	42,653
1994	2,362,583	21.4	506,052	409,673	30,928	73,950	68,221	56,279	28,290	152,005	13,878	82,501
1995	2,590,250	20.2	523,859	419,232	29,846	68,552	62,713	29,684	43,194	185,243	9,930	94,697
1996	3,043,556	25.4	771,600	685,917	26,822	97,462	143,190	58,899	80,176	279,368	12,036	73,647
1997	2,909,150	22.4	652,806	539,521	26,087	82,584	107,957	41,109	69,040	212,744	16,466	96,819

Source: *Monthly Statistical Bulletin, March and April 1998*, and earlier issues, Department of Research and Studies, Central Bank of Jordan, April, 1998.

Table A5. Structure of Jordan's Farm Sector, Census Years 1983 and 1997

	Units	1983	1997
Number of farmers (holdings)	(number)	62,162	92,233 p
Number of landless farmers	(number)	4,724	16,273 p
Number of farms with land	(number)	57,438	75,960 p
Farms with 30 or less dunum	(number)	30,765	52,947 p
Farms with 31-100 dunum	(number)	18,271	13,526 p
Farms with 101-500 dunum	(number)	7,557	5,067 p
Farms with more than 500 dunum	(number)	845	614 p
Total area on farms	(hectares)	364,263	278,542 p
Total area on farms with 30 or less dunum	(hectares)	34,039	47,369 p
Total area on farms with 31-100 dunum	(hectares)	92,835	67,371 p
Total area on farms with 101-500 dunum	(hectares)	135,901	89,784 p
Total area of farms with more than 500 dunum	(hectares)	101,488	74,017 p
Average farm size	(hectares)	6.3	3.7 p
Average area on farms with 30 or less dunum	(hectares)	1.1	0.9 p
Average area on farms with 31-100 dunum	(hectares)	5.1	5.0 p
Average area on farms with 101-500 dunum	(hectares)	18.0	17.7 p
Average area of farms with more than 500 dunum	(hectares)	120.1	120.5 p
Farm population	(persons)	499,498	552,000 e
Average farm household size	(persons)	8.0	6.0 e

Note: "p" denotes preliminary; "e" denotes estimate by authors.

Sources: *Census of Agriculture, 1983*, Department of Statistics and preliminary results from working tables for *Census of Agriculture, 1997*, Department of Statistics, May 1998.

Table A6. Land Use in Jordan, 1980-1996

	Total land area	Forestry and woodlands	Agricultural land area	Agricultural land as a share of total land	Permanent pasture land (rangeland)	Permanent crops	Arable land	Arable land as a share of total land	Total irrigated land	Irrigated land as a share of crop land
	(1,000 ha)	(1,000 ha)	(1,000 ha)	(percent)	(1,000 ha)	(1,000 ha)	(1,000 ha)	(percent)	(1,000 ha)	(percent)
1980	8,921	63	1,127	12.6	790	38	299	3.4	37	11.0
1981	8,921	65	1,127	12.6	790	37	300	3.4	37	11.0
1982	8,921	66	1,130	12.7	790	38	302	3.4	38	11.2
1983	8,921	66	1,138	12.8	791	43	305	3.4	43	12.4
1984	8,921	67	1,142	12.8	791	47	304	3.4	48	13.7
1985	8,921	69	1,145	12.8	791	50	304	3.4	48	13.6
1986	8,921	70	1,153	12.9	791	58	304	3.4	57	15.7
1987	8,921	69	1,156	13.0	791	62	303	3.4	61	16.7
1988	8,921	70	1,165	13.1	791	66	308	3.5	61	16.3
1989	8,921	70	1,182	13.2	791	81	310	3.5	61	15.6
1990	8,921	70	1,191	13.4	791	90	310	3.5	63	15.8
1991	8,921	70	1,193	13.4	791	90	312	3.5	64	15.9
1992	8,921	70	1,196	13.4	791	90	315	3.5	68	16.8
1993	8,921	70	1,196	13.4	791	90	315	3.5	70	17.3
1994	8,921	70	1,196	13.4	791	90	315	3.5	73	18.0
1995	8,921	70	1,201	13.5	791	90	320	3.6	75	18.3
1996	8,921	76	1,201	13.5	711	90	380 E	3.6	77	18.8

Source: FAOSTAT CD-ROM 1997, March 1998 and FAOSTAT Online, May 1998, Food and Agriculture Organization of the United Nations.

Table A7. Use of Permanent Crop Land in Jordan, 1985-1996

	Total permanent crop land	Tree crops area	Irrigated tree crops area	Proportion of tree crop area irrigated	Olive tree area	Area of other tree crops
	(hectares)	(hectares)	(hectares)	(percent)	(hectares)	(hectares)
1985	50,000	n/a	n/a	n/a	n/a	n/a
1986	58,000	49,859	n/a	n/a	34,493	15,367
1987	62,000	54,909	n/a	n/a	38,145	16,765
1988	66,000	54,091	n/a	n/a	36,276	17,815
1989	81,000	54,358	n/a	n/a	36,397	17,961
1990	90,000	54,547	n/a	n/a	36,457	18,090
1991	90,000	54,914	n/a	n/a	36,607	18,307
1992	90,000	57,400	n/a	n/a	39,215	18,185
1993	90,000	57,069	n/a	n/a	39,547	17,523
1994	90,000	69,593	n/a	n/a	53,435	16,158
1995	90,000	70,709	22,843	32.3	54,253	16,455
1996	90,000	71,880	23,599	32.8	54,782	17,098

Note: "n/a" denotes not available.

Sources: *FAOSTAT CD-ROM 1997*, Food and Agriculture Organization of the United Nations, March 1998 and *Annual Agricultural Situation, 1996* and earlier issues, Department of Statistics, The Hashemite Kingdom of Jordan, July 1997.

Table A8. Use of Arable Crop Land in Jordan, 1985-1996

	Total arable land	Cropped arable land	Multiple cropping index 1/	Total field crops planted area	Irrigated field crops area	Proportion of field crop area irrigated	Cereals planted area 2/	Pulses planted area 3/	Fodder crops area (excluding barley) 4/	Other field crops area 5/
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(percent)	(hectares)	(hectares)	(hectares)	(hectares)
1985	304,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1986	304,000	137,306	0.45	106,024	n/a	n/a	95,488	4,827	2,150	3,558
1987	303,000	177,904	0.59	149,353	n/a	n/a	135,940	6,757	2,175	4,481
1988	308,000	168,648	0.55	140,647	n/a	n/a	127,382	6,993	1,969	4,303
1989	310,000	125,715	0.41	103,356	n/a	n/a	94,194	3,334	3,400	2,428
1990	310,000	157,742	0.51	128,901	n/a	n/a	117,417	4,833	2,981	3,670
1991	312,000	160,374	0.51	131,405	n/a	n/a	122,399	3,960	2,667	2,379
1992	315,000	169,089	0.54	142,618	n/a	n/a	133,646	3,901	1,590	3,482
1993	315,000	207,477	0.66	180,156	n/a	n/a	165,319	9,680	1,179	3,978
1994	315,000	149,045	0.47	117,720	n/a	n/a	110,097	3,081	1,607	2,935
1995	320,000	192,896	0.60	149,965	11,179	7.5	139,847	3,114	2,180	4,823
1996	320,000	148,345	0.46	121,197	10,611	8.8	110,456	4,749	2,352	3,640

See end of table for notes.

Continued—

Table A8. Use of Arable Crop Land in Jordan, 1985-1996—Continued

	Total vegetable area 6/	Irrigated vegetable area	Proportion of vegetable area irrigated	Tomato area	Potato area	Watermelon area	Eggplant area	Squash area	Dry onion area	Other vegetables area
	(hectares)	(hectares)	(percent)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
1985	n/a	n/a	n/a	13,707	1,550	3,801	2,716	3,706	1,091	n/a
1986	31,282	n/a	n/a	9,141	1,523	2,595	2,731	3,208	610	14,072
1987	28,551	n/a	n/a	6,043	2,358	2,568	2,508	2,220	774	13,527
1988	28,000	n/a	n/a	5,703	2,415	3,068	2,170	2,333	1,442	11,761
1989	22,359	n/a	n/a	5,352	1,340	2,121	1,432	1,631	810	10,494
1990	28,841	n/a	n/a	9,088	2,830	1,965	1,718	1,864	523	12,195
1991	28,969	n/a	n/a	8,827	3,451	2,363	1,799	1,352	1,081	10,366
1992	26,471	n/a	n/a	9,357	2,067	1,207	2,474	1,547	1,248	8,869
1993	27,322	n/a	n/a	8,904	3,440	1,248	1,274	1,475	1,719	9,018
1994	31,324	n/a	n/a	11,675	2,633	3,067	1,249	1,650	996	10,708
1995	42,931	39,241	91.4	11,105	5,069	3,844	2,799	2,194	2,279	15,557
1996	27,148	25,854	95.2	7,257	3,695	2,314	1,338	1,316	1,425	9,694

Note: "n/a" denotes not available.

1/ Number of crops harvested per hectare of land (if equal to 1, a single crop is harvested).

2/ Cereals includes wheat, barley, and sorghum.

3/ Pulses includes lentils and chickpeas.

4/ Fodder includes vetch, common vetch, clover trifolium, and alfalfa.

5/ Other crops includes broom millet, tobacco, garlic, and miscellaneous field crops.

6/ Includes vegetables (including sweet corn), roots and tubers, and melons.

Sources: *FAOSTAT CD-ROM 1997*, Food and Agriculture Organization of the United Nations, March 1998 and *Annual Agricultural Situation, 1996* and earlier issues, Department of Statistics, The Hashemite Kingdom of Jordan, July 1997.

Table A9. Credit Extended to Agriculture and Agricultural Manufacturing

	Total outstanding credit to agriculture and agricultural manufacturing	Outstanding credit to agriculture and agricultural manufacturing from licensed banks	Outstanding credit to agriculture and agricultural manufacturing from ACC	Total value of loans made by ACC	Value of operational loans made by ACC	Value of developmental loans made by ACC	Outstanding developmental credit relative to agriculture GDP	Rainfed land I & D loans	Irrigated land I & D loans	Livestock development loans	Mechanization and farm and agricultural manufacturing loans	Rural housing and farm buildings loans
	(mil JD)	(mil JD)	(mil JD)	(mil JD)	(mil JD)	(mil JD)	(percent)	(mil JD)	(mil JD)	(mil JD)	(mil JD)	(mil JD)
1990	90.3	53.7	36.6	7.431	2.176	5.255	2.8	1.029	1.898	1.196	0.480	0.700
1991	91.4	49.8	41.6	10.647	2.128	8.519	4.0	1.489	2.764	2.749	0.968	0.820
1992	110.0	54.4	56.6	23.240	3.628	19.612	7.9	5.952	4.207	7.159	1.336	1.263
1993	136.4	65.4	71.0	18.694	2.693	16.001	8.3	5.799	4.199	4.130	1.017	1.170
1994	149.5	75.5	74.0	14.272	4.024	10.248	5.2	2.703	1.926	4.080	0.637	1.007
1995	152.8	75.7	77.1	19.415	6.623	12.792	6.0	3.835	1.889	4.422	1.306	1.167
1996	164.4	79.5	84.9	21.142	8.246	12.896	5.5	3.188	1.908	5.644	1.168	0.960
1997	181.3	93.3	88.0	16.831	6.515	10.316	4.1					

Notes: "I & D loans" denotes improvement and development loans. The outstanding credit includes the value of outstanding loans given by the Jordan Cooperative Corporation (JCC), estimated at JD9.8 million, JD5.6 million, and JD3.1million in 1993, 1994, and 1995, respectively. The JCC stopped loaning funds to agricultural producers in 1989 but some loans have not yet been repaid.

Sources: *Monthly Statistical Bulletin, March and April 1998*, and earlier issues, Department of Research and Studies, Central Bank of Jordan, April, 1998; *Annual Report, 1996*, and preliminary data for the *1997 Annual Report*, Agricultural Credit Corporation, The Hashemite Kingdom of Jordan, 1997.

Table A10. Cost of Credit to Agriculture and Agricultural Manufacturing

	Average commercial interest rate for overdrafts 1/	Average commercial interest rate for loans and advances 2/	Average commercial interest rate for operational loans 3/	Average subsidized interest rate for operational loans 4/	Average commercial interest rate for long term loans 5/	Average subsidized interest rate for developmental loans 6/
	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
1990	12.52	10.31	11.42	6.66	n/a	6.56
1991	11.73	10.36	11.05	7.41	n/a	6.53
1992	11.42	10.15	10.79	6.96	n/a	6.53
1993	11.11	6.68	8.90	6.93	n/a	6.38
1994	10.94	10.48	10.71	7.54	10.50	6.46
1995	11.39	10.65	11.02	8.12	11.00	6.84
1996	12.41	11.25	11.83	8.18	11.50	7.08
1997	12.99	12.25	12.62	7.27	11.50	7.28

Note: "n/a" means not available.

1/ Weighted average interest rate at licensed banks for overdrafts (typical term of up to 12 months).

2/ Weighted average interest rate at licensed banks for loans and advances (typical term of 1-3 years).

3/ Simple average of weighted average interest rates for overdrafts and loans and advances.

4/ Weighted average interest rate on operational loans (12-24 months) from the Agricultural Credit Corporation.

5/ Simple average of long term (8-9 year) loans from the Industrial Development Bank.

6/ Weighted average interest rate on developmental loans (3-10 years) from the Agricultural Credit Corporation.

Sources: *Monthly Statistical Bulletin, March and April 1998*, and earlier issues, Department of Research and Studies, Central Bank of Jordan, April, 1998; official request for computerized database calculations, Agricultural Credit Corporation, May 1998; and official request from Industrial Development Bank, May 1998.

Table A11. Agricultural Water Use and Agricultural Water Costs in the Jordan Valley

	Total water consumed in Jordan	Water used for agricultural purposes in Jordan	Water consumed in the Jordan Valley by agriculture	Total sales of water to agriculture in the Jordan Valley	Total O&M costs for agricultural water in the Jordan Valley	Average O&M costs for agricultural water in the Jordan Valley	Average rate paid by agriculture in the Jordan Valley	Average water subsidy to agriculture in the Jordan Valley	Total water subsidy to agriculture
	MCM	MCM	(1,000 CM)	(1,000 JD)	(1,000 JD)	fil/CM	fil/CM	fil/CM	(1,000 JD)
1985	639	501	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1986	619	461	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1987	744	570	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1988	818	614	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1989	830	624	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1990	880	658	219,148	874	3,779	17.24	3.99	13.26	2,905
1991	833	612	177,984	679	3,912	21.98	3.82	18.16	3,233
1992	952	700	212,535	677	4,684	22.04	3.19	18.85	4,007
1993	988	726	171,126	2,353	3,023	17.66	13.75	3.91	670
1994	1,011	726	136,411	3,202	3,346	24.53	23.48	1.06	144
1995	1,000	700	124,662	2,731	2,809	22.53	21.91	0.63	78
1996			125,355	3,015	3,077	24.55	24.05	0.50	62
1997			124,700	3,315	3,600	28.87	26.58	2.29	285

Note: “e” denotes estimate; “MCM” denotes million cubic meters; “CM” denotes cubic meters; a “fil” is 1/1000th of a Dinar; “O&M” denotes operating and maintenance.

Sources: Ghezawi and Dajani, *Jordan's Water Sector Facts Manual*, Royal Scientific Society, July 1995; official request from Jordan Valley Water Authority, May 1998.

Table A12. Supply, Trade, Availability, Price and Value of Production, 1985-1997: Wheat and wheat flour

	Area planted	Area lost to weather and other problems	Area harvested	Yield	Production	Imports 1/	Exports	Availability 2/	Average producer price 3/	Value of production 4/
	(hectares)	(percent)	(hectares)	(kg/ha)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(1,000 JD)
1985	n/a	n/a	94,356	665.9	62,827	389,130	71,374	380,584	n/a	n/a
1986	59,436	21.6	46,599	661.9	30,842	284,071	25,418	289,495	n/a	n/a
1987	84,319	5.1	79,981	997.8	79,806	580,603	79,492	580,917	n/a	n/a
1988	70,177	0.4	69,904	1,126.9	78,773	427,564	11,958	494,378	n/a	n/a
1989	56,212	3.8	54,085	1,008.0	54,520	184,492	40,115	198,897	n/a	n/a
1990	60,531	5.3	57,306	1,446.1	82,870	667,137	37,560	712,447	144.8	12,003
1991	56,467	8.9	51,443	1,202.2	61,844	569,634	69,907	561,570	146.0	9,030
1992	53,413	3.9	51,340	1,469.3	75,435	537,814	401	612,847	144.9	10,929
1993	67,916	44.7	37,575	1,519.5	57,094	629,935	268	686,761	146.4	8,356
1994	42,454	30.0	29,715	1,576.7	46,852	504,069	492	550,429	145.4	6,810
1995	51,232	20.8	40,555	1,441.4	58,457	699,143	7,108	750,492	160.2	9,362
1996	32,926	13.9	28,349	1,505.4	42,678	667,242	0	709,920	189.8	8,099
1997	n/a	n/a	n/a	n/a	56,660 e	554,702	0	611,362	180.6	10,234

Note: "n/a" denotes not available; "e" denotes estimate by Ministry of Agriculture.

1/ Imports of wheat and wheat flour converted to wheat equivalent assuming a flour milling rate of 78.5%.

2/ Computed as production plus imports less exports.

3/ Weighted average of: 1) Ministry of Supply weighted average purchase price of wheat from farmers and 2) average farmgate price applied to estimated sales of wheat to other than the Ministry of Supply.

4/ **Unofficial** estimate computed as average producer price times production.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *FAOSTAT Online*, May 1998; *Agricultural Prices Survey, 1996* and earlier issues, Department of Statistics; official request from the Ministry of Supply, May 1998.

Table A13. Supply, Trade, Availability, Price and Value of Production, 1985-1997: Barley

	Area planted	Area lost to weather and other problems	Area harvested	Yield	Production	Imports	Exports	Availability 1/	Average producer price 2/	Value of production 3/
	(hectares)	(percent)	(hectares)	(kg/dunum)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(1,000 JD)
1985	n/a	n/a	39,920	493	19,681	74,890	0	94,571	n/a	n/a
1986	35,760	45.0	19,675	458	9,004	143,542	0	152,546	n/a	n/a
1987	51,147	11.6	45,208	731	33,048	114,753	0	147,801	n/a	n/a
1988	55,956	0.9	55,430	809	44,850	98,024	0	142,874	n/a	n/a
1989	37,344	13.1	32,456	634	20,571	217,667	0	238,238	n/a	n/a
1990	55,099	12.8	48,020	883	42,406	209,488	0	251,894	104	4,390
1991	65,525	12.9	57,096	699	39,935	252,921	0	292,856	103	4,123
1992	79,329	12.8	69,172	996	68,878	293,481	0	362,359	104	7,179
1993	97,210	71.9	27,289	1,165	31,798	482,996	0	514,794	104	3,295
1994	66,368	54.4	30,294	903	27,353	471,864	0	499,217	104	2,840
1995	87,940	59.4	35,740	888	31,726	487,930	0	519,656	124	3,931
1996	76,806	65.5	26,461	1,102	29,171	732,908	0	762,079	157	4,587
1997	n/a	n/a	n/a	n/a	42,845 e	507,929	0	550,774	112	4,790

Note: "n/a" denotes not available; "e" denotes estimate by Ministry of Agriculture.

1/ Availability is computed as production plus imports less exports.

2/ Weighted average of: 1) Ministry of Supply weighted average purchase price of barley from farmers and 2) average farmgate price applied to estimated sales of barley to other than the Ministry of Supply.

4/ *Unofficial* estimate computed as average producer price times production.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *FAOSTAT Online, May 1998*; *Agricultural Prices Survey, 1996* and earlier issues, Department of Statistics; official request from the Ministry of Supply, May 1998.

Table A14. Supply, Trade, Availability, Price and Value of Production, 1985-1997: Lentils

	Area planted	Area lost to weather or other problems	Area harvested	Yield	Production	Imports	Exports	Availability 1/	Average producer price 2/	Value of production 3/
	(hectares)	(percent)	(hectares)	(kg/hectare)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(1,000 JD)
1985	n/a	n/a	5,785	702	4,063	585	0	4,648	n/a	n/a
1986	3,231	12.4	2,832	618	1,750	1,019	0	2,769	n/a	n/a
1987	5,119	0.7	5,083	1,032	5,245	1,589	6	6,828	n/a	n/a
1988	5,314	0.0	5,314	1,229	6,529	484	0	7,013	n/a	n/a
1989	3,167	0.6	3,149	499	1,572	11,391	611	12,352	n/a	n/a
1990	4,301	0.0	4,301	958	4,121	428	780	3,769	227	935
1991	2,475	2.1	2,423	489	1,184	3,541	1	4,724	343	406
1992	3,024	2.8	2,938	966	2,839	4,067	0	6,906	262	744
1993	8,233	0.0	8,233	580	4,771	392	0	5,163	295	1,409
1994	2,423	0.0	2,423	578	1,400	3,230	0	4,630	400	560
1995	2,850	0.1	2,847	752	2,142	3,824	0	5,966	315	674
1996	4,338	0.0	4,338	455	1,973	5,687	1	7,659	360	710
1997	n/a	n/a	n/a	n/a	1,886 e	4,676	0	6,562	350	660

Note: "n/a" denotes not available; "e" denotes estimate by Ministry of Agriculture.

1/ Availability is computed as production plus imports less exports.

2/ Weighted average of: 1) Ministry of Supply weighted average purchase price of barley from farmers and 2) average farmgate price applied to estimated sales of barley to other than the Ministry of Supply.

4/ *Unofficial* estimate computed as average producer price times production.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *FAOSTAT Online, May 1998*; *Agricultural Prices Survey, 1996* and earlier issues, Department of Statistics; official request from the Ministry of Supply, May 1998.

Table A15. Supply, Trade, Availability, Price and Value of Production, 1985-1997: Chickpeas

	Area planted	Area lost to weather or other problems	Area harvested	Yield	Production	Imports	Exports	Availability 1/	Average producer price 2/	Value of production 3/
	(hectares)	(percent)	(hectares)	(kg/hectare)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(1,000 JD)
1985	n/a	n/a	2,890	550	1,589	10,384	500	11,473	n/a	n/a
1986	1,595	27.3	1,160	511	593	9,972	0	10,565	n/a	n/a
1987	1,639	3.6	1,580	792	1,251	18,114	0	19,365	n/a	n/a
1988	1,679	0.0	1,679	1,074	1,803	7,517	4	9,316	n/a	n/a
1989	167	0.0	167	740	124	13,112	450	12,785	n/a	n/a
1990	532	0.0	532	644	343	10,849	204	10,988	n/a	n/a
1991	1,485	0.0	1,485	976	1,449	17,850	0	19,299	n/a	n/a
1992	877	0.0	877	1,932	1,695	13,396	0.5	15,090	317	537
1993	1,448	0.0	1,448	1,805	2,613	14,657	0	17,270	325	849
1994	658	0.0	658	2,480	1,631	13,755	8	15,378	241	393
1995	264	0.0	264	1,856	490	10,482	46	10,926	350	172
1996	3,606	0.0	3,606	680	2,453	24,060	2	26,511	377	926
1997	n/a	n/a	n/a	n/a	1,946 e	17,444		19,390	328	638

Note: "n/a" denotes not available; "e" denotes estimate by Ministry of Agriculture.

1/ Availability is computed as production plus imports less exports.

2/ Weighted average of: 1) Ministry of Supply weighted average purchase price of barley from farmers and 2) average farmgate price applied to estimated sales of barley to other than the Ministry of Supply.

4/ **Unofficial** estimate computed as average producer price times production.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *FAOSTAT Online, May 1998*; *Agricultural Prices Survey, 1996* and earlier issues, Department of Statistics; official request from the Ministry of Supply, May 1998.

Table A16. Supply, Trade, and Availability, 1985-1997: Tomatoes

Area	planted Area	harvested	Yield	Production	Imports	Exports	Availability	1/
	(hectares)	(hectares)	(kg/dunum)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(metric tons)
1985	13,707	13,707	18,319	251,100	0	108,237	n/a	
1986	9,141	9,141	24,131	220,565	0	94,973	n/a	
1987	6,043	6,043	39,193	236,828	0	94,453	n/a	
1988	5,703	5,703	38,351	218,734	0	106,459	n/a	
1989	5,352	5,352	46,783	250,407	0	193,116	n/a	
1990	9,088	9,088	41,472	376,893	0	249,401	61,420	
1991	8,827	8,827	31,215	275,549	0	133,488	122,513	
1992	9,357	9,357	52,399	490,294	50	166,420	223,154	
1993	8,904	8,904	37,227	331,463	0	126,712	128,582	
1994	11,675	11,675	37,579	438,750	0	100,924	235,921	
1995	11,105	11,105	39,600	439,746	0	135,745	215,464	
1996	7,257	7,257	40,145	291,316	0	170,450	52,054	
1997	n/a	n/a	n/a	350,000 ^e	0	160,000	146,369	

Note: "n/a" denotes not available; "e" denotes estimate by authors based on Ministry of Agriculture data.

1/ Availability is computed as production plus imports less exports.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics.

Table A17. Estimated Production of Table and Processing Tomatoes, Price, and Value of Production, 1985-1997

	Production, table and processing tomatoes	Tomatoes purchased by AMPCO for processing	Estimated processing tomato production 1/	Estimated table tomato production 2/	Average farmgate price, table tomatoes	Average processing tomato price paid by AMPCO	Estimated average producer price for processing tomatoes 3/	Value of production, table tomatoes 4/	Value of production, processing tomatoes 5/
	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(JD/ton)	(JD/ton)	(1,000 JD)	(1,000 JD)
1985	251,100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1986	220,565	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1987	236,828	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1988	218,734	n/a	n/a	n/a	53.2	n/a	n/a	n/a	n/a
1989	250,407	n/a	n/a	n/a	80.7	n/a	n/a	n/a	n/a
1990	376,893	62,768	66,072	310,821	70.2	n/a	n/a	21,820	3,108
1991	275,549	14,661	19,548	256,001	108.4	n/a	n/a	27,750	4,770
1992	490,294	125,962	100,770	389,524	116.8	n/a	N/a	45,496	8,696
1993	331,463	68,552	76,169	255,294	92.6	54.7	64.8	23,640	4,937
1994	438,750	40,762	101,905	336,845	107.9	55.1	75.5	36,346	7,697
1995	439,746	26,561	88,537	351,209	65.1	30.0	45.6	22,864	4,035
1996	291,316	51,609	68,812	222,504	61.5	42.5	43.1	13,684	2,962
1997	350,000	19,634	43,631	306,369	79.6	52.0	67.7	24,387	2,952

Note: "n/a" denotes not available; "AMPCO" denotes Agricultural Marketing and Processing Company of Jordan.

1/ Estimate by the authors. Estimated assuming AMPCO purchases of processing tomatoes accounted for 95-30 percent of total processing tomato production. Shares of crop purchased by AMPCO estimated by comparing AMPCO offer price to table tomato farmgate price.

2/ Residual after deducting estimated processing tomato production.

3/ Estimate by the authors. Estimated at 70-85 percent of the farmgate price for table tomatoes.

4/ Estimated as average farmgate price for table tomatoes times estimated table tomato production.

5/ Estimated as average processing tomato price times estimated processing tomato production.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *Agricultural Price Survey, 1996* and earlier issues, Department of Statistics; Agricultural Marketing and Processing Company of Jordan, information booklet, 1998; and authors' estimates.

Table A18. Supply, Trade, Availability, Price and Value of Production, 1985-97: Watermelons

	Area planted	Area harvested	Yield	Production	Imports	Exports	Availability 1/	Average farmgate price	Value of production 2/
	(hectares)	(hectares)	(kg/hectare)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(1,000 JD)
1985	3,801	3,801	6,051	23,000	31,500	5,734	48,766	n/a	n/a
1986	2,595	2,595	19,764	51,292	866	6,328	45,830	n/a	n/a
1987	2,568	2,568	24,433	62,749	0	7,260	55,489	n/a	n/a
1988	3,068	3,068	21,768	66,785	924	10,397	57,312	27.1	1,810
1989	2,121	2,121	23,650	50,168	1,112	15,155	36,125	66.8	3,351
1990	1,965	1,965	25,355	49,810	0	27,844	21,966	59.7	2,974
1991	2,363	2,363	32,508	76,813	0	20,723	56,090	64.6	4,962
1992	1,207	1,207	56,295	67,940	0	12,831	55,109	45.0	3,057
1993	1,248	1,248	37,936	47,336	0	9,663	37,673	44.3	2,097
1994	3,067	3,067	40,203	123,295	0	12,840	110,455	73.5	9,062
1995	3,844	3,844	25,673	98,683	0	10,899	87,784	45.3	4,470
1996	2,314	2,314	45,386	105,000	4	8,298	96,706	44.3	4,652
1997				77,137 e					

Note: "n/a" denotes not available; "e" denotes Ministry of Agriculture estimate.

1/ Availability is computed as production plus imports less exports.

2/ *Unofficial* estimate computed as average farmgate price times production.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *FAOSTAT Online*, May 1998; *Agricultural Prices Survey, 1996* and earlier issues, Department of Statistics.

Table A19. Supply, Trade, Availability, Price and Value of Production, 1985-97: Potatoes

	Area planted	Area harvested	Yield	Production	Imports	Exports	Availability 1/	Average farmgate price	Value of production 2/
	(hectares)	(hectares)	(kg/hectare)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(1,000 JD)
1985	1,550	1,550	16,903	26,199	21,584	7,011	40,772	n/a	n/a
1986	1,523	1,523	14,787	22,526	16,951	2,763	36,714	n/a	n/a
1987	2,358	2,358	26,186	61,741	4,834	11,307	55,268	n/a	n/a
1988	2,415	2,415	19,846	47,921	9,025	7,793	49,153	68.3	3,273
1989	1,340	1,340	19,999	26,795	14,781	3,570	38,006	149.9	4,017
1990	2,830	2,830	31,681	89,655	16,147	12,767	93,035	160.7	14,408
1991	3,451	3,451	17,825	61,511	18,814	4,206	76,119	145.7	8,962
1992	2,067	2,067	23,504	48,584	9,556	2,636	55,504	148.5	7,215
1993	3,440	3,440	22,893	78,758	9,479	2,819	85,418	111.3	8,766
1994	2,633	2,633	18,426	48,512	13,821	4,624	57,709	178.9	8,679
1995	5,069	5,069	19,233	97,492	17,141	11,972	102,661	130.0	12,674
1996	3,695	3,695	39,738	146,842	2,510	1,892	147,460	77.8	11,424
1997	n/a	n/a	n/a	107,204 e					

Note: "n/a" denotes not available; "e" denotes Ministry of Agriculture estimate.

1/ Availability is computed as production plus imports less exports.

2/ **Unofficial** estimate computed as average farmgate price times production.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *FAOSTAT Online*, May 1998; *Agricultural Prices Survey, 1996* and earlier issues, Department of Statistics.

Table A20. Production, Trade, Availability, and Prices: Maize

	Production	Imports	Exports	Availability	Average import unit value	Average sale price to consumers
	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(JD/ton)
1985	0	205,396	1,278	204,118	149	n/a
1986	0	233,512	13	233,499	132	n/a
1987	0	182,850	0	182,850	117	n/a
1988	0	270,292	0	270,292	146	n/a
1989	0	319,360	0	319,360	140	n/a
1990	0	221,398	1,705	219,693	72	75
1991	0	197,007	0	197,007	120	75
1992	0	332,828	0	332,828	103	106
1993	0	387,306	0	387,306	102	106
1994	0	245,993	0	245,993	172	106
1995	0	445,834	23	445,811	104	114
1996	0	318,816	0	318,816	147	134
1997	0		0			119

Note: "n/a" denotes not available.

1/ Availability is computed as production plus imports less exports.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *FAOSTAT Online*, May 1998; official request from the Ministry of Supply, May 1998.

Table A21. Supply, Trade, Availability, Price, and Value of Production: Poultry Meat

	Slaughter	Yield	Production	Imports	Exports	Availability	Wholesale	Value of
	(head)	(kg/head)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	1/ price Amman	2/ production
							(JD/ton)	(1,000 JD)
1985	42,316	1.30	55,028	2,270	14	57,284	700	32,742
1986	48,854	1.30	63,528	2,911	12	66,427	700	37,799
1987	52,508	1.20	63,028	1,923	4	64,947	700	37,502
1988	52,910	1.29	68,036	4,196	142	72,090	700	40,481
1989	40,010	1.08	43,036	15,853	40	58,849	889	32,531
1990	41,712	1.20	50,044	13,306	30	63,320	998	42,431
1991	50,014	1.20	60,052	25,133	683	84,502	1008	55,664
1992	58,357	1.20	70,092	7,647	228	77,511	1062	68,180
1993	69,524	1.20	83,492	9,570	6,502	86,560	1170	86,720
1994	78,357	1.20	94,092	5,252	1,281	98,063	n/a	n/a
1995	79,191	1.35	107,000	1,678	2,846	105,832	n/a	n/a
1996	n/a	n/a	100,000	2,733	284	102,450	853	72,497
1997	n/a	n/a	97,800	n/a	n/a	n/a	n/a	n/a

Note: "n/a" denotes not available.

1/ Availability is computed as production plus imports less exports.

2/ *Unofficial* estimate computed as 85 percent of wholesale price in Amman (to approximate farmgate price) times production.

Sources: *Annual Agricultural Statistics, 1996* and earlier issues, Department of Statistics; *FAOSTAT Online*, May 1998; *Agricultural Prices Survey, 1996* and earlier issues, Department of Statistics.

Table A22. Supply, Trade, Availability, Price, and Value of Production: Eggs

	Production	Imports	Exports	Availability 1/	Wholesale price in Amman	Wholesale price in Amman 2/	Value of production 3/
	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/box)	(JD/ton)	(1,000 JD)
1985	31,200	1,340	7,238	25,302	n/a	n/a	n/a
1986	30,000	538	4,758	25,780	n/a	n/a	n/a
1987	25,500	1	7,659	17,842	n/a	n/a	n/a
1988	22,800	0	5,313	17,487	n/a	n/a	n/a
1989	21,800	1	3,918	17,883	n/a	n/a	n/a
1990	31,960	8	3,370	28,598	n/a	n/a	n/a
1991	43,500	127	4,834	38,793	n/a	n/a	n/a
1992	48,200	68	5,693	42,575	11.0	611	26,510
1993	53,600	36	3,149	50,487	11.7	650	31,356
1994	53,400	6	2,105	51,301	12.6	700	33,642
1995	44,200	4	727	43,477	14.9	828	32,929
1996	49,600	0	803	48,797	17.5	972	43,400
1997	50,000	0	233	49,767	n/a	n/a	n/a

Note: "n/a" denotes not available.

1/ Availability is computed as production plus imports less exports.

2/ Price per wholesale box computed to per ton price assuming 20 eggs weigh one kilogram.

3/ *Unofficial* estimate computed as 90 percent of wholesale price in Amman (to approximate farmgate price) times production.

Sources: Ministry of Agriculture; *FAOSTAT Online*, May 1998; *Statistical Yearbook 1996*, Department of Statistics.

Table A23. Supply, Trade, Availability, Price, and Value of Production: Lamb and Goat Meat

	Slaughter of sheep and goats	Average yield, sheep and goats	Production of sheep and goat meat	Imports	Exports	Availability 1/	Wholesale price in Amman for imported lamb	Wholesale price of local sheep and goat meat 2/	Value of production 3/
	(head)	(kg/head)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(JD/ton)	(1,000 JD)
1985	336,500	27.1	9,134	19,973	82	29,025	1,180	2,375	6,598
1986	348,500	15.3	5,347	16,767	22	22,092	1,180	2,150	3,378
1987	349,601	19.1	6,681	19,288	0	25,969	1,180	2,075	3,430
1988	339,344	20.9	7,107	32,932	76	39,963	1,166	2,140	4,096
1989	495,266	15.9	7,896	21,458	14	29,340	1,166	2,560	4,383
1990	647,100	12.5	8,113	8,882	0	16,995	n/a	3,200	5,744
1991	886,000	16.0	14,215	14,387	623	27,979	n/a	3,300	13,104
1992	611,000	23.3	14,215	17,670	643	31,242	2,400	4,438	17,621
1993	596,000	26.8	16,002	19,782	172	35,612	2,400	4,250	18,335
1994	561,000	21.1	11,859	13,402	20	25,241	2,400	n/a	12,506
1995	815,100	14.6	11,920	8,807	236	20,491	2,583	n/a	14,302
1996	853,600	14.8	12,670	8,176	18	20,828	2,684	n/a	14,696
1997	787,200	14.9	11,700	n/a	n/a	n/a	n/a	n/a	n/a

Note: "n/a" denotes not available.

1/ Availability is computed as production plus imports less exports.

2/ Estimated at 75 percent of wholesale price for imported lamb in Amman.

2/ **Unofficial** estimate computed as domestic sheep and goat meat price times production; domestic price in 1994-1996 estimated based on historic relationship between domestic lamb and imported lamb prices.

Sources: Ministry of Agriculture; *FAOSTAT Online*, May 1998; *Statistical Yearbook 1996*, Department of Statistics.

Table A24. Supply, Trade, Availability, Price, and Value of Production: Beef and Veal

	Slaughter	Yield	Production	Imports	Exports	Availability 1/	Price of imported veal at Amman wholesale market	Domestic beef and veal price 2/	Value of production 3/
	(head)	(kg/head)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(JD/ton)	(1,000 JD)
1985	23,300	54.8	1,278	19,878	150	21,006	1,060	1,750	2,237
1986	17,700	56.9	1,008	17,260	67	18,201	1,060	1,550	1,562
1987	12,472	85.4	1,065	17,752	227	18,590	1,060	1,438	1,531
1988	15,862	63.1	1,001	19,977	338	20,640	1,046	1,240	1,241
1989	15,460	64.7	1,000	7,257	27	8,230	1,040	1,642	1,642
1990	27,000	61.3	1,656	14,248	860	15,044	n/a	2,225	3,685
1991	27,900	82.2	2,294	29,976	19,775	12,495	n/a	2,513	5,764
1992	28,000	81.9	2,294	22,997	17,262	8,029	2,225	2,300	5,276
1993	22,000	117.3	2,580	26,073	2,701	25,952	1,950	2,500	6,450
1994	32,000	121.7	3,895	21,737	2,574	23,058	1,950	n/a	8,732
1995	31,000	73.9	2,290	16,992	1,357	17,925	1,950	n/a	5,134
1996	24,700	132.6	3,275	8,858	542	11,591	1,975	n/a	7,436
1997	26,600	132.6	3,528	n/a	n/a	n/a	n/a	n/a	n/a

Note: "n/a" denotes not available.

1/ Availability is computed as production plus imports less exports.

2/ Price of domestic veal at Amman markets.

3/ *Unofficial* estimate computed as domestic beef and veal price times production. Domestic price in 1994-96 estimated based on the historic relationship between domestic veal and imported veal prices.

Sources: Ministry of Agriculture; FAOSTAT Online, May 1998; Statistical Yearbook 1996, Department of Statistics.

Table A25. Supply, Trade, Availability, Price, and Value of Production: Fresh Milk

	Cow milk production	Sheep milk production	Goat milk production	Production of cow, sheep, and goat milk	Imports of fresh milk	Exports of fresh milk	Availability of fresh milk 1/	Domestic price of milk 2/	Value of production of all milk 3/
	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(metric tons)	(JD/ton)	(1,000 JD)
1985	25,630	17,920	12,915	56,465	0	0	56,836	n/a	N/a
1986	25,880	14,880	10,960	51,720	0	0	52,547	n/a	N/a
1987	30,703	19,808	11,024	61,535	0	0	62,468	n/a	N/a
1988	28,595	20,464	12,680	61,739	0	0	63,248	n/a	N/a
1989	33,251	24,672	11,503	69,426	0	0	69,498	146	10,101
1990	59,053	25,207	12,099	96,359	0	0	96,377	198	19,031
1991	89,567	40,866	26,190	156,623	0	0	157,410	210	32,891
1992	89,567	40,866	26,190	156,623	0	0	157,302	210	32,891
1993	91,890	46,625	27,969	166,484	0	0	167,560	210	34,962
1994	95,899	35,824	19,690	151,413	0	0	151,557	210	31,797
1995	92,745	35,347	20,066	148,158	0	0	148,374	220	32,595
1996	106,473	38,475	20,109	165,057	0	0	165,057	237	39,132
1997	114,834	34,726	19,688	169,248	n/a	n/a	n/a	275	46,543

Note: "n/a" denotes not available.

1/ Availability is computed as production plus imports less exports.

2/ Farm gate sale price.

3/ *Unofficial* estimate computed as estimated domestic milk price times production.

Sources: Ministry of Agriculture; *FAOSTAT Online*, May 1998.

Table A26. Imports of Powdered Milk, 1985-1997

	Imports of dry whole and skim cow milk	Import value, dry whole and skim cow milk	Unit import value, powder milk
	(metric tons)	(1,000 JD)	(JD/ton)
1992	12,679	21,143	1,668
1993	15,462	26,568	1,718
1994	9,171	14,985	1,634
1995	11,897	21,138	1,777
1996	20,264	39,785	1,963
1997	n/a	n/a	n/a

Source: Department of Statistics.

Table A27. Per Capita Consumption Trends in Jordan, 1980-1995 (kilograms/person/year)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Annual growth rate (percent)
Cereals and products	163.0	162.4	163.6	165.3	167.1	162.2	164.8	163.5	162.7	168.0	166.5	161.5	168.4	166.2	165.4	152.4	-0.2
Wheat and wheat flour	140.0	143.7	142.7	148.7	143.4	139.5	143.9	139.4	144.5	149.3	143.4	139.3	146.5	142.9	148.5	133.4	-0.1
Rice (milled equivalent)	20.0	15.7	17.8	13.6	21.0	18.7	18.2	16.7	16.4	15.0	20.2	18.9	19.2	20.7	14.6	16.9	-0.5
Pulses	7.2	8.7	8.4	8.9	8.3	8.4	7.8	9.2	8.1	8.5	8.4	8.4	8.9	7.7	7.5	7.4	0.1
Vegetables (including olives)	91.0	62.7	68.0	93.1	93.6	128.5	130.0	148.2	131.2	54.7	94.7	105.1	125.5	85.1	131.2	158.7	4.6
Tomatoes and products	14.4	2.0	11.6	24.6	24.1	43.5	56.5	57.4	39.7	3.6	21.9	24.5	65.3	24.8	63.2	51.7	10.6
Olives	9.1	2.7	6.3	3.2	10.5	2.2	2.6	1.6	4.3	0.1	9.5	5.9	2.1	3.9	8.2	10.1	5.2
Potatoes	17.1	17.3	18.0	15.4	16.1	13.5	11.6	16.1	14.5	10.3	15.2	13.9	9.9	16.0	11.4	19.4	-0.1
Other vegetables	50.4	40.7	32.1	49.9	42.9	69.4	59.3	73.1	72.7	40.7	48.1	60.9	48.1	40.5	48.4	77.4	2.8
Fruits	67.3	69.7	94.9	95.8	63.2	78.7	70.2	84.5	87.6	79.0	81.1	81.6	87.2	67.2	90.0	80.5	1.8
Citrus fruits	19.5	23.1	29.9	31.6	20.1	16.3	14.5	32.8	33.2	39.9	38.9	32.2	34.4	22.4	29.1	26.9	2.5
Apples	9.9	9.2	14.7	15.9	9.5	17.6	10.6	5.7	5.2	4.7	3.9	2.9	5.7	4.9	6.8	10.5	-0.6
Bananas	3.3	3.8	4.4	3.9	7.2	5.8	6.0	5.5	11.5	5.3	6.3	7.4	3.9	8.1	6.6	6.7	3.6
Grapes	6.7	6.7	10.8	9.5	3.9	10.4	9.4	7.9	8.1	7.2	13.5	11.2	13.0	8.7	6.0	5.9	-1.3
Other fruits	28.0	26.8	35.0	35.0	22.5	28.6	29.7	32.5	29.5	21.9	18.5	27.9	30.3	23.1	41.6	30.6	2.4
Milk and products	80.5	67.2	82.3	77.1	86.4	90.5	76.7	75.1	70.7	51.3	65.4	75.8	73.0	77.9	67.0	69.3	-0.8
Eggs	7.1	6.4	6.4	6.4	6.7	7.5	7.2	4.2	3.9	4.3	7.1	9.1	9.3	10.7	10.4	8.3	2.3
Sugar and products	43.8	46.4	40.6	37.8	38.2	39.9	40.3	40.4	40.4	40.0	38.9	37.1	36.7	36.7	36.7	36.7	-1.4
Meat, poultry and fish	27.9	35.1	37.0	39.2	40.9	48.9	44.7	45.8	48.7	35.6	33.0	38.9	34.8	42.7	40.7	36.5	1.7
Lamb and mutton	7.3	9.1	9.9	7.1	7.1	11.0	8.0	9.1	13.5	9.5	5.3	8.0	8.5	9.3	6.8	5.6	-1.9
Beef and veal	2.2	7.1	4.8	5.3	5.1	8.2	6.7	6.7	7.3	3.1	4.8	3.5	2.2	6.6	5.4	4.4	1.6
Poultry	13.9	13.3	16.1	19.7	22.4	21.6	24.1	22.7	24.3	19.1	19.2	23.6	20.6	22.3	24.1	22.3	3.8
Other meat and fish	4.6	5.6	6.3	7.1	6.3	8.2	5.8	7.3	3.6	3.9	3.7	3.8	3.6	4.6	4.4	4.3	-0.5
Edible fats and oils	10.0	10.4	10.4	10.1	10.3	10.5	10.8	11.0	11.5	11.9	12.1	12.8	13.9	15.9	15.8	17.2	3.3
Olive oil	4.9	4.8	4.8	4.7	4.7	4.6	4.6	4.6	4.2	4.6	4.5	4.1	4.2	3.7	3.9	3.8	-1.6
Palm oil	3.0	2.8	1.5	0.6	0.8	1.1	0.4	0.4	0.3	2.3	1.5	2.2	4.8	5.1	5.4	5.9	4.9
Soybean oil	0.6	0.6	1.1	1.5	1.9	1.6	2.4	2.9	3.0	1.5	2.2	2.6	2.2	3.7	2.3	3.5	9.7
Other fats and oils	1.4	2.2	3.1	3.3	3.0	3.1	3.4	3.2	4.0	3.6	3.9	4.0	2.6	3.4	4.2	4.0	5.8

Source: FAOSTAT CD-ROM 1997, Food and Agriculture Organization of the United Nations, March 1998.

Table A28. Farmgate Prices for Selected Commodities, 1988-1996 (JD/ton)

	1988	1989	1990	1991	1992	1993	1994	1995	1996
Apples	--	--	--	--	257.5	349.7	--	391.6	217.3
Apricots	--	492.7	--	--	220.8	--	--	--	488.3
Bananas	248.2	286.6	393.5	416.9	455.4	538.7	475.8	553.5	410.2
Barley	68.6	81.2	95.6	94.3	83.1	93.3	91.0	99.2	129.9
Broad beans, green	155.2	116.8	161.4	292.1	245.1	214.2	309.9	190.8	151.3
Cabbages	36.7	54.3	39.5	39.5	62.8	43.4	44.9	48.7	41.2
Carrots	106.7	146.7	104.4	107.8	--	--	77.5	97.5	77.9
Cauliflower	75.2	114.8	70.3	82.4	88.1	61.4	119.6	88.9	90.2
Clementines	158.1	141.6	125.3	131.6	121.7	81.2	114.7	170.9	105.7
Chickpeas	133.0	--	--	--	293.0	302.1	203.5	--	--
Cow peas	126.4	--	201.5	--	--	--	349.2	--	247.2
Cucumbers	99.4	163.0	150.0	165.7	210.9	127.7	147.4	117.1	108.0
Eggplants	36.0	49.3	55.9	74.7	59.6	68.7	76.2	57.4	65.8
Figs	177.0	--	300.3	267.0	225.3	240.6	--	219.0	247.4
Garlic	108.1	86.0	429.6	325.7	234.7	--	178.1	216.7	186.1
Grapefruit	63.6	99.5	96.4	89.0	--	--	115.3	92.9	98.9
Grapes	120.5	42.2	150.1	201.6	186.1	--	325.0	261.0	218.8
Guava	--	--	206.0	301.5	--	--	251.8	--	322.2
Hot peppers	123.0	124.8	152.2	164.5	175.9	160.9	193.1	122.6	138.0
Jews mallow	22.7	62.9	76.2	98.1	39.7	--	53.4	59.7	52.2
Lemons	79.5	110.5	120.3	114.3	124.0	153.5	87.5	121.4	241.4
Lentils	--	--	225.9	--	247.6	295.3	--	--	350.0
Lettuce	41.3	--	--	--	--	--	--	--	32.4
Mandarins	108.3	90.1	96.6	94.6	82.1	113.3	69.2	129.8	74.4
Okra	252.8	277.4	338.7	439.1	343.7	391.4	476.7	544.6	512.7
Olives	179.6	--	--	--	249.5	--	--	--	--
Onions and shallots, green	72.3	--	--	--	--	--	160.1	--	--

Continued --

Table A28. Farmgate Prices for Selected Commodities, 1988-1996 (JD/ton)--Continued

	1988	1989	1990	1991	1992	1993	1994	1995	1996
Onions, Dry	37.8	87.3	126.1	117.5	--	91.0	138.9	137.0	65.1
Oranges	132.6	215.2	207.8	210.7	205.9	194.2	152.4	183.6	302.8
Peaches	155.6	531.6	371.3	425.2	328.2	--	--	407.1	372.7
Pears	248.4	474.0	--	--	--	--	--	--	--
Plums	--	338.0	213.1	--	--	--	--	--	190.6
Pomegranate	--	319.7	208.1	246.0	189.0	--	148.5	--	159.3
Potatoes	68.3	149.9	160.7	145.7	148.5	111.3	178.9	130.0	77.8
Pommelo	163.9	239.4	210.6	212.9	187.9	--	156.4	206.3	138.1
Radish	--	79.5	59.6	56.7	--	--	65.0	51.4	56.3
Spinach	47.3	68.1	69.9	66.3	95.6	86.7	88.0	--	50.6
Squash	71.0	118.7	129.7	138.8	136.4	119.7	116.6	91.5	86.7
String beans	110.3	260.7	219.7	241.2	225.9	265.5	331.7	259.6	255.0
Sweet corn	33.0	114.4	82.4	--	--	--	110.9	98.9	65.0
Sweet melon	58.7	129.2	108.7	142.4	127.0	122.6	--	138.5	99.4
Sweet peppers (green)	135.8	129.3	117.6	123.0	187.2	121.1	157.5	140.3	169.8
Tomatoes	53.2	80.7	70.2	108.4	116.8	92.6	107.9	65.1	61.5
Watermelons	27.1	66.8	59.7	64.6	45.0	44.3	73.5	45.3	44.3
Wheat	111.0	113.1	126.5	124.7	132.9	117.2	125.9	147.4	168.1

Note: "--" indicates insufficient quantities to report an average price.

Sources: *Agricultural Price Survey, 1996* and earlier issues, Department of Statistics.

Table A29. Average Wholesale Prices at Major Central Markets for Selected Commodities, 1988-1996 (JD/ton)

	1988	1989	1990	1991	1992	1993	1994	1995	1996
Apples	--	--	--	--	331.6	413.6	--	335.5	282.5
Apricots	--	525.3	--	--	273.9	--	--	--	574.7
Bananas	248.2	286.6	393.5	416.9	455.4	538.7	475.8	553.5	410.2
Barley	71.0	82.6	98.0	100.8	90.0	100.0	93.0	101.4	133.6
Broad beans, green	194.1	160.9	229.1	362.5	304.2	266.7	381.6	246.9	202.8
Cabbages	52.2	77.6	56.5	51.1	80.9	55.6	60.4	73.4	61.0
Carrots	120.1	166.1	128.3	127.0	--	--	92.9	111.8	96.7
Cauliflower	104.8	150.9	104.8	114.6	118.5	90.4	153.6	124.9	127.8
Clementines	200.0	188.8	168.2	172.0	161.0	120.1	157.1	220.3	148.0
Chickpeas	133.0	--	--	--	299.4	308.6	240.0	--	--
Cow peas	162.0	--	270.4	--	--	--	423.4	--	314.8
Cucumbers	127.5	202.3	194.4	211.6	251.9	--	186.3	154.0	144.1
Eggplants	68.5	89.1	98.8	117.5	95.0	103.5	111.1	85.5	95.8
Figs	177.0	--	376.9	338.4	275.3	293.7	--	269.6	300.0
Garlic	126.0	102.0	481.9	367.4	264.4	--	202.4	242.0	214.5
Grapefruit	89.7	130.9	140.0	125.6	--	--	158.8	134.5	142.3
Grapes	159.0	90.0	212.8	267.0	241.6	--	385.0	309.7	268.0
Guava	--	--	274.3	370.3	--	--	306.3	--	385.4
Hot peppers	176.9	189.3	223.0	233.8	234.9	218.5	254.1	170.6	194.9
Jews mallow	31.2	75.2	88.2	117.0	54.7	--	68.1	73.0	67.5
Lemons	104.4	151.4	161.4	153.0	157.0	194.8	125.2	159.6	289.6
Lentils	--	--	232.0	--	252.8	298.8	--	--	350.0
Lettuce	41.3	--	--	--	--	--	--	--	67.5
Mandarins	140.0	131.3	140.3	139.9	115.9	152.1	104.9	176.2	117.6
Okra	308.0	322.3	388.2	486.5	388.5	441.1	550.9	620.0	598.2
Olives	199.5	--	--	--	287.2	--	--	--	--
Onions and shallots, green	86.7	--	--	--	--	--	181.0	--	--

Continued --

Table A29. Average Wholesale Prices at Major Central Markets for Selected Commodities, 1988-1996 (JD/ton)--Continued

	1988	1989	1990	1991	1992	1993	1994	1995	1996
Onions, Dry	48.4	105.7	144.3	137.9	--	110.6	160.1	157.9	85.8
Oranges	163.5	263.9	258.9	260.2	248.3	240.9	193.9	229.1	359.6
Peaches	202.7	600.0	464.8	521.3	411.7	--	--	475.1	445.4
Pears	248.4	502.0	--	--	--	--	--	--	--
Plums	--	366.0	298.7	--	--	--	--	--	246.8
Pomegranate	--	320.6	253.4	296.7	234.5	--	189.7	--	201.4
Potatoes	93.6	183.5	201.2	187.0	183.9	141.0	218.1	163.5	110.3
Pommelo	197.0	288.3	264.0	260.4	232.2	--	202.2	257.5	188.1
Radish	--	91.0	71.2	68.1	--	--	76.5	63.1	69.9
Spinach	59.6	82.3	87.9	83.1	110.2	113.5	118.5	--	71.8
Squash	100.1	161.0	178.1	185.7	179.8	158.9	157.6	126.2	126.7
String beans	160.0	331.3	292.6	317.8	289.4	330.0	403.9	327.1	325.9
Sweet corn	61.0	159.8	115.7	--	--	--	154.4	134.8	100.9
Sweet melon	86.3	162.5	145.0	189.2	172.8	150.8	--	170.6	131.7
Sweet peppers (green)	185.6	187.7	185.4	191.3	248.5	183.9	210.4	195.3	227.5
Tomatoes	79.4	120.1	115.4	160.5	161.1	130.0	148.2	105.4	100.1
Watermelons	36.5	82.0	72.9	75.9	55.6	54.4	88.5	57.6	60.0
Wheat	112.8	115.0	130.3	128.7	139.9	122.8	130.0	150.0	172.8

Note: "--" indicates insufficient quantities to report an average price.

Sources: *Agricultural Price Survey, 1996* and earlier issues, Department of Statistics.

Table A30. Average Wholesale Prices at Amman Market, 1988-1996 (JD/ton unless otherwise indicated)

	1988	1989	1990	1991	1992	1993	1994	1995	1996
Apples	340.8	454.5	460.5	672.5	442.0	577.9	569.7	686.7	576.5
Coffee	1137.5	1318.8	1250.0	1500.0	1,250.0	1,362.5	3,250.0	4,416.7	2,875.0
Eggs (JD/box)	n/a	n/a	n/a	n/a	11.0	11.7	12.6	14.9	17.5
Lamb, imported					2,400.0	2,400.0	2,400.0	2,583.3	2,684.3
Margarine (JD/box)	427.8	457.0	468.1	472.2	511.1= 9.2/15*1000	9.1	9.2	10.8	10.6
Olive oil (JD/box)	1566.5	1766.8	2366.8	2800.0	17*45.0	45.0	45.0	45.0	45.6
Omani fish	N/a	N/a	N/a	N/a	1,080.0	1,200.0	1,200.0	1,200.0	1,200.0
Potatoes	129.5	256.5	255.3	258.3	236.0	217.8	286.9	239.2	207.3
Poultry meat					782.0	780.8	759.3	768.6	852.9
Rice	130.0	130.0	182.5	288.0	285.0	355.0	354.0	328.0	366.5
Tea	N/a	N/a	N/a	N/a	2,290.0	2,404.2	2,340.0	2,340.0	2,635.1
Tomatoes	117.3	163.8	150.0	242.8	167.0	148.1	229.0	146.2	142.0
Veal, imported					2,000.0	1,950.0	1,950.0	1,950.0	1,975.0

Source: *Statistical Yearbook, 1996* and earlier issues, Department of Statistics.

ANNEX B

Agricultural Product Trade under Bilateral Agreements

Table B1. Agenda Trade between Jordan and the Palestine National Authority (PNA)

Products originating in PNA exported to Jordan	Period during which customs duties are not charged by Jordan	Products originating in Jordan exported to PNA	Period during which customs duties are not charged by PNA
Guavas	1 Sep – end of season	Watermelon and other melon	15 Apr – end of season
Dates	All year	Peaches	1 May – end of season
Lemons	15 Apr – end of season	Garlic	15 Mar – end of season
Valencia oranges	15 Apr – end of season	Apples	All year
Shamouti oranges	1 Mar – end of season	Onions	All year (1998)
Grapefruit	15 Jan – end of season	Potatoes	All year (1998)
Grapes for manufacturing	All year (1998) 1/	Eggs for hatching	All year
Bananas	All year (1998)	Frozen poultry	All year
Green almonds	All year	Live sheep or fresh sheep meat	All year
Honey	All year	Nursery plants	All year (1998)
Nursery plants	All year (1998)	Animal ghee (baladi)	All year
Sweet potatoes	All year	Jamid (dried yogurt)	All year
Fresh fish	All year	White cheese	All year
Prickly pear	During season 2/	Milk, pasteurized or sterilized	All year (1998)
Citrus for industry	All year (1998)	Wool, raw	All year (1998)
Onions	All year (1998)	Vaccines	All year
Potatoes	All year (1998)		
Onions for planting	All year (1998)		

1/ 'All year (1998)' means that beginning 1 January 1998, imports of the specified products are exempt from tariffs and other fees and taxes all year. Prior to 1998, imports of these commodities were permitted "as required" by the importing country. The requirement was determined by quarterly review of the supply-demand situation. If AMO judged that additional supplies were needed, imports exempt from tariffs, fees, and taxes were permitted.

2/ 'During season' means that the importing country will permit imports at no tariff during the harvest season for the specified commodity. In this circumstance, the exporting country generally is a higher cost producer of the commodity.

Special terms:

Agricultural products originating in Palestine can be stored in the free zone if exported to Jordan during periods outside of the exemption period. Products stored in the free zone can then enter Jordan exempt of duties during the exemption period.

Table B2. Agenda Trade between Jordan and Oman

Products originating in Oman exported to Jordan	Period during which customs duties are not charged by Jordan	Products originating in Jordan exported to Oman	Period during which customs duties are not charged by Oman
Winter squash	1 Nov – 30 Apr	Squash	1 May – 31 Oct
Pumpkin	1 Jan – 30 Apr	Cauliflower	1 Apr – 31 Oct
Lemons	1 Jun – 31 Jul	Eggplant	1 Apr – 30 Sep
Dates	All year	Onion	1 Aug – 30 Nov
Omani gum	All year	Watermelon	1 Sep – 30 Nov
Fifai	All year	Sweet melon	1 Sep – 31 Oct
Coconut, green and dry	All year	Oranges	All year
Avocado	1 Jul – 31 Aug	Apples	All year
		Grapes	All year
		Plums	All year
		Strawberries	1 Mar – 30 Nov
		Tomatoes	1 May – 30 Sep
		Cucumber	1 May – 31 Oct
		String beans	1 May – 30 Nov
		Carrots	1 May – 30 Nov
		Sweet pepper	1 Jun – 31 Oct
		Potatoes	1 Jun – 31 Jan
		Tangerine	All year
		Cabbage	1 May – 31 Oct
		Lettuce	1 May – 31 Nov

Table B3. Agenda Trade between Jordan and Lebanon

Products originating in Lebanon exported to Jordan	Period during which customs duties are not charged by Jordan	Products originating in Jordan exported to Lebanon	Maximum quantity imported from Jordan during specified period	Period during which customs duties are not charged by Lebanon
Potatoes	25 Aug – 25 Oct	Potatoes	20,000 tons	15 Feb – 15 Mar
Navel oranges	15 Feb – 30 Apr	Tomatoes	10,000 tons	1 Jan – 28 Feb
Valencia oranges	1 May – 20 Aug	Cucumber	None	15 Dec – 28 Feb
Shamouti oranges	1 Mar – 30 Apr	Eggplant	None	1 Dec – 31 Mar
Lemons	1 Mar – 30 Apr	Squash	None	1 Dec – 31 Jan
Grapes	1 Oct – 1 Jan	Green beans (cow peas)	None	1 Dec – 31 Mar
Apples	15 Feb – 30 Apr 1 Sep – 31 Dec	Watermelons	4,000 tons	1 May – 10 Jun
Caca	15 Oct – 31 Jan	Sweet melon	1,000 tons	1 May – 10 Jun
Loquat	10 Apr – 10 May	Onion		1 Feb – 31 Mar
		Garlic		1 Mar – 15 Apr
		Maize		1 Oct – 30 Jun
		Sweet pepper		1 Dec – 30 Mar
		A'kob		1 Jan – 30 Apr

Table B4. Proposed Agenda Trade between Jordan and Israel

Products originating in Israel exported to Jordan	Period during which customs duties are not charged by Jordan	Products originating in Jordan exported to Israel	Minimum quantity imported from Jordan during specified period	Period during which customs duties are not charged by Israel
See note below.		Fruits and vegetables	50,000 tons	As required
		Olive oil	900 tons	As required
		Live sheep	30,000 head	As required
		White cheese	1,000 tons	As required
		Jamid (dry yogurt)	1,000 tons	As required

Notes:

1. Jordan receives priority as an exporter of any fresh agricultural product if Israel decides to import such a product and if Jordan produces the product.
2. If Israel decides to import, Jordan will be exempted from all customs duties. Note that Jordanian olive oil, live and slaughtered sheep and goats, white cheese, jamid, and fresh fruits and vegetables are exempt from customs duties for at least the quantities noted above.
3. Jordan has the authority to decide which fresh agricultural and processed agricultural products which will be imported from Israel. Jordan's determination will be based on domestic market needs with the approval of the Ministry of Agriculture.
4. Jordan will not differentiate products originating in Israel from domestic products.
5. Israel will work hard to facilitate the PNA-Jordan trade agreement by enabling Jordanian produce to reach the areas under the control of the PNA and by accepting any PNA request for an increase in quota amounts for products specified in the Jordan-PNA agreement.

This agreement is not yet in effect for agricultural products, in part because there are unresolved problems related to product standards between Jordan and Israel.

Table B5. Agenda Trade between Jordan and Yemen

Products originating in Yemen and imported by Jordan	Period during which customs duty is not charged by Jordan	Products originating in Jordan and exported to Yemen	Period during which customs duty is not charged by Yemen
Papaya	All year	Apples	1 Sep – 30 Oct
Mango	1 Apr – 30 Jul	Oranges and mandarins	1 Apr – 30 Jul
Okra	1 Dec – 31 Mar	Olives (green or canning)	All year
Bananas	1 Jul – 31 Jul		
Annona	1 Apr – 30 Aug		

Table B6. EU-Jordan Partnership Agreement: Agricultural Products from Jordan Not Subject to a Quota and Exempt from EU Customs Duties All Year

Products originating in Jordan	CN code	Reduction amount 1/	Special provisions
Peel of citrus fruit or melons	0814	100	
Fruits of the genus Capsicum or of the genus Pimenta, neither crushed or ground, other	0904 20 39	100	
Bulbs, tubers, tuberous roots, corns, crowns and rhizomes, dormant	0601 10	100	Subject to the provisions of Protocol 1, paragraph 5
Dried leguminous vegetables, other than for sowing	0713 10 90, 0713 20 90, 0713 31 90, 0713 32 90, 0713 33 90, 0713 39 90, 0713 40 90, 0713 05 90, 0713 90 90	80	Subject to the provisions of Protocol 1, paragraph 5
Dates	0804 10		
Oranges, fresh	0805 10	60	Subject to the provisions of Protocol 1, paragraph 5
Grapefruit	0840	80	Subject to the provisions of Protocol 1, paragraph 5
Fruits of the genus capsicum or pimento, other	0709 60 99	100	
Molochia (Jew's mallow)	0709 90 ex 0709 90	100	
Okra		100	
Other fruits of the genus capsicum or pimento	0710 80 59	100	

1/ Reduction of the customs duty in the 12-year transition period from the current or possible tariff-quota.

Note: Protocol 1, paragraph 5 states that the EU may fix a reference quantity if, in light of an annual review of trade flows and domestic market conditions, it finds that imports of a product threatens to cause difficulties in the EU market. Imports may then be subject to a tariff quota.

Table B7. EU-Jordan Partnership Agreement: Agricultural Products from Jordan Exempt from EU Customs Duties All Year but Limited by a Tariff Quota

Products originating in Jordan	CN code	Tariff quota volume	Reduction amount 1/	Special provisions
Preparations of vegetables	2001 except (2001 90 50, 2001 90 30, 2001 90 40, 2001 90 60); 2004 except (2004 10 91, 2004 90 10); 2005 except (2005 60, 2005 20 10, 2005 80 00)	1,000 tons		Subject to the provisions of Protocol 1, paragraph 4
Preparations of fruits	2007, 2008 except (2008 11 19, 2008 91, 2008 40, 2008 70, 2008 92 45, 2008 99 85, 2008 99 91) (CHECK); 2009 except (2009 11, 2009 19, 2009 20, 2009 30)	1,000 tons		Subject to the provisions of Protocol 1, paragraph 4
Tomato concentrate	2002 90 31, 2002 90 39, 2002 90 91, 2002 90 99	3,000 tons		Subject to the provisions of Protocol 1, paragraph 4; the tariff quota refers to a dry matter of 28/30%; for its management the coefficients provided for in Annex V,.1 of regulation 1709 will be used.
White cheese of sheep milk	Except 0406 90 33, 0406 90 50	100 tons		
Roses, grafted or not	0602 40	100 tons		
Cut flowers, fresh	0603 10	100 tons		Subject to compliance with the conditions agreed upon by exchange of letters
Mandarins, fresh	0805 20	1,000 tons	60	
Lemons, fresh	0805 30	1,000 tons	40	

1/ Reduction of the customs duty beyond the current or possible tariff-quota.

Note: Protocol 1, paragraph 4 states that the tariff quotas shall be increased in four equal installments by 3% from the date of implementation of the agreement.

Table B8. EU-Jordan Partnership Agreement: Agricultural Products from Jordan Not Subject to a Quota and Exempt from EU Customs Duties during Specified Periods

Products originating in Jordan	CN code	Period during which customs duty is exempted	Reduction amount 1/	Special provisions
Pomegranate	Except 0810 90 85	1 Aug – 30 Sep		
Tomatoes	0702 00 15, 0702 00 50, Except 0702 00 45	1 Dec – 31 Mar	60	Subject to the provisions of Protocol 1, paragraph 5
Onions and shallots	Except 0703 10	1 Feb – 30 Apr		
Garlic	Except 0703 20 00	1 Feb – 21 Mar	50	Subject to the provisions of Protocol 1, paragraph 5
Carrots	Except 0706 10 00	1 Jan – 31 Mar		
Cucumbers < 15 cm long	0707 00 10, 0707 00 40	10 Nov – end Feb		
Table grapes, fresh	0806 10 29	15 May – 11 Jul		Subject to the provisions of Protocol 1, paragraph 5
Melons weighing less than 600 grams	0807 19 00	1 Nov – 31 Mar		Subject to the provisions of Protocol 1, paragraph 5
Watermelons, fresh	0807 12 00?	1 Apr – 15 Jun		
Green (?) beans	Except (0708 20 20, 0708 20 95)	1 Nov – 30 Apr	60	Subject to the provisions of Protocol 1, paragraph 5
Aubergines	Except 0709 30 00	1 Dec – 30 Apr	60	Subject to the provisions of Protocol 1, paragraph 5
Celery	Except 0709 40 00	1 Jan – 31 Mar		
Sweet peppers	Except 0709 60 10	15 Nov – 30 Apr	40	Subject to the provisions of Protocol 1, paragraph 5
Courgettes	0709 90 71, except (0709 90 73, 0709 90 79)	1 Dec – 15 Mar	60	Subject to the provisions of Protocol 1, paragraph 5
Parsley	Except 0709 90 90	1 Nov – 30 May		
Fennel	Except 0709 90 50	1 Nov – 31 Mar		

1/ Reduction of the customs duty beyond the current or possible tariff-quota.

Table B9. EU-Jordan Partnership Agreement: Agricultural Products from Jordan Not Subject to a Quota and Eligible for Reduced EU Customs Duty All Year

Products originating in Jordan	CN code	Period during which customs duty is reduced	Reduction of the MFN customs duty (%)	Special provisions
Figs	0804 20	20 May – 1 Sep	40	
Mangoes and guavas	0804 50 00	All year	40	

Table B10. EU-Jordan Partnership Agreement: Agricultural Products from Jordan Exempt from Customs Duty During Specified Periods and Limited by a Tariff Quota

Products originating in Jordan	CN code	Period during which customs duty is exempted	Tariff quota volume	Special provisions
New potatoes	Except 0701 90 51	1 Jan – 31 Mar	1,000 tons	
Cabbage, lettuce	0705 11 05	1 Nov – 31 Mar	200 tons	
Strawberries	0810 10 05	1 Jan – end Feb	100 tons	
Asparagus	Except 0709 20 00	1 Oct – 31 Mar	100 tons	

Table B11. EU-Jordan Partnership Agreement: Agricultural Products from EU Subject to Jordan Customs Duties

Products originating in EU	CN code	Maximum customs duty
Pure bred breeding live bovine animals	0102 10	10 JD/head
Other live bovine animals	0102 90	10 JD/head
Fresh meat of bovine animals, with bones	0201 20	5%
Fresh meat of bovine animal, boneless	0201 30	5%
Frozen meat of bovine animals, boneless	0202 30	5%
Butter/fats/oil derived from milk; dairy spreads	0405 00	5%
Processed cheese not grated or powdered	0406 30	20%
Potato seed, fresh	0701 10	5%
Peas, dried	0713 10	10%
Broad beans, dried	0713 50	5%
Durum wheat	1001 10	None
Other wheat	1001 90	None
Barley	1003	5%
Maize, other than seed	1005 90	5%
Semi/wholly milled rice	1006 30	5%
Wheat or meslin flour	1101	None
Groats and meal of durum wheat	1103 11 10	15%
Cereal groats, meal and pellets of maize	1103 13	10%
Malt, not roasted	1107 10	10%
Preserved olives	2005 70	40%
Peaches, prepared or preserved	2008 70	40%
Flours, meals and pellets of meat/offal	2301 10	5%
Flours, meals, pellets of fish and aquatic invertebrates	2301 20	5%
Oil cake/residues deriving from soya oil	2304	5%
Preparations of a kind used in animal feeding, other than cat/dog food	2309 90	10%

ANNEX C

General Services Provided to Agriculture

The GOJ supports the development of agriculture through provision of basic services to the sector. There also are several major development projects such as soil conservation, range land development, income diversification, infrastructure improvements, and tree planting campaigns. These programs are funded through either international organizations or development agencies in foreign countries. The activities funded by the GOJ range from research expenditures, provision of inspection and veterinary services, funding of promotion activities, domestic food aid, food stockpiling, and tax exemptions. Each of these activities is described in more detail below.

Agricultural Research

Research is conducted by several institutions specifically associated with agriculture and also at universities. Research has, under the agriculture restructuring program, been centralized in the National Center for Agricultural Research and Technology Transfer (NCARTT). The bulk of research is centered on crop and livestock development through hybrids, genetic engineering, production techniques, and such.

Table C1. Expenditures on Agricultural Research, 1994-97 (1,000 JD)

Institution	1994	1995	1996	1997	Average 1994-96
Total Expenditures	1,072	2,549	2,689	n/a	2,122
Universities (3 national universities)	530	689	161	n/a	473
National Center for Agricultural Research and Technology Transfer	495	1,748	2,261	2,529	1,501
High Technology Center	24	90	250	n/a	121
Agricultural Marketing and Processing Company	10	7	17	n/a	11
Agricultural Credit Corporation	1	0	0	n/a	0
Ministry of Agriculture	12	15	15	n/a	14

Source: Data supplied to the authors through official requests to the concerned institutions.

Marketing and Promotion Expenditures

The GOJ supports marketing and promotion of agricultural products through the activities and mandate of the Agricultural Marketing Organization. During 1994-1996, the average annual expenditure on these activities was JD395,000. Most of the activities funded under these programs fall under provision of advice and promotion relating to horticultural products. For example, some of the types of activities AMO attends or supports are: international fairs; excursions to developed countries to assess market opportunities; and trial shipments to Gulf, European and East Asian countries to guide exporters on facilities, market capacity, grading requirements and such; workshops on exporting procedures to European countries. No marketing or promotion services are provided in such a way that sellers or exporters can reduce their selling price or otherwise confer a direct economic benefit to purchasers.

Inspection services and Sanitary and Phyto-Sanitary Regulations

All agricultural products produced within Jordan and imported into Jordan are inspected for quality and health standards. While health standards are well defined, quality standards are not. Most quality standards are based on the size of the fruit or vegetable. As noted elsewhere, livestock products are inspected at government slaughterhouses. Imported products require certificates of origin and a health certificate stating that the product is clear of diseases, radiation, and not hazardous to humans or the environment. Live animals being imported are subject to inspection and, if necessary, quarantine. Fruits and vegetables for exports are inspected by AMO by request to ensure that international quality standards are met and to obtain necessary certification to prove that goods are free of diseases and residuals.

Jordan's crop and livestock product standards related to health are internationally recognized norms. Jordan is a member of the Codex Alimentarius Commission, Prior Informed Consent, International Office of Epizootics, the World Health Organization, and the International Atomic Energy Agency.

Table C2. Expenditures on Inspection Services for Agriculture, 1994-97 (1,000 JD)

Institution	1994	1995	1996	1997	Average 1994-96
Total Expenditures	1,245	1,255	1,303	n/a	1,268
Ministry of Agriculture	50	60	108	n/a	73
Ministry of Health	90	90	90	n/a	90
Amman Municipality	1,000	1,000	1,000	n/a	1,000
Royal Scientific Society	105	105	105	n/a	105

Source: Data supplied to the authors through official requests to the concerned institutions.

Training Services

Jordan spends very little on training services, a reflection of its limited budget. Fortunately, several international organizations and the development agencies of several countries are active in providing training and support to staff in various ministries within the Kingdom. The Ministry of Agriculture has several joint projects with USAID and GTZ under which some training is provided.

Pest and Disease Control

Pest and disease control fall under the mandate of the Ministry of Agriculture. Plant inspection and disease control activities are typically carried out under extension and advisory services. Animal disease control and inspection services are handled by the Veterinary Services Unit in the Ministry. In 1996, expenditures on disease control in the form of veterinary services rose by about JD300,000 to combat an infectious disease in sheep and goats.

Table C3. Expenditures on Pest and Disease Control, 1994-97 (1,000 JD)

Institution	1994	1995	1996	1997	Average 1996-97
Total Expenditures	n/a	n/a	765	1,086	926
Plant Protection	n/a	n/a	81	121	101
Veterinary Services	n/a	n/a	685	965	825

Source: Data supplied to the authors through official requests to the concerned institutions.

Extension and Advisory Services

The Directorate of Agricultural Extension and Information (AEID) in the Ministry of Agriculture was funded as entity for the first in 1995. AEID supports farmers through provision of services and by transferring information and research results to producers and consumers. The activities range from seeking solutions to technical and economic problems facing farmers, introduction of new technologies, and training farmers and otherwise promoting development of human capital among producers. The expenditures on capital equipment and the operating expense in 1997 was JD355,000.

Infrastructural Services

Agricultural related expenditures on infrastructure fall under three broad categories: building and maintaining roads that enable farmers to get their products to markets; provision of water to agriculture through dams and irrigation works; and rural electricity programs. In 1997, the bulk of such expenditures (about JD10 million) was on roads, both major and rural agricultural roads. GOJ expenditures on water related projects were minor in comparison, reaching only JD2 million. The total value of water-related project expenditures is considerably more than that amount with the balance provided by development agency funds. Rural electricity expenditures have averaged about JD5 million per year since 1995.

Table C4. Infrastructure Expenditures Related to Agriculture, 1994-97 (1,000 JD)

Purpose	1994	1995	1996	1997	Average 1995-97
Total expenditure	8,587	9,422	6,013	5,951	8,007
Agricultural Roads	173	181	224	193	193
Dams	521	1,021	1,160	901	901
Irrigation Systems	793	1,120	660	858	858
Rural Electricity	7,100	7,100	3,969	4,000	6,056

Source: Data supplied to the authors through official requests to the concerned institutions.

Government Stockholding for Food Security Purposes

The GOJ has been the only stockholder of cereals and other non-perishable goods for decades. While the government is no longer sole importer and stockholder, at present the private sector has little capacity for storage. Therefore, at least during the next several years, the government will lease storage facilities to the private sector at subsidized rates. Even then, it is not expected that the private sector will hold all stocks necessary to maintain food security and therefore the government will hold roughly 4 months of stocks in storage at any given time. These stocks

will be either imported directly or be purchased from private traders who have imported the products.

Tax Policy

All agricultural income in Jordan is now and has been since independence exempt from income taxes. Traditionally, farm income has been exempted from taxes because farmers are typically disadvantaged relative to other citizens of the Kingdom. As evidence of this, one has only to compare the per capita income generated in farming with the national average income. In 1997, per capita farm income is estimated at JD350, less than one-third of the average for the population as a whole.

As noted above, 75 percent of farmers have either no land or small holdings of 3 hectares or less. While the net income on small farms varies widely, it is unlikely that the majority of farmers net more than JD4,000 from farming. Permissible income exemptions for salaried citizens are JD1,500 for the taxpayer and JD500 for each dependent in the taxpayer's care. The average family size in rural areas is about 6 persons and so an average farmer would be able to exempt up to JD4,000 of income from taxes. Thus, the net taxable income for the average small farmer is very close to zero.

There are, of course, farmers that beat the averages and earn considerably more than the average noted above. In those cases, the government is foregoing revenue that it could have earned by taxing farm income. The distribution of income in farming is not known and so it is very difficult to judge the value of this foregone tax revenue. Based on calculations prepared for the WTO, it is estimated that this implicit subsidy to farmers is not more than JD15 million or 6 percent of the gross domestic product in agriculture.