

# CRS Report for Congress

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## Iraq's Agriculture: Background and Status

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### Summary

Iraq's agricultural sector represents a small, but vital component of Iraq's economy. Over the past several decades agriculture's role in the economy has been heavily influenced by Iraq's involvement in military conflicts, particularly the 1980-88 Iran-Iraq War and the 1991 Gulf War, and by varying degrees of government efforts to promote and/or control agricultural production. In the mid-1980s, agriculture accounted for only about 14 percent of the national GDP. After the imposition of U.N. sanctions and the Iraqi government's non-compliance with a proposed U.N. Oil-for-Food program in 1991, agriculture's share of GDP is estimated to have risen to 35 percent by 1992.<sup>1</sup>

Rapid population growth during the past three decades, coupled with limited arable land and a general stagnation in agricultural productivity, has steadily increased dependence on imports to meet domestic food needs since the mid-1960s. By 1980 Iraq was importing about half of its food supply. By 2002, between 80 and 100 percent of many basic staples—wheat, rice, sugar, vegetable oil, and protein meals—were imported.

This report will be updated if events warrant.

**Agro-climatic setting.** Iraq has a total surface area of 43.7 million hectares (about the size of Wyoming and South Dakota combined) of which 34.0 million (77.7 percent) is not viable for agricultural use under current conditions. Less than 0.4 percent is in forest and woodlands situated along the extreme northern border with Turkey and Iran.<sup>2</sup> The remaining 22 percent (about 9.5 million hectares) is involved in agricultural activities, although almost half of this is very marginal and used only for seasonal grazing of Iraq's livestock population of predominantly goats and sheep.<sup>3</sup> An estimated 340,000

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<sup>1</sup> Ahmad, Mahmood. "Agricultural Policy Issues and Challenges in Iraq" Short- and Medium-term Options," from *Iraq's Economic Predicament*, Kamil Mahdi, Editor. Exeter Arab and Islamic Studies Series, Ithaca Press, copyright©Kamil Mahdi, 2002, pp. 179-180.

<sup>2</sup> FAOSTAT, Food and Agricultural Organization, United Nations, [<http://apps.fao.org/>]  
Note: A hectare equals about 2.47 acres.

<sup>3</sup> PECAD, FAS, USDA. "Iraq Crop Production." January 16, 2003.

(continued...)

hectares are in tree crops (figs, grapes, olives, and dates).<sup>4</sup> Tree crop production (mostly dates) is centered around Karbala. The area cultivated annually for field crops such as cereals, pulses, fruit, and vegetables varies with weather and market conditions, but generally averages between 3.5 to 4 million hectares.<sup>5</sup> Between 75 and 85 percent of crop area is generally planted to grains (mostly wheat and barley).

Iraq is divided into a predominantly rain-fed northern winter grain producing zone and a center-south irrigated zone that produces vegetables and fruit, as well as cereal crops. About one-third of Iraq's cereal production is produced under rain-fed conditions in the foothills of the northwest in Iraqi-Kurdistan. Winter wheat and barley are planted in the fall (September-November) and harvested in the late spring (May-June). Yields on the rain-fed crops are generally poor and often vary significantly with rainfall amounts. The remaining two-thirds of Iraq's cereal production occurs within the irrigated zone that runs along and between the Tigris and Euphrates Rivers.

Very little rain falls in the center-south zone of Iraq and agricultural in this region is dependent on irrigation. According to the United Nations' Food and Agriculture Organization (FAO), 2.55 million hectares were irrigated in 1989.<sup>6</sup> Throughout history the irrigated agriculture of Iraq's center-south region has been menaced by salinization. The water table of southern Iraq is saline and so near the surface that it only takes a bit of injudicious over-irrigation to bring it up to root level and destroy the crop. Irrigated crop production includes winter wheat and barley as well as summer crops such as rice, corn, cotton, vegetables, and fruit. For the most part, a single crop is planted per year, although there is some multiple cropping of vegetables where irrigation water is available. Irrigated summer crops are generally planted during April-May and harvested in August-September, although this may vary by crop.

Livestock grazing occurs throughout both agricultural zones, but is more widespread in the north where hillside grazing prevails. Small ruminants –sheep and goats– are the most prevalent livestock species. However, beef (from cattle) has been the traditional source of dietary protein for most Iraqis. Poultry production occurs in close proximity to urban centers.

**Pre-U.N. sanctions (1980-89).** During Saddam Hussein's early years in power (1979-1990) the state attempted to foster private sector control and investment in Iraq's agriculture. Surging oil revenues were used to acquire Western technology and to lavish extensive government subsidies on the sector. Subsidized credit was available to

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<sup>3</sup> (...continued)

[[http://www.fas.usda.gov/pecad/highlights/2003/01/iraq\\_update/index.htm](http://www.fas.usda.gov/pecad/highlights/2003/01/iraq_update/index.htm)]

<sup>4</sup> FAOSTAT, FAO, U.N.

<sup>5</sup> In the early 1990s, cultivated area temporarily expanded to nearly 5.5 million hectares before returning to under 4 million.

<sup>6</sup> The Iraq government reported an expansion of irrigated area to 3.525 million hectares in 1990, but this appears unlikely and is inconsistent with anecdotal reports. This reported new irrigated area could be a "euphemistic" reclassification of the government program of draining the southeast marshlands.

agricultural producers through Iraq's Agricultural Credit Bank (ACB).<sup>7</sup> The government distributed high-yielding seeds and invested heavily in the irrigation infrastructure. Favorable land rental arrangements at well-below market rates were made available to private sector investors.<sup>8</sup> Most of these agricultural subsidies were directed to irrigated agriculture and to commercial livestock activities such as chicken farms and a fledgling feedlot industry. In addition, marketing regulations were relaxed and the government raised prices for virtually all commodities in the early 1980s in order to stimulate production and to expand the role of the private sector.<sup>9</sup>

Area and production expanded through the 1980s for cereals, vegetables, and fruit. During 1985-89, average cereal harvested area and production were up 28 and 14 percent, respectively from the average for 1970-79. However, cereal yields stagnated due to poor production practices and limited varietal development. In addition, the Iran-Iraq War diverted labor and other resources away from agriculture. Population growth continued to outpace agricultural production, increasing the importance of trade. Despite Government efforts at stimulating agricultural production, cereal and poultry imports as a share of domestic consumption nearly doubled to 69 and 48 percent, respectively, during the 1980s. By 1989 Iraq was importing over \$2.5 billion in agricultural commodities annually including 78 percent of its cereals and nearly 100 percent of its vegetable oils and sugar.<sup>10</sup>

Cereals, mostly wheat and rice comprised 60 percent of calories consumed by the average Iraqi during the 1980s. Calorie availability from meats—the principal source of dietary protein—averaged 132 calories per day per capita during the 1985-89 period. Poultry production made strong gains through the 1970s and 1980s. By 1989 poultry had surpassed beef as the principal source of calories from meat in the Iraqi diet (55.5 calorie/capita/day for poultry compared with 51.3 for beef).<sup>11</sup>

In the 1980's, U.S.-Iraqi trade expanded rapidly, primarily on the strength of USDA export credits. From 1983 through mid-1990, Iraq received nearly \$5 billion in U.S. GSM-102 and GSM-103 export credit guarantees to purchase significant quantities of U.S. agricultural commodities.<sup>12</sup> By the mid-1980s Iraq was the major destination for U.S. rice exports and also an important purchaser of U.S. wheat, feed grains, oilseed products, cotton, sugar, dairy products, poultry, and tobacco.

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<sup>7</sup> Springborg, Robert. "Infatih, Agrarian Transformation, and Elite Consolidation in Contemporary Iraq," *The Middle East Journal*, Vol. 40, No. 1, Winter 1986, pp. 33-52.

<sup>8</sup> *Ibid.*, p. 37.

<sup>9</sup> Springborg (1986), p. 40-41.

<sup>10</sup> FAOSTAT, FAO, U.N.

<sup>11</sup> *Ibid.*

<sup>12</sup> U.S. General Accounting Office. *Iraq's Participation in U.S. Agricultural Export Programs*, NSIAD-91-76, November 1990, [<http://161.203.16.4/d22t8/142766.pdf>]

Note: under GSM-102 USDA's Commodity Credit Corporation (CCC) guarantees repayment for credit sales of 3 years or less; under GSM-103, CCC guarantees repayment for credit sales of more than 3 years but less than 10 years.

In addition, Iraq also participated in other U.S. agricultural export programs. Under the Export Enhancement Program U.S. exporters received an estimated \$157.2 million in bonuses to facilitate Iraqi purchases of about \$509.8 million in agricultural commodities (wheat, wheat flour, barley, barley malt, dairy cattle, poultry, and table eggs) during fiscal years 1986 through 1990. During those same years, the Targeted Export Assistance and Cooperator Foreign Market Development Programs together provided \$1.9 million in market development assistance to U.S. commodity groups targeting the Iraqi market.<sup>13</sup>

**U.N. sanctions period (1990 to present).** In August 1990 the U.N. Security Council adopted resolution 661 imposing comprehensive sanctions on Iraq following that country's short-lived invasion of Kuwait.<sup>14</sup> Under U.N. sanctions, the importation of agricultural products was not banned; however, foreign companies were prohibited from investing directly in Iraq.<sup>15</sup> In addition, the Iraqi government's unwillingness to participate in the U.N.'s 1991 Oil-for-Food (OFF) plan cut off government oil export revenues needed to purchase foodstuffs and agricultural inputs on the international market.

From 1990 to 1994, Iraq's agricultural imports averaged slightly above \$1 billion or less than half of the pre-war level. USDA's export credit offers to Iraq were stopped, and USDA's Commodity Credit Corporation had to pay over \$2 billion in unpaid Iraqi export credit guarantees. U.S. agricultural trade with Iraq fell to nearly zero.

Anecdotal evidence suggests that the 1991 Gulf War resulted in significant damage to the irrigation and transportation infrastructure vital to Iraq's agricultural sector, but it is difficult to evaluate the extent or severity of the damage. Agricultural productivity suffered for lack of fertilizers, agricultural machinery, and the means of spraying planted areas with pesticides. Salinity has spread across much of the irrigated fields of central and southern Iraq as the Government ended its maintenance of the irrigation system. Once severe salinization has occurred in soil, the rehabilitation process may take several years according to FAO officials.<sup>16</sup>

In addition, rural areas were left with a severe labor shortage further hurting agricultural productivity. According to the U.S. Census Bureau, in 1991 Iraq experienced a 3.7 percent decline in population as an estimated 663,000 persons died or left the country following the first Gulf War.<sup>17</sup> Much of this exodus included foreign guest workers from the agricultural sector.

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<sup>13</sup> Ibid, p. 22-23.

<sup>14</sup> United Nations, Office of the Iraq Program—Oil for Food; “About the Program: In Brief.” <http://www.un.org/depts/oip/background/inbrief.html>

<sup>15</sup> Country Factsheet, The Economist Intelligence Unit, [<http://www.economist.com/countries/Iraq>].

<sup>16</sup> *The Economist*, “Digging for defeat: Iraq,” May 2, 1998, Vol. 348, No. 8066, p.44.

<sup>17</sup> U.S. Bureau of the Census, International Data Base (IDB), Iraq, Oct. 10, 2002; [<http://www.census.gov/ipc/www/idbacc.html>]

Iraq's poultry and livestock populations were devastated by the loss of rangeland to grain crops and the drop off of feed grain imports and veterinary medicines needed for routine control of parasites and diseases. Poultry inventories dropped from an estimated 105 million birds in 1989 to only 3.6 million in 1991.<sup>18</sup> The 1991 liquidation of the poultry inventory represented a major setback for poultry consumption dropping the daily calorie per capita from poultry from over 55 in the 1989 to less than 4 in 1991 according to FAO data. Similarly, Iraq's cattle population saw its number decline by nearly 37 percent between 1989 and 1991. A 1997 screw worm epidemic and a 1998 outbreak of foot-and-mouth disease resulted in further losses of animals.

Under the terms of Iraq's 1991 military defeat, the country was effectively partitioned into two distinct entities—three northern governorates (Erbil, Dohuk, and Sulaimaniyah) and fifteen governorates located in central and southern Iraq. This division corresponds roughly to the rain-fed northern agricultural zone and the irrigated center-south zone. The central government took several steps to increase both production and control of domestic food within its zone of control. These changes included Government monopoly control over most grain production and the introduction of a state-managed system of rationing of basic foodstuffs.

The Government raised the official purchase price of major field crops and initiated a program to expand planted area particularly for cereal crops in northern Iraq. Cereal farmers were ordered to deliver their output to state collection centers within two weeks of harvesting. The Government also took emergency steps to confiscate land from farmers who failed to fulfill production quotas. Finally, the Government introduced the death penalty for hoarding of cereals.

Government incentives coupled with rising internal food prices encouraged Iraqi farmers to expand crop area by planting on marginal pastureland and fragile hillsides. Record cropped area was attained in 1992 and again in 1993. However, agricultural productivity suffered for lack of fertilizers, agricultural machinery and the means of spraying planted areas with pesticides. Iraq's irrigation infrastructure fell into disrepair and salinity spread across much of the irrigated fields of central and southern Iraq.

By the mid-1990s severe macroeconomic problems related to the international sanctions led the government to end most support to the sector and instead to implement austerity measures that further curtailed agricultural investment. Declining food availability resulted in a significant rise in malnutrition in Iraq, particularly in the center and south of the country.<sup>19</sup>

By 1996, Iraq agreed to U.N. terms for establishing an Oil-For-Food (OFF) program. Once started, however, OFF food imports made Iraq's trade dependence nearly complete for many basic foodstuffs. According to the World Food Program, by early 2003 nearly 60 percent of Iraq's population was totally dependent on imports via the OFF. U.N. nutritional programs administered through UNICEF and WFP have played a key role in sustaining vulnerable segments of the Iraqi population, particularly infants and pregnant or lactating women. The Iraqi population's failing nutritional status and growing trade

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<sup>18</sup> FAOSTAT, FAO, U.N.

<sup>19</sup> UNDP, Iraq Country Office, 1999-2000 Report, June 2000.

dependence was further aggravated by a severe drought that persisted throughout much of the Middle East from 1999 through 2001 and devastated crop output in Iraq.

Cereal production in Iraq's rain-dependent northern zone was particularly hard hit, but even the irrigated production of the center-south region suffered from diminished water availability (down to 43 percent of normal levels). As a result of the drought, Iraq's annual cereal production per capita plummeted from its already low 1999-level of 77 kilograms to only 39 by 2000.<sup>20</sup> Shortage of fodder resulted in forced slaughter of sheep, and compounded the impact of a foot-and-mouth disease outbreak that had started in 1998. An estimated one million head of livestock died due to a lack of medicines.

**Outlook.** In the early stages of the post-2003 Iraq War period, the country's agricultural sector remains beset by the legacy of past mis-management, inaccessibility of farm machinery, fertilizers, and pesticides, and the lingering effects of the 1999-2001 drought. Iraq's irrigation infrastructure is only partially functional; salinization of prime cropland is widespread throughout the irrigation system; and the fertility of cropland and rangeland has been badly depleted from over exploitation due to poor soil management practices (such as continuous cropping rather than the normal cereal-fallow rotation). The poultry and livestock sectors have been devastated by a general lack of feedstuffs and pasture, as well as from a lack of veterinary medicines used to control common parasites and diseases.

Some progress has been made toward restoring lost agricultural productivity; however, a return to normal weather patterns is critical for domestic cereal production in Iraq. Political stability, improved internal security, and an end to international sanctions will also likely be needed before Iraq's agricultural sector witnesses significant investment and growth. Restoration of the irrigation infrastructure (including a long-term de-salinization program), as well as the grain marketing infrastructure for handling, storing, and distributing agricultural inputs and outputs will be vital. In addition, the development of a viable agricultural research and extension service to develop and disseminate improved varieties and successful production practices are needed to restore agricultural productivity.

Clearly, Iraq will be dependent on imports for fully meeting domestic food demand for several years to come. In the long term, after the economy has regained its viability and vibrancy, market forces and international competition will likely be the driving forces behind Iraq's agricultural trade patterns. Iraq's historical trade and food consumption patterns suggest that food grains such as wheat and rice, feedstuffs including corn, barley, and protein meals, vegetable oil, sugar, meat, and dairy products are all likely to be important imports into Iraq.

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<sup>20</sup> USDA, PSD database, April 2003. Note: during 1960-69 annual cereal production per capita averaged 249 kilograms, this fell to 177 in the 1970s, and 130 in the 1980s, but had regained ground to 155 kilograms during the 1990-94 period.

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