



Improving Grain Production in Iraq

The Agriculture Reconstruction and Development Program for Iraq (ARDI)

Agriculture is Iraq's second largest value sector, the country's largest employer, and an effective engine for promoting stability through private sector development, poverty reduction, and food security. The revival of a dynamic, market-driven agricultural sector will strengthen private business, increase income and employment opportunities, and meet the food requirements of the Iraqi people.

Despite Iraq's strong agricultural heritage, after decades of neglect the country can no longer provide enough wheat – a fundamental staple crop – to satisfy the domestic market. Iraqis currently consume nearly 4 million tons of wheat annually, yet only produce 500,000 tons of milling-quality wheat. More than 85 percent of wheat consumed in Iraq is imported, making it the most costly component of Iraq's \$3 billion Public Distribution System food basket. Although Iraq has the capacity to produce over 2 tons of wheat per hectare the current average is a paltry 800 kilograms per hectare.

NATIONAL WHEAT PROGRAM & PRIVATE SECTOR GROWTH

USAID and the Iraqi Ministry of Agriculture (MOA) are taking essential steps to increase the domestic production and quality of wheat. Quick-impact programs have delivered thousands of tons of certified wheat seed to Iraqi farmers, stimulating increased production; market reforms have benefited Iraqi farmers and encouraged private sector investment. New varieties of wheat are being introduced, higher caliber seed is being planted, and new cultivation methods are being demonstrated. Already, efforts on select Iraqi farms have doubled wheat production, from 0.8 metric tons per hectare (MT/ha) to between 1.5 and 2.0 MT/ha.

In addition to grain improvement efforts, USAID's National Wheat Program is developing a system of pesticide management, training farmers in the use of fertilizer, and restoring dilapidated tractors. Future projects will further enhance production meth-



An Iraqi farmer in Dohuk inspects a USAID-supported wheat demonstration field. In coordination with the MOA, USAID has established five seed multiplication plots in Dohuk and, countrywide, over 40 wheat demonstration plots like the one above.



ACCOMPLISHMENTS TO DATE

High Value Crops

- **Improved Date Palm Output:** Established date palm nurseries in 13 governorates that will expand palm tree population by 410,000 new trees a year.
- **Increased Olive Tree Population:** Planted 9,000 olive trees in 16 demonstration plots countrywide.
- **Provided Farm Machinery Training & Tools:** Trained 107 mechanics in farm machinery repair and supplied tools to help establish private repair businesses.
- **Rehabilitated Veterinary Clinics:** Rehabilitated 64 veterinary clinics, serving 127,000 animal breeders.

Crop Production

- **Seed Improvement:** Distributed 169 wheat seed cleaners to nine NGOs in 18 governorates. Produced over 31,500 metric tons of grade 1, treated wheat seed for 2006-07 season.
- **Increased Training:** 175 operators trained in wheat seed cleaning and treatment.
- **Farm Machinery Repair:** To date, a total of 2,629 tractors have been repaired throughout Iraq.

Soil & Water Management

- **Strategy Development:** Initiated a 10-ministry effort to develop the Iraq water and land use strategy.
- **Grant Provision - Irrigation:** Provided small-scale grants for canal and water infrastructure improvements on 320,000 acres of land serving 445,000 Iraqis.



ods and increase the number of farmers participating in these programs, efforts that will help build capacity and contribute to sustainable growth.

QUICK-IMPACT EFFORTS

ARDI imported and delivered 4,000 metric tons of high quality, certified Cham-6 wheat seed to MOA, jumpstarting grain production during Iraq's 2004-05 growing season. This wheat seed was then distributed directly to farmers; a second, smaller amount of seed was used to establish the 44 USAID-sponsored wheat demonstration sites in four governorates and to plant 200 hectares for a trial USAID seed multiplication program in northern Iraq. This new seed provided the national seed stock with increased variety and higher quality of wheat. Farmers using the newer seeds will be able to increase wheat yields over the next few harvests.

The higher grade seed also produces a higher quality produce for bread, thus allowing a higher selling price. Cham-6 is a low-protein wheat ideal for bread making. The wheat seed, often used in USAID's programs, has proven successful in Iraq.

Developing Market Incentives

Building on the successful distribution of 4,000 metric tons of wheat seed, the MOA has also taken steps to reform wheat sector pricing and encourage investment. In late 2004, drawing on USAID support, the Ministries of Agriculture and Trade agreed to set the price of Grade 1 wheat at \$200/ton for the 2005 crop cycle, a 10 percent increase over 2003-04 and double the price of two years ago. As of June 2006, the price of Grade 1 wheat has reached \$300/ton. After many years of poor prices, these price increases should provide sufficient incentive for farmers to invest in expanded production and new technologies.

BUILDING SUSTAINABLE GROWTH

Supporting Seed Multiplication

Iraqi crop yields are very low by international standards. The major objective of USAID and the MOA's crop production program is to introduce new technologies or techniques to improve yields. For wheat production, a significant increase in yields can be achieved simply by improving seed quality. Seed multiplication and certification programs of the past broke down over the last three decades, and farmers have had to rely on low quality farm-saved wheat seed. USAID's seed multiplication



project seeks to produce high quality seed for planting in subsequent years.

In late 2005, ARDI and MOA distributed 440 tons of certified wheat seed to 124 selected farmers in Erbil and Dohuk to be multiplied for the next planting season. In addition to seed, farmers are receiving technical assistance, training, and seed cleaning services after the harvest. The fall training session – reaching nearly 90 Iraqi farmers – covered techniques for producing certified seed, including land preparation, fertilizer application, integrated pest management. ARDI and the MOA will give another training session before the 2006 summer harvest. During the growing season, ARDI and MOA monitors will be inspecting fields to ensure that pest and weed control techniques are being properly implemented, and to check for the appearance of any non-desirable varieties.

Planting 130 kg of seed per hectare, farmers can produce up to 1,500 kg of seed per hectare if the crop is properly cared for and conditions are good, especially if there is sufficient rain. Under these circumstances, the project will produce up to 5,100 tons of seed for the next planting season, enough for close to 40,000 hectares. After this year's harvest ARDI will collect, clean, and bag the seed. The project will keep two tons for every ton distributed and return the balance to the farmers for their own use. The 880 tons of seed that the project retains will be distributed to farmers next year for another multiplication.

Testing Salt-Tolerant Seed

USAID is also working with the Ministry of Science and Technology (MOST) on the multiplication of salt-tolerant wheat seed, an effort that will increase agricultural productivity on land with highly saline soil. Many areas of central and southern Iraq suffer from high soil salinity caused by years of improper irrigation and poor drainage. Large areas of land have low agricultural productivity due to the high salinity, and some land has been taken out of production altogether. The poor soil quality in this part of Iraq has contributed significantly to low standards of living among local farmers.

In order to increase the availability of salt-tolerant wheat seed in Iraq, USAID and MOST are multiplying the 14 tons of seed of Furat and Dijla wheat varieties, which should produce at least 120 tons of seed for the next wheat season. The 14 tons of seed were planted in December 2005 to 100 hec-



An Iraqi agricultural engineer inspects a field of salt-tolerant wheat in Muthanna governorate, southern Iraq.

tares of highly-saline land belonging to several co-operating farmers in Muthanna, Qadissiya, Baghdad, and Babylon governorates. USAID and MOST staff are monitoring the fields and providing technical assistance to the farmers to ensure the success of the crop. Recent monitoring visits indicate that the crop is growing well.

EXPANDED SEED TECHNOLOGY

To support the National Wheat Program and encourage private sector development, USAID is working to restore seed processing facilities in Iraq. Good seed is the single most significant factor in improving wheat quality and yields. Fertilizer, pesticides, and good practices will not help farmers if the seed planted is of poor quality. Seed processing facilities in Iraq have suffered from neglect and the effects of hostilities in recent years, severely reducing the capacity to clean and treat seed.

USAID is providing the equipment and training necessary for improving the quality and quantity of wheat seed in Iraq. These programs also promote the establishment of new farming co-ops and identify local equipment dealers who may be interested in importing and selling this type of equipment. These are the first steps in establishing private sector seed cleaning in Iraq.

Seed Processing

It is necessary for farmers to clean and treat the seed they save each year in order to produce better quality wheat with higher yields. Most farmers however, do not have ready access to seed cleaning equipment, and the great majority of wheat



farmers in Iraq continue to use their own seed over and over again. At present between 8 and 20 percent of farmer-saved seed planted in Iraq is composed of weeds, lentils, weak grain, and other types of foreign material, thus producing smaller and poorer quality yields.

In the summer of 2005, USAID procured and distributed 169 seed cleaners to farming cooperatives and five NGOs across all 18 governorates. The number of cleaners distributed depended on each governorate's relative share of the country's total area planted to wheat. Seed cleaners provide a quick, mobile, and relatively inexpensive way to improve wheat yields by separating out debris and applying essential fungicide to the seeds. In addition, ARDI trained 198 operators, mechanics, and supervisors to use the seed cleaners.

Between September and December 2005, these cleaners produced over 31,500 metric tons of Grade 1 wheat seed. If sold as seed – at the current market rate of \$300 per metric ton of Grade 1 seed – it has a total value of nearly \$9.5 million. Planted, the cleaned seed will improve yields between 20 and 25 percent. In addition, USAID specialists estimate that 60 percent of the wheat crop from the cleaned and treated seed will make bread-grade wheat. Only 20 percent of uncleaned and untreated seed can be used for bread-grade wheat.

Private Sector Development

By working in coordination with farmer cooperative groups, local NGOs, and the private sector, USAID programs help to strengthen private institutions and encourage investment in the agricultural sector. By operating the seed cleaners, these organizations will build their reputations as providers of valuable

agricultural services. Indeed, two local NGOs are offering free supplies of the fungicide Raxil as an additional service to farmers. Farmer cooperative groups, profiting from the equipment, will be able to offer Iraqi farmers further support and opportunities to invest in other agricultural machinery.

By providing this seed processing and grain cleaning equipment, USAID programs are delivering a highly efficient, cost effective way of supporting Iraqi farmers. Through the seed processing equipment alone, Iraqi farmers throughout the country will be able to secure a 20-25 percent increase in wheat grain yield, and an overall harvest of higher quality grain than usually produced. Additional grain cleaning services will help farmers sell their crops for the highest market value while continuing to improve their seed material.

DEMONSTRATING SUCCESS

The USAID Wheat Production Technology Demonstrations are designed to accelerate the modernization of the Iraqi wheat industry. The demonstrations incorporate several critical components which will improve wheat yield and harvested wheat quality. These include increased production seed through multiplication; redistribution of improved seed to farmers; better land preparation; proper fertilizer and herbicide application; improved equipment for harvesting and transportation; and better storage. The seeds used in the USAID method are certified and treated with a fungicide to increase germination rates and to prevent disease. In coordination with the MOA, USAID has established 44 wheat demonstration plots in the Erbil, Dohuk, and Sulaymaniah governorates and five seed multiplication plots in the Dohuk governorate.

WANT TO KNOW MORE ?

Since 2003, USAID's agriculture program has restored veterinary clinics, introduced improved cereal grain varieties, repaired agricultural equipment, and trained farmers and ministry staff.

USAID/Iraq: Agriculture

<http://www.usaid.gov/iraq/accomplishments/agri.html>

USAID/Iraq: Restoring Agricultural Equipment

http://www.usaid.gov/iraq/updates/mar06/iraq_fs21_032406.pdf