



USAID | **IRAQ**
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Inma Agribusiness Program QUARTERLY REPORT

April – June 2009



Pomegranate Trees Inspection



Feedlot Being Built



Carp Genetic Improvement



Packing Shed Operation

July 2009

This report was produced for review by the U.S. Agency for International Development (USAID). It was prepared by (author for) a consortium led by The Louis Berger Group, Inc.

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Inma Agribusiness Program QUARTERLY REPORT April – June 2009



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The author's views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.

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ACRONYMS

COP	Chief of Party
COTR	USAID Contracts Officer Technical Representative
DEC	USAID Development Experience Clearinghouse
EFF	████████████████████
ePRT	Embedded Provincial Reconstruction Team
FADO	Future Agriculture Development Organization
FAR	Federal Acquisition Regulations
FOB	Forward Operating Base
GOI	Government of Iraq
GFA	Geographic Focus Area
IRs	Intermediate Results
ITAO	Iraq Transition Assistance Office
LOP	Life of Project
LTTA	Long Term Technical Assistance
M&E	Monitoring and Evaluation
MEFF	████████████████████
MFI	Microfinance Institution
MNF-I	Multi-National Force - Iraq
MoA	Memorandum of Agreement
MOA	Ministry of Agriculture
MOE	Ministry of Electricity
MOP	Ministry of Planning
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
NGO	Non-Governmental Organization
PDS	Public Distribution System
PO	Purchase Order
PRT	Provincial Reconstruction Team
RFA	Request for Applications
RFP	Request for Proposals
SME	Small and Medium Enterprises
TA	Technical Assistance
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USG	United States Government

GENERAL INFORMATION

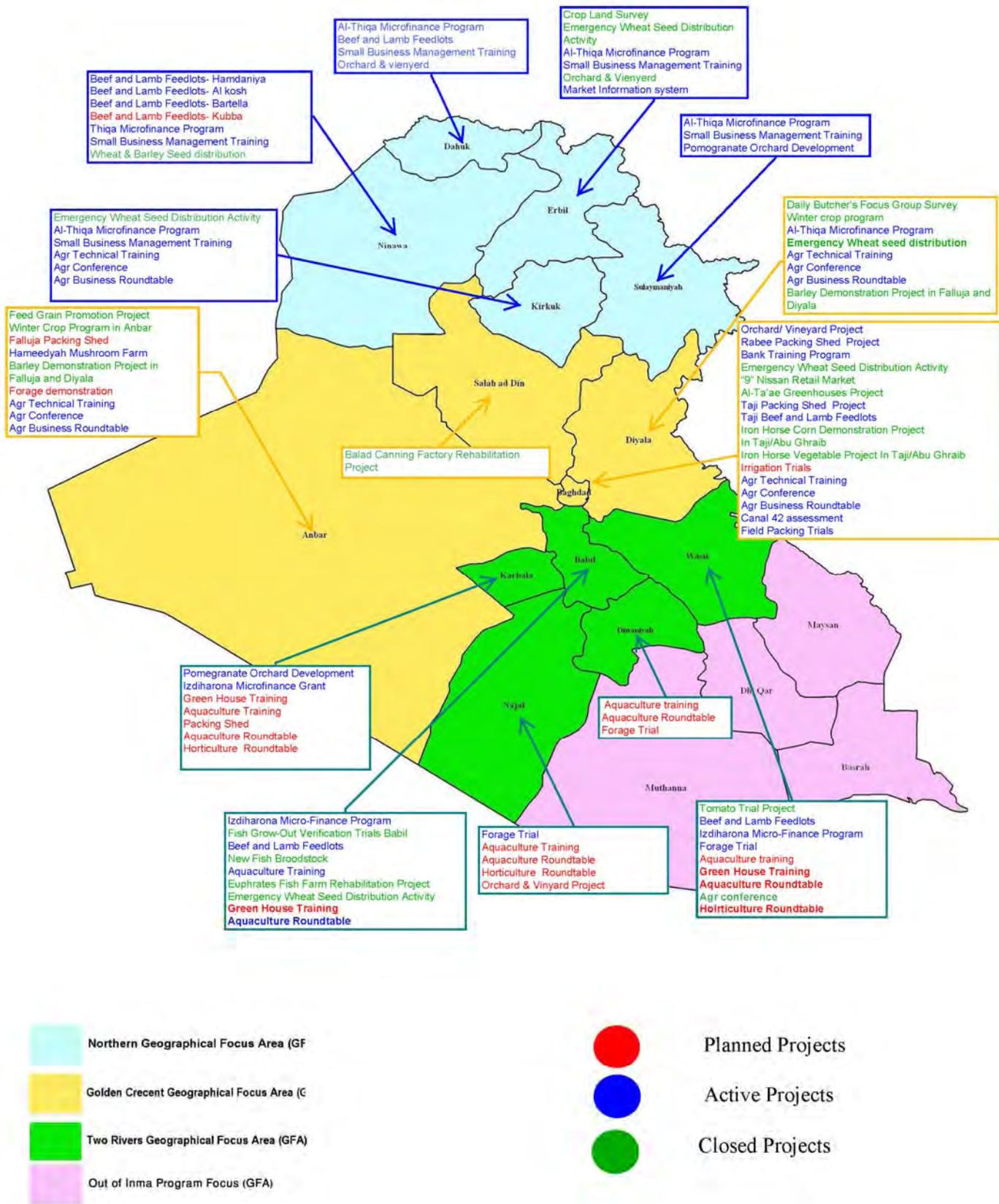
The USAID/*Inma* Agribusiness Program focuses on developing Iraq's private agribusinesses by facilitating the formation of fully-integrated value chains and improving agricultural quality and production. *Inma*, the Arabic word for 'growth,' connects farmers to markets, increases the competitiveness of Iraqi agribusinesses, and facilitates domestic and foreign agricultural partnerships.

This report covers the 8th Quarter (April – June 2009) of the USAID-funded Inma Agribusiness Program in Iraq. The report provides an update on the planned activities in the Annual Work Plan and on the outputs in the Performance Monitoring Plan (PMP).

Project Name:	<i>Inma</i> Agribusiness Program
Project Objective:	The purpose of this contract is to provide agricultural and business development services to USAID beneficiaries in strategic locations in Iraq to promote economic diversification and job generation, with an emphasis on the growth of the agriculture and agribusiness (“agro-food”) sectors in the provincial, regional and sub-regional economies.
Contract No:	267-C-00-07-00500-00
Contract Start Date:	May 14, 2007
Contract End Date:	April 30, 2010 Two one-year options to extend to April 30, 2012
Project End Date:	April 2012
Project Principals:	Charles Bell, Senior Vice President The Louis Berger Group Inc.
On-Site Leadership	Ross Wherry, Chief of Party Shehnaz Atcha, Program Manager Tracy Atwood, Deputy Chief of Party - Technical Program

The Cost-Plus-Fixed-Fee (CPFF) contract (No. 267-C-00-07-00500-00) for the *Inma* Program was signed May 14, 2007. The period of performance of the contract is three years, May 14, 2007 through April 30, 2010, with two one year options to extend through April 30, 2012.

MAP of INMA ACTIVITIES by GEOGRAPHIC FOCUS AREAS



EXECUTIVE SUMMARY

The USAID/*Inma* Agribusiness Program is an integral part of the United States Government's National Economic Development Program in Iraq with the overall goal to expand private sector economic opportunities. *Inma* focuses on the establishment of a viable, profitable commercial agribusiness private sector in Iraq. *Inma*'s long term goals are to increase the profitability of private agribusiness ventures and to increase Iraqi agricultural production and market share, therefore reducing its dependence on regional imports and state subsidies. Working with PRTs, ePRTs, the US Military, as well as with Iraqi farmers' associations, cooperatives and private agribusinesses, *Inma* increases the competitiveness of Iraqi enterprises, connects farmers to local and foreign markets, and facilitates domestic and foreign partnerships.

Inma concentrates its assistance in value chains where high value markets are favored by Iraqi competitive advantages. The horticulture, beef and lamb, and aquaculture and poultry value chains build upon a common focus on high-value, perishable products which enjoy immediate acceptance in the Iraqi consumer market.

This past quarter (April – June 2009), *Inma* made significant progress towards its goals of developing and expanding opportunities for Iraqi agribusiness and increasing Iraqi agricultural production. New agricultural enterprises are being rolled out with USAID/*Inma* support. New agricultural technologies are being demonstrated to farmers. New feedlots are being built which enable farmers to fatten animals and sell them throughout the year. Mechanized forage production systems are being developed that achieve increased production by introducing high-yielding varieties of alfalfa and grasses and modern irrigation and fertilization techniques. Post-harvest packing sheds are being built and operators trained. Market studies are being undertaken to examine the impact that improved sorting and packing has on farm gate prices. New orchards are being planted and maintained. Irrigation systems are being analyzed by experts and scheduled for repair to improve the efficiency and use of existing water resources needed to support the growing agricultural sector. Training of fish farmers increases technical and management skills, increasing production and profitability.

Taken together, these and other initiatives described in this report are strengthening priority value chains across the agricultural sector in Iraq, and will provide the basis for even greater success for USAID/*Inma* improving and expanding Iraqi agribusiness in the future.

A) In the Beef and Lamb Value Chain, *Inma* is helping demonstrate and establish modern feedlots across Iraq; introducing mechanized forage production systems; upgrading veterinary diagnostic laboratories, and sponsoring conferences for key stakeholders in the beef and lamb industry to discuss responses to changing market demands.

Inma is supporting ten **demonstration feedlots** around Iraq that will fatten 4,200 head of beef and 3,600 head of sheep yearly in confinement. As of the close of this quarter, all ten (7 beef and 3 lamb) feedlots have been identified. Seven are already in construction. The first animals will be acquired in August with the first batch of feedlot beef cattle projected to reach the market in January 2010. Feeding animals in confinement will be a new industry that not only produces better quality meat but will also lead to other intermediate businesses such as the consolidation of feeder calves and forage. *Inma* estimates that by the year 2012, and with sufficient Iraqi investment, it is possible for 30 feedlot operations in Iraq to

increase national annual red meat production by over 4 million kilos. This increased production would create annual revenues of \$30,000,000 and annual gross income of \$15,000,000 along with 750 new jobs created.

Inma also sponsored a high-profile **industry rollout “More Meat, More Income”** in late June at which his Excellency the Minister of Agriculture presented the keynote address. The event set the tone for a new era in the livestock industry and was attended by more than 150 people. Through events like this, *Inma* is leading the way for the development and establishment of a strong and viable beef and lamb feedlot industry to help respond to continuously increasing demand for quality meats by Iraqi consumers.

The availability of forage for lambs and calves is critical to the livestock value chain. *Inma* is working with farmers to grow high-yielding varieties of hay and forage. Hay is a high value crop with export potential. Potential gross revenue is estimated at \$350,000 per 100 hectare farm.

Inma plans to introduce mechanized forage production systems that will provide commercial quantities of high quality storable forage on a year-round basis. *Inma* will demonstrate the necessary activities required to meet market and quality demands of consumers including but not limited to beef and lamb. Forage is essential to expand the dairy industry, since dairy products provide the greatest quantity of protein in the Iraqi diet. As of the end of the quarter, four **forage demonstration** locations have been identified and two Memoranda of Understanding (MOUs) have been signed with cooperating farmers. The first harvest is scheduled for November. The forage initiative is projected to employ 500 farmers and laborers while generating \$1.5 million in annual revenue.

B) Through the Aquaculture and Poultry Value Chain, *Inma* addresses four critical constraints to fish production and productivity. This includes water aeration; genetic quality of fish stock; appropriate quality fish feed; and live haul transport and farmers training.

During this quarterly reporting period, *Inma* awarded two grants for **aquaculture training** in late May with the [REDACTED] and [REDACTED]. The overall program will train 500 farmers from June 2009 through April 2010. The training provides Iraqi fish farmers with basic skills in pond preparation, aeration, feed management, water management, disease control, and live haul movement and harvesting. So far, 57 fish farmers from the Babil province have completed training. Newly introduced live haul techniques are expected to reduce the fingerling mortality to less than 2% from the 50% rate Iraqi farmers traditionally experienced. Fish production by May 2010 is expected to reach 130,000 MT live weight and result in \$30 million of gross revenue for farmers.

Inma is also assisting fish farmers to increase the concentration of fish their ponds can hold, to feed and care for the fish so that they gain more weight faster, to introduce **genetic improvements** that increase disease resistance and promote growth, and to reduce the loss of live fish as they are taken to market. During this past quarter, Memorandums of Understanding (MOUs) were first signed with the Euphrates Fish Farm and with the Middle East Fish Farm. The MOUs set forth the responsibilities of *Inma* and the Farms in the implementation of this activity involving the care and use of 12,400 fingerlings imported with USAID *Inma* support from Hungary to improve the fish potential for rapid growth and improved market value. The successfully imported brood stock of carp fingerlings are growing exceptionally well with each fingerling weighing on average 450 grams as of the end of this quarter.

Inma maintains a low profile in the **poultry industry**. Farmers in this industry receive the majority of their support from local PRTs. *Inma* provided an **industry-wide conference** in April 2009 where policy makers, producers, and suppliers discussed the projected growth of broiler and table egg production through 2012. Significantly, the conference also provided information to the attendees regarding the amount of protein concentrated feed needed in Iraq to sustain the poultry industry.

C) The *Inma Horticulture Value Chain* addresses critical constraints to production and profitability of Iraqi horticulture. Iraqi trees and vines are older varieties which mature all at once with a short market window. Fruits can be good quality if harvested correctly. Current orchard management is inefficient. Poor sorting, grading, and packing of fruit results in substantial loss of harvests. Inadequate, ill-timed irrigation leads to smaller fruits with less sweetness. Iraqi farmers cannot compete with imported produce from countries that have adopted more advanced cultivation methods and enjoy cheap electricity and significant subsidies in fertilizers and seeds. Furthermore, farmers lose up to half of all vegetable and fruits due to crushing, bruising, rot, and filth after harvest.

Inma activities consist of the importation of 180,000 seedlings and vines for improving cultivars, greenhouse and open field vegetable production and post-harvest handling, grading of fruits and vegetables in field pack and in packing sheds, and irrigation system improvement.

For the **orchards and vineyards** program, *Inma* has finalized the **order for 120,000 fruit trees and grape vines** for planting in January 2010. The next steps will be to identify the approximately 150 cooperating farmers to participate in the program and develop a schedule and plan for delivery of the imported trees or vines. Following that, *Inma* will deliver directed technical assistance and training to these grantees as well as general training to other orchard owners identified by PRTs. The farmers will be planting commercial sized (about 1 ha.) orchards and vineyards and will be located in the three climatic regions. The program demonstrates modern production technology with market proven varieties not readily available in Iraq. Production from these new trees will yield twice as much as common Iraqi varieties and that the fruit will sell at comparable prices of currently competing imports. *Inma* estimates that by May 2012, this program will create 1000 new jobs and \$14 million in annual gross revenue for farmers.

Inma also continued to provide **support services to the existing plantings** carried out in January 2009. Inspections of pomegranate, grape, and stone fruit (apricots, nectarines, peaches) plantings show that the trees are in excellent condition with cultivation practices of weeding and watering being conducted as required.

In the area of **post-harvest technology**, USAID/*Inma* is supporting the establishment of **five packing houses** with a capacity of approximately 30 tons daily. Each house will serve consolidators and farmers as a central sales point for the produce they are marketing. The packing houses are a place where farm products are cooled and cleaned before selection and packing occurs. This will greatly reduce the amounts of fruits and vegetables lost due to crushing, bruising, and rot, which can reach as high as 80% in hot summer months. Two facilities were constructed during this past quarter and will be operational for the packing house crops in fall 2009. Another 3 locations were also identified. Training for packing house operators was conducted.

As part of the **retail ready marketing program**, a field pack marketing study was conducted this quarter. The study demonstrated that proper field sorting, grading and packaging of fruits results in a gain in the price per Kg, but not enough yet to offset the cost of additional labor and packaging. The significance of this study is that it demonstrates consumers are willing to pay higher prices for better packaged fruits. If improvements can be made in the original source and quality of fruit, we expect price increases sufficient to generate profit margins for farmers.

In the area of **irrigation**, *Inma* has selected the Canal 42 Command Area for Irrigation System Improvement aimed at enhancing on-farm water management conditions. This activity seeks to demonstrate the value of improved farmer-managed irrigation. Such a demonstration shows how one agricultural operation can be improved through more precise measurement and regulation of water, infrastructure rehabilitation and skills training for irrigation system operators.

During this reporting period, results from the **cropland area field surveys** in the Canal 42 irrigation district of Taji/North Baghdad were received and analyzed. In this preliminary sample, a large percentage of the agricultural land in this irrigation district was found to be fallow (left unplowed and unseeded during a growing season), mainly for lack of access to water. The survey is a vital step to determine the specific technical needs for repair and rehabilitation of the irrigation infrastructure.

The *Inma* technical team organized a **second irrigation conference** on May 17, 2009. The event, entitled "Greater Income with Less Water" focused on the economic analysis of various irrigation systems (drip, pivot, sprinklers vs. furrow, and flood). Participants examined alternative irrigation models, and learned of the results from technical and financial evaluations.

D) Through the *Inma Business Development Services* unit, a series of **industry roundtables** are currently being conducted. These roundtables provide a mechanism for firms to draw on the business experience and leadership of their colleagues, and provide a platform to share expertise and knowledge and to identify new business opportunities through increased peer interaction. During the quarter, *Inma* successfully organized roundtables for the Aquaculture and Horticulture value chains in Iraq.

The National Agricultural Finance Conference, organized by *Inma*, and the first of its kind for Iraq, brought together the agricultural and financial sectors and facilitated a dialogue on financing for agribusinesses of all sizes. The conference represented Iraq's first steps towards finding a solution to the country's current lack of financing available to farmers and agribusiness owners. Sufficient lending capital is available, but bureaucratic inefficiencies and uncertain commercial regulations stifle lending.

■■■■■, a private Iraqi market information company and recipient of an *Inma* grant, collects daily **and weekly market prices** of fruits and vegetables, animal products and farm inputs at wholesale markets in all provinces in Iraq and in Dubai. Through this agreement, daily and weekly price reports are disseminated on same-day basis to subscribers via email, website, mobile phone text messages, radio broadcasts and newspaper articles. ■■■■■ recently released its report of "*Monthly average price charts for vegetables and fruits in Iraq from Oct. 2006 to June 2009*". For each product the report provides a table of monthly average wholesale prices in 19 markets in provincial capitals.

Inma promotes **microfinance institutions (MFIs)** as a source of investment capital for agribusiness growth. Through two MFIs [REDACTED], \$5 million of *Inma* funds will reach farmers and small agri-businesses. As of the end of the quarter, 280 loans have been disbursed to agribusinesses with a total value of just over \$1,500,000. The average loan size is approximately \$2870 which is larger than typical microfinance loans globally and loans are being used for farm infrastructure instead of financing seasonal crops. [REDACTED] provides loans to agribusinesses in Babil, Karbala, and Wasit. [REDACTED] loans in Erbil, Dahuk, Diyala, Kirkuk, Ninawa, and Sulaymaniyah.

Inma Agribusiness Program

QUARTERLY REPORT

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VALUE CHAINS

Inma approaches Iraqi food markets through value chain analysis to address the binding constraints to profitability as product flows from farm through markets to the consumer. *Inma* supports three of the most needed and profitable agricultural value chains in Iraq:

- Beef and Lamb
- Aquaculture and Poultry
- Fruits and Vegetables

The activities address critical value chain constraints, increase productivity, lower production and marketing costs, increase the profitability of agricultural enterprises, and generate rural employment. In each of the value chains, *Inma* seeks to assist Iraqi enterprises to attain a critical mass of producers and marketers to convincingly demonstrate high-value businesses. Specific *Inma* activities include field trials, demonstrations, and institutional support to catalyze the adoption of improved production, post-harvest, and marketing practices.

Inma also operates a Business Development Services unit that complements the above value chains through agribusiness financing, market information systems, business consultation services, and training programs

A. BEEF AND LAMB VALUE CHAIN

In Iraq, quality lamb and beef demand exceeds the supply. Cattle and sheep populations have declined since the 1990s due to violence, feed shortages and other factors. Forage availability is also a severe constraint to commercial livestock production. The livestock and dairy industries depend upon year-round availability of adequate quantities of forages—alfalfa, grass and mixed hay.

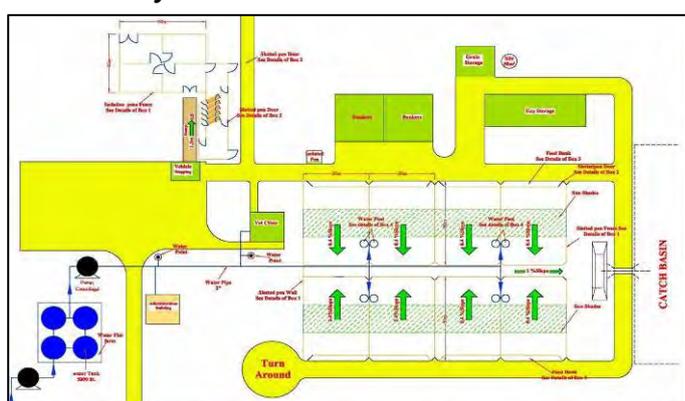
In response, *Inma* is helping demonstrate and establish modern feedlots across Iraq; introducing mechanized forage production systems; upgrading veterinary diagnostic laboratories, and sponsoring conferences for key stakeholders in the beef and lamb industry to discuss responses to changing market demands.

1. FEEDLOT PRODUCTION

Market prices for red meat are more than three times that of poultry. Annual consumption of red meat has been shown as an indicator of household income. The amount of money spent on red meat exceeds other commodities such as cereals, vegetables, fruits, and fish according to a recent World Bank and COSIT “Central Organization for Statistics and Information Technology” survey. As Iraqi household income increases, strong consumer preference for red meats translates into a rapid growth of demand. Consumption of quality lamb and beef is projected to grow faster than supply. Iraqi producers have a competitive edge over imports in supplying lamb and beef to the domestic market.



Feedlot Layout



To make quality meat more available, *Inma* will support the creation of ten demonstration feedlots around Iraq that will produce 4,200 head of beef and 3,600 head of sheep yearly in confinement. These animals will make up 7 beef feedlots and 3 lamb feedlots. Feedlot operators buy feeder calves and lambs from livestock markets and herders, and alfalfa hay and barley from many farmers. Feeding animals in confinement will be a new industry

that not only produces better quality meat but will also lead to many other intermediate businesses such as the consolidation of feeder calves and forage. *Inma's* contribution is to minimize business risk in the first year, as we are buying down the cost of learning the new technology and practices.

Quarterly Progress

Inma plans ten demonstration feedlots, but received over 30 qualified applications. There are several very good opportunities for additional feedlots not covered by the initial ten applications. *Inma* will provide assistance in the Business Development chain to provide logistic support services, and business and association development training to feedlot operators. A Task Order will be issued to provide training in administrative, business and financial matters during the first six months of feedlot operation. In addition, *Inma* is hiring Iraqi staff to provide technical assistance in stock-raising to the feedlot operators.

Seven feedlot grants have been awarded for inclusion in the demonstration program. There is one each in Dahuk, Baghdad, Wasit, Babil, and three in Ninawa. The first seven feedlots grants have been signed and all have received USAID consent. The consent packages for the next three grants are being reviewed, with formal agreements expected early in the next quarter. The package includes proposals for Anbar, Ninawa and Taji.



Map of Feedlot Locations



As of the end of the quarter, four feedlots in the Northern GFA are all under construction. The most advanced project in [redacted] is currently completing the construction of corrals, and will be ready for their first batch of animals by early to mid August. Three grantees in the Center and South GFAs have commenced land leveling and the planning of water infrastructure. These sites have submitted contractor drawings and their plans are currently being reviewed by *Inma* engineering staff and the livestock technical team.

As of the end of this quarterly reporting period, the following demonstration feedlots have been identified for USAID *Inma* support:



INDUSTRY LAUNCH: Feedlots: “More Meat, More Income”

To further support the feedlot production activities, *Inma* developed and conducted a major industry launch roll-out on June 25. The event, entitled “More Meat, More Income” included His Excellency, the Minister of Agriculture, [REDACTED] (pictured at right) as a special guest keynote speaker. The Minister commented that rising incomes are increasing the demand for lamb and beef among Iraqi consumers. Through this industry launch, *Inma* is responding to this market demand. The Minister also stated that government could not do all that is necessary in the livestock area and needed support from the private sector. He also focused on the urgency to remain engaged, and complement each other to make sure new knowledge and technological advances are put to use by individuals and business communities for a modern red meat industry that operates in conformity with acceptable international standards.



Inma technical experts presented estimates that by the year 2012, and with sufficient Iraqi investment, it is possible for 30 feedlot operations in Iraq to increase national annual red meat production by over 4 million kilos. This increased production would create annual revenues of \$30,000,000 and annual gross income of \$15,000,000, as well as growth in many associated businesses.

The event set the tone for a new era in the livestock industry. *Inma* is fully supporting the development of the first ten feedlots for livestock development in Iraq, which has the potential to create opportunity for all, through new jobs across the value chain in both rural and urban areas of the country. *Inma* will share data and information with other Iraqi investors and with Ministry of Agriculture extension agents and scientists.

The event was attended by more than 150 people including several key players working in partnership with *Inma* for the development and establishment of a strong and viable beef and lamb feedlot industry to help respond to a continuously increasing need in the red meat value chain.

The rollout provided an opportunity for networking among various specialists, government administrators, private entrepreneurs, USDA, USAID staff and others operating in agribusiness. It also served to bring people of various political and religious affiliations, Sunnis, Shiites, Christians and Kurds from different regions to share their experiences and concerns for agribusiness developments initiatives.

The importance of understanding all the components of upstream and downstream linkages of the feedlot value chain where emphasized throughout the day. The *Inma* feedlot project has the ability to open the door for new business ventures, new technology, and a quality red meat industry.

Next Quarter Highlights

- ✓ A Livestock Training Roundtable is scheduled for July 26 – 27. This workshop will teach the new employees and invited guests the proper techniques for animal selection, grading, health, daily observation, and nutrition.
- ✓ *Inma* will commence a feeding trial at the [REDACTED]. The study is meant to demonstrate local animal acceptance, performance and overall benefits of feeding quality alfalfa hay versus the traditional practice of feeding full bloom stage, fresh alfalfa in Iraq.
- ✓ A series of Red Meat Industry Roundtables are planned to take place in Baghdad in the months of July, August, October, and November. These roundtables will allow producers and industry participants to network, share ideas, and conduct business with each other.
- ✓ The last 3 feedlot grants are projected to be signed early next quarter, with construction underway following soon after.
- ✓ Steers will begin to be purchased in August for the first four beef feedlots. The first sheep will be purchased in September for the three lamb feedlots with the first batch of feedlot beef cattle projected to reach the market in January 2010.
- ✓ A general livestock production and management training program open to all farmers will commence next quarter for which *Inma* will seek PRT nominations.

2. VETERINARY DIAGNOSTIC LABORATORIES

In Iraq, the lack of adequate veterinary services, diagnostic laboratories and vaccines are all constraints to raising healthy livestock in confinement. Disease can spread quickly and sick animals must be quarantined. Veterinarians must work directly with the feedlots and check the animals daily. When blood, fecal, and other types of samples are taken there must be fast, reliable analyses available by a properly staffed and equipped veterinary laboratory. Such a veterinary laboratory will play a vital role in the upkeep of animal health in feedlots.

Inma plans to upgrade three Veterinary Laboratories utilizing modern methods and automated equipment to demonstrate the services needed in the emerging livestock industry. The laboratories will be strategically located to serve the Northern, Central, and Southern geographic areas in Iraq and will be in close proximity to the ten feedlots currently under development. This will be a primary link in establishing quality control in animal health in Iraq.

Quarterly Progress

Inma will competitively solicit applications from veterinary laboratories in the three geographical areas. The selected laboratories will receive a package of commodities necessary to adequately service their clientele, which is likely to include *Inma* partners in feedlots, poultry production, and fish farms. *Inma* will acquire training for laboratory technicians. Technicians will be trained for each of the three locations.



During this quarterly reporting period, *Inma* determined veterinary laboratories' basic equipment needs for the potential upgrade activity. Potential veterinary service laboratories, located in each geographic region, have been identified and have received RFAs to apply for purchase of equipment and supplies that can meet the requirements of modern feedlots.

The Vet Lab RFA was released on June 23 and is scheduled to close on July 14, 2009. Based on the needs assessment, *Inma* has completed the technical scope of work and bidding documents necessary to move the activity into the tendering stage.

Next Quarter Highlights

- ✓ Selected veterinary laboratories will receive granted equipment and training to use and maintain new equipment.
- ✓ An equipment supplier will be chosen through an RFQ by mid-July. Training on the use and maintenance of this equipment is also being procured.
- ✓ The veterinary laboratories are projected to be running in their full capacity by the end of October.

3. FORAGE DEMONSTRATION TRIALS

The availability of forage for lambs and calves is critical to the livestock value chain. *Inma* is working with farmers to grow high-yielding varieties of hay. Hay is a high value crop with export potential. *Inma* will assist in the development of improved forage production systems that achieve increased production of forage crops by introducing high-yielding varieties of alfalfa and grasses; modern irrigation and fertilization techniques; and appropriate mechanization for planting, harvesting, and processing of forages. The forage initiative is projected to employ 500 farmers and laborers while generating \$1.5 million in annual revenue.

In Iraq, the lack of forages is a principal constraint to successful commercial livestock production because required natural range conditions for livestock grazing is limited. The lack of natural range dictates the production of forage on cultivated land to supply a year-round supply of feedstuff for commercial livestock production. Iraqi production of alfalfa is hindered by small fields and hand harvesting of enough fodder to feed for a day. The alfalfa is of old low-protein varieties, typically infected with a parasitic plant called dodder, *cuscuta approximata*, which weakens the stands and slows growth. Typically, Iraqi alfalfa is harvested too late (after bloom) when its protein content has begun to fall and the plant stems become woody. Iraqi farmers do not have a tradition of grass hay under cultivation, despite its usefulness in feeding sheep. Many grasses are salt tolerant, allowing them to grow in poorly managed irrigation districts.



Inma plans to introduce mechanized forage production systems that will provide commercial quantities of forage on a year-round basis. *Inma* will demonstrate the necessary activities required to meet market and quality demands of consumers including but not limited to beef and lamb feedlots. Forage is essential to the dairy industry that provides the greatest quantity of protein in the Iraqi diet. Iraqi farmers cut the alfalfa and feed it green, often cutting it too soon or too late. Animals grow faster when fed dry hay. If they want to maximize protein content, and have their livestock grow faster, farmers need to

be introduced through demonstration trials, the advantages to feeding livestock dry hay. Alfalfa is a perennial crop in Iraq which can grow for four years, or up to thirty harvests.

Inma will assist in the development of forage production systems through large-scale forage demonstrations in at least four separate and distinct areas totaling 400 hectares of demonstration. Each site will have a different method of irrigation and cultural practice adapted to the climate of its location. Distinct field preparation approaches will be demonstrated at each location. These forage production and marketing demonstrations will be conducted with farmers located in the north, central and south of Iraq. One site in Wasit and one in Najaf have agreed to the terms of a Memorandum of Understanding, and *Inma* is seeking additional sites that meet the criteria. Various irrigation systems (pivot, flood, rainfall) for the different forage demonstration sites are being examined to determine their impact.

Quarterly Progress

Inma is preparing demonstration of large-scale mechanized forage production. Most Iraqi forages are grown in very small plots and harvested by hand daily. *Inma* field representatives assessed existent forage farms and farmers' needs in Diwaniyah and Wasit. In Diwaniyah, *Inma* field staff reported significant number of donums planted in alfalfa, providing an opportunity for assistance in harvesting, cutting and bailing technologies. Unique to Diwaniyah, the farmers plant barley between the wheat. While the barley is cut in mid-season, the alfalfa continues to grow for another harvest later in the season. Wasit was also identified as another forage candidate, with over 64,000 donum planted in wheat and 28,800 donum in barley, 12,700 donum in clover, and 9,000 donum in alfalfa.

During the quarter, two Memorandum of Understanding (MOU) signing ceremonies were held for the first two demonstration sites; one with a farmer from Wasit (flood) and the other with a farmer from Najaf (pivot). The signing of these MOUs represents the achievement of an important milestone for this value chain.



Preparations have also been started for the training program which will be incorporated into *Inma*'s upcoming Forage Demonstrations. The curriculum of the 7 day course will include: Alfalfa Overview and Hay Machinery Demonstration; Site Selection, Site Preparation, Seeding and Irrigation; and, Harvest, Post-Harvest Care and Marketing. In preparation for the Forage Demonstrations in the fall, *Inma* is collecting agronomical data from potential demonstration sites. Appropriate funding and procurement methods, as well as equipment and input needs have been identified and the procurement process has begun.

Next Quarter Highlights

- ✓ *Inma* expects to identify and sign three additional MoUs (Ninawa, Kirkuk, Mosul) for forage demonstration sites.
- ✓ The Livestock-Forage Value Chain plans to announce and present the forage industry at a high-profile event planned for late October.
- ✓ The Forage training program will begin in mid November, which coincides with field preparation and seeding.
- ✓ A general alfalfa forage production systems training program open to all farmers will commence next quarter for which *Inma* will seek PRT nominations.

B. AQUACULTURE and POULTRY VALUE CHAIN

1. AQUACULTURE

Fish are a relatively inexpensive source of protein, yet consumption in Iraq is at meager 5 grams per capita per week due to inadequate supply. To revive Iraq's aquaculture industry, *Inma* addresses four critical constraints to fish production and productivity. This includes water aeration; genetic quality of fish stock; appropriate quality fish feed; and live haul transport and farmers training.

a) Fish Production Improvement

Aquaculture Farmers Training

Inma assists fish farmers to increase their production by promoting their carp growth growing more in the same volume of water and reducing loss of live fish as they are taken to the market. The efficient use of available water is essential in Iraq which is an arid country. The goal of the training program is to assist Iraqi aquaculture farmers to increase their production by promoting their carp growth, and through proper training and technology, reducing loss of live fish as they are taken to the market. Typically, 40% of fish die in transit, decreasing their market value by 60%.



Production fish ponds in Iraq operate currently at 35% of potential capacity due to poor feed and minimal technology for aeration. With the training, farmers will be able to increase the number of fish in their ponds without using additional water. The training is expected to help farmers improve the efficiency of their farming operations; significantly reduce the mortality rate of fingerlings; increase the size and number of fish available for sale by the farmers; and as a result, increase the profits for individual aquaculture farmers. As an industry, fish production by May 2010 is expected to reach 130,000 MT live weight and result in \$30 million of gross revenue for farmers.

Quarterly Progress

During this quarterly reporting period, *Inma* awarded two grants for aquaculture training in late May with the [REDACTED] and [REDACTED]. So far, 57 fish farmers from the Babil province have completed training. The overall program will train 500 farmers from June 2009 through April 2010. The training will consist of such topics as: pond preparation, aeration, feed management, water management, disease control, and live haul movement and harvesting. As part of this activity, *Inma* has also already supplied the necessary training equipment such as electric aerators, paddle wheels, classroom supplies and test kits. On May 27, the [REDACTED] and [REDACTED] each received a windmill from *Inma* for demonstration during the Aquaculture Training.

Each participating farmer will receive 1000 fingerlings of 40 – 50 grams with a planned expectation of the pond fish stocking density to increase from 1 to 5 fish per cubic meter of water with proper feeding (minimum of 30% protein content) and to increase fish pond production from 1,300 fish/year to 6,700 fish/year. This increases each farmer’s gross revenue from \$12,000/ha/year to \$60,000/ha/year.

Aquaculture Training Courses Completed

Class	Training Site	Dates	Participants
1		Completed June 7-11	17
2		Completed June 21-25	20
3		Completed July 5-9	20

Handbooks

As a part of *Inma*’s assistance to aquaculture in Iraq, two handbooks entitled “Aquaculture Carp Farming Guide” are being produced. One guide focuses on basic level audiences, while the second guide is intended for intermediate and advanced training on fish farming. The guides are being prepared and adjusted to local Iraqi environmental considerations. The handbooks will be published in both English and Arabic and will become part of *Inma*’s growing publication series. The guides are expected to be published during the next quarter.

Next Quarter Highlights

The Aquaculture Farmer Trainer Program will continue with the following schedule:

Class	Training site	Dates	Participants
4		Scheduled July 19-23	20
5		Scheduled July 26-30	20
6		Scheduled August 2-6	20
7		Scheduled August 9-13	20
8		Scheduled August 16-20	20
9		Scheduled Sept 27-Oct 1	20

B) Genetic Improvement of Fish Production

Inma seeks to improve the growth rate and disease resistance of commercially grown carp (the most common food fish) in Iraq through the importation of genetically improved carp fingerlings which, after sufficient quarantine, will be cross-bred with Iraqi heat-tolerant carp strains. .



Quarterly Progress

During this past quarter, Memorandums of Understanding (MOUs) were first signed with the [REDACTED] and with the [REDACTED]. The MOUs set forth the responsibilities of *Inma* and the Farms in the implementation of this activity involving the care and use of 12,400 fingerlings imported from Hungary to improve the fish potential for rapid growth and improved market value. In early May, *Inma* staff traveled to Hungary to ensure proper handling and treatment of the fingerlings in this most sensitive phase of the operation. The staff provided assistance to packaging of live fish at the Hungarian hatchery, verified count and quality of fish, escorted the fish cargo to the Budapest airport, and cleared through Hungarian customs.



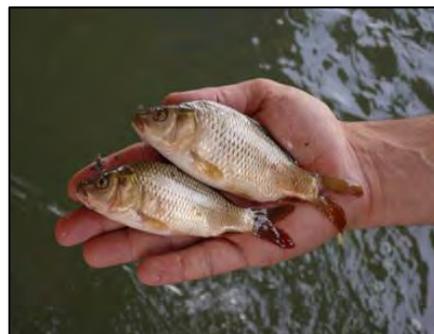
The fish was then loaded onto an aircraft and transported to Baghdad International Airport (BIAP). At 2.30am on May 1 the cargo arrived at BIAP, where it was immediately loaded off the plane. Only five hours after landing, trucks with the fragile load started their journey to Babil.

The U.S. Military and the Iraqi Police Force provided escort to the convoy to the receiving hatcheries. *Inma* had arranged for quick pass of the live cargo through Iraqi customs, and veterinary checks were performed at the hatcheries. Five representatives of the Iraqi Ministry of Agriculture were present for the fish evaluation at offload, stating their high regard for this complex logistical operation.



Each hatchery received 6,200 carp fingerlings. Good organization yielded an extremely low level of mortality: only 21 fingerlings, or less than 0.002%, were lost during the whole operation. *Inma* technical experts have continued with daily monitoring of the fingerlings at the hatcheries during a six-month quarantine before the fingerlings are crossbred with Iraqi heat-tolerant carp.

Within their first ten days, the weight of fingerlings increased from 30–35 grams to 50–55 grams, which represents an outstanding rate in weight gain. In mid-May, the imported fingerlings in quarantine experienced an outbreak of the common bacterial red spot disease. The disease is not life-threatening, and is commonly seen when fingerlings are transferred from one location to another. A veterinary team from the Ministry of Agriculture (MoA) administered antibiotics to the brood stock.



As of June 30 (54 days after importation), the average weight of the fingerlings was 450 grams, which represents significant growth. The imported fingerlings from Hungary have been growing approximately 30% faster than common Iraqi carp.

Each fingerling from the 2009 carp genetic improvement activity will produce an average of 6,000 fry over time. The first generation of crossbred fish is likely to number approximately 60 million in 2010. *Inma* will arrange for genetically improved carp generation to be sold as fingerlings and brood stock to local farmers and to the sixteen other hatcheries located in the area. The new carp will be on the market in 2011.

Next Quarter Highlights

- ✓ The brood stock will continue to be monitored and evaluated on a regular basis during the entire next quarter in which the brood stock will remain in quarantine.

2. POULTRY

Inma maintains a low profile in the poultry industry. Farmers in this industry receive the majority of their support from local PRTs. *Inma* provided an industry-wide conference in April 2009 where policy makers, producers, and suppliers discussed the projected growth of broiler and table egg production through 2012. *Inma* will sponsor the return of highly qualified short-term technicians in 2009 to assist in the evolution of poultry production in south Baghdad and elsewhere. They will provide technical assistance in flock management, sanitation and vertical integration of production, processing and sales. The *Inma* policy dialogue for competitiveness includes recognition of international veterinary health certifications, a key factor in the importation of vaccines and live chicks.

Poultry Industry Growth Conference

Iraqi public officials, key private industrial players and USAID technical experts marked the opening of a conference on revitalizing the domestic poultry industry on April 20, 2009. The conference sought to encourage participants to consider the longer-term prospects for growth in the poultry industry and brought together the key players who can spur private sector development and tackle the poultry value chain obstacles to improve poultry industrial growth in Iraq. Significantly, the conference also provided information to the attendees regarding the amount of protein concentrated feed needed in Iraq to sustain the poultry industry.

Poultry associations and industrial players utilized the opportunity to network, exchange ideas, and even negotiate potential business deals. *Inma* technical experts also assisted [REDACTED] with the finalization of their poultry study and facilitated their contact with suppliers of fertilized eggs and technology on artificial insemination. Approximately 80 private entrepreneurs and government officials attended with a high attendance by Iraqi media, including [REDACTED]. The conference and initial work by *Inma* in the poultry industry confirmed the growing demand for protein concentrated feed.

3. PROTEIN CONCENTRATE FEEDS

Protein concentrates feed accounts for up to 65% of the operational cost of production of fish and poultry. *Inma* seeks to reduce feed cost from \$600/ton to \$500/ton. *Inma* economists estimate this reduction in feed cost will result in savings of \$50,000 per poultry farm, per growing cycle (90 days), assuming a farm of 100,000 birds.

The feed production infrastructure in Iraq has been devastated by the war, sanctions and civil unrest. During the 1980s a series of large feed mills were constructed through out Iraq based on a state subsidy for feed importation of soy meal. These feed mills are no longer in operation. Much of the equipment is no longer in production and it would not be cost effective to attempt to refurbish a 30 year old mill. Most of the feed mill compounds, warehouses and storage bins are serviceable and the compounds are located in an area that is strategic to the support of poultry and fish production. The rebuilding of this infrastructure will take three to five years.

Reconstruction of a modern large-scale milling industry will be high cost and require private investment and management by manufacturers that operated the previous mills. Most large private investors are still unwilling to shoulder the business risks until they are insured the security situation is stabilized. Many small and medium mills have come into existence to fill the void left by the large mills. Feed produced by these small mills does not meet international standards and can not compete effectively with imported feed, especially in cost.

Medium sized millers appear to be sustainable within the foreseeable fish and poultry industry demand. However, they need to be able to increase their production and provide the feed in pellets (for fish) and crumbles (for poultry) instead of free-flowing powder. Iraqi-made feed suffers from the use of local wheat and barley that is artificially high in price due to GOI subsidies. Further, Iraqi millers import soy meal in bags rather than in bulk, increasing the expense of the meal and labor in handling it.

The total grant assistance will result in the upgrade or refurbishing of competitively selected feed mills and in the delivery to associations of approximately 13,200 MT of locally produced finished feed. *Inma* will also institute management training on modern feed production techniques to lower the cost of feed production.

Inma proposes to acquire 1,250 MT feed monthly from the improved mills and provide it for nominal cost to poultry and fish associations selected jointly with PRTs. The associations then sell the feed to their members, using the margin to improve the association's capital position. To do this, *Inma* will award four (4) separate grants to Iraqi feed millers. Each grant is designed to enable millers in Iraq to upgrade their facilities to produce high quality protein concentrate feed by increasing the milling capacity of their mills to 20,000 MT annually; and fund on a monthly basis (over an eight month period) the production of up to 3,300 MT of finished feed that will be made available by the redemption of feed vouchers presented by selected associations.

Quarterly Progress

During this quarterly reporting period, the technical analysis and assessment work necessary for proper design of the scope of work was completed. At the close of this past quarter, the RFA for the revitalization of feed mills was released. The closing date is July 15, 2009. The *Inma* technical review committee has been assigned.

Next Quarter Highlights

- ✓ Technical review of received bids will be completed.
- ✓ Identification and selection of four Iraqi feed mills will be completed.
- ✓ Memorandums of Understanding will be signed.
- ✓ Grants will be executed and awarded.
- ✓ Feed Mill improvements will be completed.
- ✓ Mill improvements to be completed.

4. FEED ANALYTICAL LABORATORIES

Presently in Iraq there is no Feed Analysis Laboratory operating on modern methods. Processed feed, raw materials utilized in feed, and forage feed must be sent out of country to determine their components and energy level. It takes two to four weeks to get an analysis when the sample is sent out of country. Feed has usually been utilized before an analysis can be obtained. A Feed Analysis Laboratory utilizing modern and automated equipment can give accurate results within minutes of receiving the sample. The laboratory analysis will help purchasers know if their feed has the protein content for which they paid.

Adulteration of commodities is wide spread in Iraq. Buyers must be particularly careful at the time of purchase to ensure that advertised content, e.g. percent crude protein, is truly percent in the delivered feed. Extended delay in laboratory analysis prevents buyers from testing the feed being loaded on their truck at time of purchase. To establish the compliance of the transaction, conveniently available sampling is necessary.

Feed analysis is relatively simple activity if modern equipment is available, specifically a gas chromatograph spectrometer. These machines, valued at approximately \$90,000 each, allow for the immediate analysis of the feed so both buyer and seller can agree on delivered value.

Inma is in the process of awarding three separate grants, one for each location in the Northern, Central and Southern Iraq for the establishment, operation and management of the laboratories. All three laboratories will be open to both feed producers and the public for the analysis of feed samples. Once established the laboratories must remain operational and open to the public for a minimum of one year. *Inma* will procure and supply all necessary feed analysis equipment to the selected companies. *Inma* will cover the cost for training the laboratory technicians on the new equipment by the manufacturer; with five technicians to be trained for each of the three locations. The cost of the infrastructure for the laboratory and pay for the laboratory technicians are the responsibility of the grantee and may be paid for with the revenue produced by the laboratories.

Quarterly Progress

An RFA for a grant-in-kind to qualified companies to operate and manage upgraded Feed Analysis Laboratories was released on July 9 with a closing date of July 25, 2009. During this past quarter, the technical scope of work was prepared, and bidding documents developed.

Next Quarter Highlights

- ✓ Technical review of received bids will be completed.
- ✓ Memorandums of Understanding will be signed.
- ✓ Grants will be executed and awarded.
- ✓ Laboratories will be equipped and operational to support forage sites and feed mills.

C. HORTICULTURE VALUE CHAIN

During the 1980s Iraq was virtually self-sufficient in the production of fruits and vegetables, exporting across the Middle East. Today, Iraqi farmers cannot compete with imported produce from Iran, Syria, and Jordan, countries that have adopted more advanced cultivation methods and enjoy cheap electricity and significant subsidies in fertilizers and seeds. Iraq's slide from self-sufficiency is also exacerbated by population growth that outpaces food production.

During the previous regime, farmers relied on agricultural subsidies that discouraged production and productivity improvements. There was no incentive for the development of private sector sources for fertilizers, improved seeds, modern equipment nor new technologies. Farmers have been using seed that is genetically degraded and obsolete, resulting in less than half of the yield potential of modern seeds. Farm employment that traditionally accounts for about 25% of the Iraqi labor force is under threat. Farmers are abandoning lands due to low river flows and insufficient irrigation water and other support services. Farmers are struggling to compete with cheap imported horticultural produce that accounts for almost 60% of the consumption in Iraq.

The *Inma* horticulture value chain activities consists of the importation of seedlings and vines for improving cultivars, greenhouse and open field vegetable production and post-harvest handling, and grading of fruits and vegetables in field pack and in packing sheds. *Inma* has introduced packing sheds to Iraq with two units completed and three more planned. *Inma* is assisting farmers to appreciate the economic value of grading and selection of their fruits and the differential pricing that better quality brings. As part of that effort, *Inma* will be procuring two field pack units will help demonstrate retail ready marketing. And finally, technical assistance and training will be provided to *Inma* grantees in planting, crop production, greenhouse management, post-harvest packing and marketing.

1. ORCHARDS and VINEYARDS



Following the preliminary success of *Inma's* 2009 Orchard and Vineyard activity, which resulted with over 60,000 trees and table vines being planted in the three Geographic Focus Areas, *Inma* is working on expanding the program in 2010, with a plan to import 120,000 fruit tree saplings and rooted table grape cuttings. The program provides examples of modern commercial orchards with varieties that have better market quality. These varieties may extend the time when fruit is in the market because the varieties planted have different production periods (early versus late production). Production

from these new trees will yield twice as much as common Iraqi varieties and the fruit will sell at comparable prices of currently competing imports. *Inma* estimates that by May 2012, this program will create 1000 new jobs and \$14 million in annual gross revenue for farmers. *Inma* staff polled PRTs for interest and then selected appropriate varieties for procurement and delivery in winter 2009.

Quarterly Progress

Existing Orchard & Vineyard Support Services: During this past quarter, *Inma* engaged an expert to provide technical inspection of the plantings with the goal to have all trees inspected about once in four weeks. These inspections will continue until mid-October. Initial inspections of several pomegranate, grape, and stone fruit (apricots, nectarines, peaches) plantings show that the trees are in excellent condition with a survival rate above 90% which is comparable to modern industry standards. Required cultivation practices of weeding and watering are being done correctly.

2010 Orchard & Vineyard Program Initiated

Inma has finalized the order for 108,000 trees and vines for planting in January 2010. With this action the program commences. The next steps will be to identify the approximately 150 cooperating farmers to participate in the program. The farmers will be planting commercial sized orchards and vineyards and will be located in the three GFAs. The program is to demonstrate modern production technology with market proven varieties not readily available in Iraq. The trees/vines will be selected from proven varieties in the United States that are appropriate for Iraq. These are produced in several California nurseries that are a principal source for commercial orchard growers in the USA.

In addition the program will provide specialized training and technical assistance to the Iraqi growers selected to participate in the program. This assistance includes development and design of the planting sites, irrigation systems, fencing, trellising, and planting layout. The cooperating farmers will be expected to materially share in the cost of field operations.

On site hands-on training on how to handle the plants, how to plant them, first month care, first quarter care, etc will be given to all farmers and their field workers. *Inma* will assist the owner of each orchard/vineyard in writing a management plan for the first year of operation of the plantings. This plan will be used by *Inma* to monitor the required field management of the orchards.

A Scope of Work for a National Iraqi coordinator for the next planting in January 2010 has been completed. This person will begin work in mid-September 2009. The staff person will be based in Baghdad and will have responsibility in all GFA where orchard and vineyards will be planted.

An expatriate Orchard Specialist has been identified and recruited to head up the orchard/vineyard program. This *Inma* staff person will be responsible for the orchard implementation and management operations under *Inma*.

Next Quarter Highlights

- ✓ Technical inspections of January 2009 plantings will continue. These inspections will be done on the trees about once every month. The inspection schedule requires at least one inspection of a portion of the trees every week. The inspections monitor the health of the trees, the care of the trees including irrigation, weeding and pest control, and the timely application of treatments such as fertilization. Farmers are interviewed to get information on their observations, problems, and suggestions.

- ✓ The 2010 Orchard and Vineyard Genetic Improvement Program will commence. *Inma* will work with PRTs to identify recipients for the new trees and vines, who will also receive extensive technical assistance and advanced hands-on training.
- ✓ Installation of trellises and fencing will begin with the training of farmers of the 2009 plantings. Work in the field will commence on as many farms as possible. Trellising and fencing are demonstrations for farmers, and as such, all areas may not be planted depending on the funding available.
- ✓ Following with the trellises, vines will be trained for optimum growth. *Inma* will also provide technical assistance to farmers on vine training
- ✓ A National Iraqi Coordinator for January 2010 planting is to be recruited, hired, and working by October 2009.
- ✓ An Expatriate Orchard Specialist will arrive and a work plan formalized to include a comprehensive plan for the planting of the trees/vines in January 2010. This work plan will include: selection of sites; partners identified in accordance with criteria in the work plan; agreements with partners developed and exercised; initial training and sight preparations planning.
- ✓ A general orchard and vineyard management training program open to all farmers will commence next quarter for which *Inma* will also seek PRT nominations.

2. GREENHOUSE and OPEN FIELD PRODUCTION



Beginning in September 2009, *Inma* intends to provide on-going, hands-on technical assistance and training to selected greenhouse clusters so that commercial greenhouse farmers are able to produce through the Iraqi winter when market prices are highest. Greenhouse planting begins in October and continues into February. Crops are produced until June. The technical assistance and training includes the basics of greenhouse operation, disease prevention, planting, irrigation, and environmental control, application of fertilizer and pest control, and understanding of the variety requirement for optimal greenhouse production.

By the start of this program, *Inma* will have developed a field assistance program for selected commercial greenhouse operators that will include improved production systems, marketing operations, and operational and financial planning.

Inma also intends to provide on-going hands on technical assistance and training to selected open field vegetable production clusters. The technical assistance and training program will be provided to the cooperating farmers for use of good quality seeds, irrigation, fertilizer, insect and pest control and proper use of herbicides. The program will be initiated with the 2010 crop in September 2009 for seeding begins in low plastic tunnels in January and continues until April. Production areas will be focused in Wasit, Diwaniyah, Babil, Karbala, Anbar, Baghdad, Kirkuk and the Kurdish north. In addition to open field planting, *Inma* and other USG agencies are helping farmers to use plastic-covered tunnel greenhouses as inexpensive means for extending planting dates and increasing production. Plastic mulching will be used where applicable. This mulching not only allows earlier planting but conserves water as well.



Quarterly Progress

Training syllabi and selection criteria for participation in the program are currently being developed. In addition, field surveys are being conducted by the GFA field staff identifying clusters of commercial greenhouse producers and vegetable operations with sufficient capacity to produce significant quality product.

Next Quarter Highlights

- ✓ The 2010 Greenhouse Technical Assistance Program will commence. *Inma* will work with PRTs to identify commercial greenhouse farmers for participation in the program, who will also receive extensive technical assistance and advanced hands-on training.
- ✓ The 2010 Open Field Vegetable Technical Assistance Program will commence. *Inma* will work with PRTs to identify commercial vegetable farmers for participation in the program, who will also receive extensive technical assistance and advanced hands-on training.
- ✓ A general greenhouse production training program open to all farmers will commence next quarter for which *Inma* will seek PRT nominations.
- ✓ A general open field fruit/vegetable production training program open to all farmers will commence next quarter for which *Inma* will seek PRT nominations.
- ✓ For all of the above programs, *Inma* will work closely with PRTs in the identification and nomination of technical assistance recipients and general training participants.

3. POST-HARVEST MARKET TECHNOLOGY

Project studies indicate that up half of all vegetables and fruits are lost to crushing, bruising, rot, and filth after harvest. In the hot months of summer, losses in the market can reach 80%. Farm gate buyers discount their price to farmers based on the anticipated losses. Shipment of product where high and low quality product are mixed, are purchased at the low-quality price. To reclaim this lost income, *Inma* will assist farmers to appreciate grading and selection of their vegetables and fruits and the differential pricing that better quality brings.



Inma is supporting the establishment of five packing houses with a capacity of approximately 30 tons daily. Each house will serve consolidators and farmers as a central sales point for the produce they are marketing. Two facilities – [REDACTED] – were constructed during this past quarter and will be operational for the crops that come in fall 2009. Competitive selection of the other three packing house grantees will be completed early in the next quarter.

Quarterly Progress

Rabee Packing House



During much of this past quarter, major construction continued on this packing house. Visits to the construction site were made by *Inma* technical staff, as well as interested ePRT members. During the first week of June, all major construction was completed, and a high-profile grand opening ceremony was held on June 14.

The facility was built with a grant from USAID *Inma* to [REDACTED], whom *Inma* partnered with to construct the fresh fruit and vegetable packing house. The goal of the partnership is not only to stimulate the local economy by giving agribusiness owners like [REDACTED] and associated fruit and vegetable suppliers a boost, but also to help Iraqi food stay fresher longer in Iraq’s sweltering summer heat.

[REDACTED] Packing House

The current status of the construction of [REDACTED] Packing Shed is 80% complete according to the *Inma* Site Engineer’s report. Most of the civil, mechanical and electrical work has been completed. Equipment is on order. Generator and forklift are expected to arrive by the end of July. All the installation will be done by August 15, 09. The packing shed is expected to be ready for start up by the middle of August.



Mobile Field Pack Units

Two mobile field pack units will be procured and tested. *Inma* has already designed a unit for local construction, but would prefer to procure an off-the-shelf model that could be imported. An RFP for such a mobile packing unit will be advertised in August, for delivery by November. Demonstration and training with the mobile units will begin by the middle of November. These mobile units will allow cooling, sorting, grading and boxing at the field. They will be deployed where there is at least a four day volume of fruit or vegetables to be harvested. It is anticipated that at least 20 field packing demonstrations (ten each) will be implemented using these two mobile units. These training demonstrations will be conducted in conjunction with private sector dealers who will coordinate the marketing of the field packed vegetables and fruit.

Next Quarter Highlights

- ✓ Three more packing houses are planned. *Inma* staff has begun reviewing offers for the remaining three packinghouses envisioned in the project plan. Final selection is currently scheduled for mid-July to be completed in December 2009.

4. RETAIL READY MARKETING

Inma is supporting this value chain with plans to link supermarkets to *Inma* trainees as a source of seasonal vegetables, melons, mushrooms, strawberries, etc. The trainees will be encouraged to select products that will be in demand by the stores and to choose planting patterns that maximize their earnings from sales to the supermarkets. It is likely that the first Iraqi products to be displayed will be winter crops such as cabbage, cauliflower, and broccoli. *Inma* will adapt its post-harvest training to the grading and packing requirements of the markets.

Quarterly Progress

Field Pack Marketing Study Launched

Inma is assisting farmers to appreciate the economic value of grading and selection of their fruits and the differential pricing that better quality brings. During this quarter, a field pack marketing study was developed, planned and implemented, whereby apricots, plums and apples are currently being harvested, cleaned, sorted and packed in 2 Kg boxes. Packed boxes are reaching the market daily. Tracking is done by *Inma* for the harvesting and packing of fruits. The value addition due to this operation is getting monitored by *Inma* staff at the retail level in markets near Baghdad.



From June 23 to July 1, 2009 field packing of fruits were done. It included harvesting, cleaning, sorting, grading and packing of 7,551 boxes of fruits (apricots, plums and apples). These packed fruits in 2Kg boxes were taken from field to the retailers in markets near Baghdad. Selling prices were noted of packaged fruits and unpacked fruits. Slight gain in the price of packed fruits per Kg was noted but not enough to offset the cost of additional labor and packaging.

The qualities of fruits were graded as Good and Normal. Good refers to Class I which has uniform color, ripeness/firmness and larger size. Normal has mixed color and blemishes, uneven firmness and mixed smaller sizes. It appears that quality was a factor in getting slightly higher prices but not high enough for market perception. The significance of this study is that it demonstrates consumers are willing to pay higher prices for better packaged fruits. If improvements can be made in the original source and quality of fruit, selling prices can be increased enough to yield profit margins for farmers.

Next Quarter Highlights

- ✓ Field Packing trials will take place for fruits and vegetables in fall season of 2009.

5. IRRIGATION

Inma considers that any improvements in water management, more specifically, more precise measurement and regulation, infrastructure rehabilitation and increasingly skilled operators will be of great benefit, especially for those at the end of the irrigation canal.

Inma has identified the Canal 42 Irrigation Command Area (ICA) for assistance. Within that ICA, in partnership with USAID's Tatweer Project, a detailed geo-referenced assessment of the conditions of the irrigation and drainage infrastructure was carried out, to determine the needs for repair and rehabilitation of the infrastructure by the MoWR. In parallel, a smaller area was identified to organize the farmers for water management, and use recommended techniques to optimize the on-farm irrigation conditions. For the selection of this area, certain aspects were considered like the willingness of the farmers to participate, and the type of problems present in the area in terms of water availability, soil conditions, crops, etc. The benefits from irrigation will be maximized through timely delivery and management of water based on the crop water requirements. In the Canal 42 area, CERP-funded improvements now allow water into the "wholesale" (or large delivery) canals.



Quarterly Progress

Inma has selected the Canal 42 Command Area (ICA) for Irrigation System Improvement aimed at enhancing the on-farm water management conditions. *Inma* considers that for an economic agriculture production one of the most important considerations is the appropriate delivery of water on agriculture fields.

Within the ICA, a smaller area was identified (Polygon K-2) to assist farmers in forming an area management system with responsibilities for water delivery management, on-farm water management, and maintenance of the relative distribution canals and drains directly associated with their fields. For the selection of this area, certain aspects like the willingness of the farmers to participate, and the type of problems present in the area in terms of water availability, soil conditions, crops, etc, were considered.

With farmers' cooperation, a detailed inventory of the irrigation and drainage infrastructure has been carried out within the Polygon K-2. Once the critical points are identified in cooperation with farmers, *Inma* will start the rehabilitation and repair of the small scale irrigation and drainage infrastructure, including tertiary canals, water distribution structures, water control structures, secondary drains, etc.

Technical assistance for design for improved irrigation systems, for field leveling as well as for irrigation scheduling will be provided. The impact of this activity will be the water-use optimization, and the improvement of crop establishment.

During this reporting period, results from the cropland area field surveys in the Canal 42 irrigation district of Taji/North Baghdad were received and analyzed. In this preliminary

sample, a large percentage of the agricultural land in this irrigation district was found left fallow, mainly for lack of access to water. A training workshop discussed the results with representatives from the Ministries of Agriculture, Water Resources, the Tatweer project, and the *Inma* Golden Crescent staff.

Water Management Conference

Inma staff attended the Water Management Conference organized by the Ministry of Water Resources and held in Sulaymaniyah on April 19 to 21. The agenda addressed pressing issues faced by Iraq regarding diminishing access to water from the Tigris and Euphrates rivers as a result of dam construction in Turkey and Syria, water storage capacity in the major dams and the effect from two consecutive years of drought, depletion of underground aquifers, effects of climate change, and restoration of the marshlands in the south.

Irrigation Conference

The *Inma* technical team organized a second irrigation conference on May 17, 2009. The event, entitled "Greater Income with Less Water" focused on the economic analysis of various irrigation systems (drip, pivot, sprinklers vs. furrow, and flood). The goal of the conference was to examine alternative irrigation models and present the audience with their technical and financial evaluation. In preparation for this event, *Inma* economist gathered data on costs inside Iraq, along with irrigation techniques in Israel and Jordan - and provided a comparison on alternative investment from a farmer perspective to determine the relative efficiency of current surface irrigation practices. *Inma* staff, ministry representatives and private technicians also discussed the profitability of various irrigation systems, such as drip and sprinklers, as compared to the current practices of furrows and flooding.

Next Quarter Highlights

- ✓ Technical assistance to farmers will be provided on surface gravity irrigation systems. Evaluating gravity irrigation systems, performance, and management recommendations for surface gravity irrigation systems will be the main issues for Technical Assistance. For this, three field days have been programmed.
- ✓ Farmers' meetings/workshops in the field for farmers' organization will be carried out.
- ✓ Technical assistance to farmers involved in the Forage Demonstration Areas in Wasit, Karbala, Anbar and Kirkuk, will be provided.
- ✓ A general irrigation system design training program open to all farmers will commence next quarter for which *Inma* will seek PRT nominations.
- ✓ A general design and management of gravity surface systems training program open to all farmers will commence next quarter for which *Inma* will seek PRT nominations.
- ✓ A general design and management of pressurized irrigation systems training program open to all farmers will commence next quarter for which *Inma* will seek PRT nominations.

D. BUSINESS DEVELOPMENT SERVICES

1. FIRM-LEVEL DEVELOPMENT

Inma supports firm-level development through Industry Roundtable meetings. Some Roundtables bring together all actors within a specific value chain. These include suppliers, producers, processors and companies involved in the marketing side. This type of Roundtable provides an opportunity for companies to discuss the issues, trends and opportunities in their sector and to seek advice from one another. Other Roundtables have the purpose of addressing a specific issue within a value chain, for example irrigation or forage. Roundtables provide a mechanism for firms to draw on the business experience and leadership of their colleagues. Roundtables provide a platform to share expertise and knowledge and to identify new business opportunities through increased peer interaction.



In addition to fostering business linkages among Iraqi agribusinesses, Roundtables help formulate and prioritize issues of the sector. These meetings might also grow into more formal local industry associations. This collaboration can be the basis for improved public-private dialogue as the industry begins to not only identify the issues that are critical to the industry but also begins to collectively speak as one voice as to the priorities and policies that are necessary to foster a sound agricultural sector.

Inma staff in attendance may help to facilitate or moderate the discussion, but value comes from the discussion and interaction of the participants. After a foundation is laid with the initial Roundtable meetings, participants will take ownership of the roundtables and continue them without *Inma* assistance. For example, participants are advocating for additional Aquaculture Roundtables in other parts of Iraq.

Quarterly Progress

Aquaculture Industry Roundtable

An Aquaculture Industry Roundtable took place on May 27 at the [redacted] in Hilla. Approximately 30 representatives from Iraq's fish value chain attended, including 17 fish breeders, seven academics, two marketing representatives, two feed factories owners, one veterinary, and one MoA representative.



During the roundtable, [redacted] with the [redacted] gave a presentation on Fish Breeding. In addition, each participant introduced himself and talked about the difficulties in the aquaculture sector. One participant shared his successful experience in the use of alum in purifying water instead of one chemical combination (methanic acid). It is even safer and more effective than the acid which may cause damage as a little overdose could be poisonous. The ratios of alum are 1-2gram/liter. Everybody praised the willingness of the participant to share and appreciated the information.

Horticulture Industry Roundtable

A second Roundtable facilitated by *Inma* was a Vegetable Industry Roundtable held June 3 at the [REDACTED] in South Baghdad. The event provided agribusinesses with a forum in which to discuss issues, trends and opportunities in the horticulture sector. Participants included 27 attendees from vegetable-related businesses, including producers, retailers and suppliers. One representative shared his successful experience growing yellow corn. Each Donum produced 3 tons of high quality corn. He explained that following the fertilizers' ratio and timing is important for better quality and quantity.

Another farmer reflected on his experience in establishing plastic houses. However, he used an older technique, and while production quantity was sufficient, he wondered what benefits would have been realized if more modern techniques were used in these farms. It was then discussed that traditional irrigation in plastic houses has two disadvantages: decreased water efficiency and the possibility of increasing fungi and other plant diseases

National Agricultural Finance Conference

The National Agricultural Finance Conference, organized by *Inma*, took place successfully in Baghdad on June 21, with high attendance from both Iraqi participants and media. This event, the first of its kind for Iraq, brought together the agricultural and financial sectors to enable dialogue on financing for agribusinesses of all sizes. The conference represented Iraq's first steps towards finding a solution to the country's current lack of financing available to farmers and agribusiness owners.



Participants concluded that sufficient funds were available, but bureaucratic procedures and collateral guarantees were the main issues. Potential solutions were proposed by [REDACTED]

Approximately 125 agricultural and financial private sector representatives participated in the event, including a small number from both public sectors. Media from four TV stations, four newspapers and one radio station covered the proceedings. In addition, more than 25 observers from organizations such as USAID, *Inma* and *Tijara* attended.

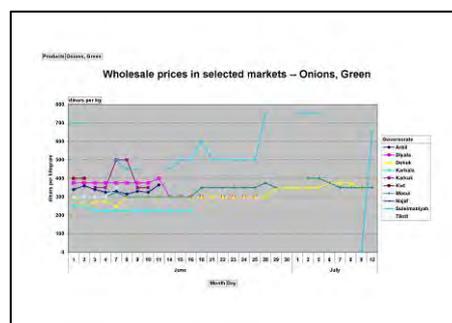
Next Quarter Highlights

In collaboration with PRTs, *Inma* will expand the number, nature and location in which **Industry Roundtables** will be held. The industries expected to be covered include: Red Meat; Aquaculture, Horticulture, Forage/Feedlot, and Irrigation. Tentative locations include Baghdad, Wasit, Erbil, Sulaymaniyah, Ninawa, and Diwaniyah. These are meant to be a continuous activity in order to develop the level of dialogue and interaction that is necessary in building trust that is a cornerstone to any business relationship.

Inma will begin its program in **Management and Operational Capacity Building**. This will entail workshops in Financial Management, Operational Management and Business Planning and Analysis. These will be participatory in nature and lead to the development and implementation of financial systems, operation plans and business plans. On-site technical assistance will also be provided to select participants to assist in the adoption of the systems and plans developed during the workshops. The target of the first round of training will be the newly established feedlots in the North beginning with a workshop in Financial Management. This workshop helps the participants understand the features and benefits of a functional accounting system; assists the participants in establishing a functioning accounting system that meets their specific needs and requirements; and assists participants in developing the appropriate accounting procedures, policies and reporting systems that will be required to respond to Grant requirements. The workshop series will be continued next quarter with workshops in Operational Management and Business Planning and Analysis.

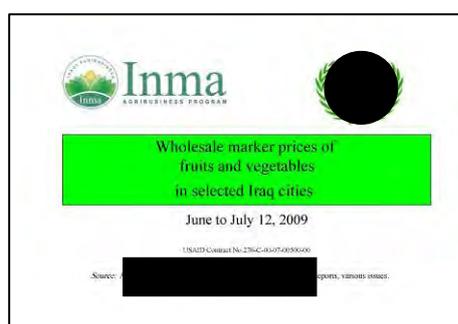
2. MARKET INFORMATION

██████, a private Iraqi market intelligence company and recipient of an *Inma* grant, collects daily and weekly market prices of fruits and vegetables, animal products and farm inputs at wholesale markets in all provinces in Iraq and Dubai. Daily and weekly price reports are disseminated on same-day basis to subscribers via email, website, mobile phone text messages, radio broadcasts and newspaper articles.



Inma will assist ██████ to publish weekly market analysis reports for Baghdad and other major regional centers, as well as quarterly summaries of seasonal price trends for major products to identify peaks and valleys of annual marketing cycles. Another benefit of market information program is the promotion of standardized grades for farm products in Iraq.

Quarterly Progress



██████ recently released its report of *“Monthly average price charts for vegetables and fruits in Iraq from Oct. 2006 to June 2009”* available in electronic format. For each product the report provides a table of monthly average wholesale prices in 19 markets in provincial capitals. An additional matrix table indicates how closely prices in a given market correlate with price movements in other markets. Line charts depict the evolution of prices since October 2006 in all 19 markets, and how prices of imported products compare

with prices of local produce. The frequency of entries by country of origin is used to show the relative importance of different sources of fruits and vegetables at each month of the year.

Next Quarter Highlights

█ plans to begin monitoring a new series of market prices of agricultural inputs used in animal production in order to complement *Inma's* efforts to develop a cattle and sheep feedlot industry. Market prices for alfalfa (green and hay), wheat bran, and soybean meal will be included in the weekly price reports. █ also plans to undertake two initiatives to enhance their market price dissemination program, namely electronic displays of price charts and tables at sites easily accessible to the public, and testing the use of twitter media to transmit text messages of customized price reports to traders, farmers, and buyers.

Over the coming months █ plans to expand its outreach audience, actively seeking to generate private commercial sources of revenue from their outputs and services, as well as establishing a roster of agribusiness enterprises in Iraq, categorized by type of products and locations.

3. MICROFINANCE

Inma promotes microfinance institutions (MFIs) as a source of investment capital for agribusiness growth. Through two MFIs █ 5 million dollars of USAID/*Inma* funds will reach farmers and small agri-businesses in the Governorates of Ninawa, Dahuk, Erbil, Kirkuk, Sulaymaniyah, Diyala, Babil, Karbala, and Wasit.

Quarterly Progress As of June 30, the following data is available:

█	
Grant Period:	February 11, 2009 – March 31, 2010
Grant Total:	\$4,000,000
Grant Disbursed:	\$1,348,012
Total No. of Loans Disbursed	220
Total value of Loans Disbursed	\$708,400 (avg. \$3220 each)

The purpose of the loans varied to cover digging wells, sheep and calve fattening and purchase of feed, fruit, vegetables grains and crops (including wheat, barley, cotton etc) farm rehabilitation, as well as for the purchase of fertilizers, agricultural supplies, and bees.

█	
Grant Period:	February 15, 2009 – January 31, 2010
Grant Total:	\$1,000,000
Grant Disbursed:	\$215,000
Total No. of Loans Disbursed	66
Total Value of Loans Disbursed	\$166,820 (avg. \$2528 each)

The purpose of the loans varied to cover purchasing of agricultural supplies and water pumps for palm trees farms and orchards, calves and feed, sheep fattening, fish feed and water pumps, diesel generators for a poultry farm and vegetables and fruit retailers.

See table below for breakdown of MFI loans by Iraqi province.

MFI LOAN DISBURSEMENT DATA by PROVINCE

MFI	Province	Number of Loans	Loan Values
	Karbala	14	\$36,671
	Babil	49	\$122,757
	Wasit	3	\$7,392
	<i>sub-total</i>	66	\$166,820
	Ninawa	76	\$295,400
	Dahuk	15	\$67,900
	Erbil	9	\$28,100
	Sulaymaniyah	2	\$5,100
	Diyala	109	\$284,600
	Kirkuk	9	\$27,300
	<i>sub-total</i>	220	\$708,400
	TOTALS	286	\$875,220

Next Quarter Highlights

- ✓ Continued disbursements will be made to the grantees. The rate of MFI lending is expected to increase as the program expands and new clients are identified.
- ✓ *Inma* plans to follow-up with several borrowers to assess the impact the loan has made on their small agribusinesses.
- ✓ *Inma* is planning a multi-day workshop for other MFIs in Iraq on introducing micro-finance lending practices for agriculture. The objective of the workshop will be to provide instruction and guidance to MFIs on the techniques used and processes followed for lending funds to small agribusinesses. It is expected that these MFIs will develop new and appropriate credit products for farmers and small agribusinesses.
- ✓ *Inma* also plans on making a new grant available to fund micro-finance loans to agriculture.