



**ACIAR CIM/2004/024**

**Better crop germplasm and management for improved production of wheat, barley and pulse and forage legumes in Iraq**

**Iraq-ICARDA-Australia**

**1 May 2005 – 30 June 2008**

**Annual reporting and planning meeting  
2-6 September 2007**

- Achievements for 2006/07**
- Agenda/objectives of reporting/planning meeting**

# Objectives



**Aim: To improve dryland cropping in northern Iraq through the testing, promotion and dissemination of improved crop cultivars and crop management practices.**

## **Objectives:**

- **Demonstration and promotion of “best bet” varieties and crop management technologies:**
  - To **identify, promote and widely disseminate** amongst farmers in the rainfed cropping regions of northern Iraq “best-bet” **improved varieties and crop management systems** for wheat, barley and pulse and forage legumes.
- **Germplasm adaptation research:**
  - To introduce, **evaluate and select improved germplasm** of wheat, barley and pulse and forage legumes for adaptation to rainfed farming systems in northern Iraq.
- **Crop management research:**
  - To identify, **evaluate and select improved cropping system management** options suited to rainfed farming systems in northern Iraq.
- **Capacity strengthening**
  - To enhance the **capacity** of Iraqi research and extension program to identify and evaluate potentially valuable germplasm and better crop/soil management technologies and promote their adoption by farmers

# Location

## Governorate of Nineveh

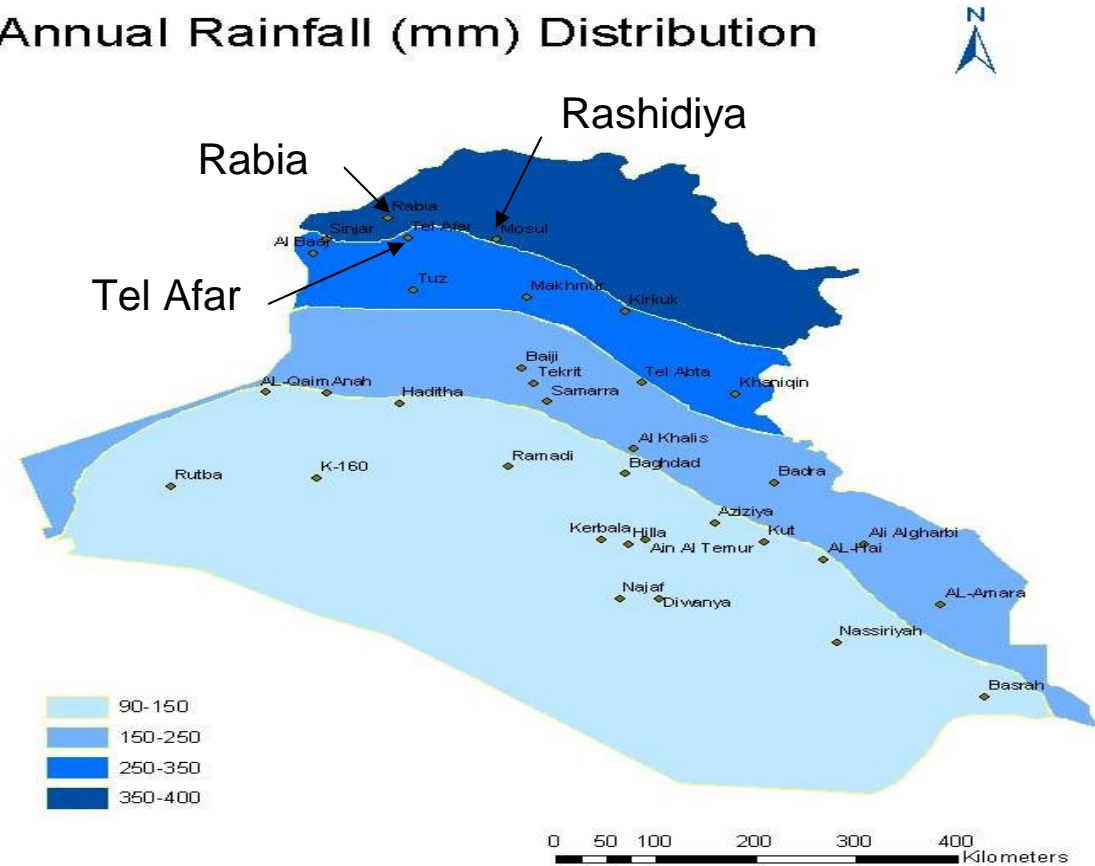
### Three main agro-climatic zones

- high rainfall areas (HRA) >450mm
- moderate rainfall areas (MRA) 350-450mm
  - Rabia Research Station, Rashidiya Research Station
- low-rainfall areas (LRA) <200-350mm) ± supplementary irrigation
  - Tel Afar Research Station

# Location – Ninevah Governorate



Annual Rainfall (mm) Distribution



Courtesy of the Iraq National program for the Preparation of Agro-Ecological Zones Maps



# Highlight achievements 2006/07

# Project reporting/planning meeting

ICARDA 1-5 October 2006



**Attended by 36 scientists from Baghdad (4), Mosul (13), ICARDA (15) and Australia (3)**

# Highlight achievements 2006/07



## Annual reporting and planning meeting

- **results from 2005/06 demonstrations and research trials were:**
  - presented and discussed
  - circulated in the “First Technical Report April 2005 - October 2006. ICARDA/DOA-MOA Iraq/University of Adelaide/University of WA-CLIMA, Agriculture WA. 100pp”
- **workplans for 2006/07 were:**
  - discussed and presented:
    - 35 variety X agronomy demonstrations (24 cereals, 9 food legumes, 2 forages)
    - 37 research yield trials (24 cereals, 7 food legumes, 3 forages, 3 agronomy)
  - circulated in the “Report of the Project Planning Meeting, 1-5 Oct 2006, ICARDA, Aleppo, Syria, 28pp”
- **2 tonnes of ICARDA seed to support the R & D program was sent to Mosul arriving 16 Dec 06. Other necessary seed was saved from the 2005/06 harvest in Ninevah**





# Highlight achievements 2006/07

## Demonstration program

- the agreed program was well implemented across 12 locations with crops compared under farmer, improved tillage, and zero-tillage establishment
- farmer field days/inspections were held at all sites
- there was strong interest in zero-tillage

# Baashika MRA planting



# Hamdanyah MRA planting



16 January 2007

# Telkaief MRA planting



January 2007

# Shikan HRA planting



23 January 2007

# Highlight achievements 2006/07



## Research program - Ninevah

- **only part of planned program of 37 research trials (24 cereals, 7 food legumes, 3 forages, 3 agronomy) could be implemented**
- **the 14 trials undertaken included yield/nursery trials for bread wheat (2), durum wheat (2), barley (3), chickpea (2), lentil (1), faba bean (2), vetch (1) and an agronomy management/rotation trial**
- **seed increase undertaken for bread wheat, durum wheat, barley and lentil**

# Highlight achievements 2006/07



## Research program - ICARDA

- **four trials conducted comparing zero-tillage and conventional cultivation** with wheat, barley, oats, chickpea and lentil. Yields were similar or higher with zero-tillage. The trials were inspected and discussed with several visiting Iraqi scientist and farmer groups
- **on-farm demonstration with zero-tillage and stubble mulching undertaken** in Barkoum Village near ICARDA. The Indian zero-till seeder worked well, even on stony soils. A large field day was held and local cooperating farmers were very interested in ZT
- **testing of varieties/lines of oats, peas, canola and other oilseeds** from Australia with potential for adaptation and use in Iraq continued. Unfortunately, establishment was poor and trials could not be harvested
- **seed multiplication of promising varieties/lines of oats from Australian collaborators was successful.** Mitika and Possum gave the highest yields, producing nearly 1 t/ha



# Highlight achievements 2006/07

## Capacity building program

### Training

- The agreed training program for 23 scientists was exceeded with 34 participants in the following courses:
  1. Automated library and information operations 12-23 Nov 2006 (1 trainee)
  2. Utilization of Expert Systems in Agric Res and Prodn 5-16 Nov 2006 (4 trainees)
  3. Seed Health Testing 19-29 Mar 2007 (6 trainees)
  4. Weed Management 19-29 Mar 2007 (3 trainees)
  5. Variety Management and Seed Quality Assurance: 6-17 May 2007 (3 trainees)
  6. Integrated Crop and Livestock Production 8-26 April 2007 (10 trainees)
  7. Water Management for Improved Water Use Efficiency 7 May-7 June 2007 (4 trainees)

### Conferences

- Dr Suaad R Abdullah, entomologist, Mosul University, supported to attend the 9th Arab Congress of Plant Protection in Damascus, Syria, 19-23 November 2006 (fostering IPM collaboration)

### Farmer visits

- 8 farmers and 5 DOA staff from Ninevah visited ICARDA and inspected research on crop improvement and soil and crop management including zero-tillage

# Highlight achievements 2006/07

## Capital purchases

- **seed cleaning plants**
  - considerable interaction on the purchase of 10 MOA-requested plants including several inspections by DOA/MOA at the manufacturer's factory in Syria. A prototype for testing delivered to Mosul in Aug 2007. Should be available for cleaning of the 2007 harvest
- **sub-soilers (deep tillage machines)**
  - 2 from Turkey delivered to Ninevah on 29 March 2007



# Major problems 2006/07



- **implementation difficult given the political and security situation in Iraq.**
  - research activities concentrated at Rashidiya Research Station because of land disputes and security concerns at other stations. Violence in Mosul and project locations made office and field activity difficult and dangerous
- **Ninevah Implementation Committee unable to meet in Mosul/Ninevah**
  - dangerous to travel/assemble regularly, so coordination and oversight have been through regular visits and interactions at R & D sites
- **in-country field visits by ICARDA and Australian collaborators not possible**
  - no joint inspections/discussions of trials/demonstrations in the field
- **short-term Australian training for three MOA/DOA cropping research/extension scientists in April 07 could not proceed**
  - difficulties identifying appropriate staff. New nominees for April 08 will be discussed at this meeting
- **not possible to transfer 2007 project funds to MOA Iraq**
  - documentation/approval difficulties with Capital Bank, Amman. MOA (Dr Salah Bader) and ICARDA addressing
  - nevertheless, the project is running well with MOA money until the transfer can be made.

# Publications/reports 2006/07



- **Annual Project Report to ACIAR 2005-06.** CIM/2004/024 Better crop germplasm and management for improved production of wheat, barley and pulse and forage legumes in Iraq, 1 May 2005-30 June 2006 . ICARDA
- Kasim Khalil Kasim (2006). **Review** of background information on crop rotation under the rainfall conditions in North of Iraq, MOA/DOA Ninevah, Iraq. June 2006. 5pp.
- **Report of the Project Planning Meeting**, 1-5 Oct 2006, ICARDA, Aleppo, Syria, 28pp.
- Kamel Shideed, Salem Younis Sultan, Sa'ad H. Mohamed, Watheq Abdul Kahar Al-Rawi, and Emad Yousif Ismael Abdullah (2006). **Summary Report of the Baseline Socio-economic Survey** Conducted in Ninevah Governorate, July-August 2005. ICARDA/MOA-DOA Iraq. 7pp.
- **First Technical Report April 2005 - October 2006** (including Appendix 3 Details of crop management for all crops in alphabetical order of sites). ICARDA/DOA-MOA Iraq/University of Adelaide/University of WA-CLIMA, Agriculture WA. 100pp.
- Pala, M., A. Haddad, and C. Piggin. 2007. **Challenges and Opportunities for Conservation Cropping**: ICARDA experience in dry areas. Presentation in International Workshop on 'Conservation Agriculture for Sustainable Land Management to Improve the Livelihood of People in Dry Areas' by ACSAD, GTZ and FAO, 7-9 May, 2007, Damascus, Syria. 16pp.

## Overview 2006/07

**The technical activities of demonstrations, research and training have proceeded well due to:**

- **the enthusiasm, industry, flexibility and dedication of Iraqi collaborators**
- **the strong interest and support of ICARDA and Australian collaborators**
- **the proximity of ICARDA**



# Purpose and agenda for meeting

- **For research and demonstrations on legumes, cereals, agronomy and the baseline survey:**
  - **review/evaluate/report 2006/07 activities and results**
  - **develop 2007/08 workplans**
- **Review 2006/07 progress and 2007/08 plans for:**
  - **training**
  - **capital items**
  - **finance**
  - **seed requirements**
- **Consider review and extension of project**
- **Facilitate exchange of information and experiences through seminars by Australian collaborators on relevant crop-livestock systems in Iraq/Australia**

# Required outputs

- presentations on 2006/07 technical results according to the agreed workplan
- presentations on agreed 2007/08 workplan compatible with:
  - objectives, outputs (Table 3.2), activities (3.3a Flow chart) and budget
- draft reports
  - 2006/07 technical report
  - 2007/08 workplan
- initial considerations for review and Phase 2



# Meeting agenda

- **Sun – review 2006/07 results/presentations**
  - legumes
  - cereals
  - socio-economics
  - agronomy
- **Mon/Tues am – present 2006/07 results**
- **Tues pm/Wed – discuss/prepare 2007/08 workplans**
- **Thu**
  - am present 2007/08 workplans
  - pm discuss/review:
    - training
    - capital items
    - finance
    - seed
    - 2008 review
    - project extension/Phase 2
    - other issues

# Activities (baseline information, demonstrations)

**Objective1 To identify, promote and widely disseminate amongst farmers in the rainfed cropping regions of northern Iraq “best-bet” improved varieties and crop management systems for wheat, barley and pulse and forage legumes**

1. Compile and review current available information on farmers’ practices and production and economic / marketing constraints
2. Baseline survey and analysis of production constraints/limitations in individual agro-climatic zones (survey team to be identified from Iraq)
3. Compile, review and analyse existing information on potential available technology options, i.e., options already tested in Iraq, including registered Iraqi varieties of target crops and crop management options
4. Round table discussion between project partners and representative farmers from the three agro-climatic zones to review options and decide best-bet technologies to be promoted in each zone
5. First Annual Project Planning meeting of all project partners (immediately following round table discussion)
6. Based on work plan, select sites and participating host farmers and farmer groups for on-farm demonstrations. 3-5 demonstrations in each agro-climatic zones (10-15 demonstrations total)
7. **Implement on-farm demonstrations**
8. **Monitor demonstrations and jointly evaluate options with farmer groups to identify preferences and/or potential constraints to adoption.**
9. **Field days for farmers and development of extension material to disseminate information on new options**
10. **Annual project review and planning meetings to review results of previous year and agree work plan for coming year**
11. **Assess potential adoption and impact of technologies based on information from baseline surveys and results from demonstrations**

# Activities (germplasm adaptation research)

Objective 2. To introduce, evaluate and select improved germplasm of wheat, barley and pulse and forage legumes for adaptation to rainfed farming systems in northern Iraq

1. Identify potential lines from Iraq, ICARDA's international nurseries, Australia, and other sources.
2. First Annual Project Planning meeting of all project partners.
3. Introduce and evaluate improved lines in the three research stations (one in each agro-climatic zone). Jointly evaluate lines with farmer groups.
4. Annual project review and planning meeting to review results of 1st years evaluation and agree work plan for 2nd cropping season
5. Selected entries from Yr 1 will be evaluated in the research stations (3 trials) and in replicated trials on farmers' fields in 3 sites in each agroclimatic zone (3x3 = 9 trials). Jointly evaluate cultivars with farmer groups.
6. Annual project review and planning meeting to review results of 2nd year's evaluation and agree work plan for 3rd cropping season
7. Selected entries from Yr 2 will be evaluated in the research stations (3 trials) and in replicated trials on farmers' fields in 3 sites in each agroclimatic zone (3x3 = 9 trials). Jointly evaluate cultivars with farmer groups.
8. Identify promising lines for registration and release.
9. Develop capacity at Rabia station to produce seed for research and demonstrations

# Activities (crop management research)

Objective 3. To identify, evaluate and select improved cropping system management options suited to rainfed farming systems in northern Iraq

1. Based on collective knowledge, identify and prioritize those constraints/limitations in crop production systems which need further research to identify improved crop and soil management practices (potential research areas already identified with Iraqi partners are: tillage and sowing systems, pest and weed management, and new crop rotation options).
2. First Annual Project Planning meeting of all project partners
3. On-station research on crop management options to fill gaps in information. Joint evaluation of options with farmer groups.
4. Annual project review and planning meeting to review results of 1st year and agree work plan for 2nd year
5. Based on 1st year's results implement on-station and farmer-managed on-farm (3 sites in each agro-climatic zone) research trials of potential options Joint evaluation of options with farmer groups. Identify potential constraints to adoption.
6. Annual project review and planning meeting to review results of 2nd year and agree work plan for 3rd year
7. Based on 2nd year's results implement on-station and farmer-managed on-farm (3 sites in each agro-climatic zone) research trials of potential options Joint evaluation of options with farmer groups. Identify potential constraints to adoption.
8. Identify options for introduction into promotion and dissemination program under Objective 1.

[3.3a Flow chart pp. 22-25]

# Activities (capacity enhancement)

**Objective 4. To enhance the capacity of Iraqi research and extension program to identify and evaluate potentially valuable germplasm and better crop/soil management technologies and promote their adoption by farmers**

1. **Annual Project Meetings: Develop program of training including on-the-job coaching, short term courses, workshops, individual visits to ICARDA and/or Australian partners, and selective longer term activities. MOA to nominate suitable staff for training.**
2. **Short-term training courses** in germplasm evaluation, cropping systems management, seed production & seed quality control, integrated pest/disease/weed management, and extension methods (5 x 4 trainees = **20 Iraqi staff per year**)
3. **Individual training for MOA staff in economic analysis, adoption and impact assessment (2 persons).**
4. **Iraqi scientists (one per year) visit one Australian research institute (6-8 weeks)**
5. **Support participation of Iraqi personnel in regional or international workshops and conferences of relevance to the project.**