Research for Development in the agriculture sector for Sustainable Development

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Arab Countries are the largest grain importers (2010 million metric tons)

Global Trade: Net cereal trade (in million MT), by region, 2010

Source: Adapted from USDA 2011
Food Insecurity in Developing Regions of the World

Cereals imports of developing regions
1970-2030

Historical Development
- East Asia
- South Asia
- Near East/North Africa
- Latin America
- S.S.Africa

Projections

Source: FAO, 2002 World Agriculture: towards 2015/30,

Food Prices and Social Unrest

Link between food shortage and socio-political crisis: Red dashed vertical lines correspond to beginning dates of “food riots” and protests associated with overall death toll reported in parentheses. Source: www.necsi.edu (2011)
Bridging the Yield Gap in Arab Countries:
Science and Technology and Sustainable Agriculture Development

Science-based technological change is the key force for causing agriculture to undergo a transition from traditional to modernizing condition to enhance water and food security

Can we do That

The Challenge

- how to produce more with less
- how the innovative agricultural technologies can be quickly accessed and adopted by farmers

Agricultural Technology

- Breeding
- Fertilizer
- Pest
- Mechanization
- Irrigation
Enhancing Food Security in Arab Countries Program

Partners
Algeria, Egypt, Jordan, Iraq, Morocco, Sudan, Syria, Tunisia, Yemen and ICARDA

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OPEC Fund for International Development

Large scale dissemination of improved technological packages using different transfer approaches that countries can adopt to extend new practices to rural communities.

Transfer technologies approaches

Proximity (individual farmer)

Farmer Field Schools (Group of Farmers)

Innovation Platform (Leader farmer + satellite)
Innovation Platform framework

Enhancing Food Security in Arab Countries Project

Pilot sites

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<th>Country</th>
<th>Site 1</th>
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Dissemination Tools

- Field Demonstration
- Field visits & Traveling Workshops
- Meeting
- Field days

Direct Linkage

Indirect Linkage

Irrigation Warning System
Using Cell Phone Network (Tunisia)

- Promote farmer to farmer extension.
- Making leader farmers ‘Local Experts’
Egypt:
Advantage of raised bed planting
Average of 2011 and 2012
30% increase in grain yield
25% saving in irrigation water
72% increase in WUE

Spillover of the project model and additional funding provided by the countries

- **Egypt:**
  National Campaign for improvement of wheat followed the Food Security Project Approach for the dissemination of technologies: more than 1000 demonstration fields on improved wheat production technologies were planted during 2011-2012 in 22 Governorates in addition to the Governorate of Sharkia used a pilot project site in Egypt. This expansion effort was supported by national funds amounting to 3.7 million EGP (about 600,000USD).

- **Tunisia:**
  The Project approach will be replicated in other wheat producing provinces based on the efficient extension methodology developed by the project in the country.
Honoring the outstanding farmers in the cultivation of Wheat

http://drylandsystems.cgiar.org/
Improving Food Security and Livelihoods in Dry Areas: Investment in Two Major Agro-ecologies

A. **High Potential Dry Areas**

- Relative higher rainfall areas or areas where irrigation water is available: the approach to follow is sustainable intensification and diversification of production systems;

B. **Low Potential Dry Areas or Marginal Land**

- Low rainfall area where production system resilience and risk management is the approach to follow.

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**North Africa and West Asia**

**Sustainable Intensification:**
- Morocco
- Egypt

**Reducing Vulnerability:**
- Jordan
- Tunisia
**Research for Development = Partnerships and Institutional Linkages**

- National Agricultural Research Systems
- Regional and International research centers
- Advanced Research Institutes (ARIs)
- Donors
- Extension services
- Civil Society Organization, e.g. NGOs
- Private Sector
- Policy Makers

**Conclusion:**

*What can make to contribute to sustainable Development*

- Increase Investment in Research and agricultural development
- Develop Extension Participatory approach for Effective technology transfer;
- Enhance the Partnership between research / donors / stakeholders (public - private);
- Enabling policy environment and political support;
Approximate Estimates of Causal Relationships for Developing Countries

$1 invested in agricultural research

$6 increase in agricultural output

$15 increase in economic growth

Pinstrup-Andersen, Lundberg and Garrett (1995)

Thank you for your Kind Attention

ICARDA
Science for Better Livelihoods in Dry Areas