

# Harvesting the Seeds of Success of ICRISAT's Research



**ICRISAT**

*Science with a human face*



INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS

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## From the DG



This booklet contains the flagship scientific innovations and products developed by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and its partners to improve agriculture in the dry tropics.

The dry or semi-arid tropics is home to more than 800 million people, the majority of the world's poorest who are perennially plagued by poverty, hunger, food and nutritional insecurity, and powerlessness. People in the semi-arid tropics are most vulnerable to climate change.

ICRISAT is the only Center of its kind in the world with a specific mandate to serve this agro-ecological region, characterized by erratic rainfall, degraded soils and biodiversity, water scarcity, droughts, floods and very poor physical and social infrastructure.

ICRISAT, in close collaboration with its partners, has produced and shared a broad range of crop varieties, crop management technologies, innovative information and knowledge products and institutional and policy options.

These scientific innovations and products have significantly improved the livelihoods of the poorest of the poor. Moreover, ICRISAT's research pipeline has continued to strengthen to ensure its strategic position in meeting the emerging challenges of this uniquely fragile environment.

Aside from the foregoing, ICRISAT enhances its impacts and affirms its relevance through research on emerging global issues like climate change and vulnerability, drought and land degradation, biofuels, agricultural diversification and linking farmers with markets.

Overall, ICRISAT is well positioned in generating and sharing global public goods to help bring about pro-poor growth and sustainable development in the semi-arid tropics.

ICRISAT has been rated by the CGIAR as 'Outstanding' in 2006 and 2007 and 'Superior' from 2003 to 2005. These ratings attest to the impact of ICRISAT's excellent science, sound governance and management.

A handwritten signature in black ink, appearing to read 'W.D. Dar'.

**William D Dar**

Director General, ICRISAT

## Aflatoxin testing kit



ICRISAT's inexpensive aflatoxin-detection kit protects human health and helps select aflatoxin-free grain to meet international market standards.

Contact: Farid Waliyar  
Email: [f.waliyar@cgiar.org](mailto:f.waliyar@cgiar.org)

## Bioinformatics software



Information systems, data capture and analysis tools for managing, sharing and analyzing data generated from modern, high throughput genomic applications.

Contact: Jayashree Balaji  
Email: [b.jayashree@cgiar.org](mailto:b.jayashree@cgiar.org)



## Bio-reclamation of degraded lands



An integrated tree-crop system using planting basins to harvest rainwater and reduce soil erosion, and leguminous crops and trees to improve soil fertility and mitigate drought.

Contact: Dov Pasternak  
Email: [d.pasternak@cgiar.org](mailto:d.pasternak@cgiar.org)

# Community watersheds



Community-based approach for integrated rural development with watershed management as an entry point, successfully established in China, India, Myanmar, Rwanda, Thailand and Vietnam.

Contact: SP Wani  
Email: [s.wani@cgiar.org](mailto:s.wani@cgiar.org)





# Conservation agriculture



Maintains soil nutrients, stops soil erosion and prevents water loss, doubling cereal yields of more than 300,000 households in Zimbabwe.

Contact: Steve Twomlow  
Email: [s.twomlow@cgiar.org](mailto:s.twomlow@cgiar.org)

## Fertilizer microdosing



Small doses of fertilizer applied at the right place at the right time, combined with an inventory credit system (warrantage), increasing yields to 120% and incomes to 150% in several countries of sub-Saharan Africa.

Contact: Ramadjita Tabo  
Email: [r.tabo@cgiar.org](mailto:r.tabo@cgiar.org)



## Genetic resources



Conserving more than 118,000 accessions of ICRISAT's crops (with backup collections in the African hubs and Svalbard Global Seed Vault) serving as base of 610 improved cultivars released in 77 countries.

Contact: Hari Upadhyaya  
Email: [h.upadhyaya@cgiar.org](mailto:h.upadhyaya@cgiar.org)

## Guinea-race sorghum hybrids



Share the benefits of hybrid vigor with West African farmers while retaining the adaptive and good characteristics of local germplasm.

Contact: Eva Weltzien  
Email: [e.weltzien@icrisatml.org](mailto:e.weltzien@icrisatml.org)



## Hybrid Parents Research Consortia



Public-private-farmer partnerships facilitated by the Agri-Science Park @ ICRISAT converging scientific innovations, partnerships and products for the poor.

Contact: CLL Gowda  
Email: [c.gowda@cgiar.org](mailto:c.gowda@cgiar.org)

## Hybrid pigeonpea (Pushkal)



The world's first cytoplasmic male sterility based pigeonpea, resisting wilt and sterility-mosaic virus and yielding 40% more than conventional varieties.

Contact: KB Saxena  
Email: [k.saxena@cgiar.org](mailto:k.saxena@cgiar.org)



## Multi-purpose groundnuts



ICGV 91114 (Anantha Jyoti in Andhra Pradesh) and (Devi in Orissa) resists drought and diseases with better fodder quality, bringing hope to millions of poor Indian farmers, replacing varieties grown for more than 60 years.

Contact: SN Nigam  
Email: [s.nigam@cgiar.org](mailto:s.nigam@cgiar.org)

# New “Super early” chickpeas



Mature in 75 days, escape terminal drought and heat stress, have improved fusarium wilt resistance with large seeds and a vegetable if harvested for green seed.

Contact: Pooran Gaur  
Email: [p.gaur@cgiar.org](mailto:p.gaur@cgiar.org)



## Pearl millet hybrid (“HHB 67 Improved”)



Developed through marker-assisted selection, resists downy mildew and saves US\$8 million in crop losses annually, yielding 10% more than its popular predecessor “HHB 67”.

Contact: CT Hash  
Email: [c.hash@cgiar.org](mailto:c.hash@cgiar.org)

## Pigeonpea in Eastern and Southern Africa



ICEAP 00053 resists wilt, is high yielding, large-seeded and widely grown in Tanzania, Malawi, Kenya and Mozambique, increasing farmers' incomes up to 80%.

Contact: Said Silim  
Email: [s.silim@cgiar.org](mailto:s.silim@cgiar.org)



## Publications and E-modules



ICRISAT's wide array of publications on dryland agriculture are available at [www.icrisat.org](http://www.icrisat.org).

Contact: RL Navarro  
Email: [rex.navarro@cgiar.org](mailto:rex.navarro@cgiar.org)

ICRISAT's e-modules at [www.icrisat.org/vasat](http://www.icrisat.org/vasat) are equal to almost 2,000 pages and can be reused for free with attribution.

Contact: V Balaji  
Email: [v.balaji@cgiar.org](mailto:v.balaji@cgiar.org)

## Seed systems



Enhances access by poor farmers to seeds of ICRISAT's improved varieties and helps disaster relief and rehabilitation efforts in sub-Saharan Africa.

Contact: Richard Jones  
Email: [r.jones@cgiar.org](mailto:r.jones@cgiar.org)

## Sweet sorghum



A smart quadruple purpose (food, feed, fodder and fuel) crop, resists drought, requires less water than sugarcane and harvested thrice a year, giving more income to farmers.

Contact: Belum Reddy  
Email: [b.reddy@cgiar.org](mailto:b.reddy@cgiar.org)

## Village level studies



ICRISAT's valuable contribution to the global knowledge base on rural households, helps identify constraints and pathways to dryland agricultural development.

Contact: Cynthia Bantilan  
Email: [c.bantilan@cgiar.org](mailto:c.bantilan@cgiar.org)



# Research Committee



**David Hoisington**  
Chair



**MCS Bantilan**  
Member



**CLL Gowda**  
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**Stephen Twomlow**  
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**Vincent Vadez**  
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**Said Silim**  
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**Farid Waliyar**  
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**Richard Jones**  
Member



**Ramadjita Tabo**  
Member



**Rex Navarro**  
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**Barry Shapiro**  
Member



**V Balaji**  
Member



**SP Wani**  
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# About ICRISAT



ICRISAT  
Science with a human face

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's mission is to help empower 600 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT belongs to the Alliance of Centers of the Consultative Group on International Agricultural Research (CGIAR).

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