



Setting priorities: Dryland Systems teams in Central Asia, West Africa, North Africa, and East and Southern Africa shape the research agenda.

Dryland Systems research across target regions

With the completion of five Target Region Implementation and Partnership (TRIP) workshops the CGIAR Research Program on Dryland Agricultural Production Systems has moved into action in its 'rapid implementation' phase across its five target regions.

The CGIAR Research Program on Dryland Agricultural Production Systems has continued to move into implementation after hosting five Target Region Implementation and Partnership (TRIP) workshops. The meetings, held in Tunisia, Ghana, Uzbekistan, Nepal, and Malawi brought together local, national, and international partners to initiate the Program's research activities across five target regions: North Africa and West Asia, the West African Sahel and Dry Savannas, South Asia, Central Asia and the Caucasus, and Eastern and Southern Africa.

Attended by a diverse range of participants, including the representatives of NGOs, farmer associations, national agricultural research systems, and CGIAR Centers, the workshop provided an opportunity to revisit progress made in the Program's inception phase and devise detailed regional work plans to take the initiative's research agenda forward.

Planned activities will pursue two main outcomes: minimizing risk and reducing vulnerability in low-potential and marginal dry lands; and sustainably intensifying agricultural production systems in high-potential areas. Participants grouped activities under common themes to ensure consistency with Intermediate Development Outcomes (IDOs), a series of objectives that guide the implementation of all CGIAR Research Programs. [Continued on Page 2].

Women and Youth: Dryland Systems priorities

The CGIAR Research Program has elevated its gender and youth strategy, signalling a strong commitment to the interests and needs of these often marginalized groups

Acknowledging the systemic disadvantage, inequalities, and exclusion that women and youth face, the CGIAR Research Program on Dryland Systems recently took the decision to elevate gender and youth as a standalone Intermediate Development Objective (IDO) - a series of goals that guide the implementation of all CGIAR Research Programs. Previously, gender and youth were integrated into the Program as cross-cutting themes. The decision, taken at an implementation workshop in Malawi, demonstrates a commitment to these groups at the highest level of the Program's management and strategic oversight. [Continued on Back Page].



Dryland Systems research across target regions

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Highlights: regional workshops develop an ambitious research agenda for resilience and increased productivity in the world's dry areas.

North Africa and West Asia

Rising to the challenge of increasing degradation, limited water resources, and prolonged drought, researchers, planners and development practitioners came together in Hammamet, Tunisia, to plan the Program's implementation in North Africa and West



Researchers and practitioners came together in Tunisia to devise an ambitious agenda that will tailor technologies and practices to conditions across North Africa and West Asia

Asia. Organized by ICARDA's North Africa Program, the workshop set priorities and work plans for activities in several research sites across the region.

Efforts to reduce vulnerability in marginal areas will be undertaken in southern Jordan, the Sidi Bouzid transect (Tunisia), and the Karkheh River Basin (Iran); and actions targeting the sustainable intensification of production systems in high potential areas will be applied in Meknes-Saiss (Morocco), the Nile Delta (Egypt), and the Karkheh River Basin (Iran).

Working groups led by experienced agricultural scientists from NARS (Morocco, Tunisia, Egypt, Jordan and Iran), advanced research and development institutions, and ICARDA research programs devised an ambitious agenda that will tailor existing technologies and practices to specific conditions and environments, and ultimately assess opportunities to scale these interventions out across wider areas.

South Asia

A research agenda for South Asia was planned in the Nepalese capital, Kathmandu, where workshop participants tailored activities to conditions in three regions: Rajasthan and Andhra Pradesh in India, and Chakwal in Pakistan. In Rajasthan, initial activities will investigate livelihood assets, production systems and technology utilization, to identify gaps and potential opportunities. Research will also propose biophysical and management options for enhancing incomes and ecosystem services.

The implementation meeting for South Asia planned activities for action sites in three main regions: Rajasthan and Andhra Pradesh in India, and Chakwal in Pakistan.



In Andhra Pradesh, activities will include efforts targeting improved water and land management, analyses of biophysical bottlenecks, and the development of strategies that can effectively scale-up promising natural resource management options. Finally, in Pakistan, new technologies will be introduced to raise productivity, increase legume cultivation, and improve water harvesting. Mechanisms were also identified to help communities resolve conflicts that arise from competition over scarce resources.

West African Sahel and Dry Savannas

The implementation workshop for the West African Sahel and Dry Savannas, held in Kumasi, Ghana, planned activities to reduce vulnerability and initiate sustainable intensification in two regions: the Kano-Katsina-Maradi transect in Niger and Nigeria, and the Wa-Bobo-Sikasso transect stretching across Ghana, Burkina Faso and Mali.



Planned activities for the West African Sahel and Dry Savannas are wide-ranging and target efforts to reduce vulnerability and initiate sustainable intensification

Although partners acknowledged the many debilitating constraints currently undermining productivity - low rainfall, increasing drought, and severe gully, sheet, and wind erosion - they also recognized the region's opportunities: cropping systems are highly diversified, there has been significant government investment in irrigation, and farmers have demonstrated interest in investments geared towards intensive vegetable and fruit production. Planned activities are wide-ranging and include the monitoring of biomass and resource flows; facilitating effective knowledge exchange for improved system productivity and better market access; and developing and testing community-based strategies for natural resource management.

Central Asia and the Caucasus

Participants at the regional planning meeting for Central Asia and the Caucasus met in the Fergana Valley, Uzbekistan, to plan a series of interventions that are capable of addressing the target region's agricultural challenges - from severe soil degradation to the limited availability of new technologies and increasingly variable climate patterns.



Planned activities in Central Asia and the Caucasus include efforts to improve the delivery of quality seed to farmers

Planned activities include the establishment of a seed system platform that can more effectively supply farmers with high-quality seed and planting materials. Regional priority crops were also identified for production – including potatoes, barley, and chickpea. The activities will be implemented in the Shkristan, Isfara and Penjikent Districts of Tajikistan; the Kurgantipinsky District in Uzbekistan; and parts of Kirgizstan.

Eastern and Southern Africa

Taking forward the agenda for Eastern and Southern Africa, partners came together in Malawi to discuss the region's production constraints and explore opportunities for strengthening the resilience of rural communities and raising their productivity. Discussions touched on a broad range of issues, covering aspects of governance and communication, capacity development, and optimizing opportunities for sustainable pastoral and agro-pastoral livelihoods.

Discussions in Malawi touched on a broad range of issues, including governance, capacity development, and opportunities for sustainable pastoral and agro-pastoral livelihoods



Research will be carried out in Malawi, the Eastern Province of Zambia, and the Tête Province of Mozambique. Activities will prioritize mechanization, irrigation, high-value crops, and policies that address land-tenure.

Acknowledging the marginal status of women and youth across many parts of the world's dry areas, the Malawi meeting also set-aside two days to discuss the initiation and development of a gender and youth strategy that would enable the Dryland Systems Program to prioritize the needs of these two disadvantaged groups (See article, *Women and Youth: Dryland Systems priorities*).

Partner focus: Q&A with Dr. Hichem Ben Salem, Director General, INRAT



The Institute of Agronomic Research in Tunisia (INRAT) is a state-run scientific institution which plays a key role in the capacity building of dry area agricultural scientists. INRAT's Director General, Hichem Ben Salem, explains the institute's contribution to Dryland Systems activities in the North Africa and West Asia region.

What experiences and expertise does INRAT bring to the Dryland Systems research program?

INRAT scientists are active in national, regional, and international projects and networks. Our laboratories host many young scientists – mainly from developing countries – and we have expertise in a number of key issues related to dryland agriculture. Plant breeding is one. We also lead national efforts on animal production, plant protection research, and develop participatory approaches to technology transfer.

What innovations have you developed that can be scaled-up?

There are many: manufacturing and integrating alternative feed resources; bio-control strategies to manage plant diseases; identifying and promoting high-value agricultural products; and the more effective exploitation of added-value plants such as cactus.

How will you engage smallholder farmers and other stakeholders?

In Tunisia we have successfully engaged farmers through a public development organization, the Pasture and Livestock Agency (OEP), which is mandated to assist farmers in the better management of livestock-based production systems. Elsewhere, the involvement of farmer unions and associations could be crucial.

What are the critical challenges that pastoral farmers are facing in North Africa?

The critical challenges include water scarcity and more frequent and extended drought, a lack of feed resources, and rangeland degradation.

WANA is a vast region with highly variable physical, social and economic conditions. How are you going to address this challenge?

Firstly, WANA countries share many of the same problems, including water scarcity, a lack of feed, rangeland degradation, and high production costs. Secondly, this challenge can be addressed through participatory approaches that utilize appropriate methodological tools: characterize target communities appropriately, effectively diagnose problems and potentialities, and negotiate solutions as the basis for community development.

Women and youth: Dryland Systems priorities

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The decision to elevate the Program's youth and gender strategy reflects the crucial role that women play in the preparation and production of food, as well as current thinking regarding the desperate plight of youth who confront a lack of opportunity and high unemployment in many developing countries – global youth unemployment reached 73.4 million in 2013 and young people are three times more likely than adults to be unemployed.



The Dryland Systems Program recently took the decision to elevate the attention given to rural women and youth

The Malawi workshop, attended by scientists, economists, gender experts, and development partners, initiated thinking on the appropriate goals and objectives that should define a gender and youth strategy, the strategy's expected outcomes, and the implementation challenges that lay ahead. Although the strategy will evolve over time, its development will adhere to a framework and a series of general principles. The strategy will:

- Enhance collaboration between scientists, economists, and gender and youth specialists to build an understanding of related concepts
- Promote learning and best practices from strategic research on gender and youth issues
- Raise awareness and build the capacity of stakeholders – from policymakers and development practitioners to rural communities and households.

Monitoring the effectiveness of the Program's impacts on both groups is aided by a gender and youth audit which disaggregates data related to both groups.

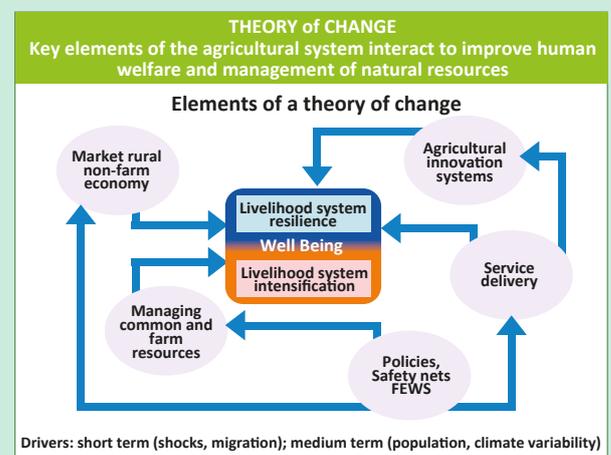
The 'Theory of Change' that guides Dryland Systems

Applying a systems approach to improve the lives of people in the world's dry lands is a complex endeavor. To focus the research on the multiple constraints that undermine productivity, the CGIAR Research Program on Dryland Systems has adopted a 'Theory of Change,' that targets eight Development Outcomes (DOs). DOs are objectives that guide the Program's research agenda. They prioritize improved livelihoods, and recognize that livelihoods are nested within larger agro-ecological, market, institutional, and social systems – which must all be addressed to function at a larger scale.

In essence, this means that improving productivity not only requires better, appropriate technology options, but also incentives and service delivery systems that facilitate adoption. The interaction between farm-scale changes and market, institutional, and policy changes, creates a series of important feedbacks in the process of achieving impact.

To capture this interaction and achieve impact at scale, the Program's DOs are framed at two levels: the first involves the attitudes, knowledge, skills and behaviors among actors directly using research outputs; and the second takes these outputs to scale to achieve four broad aims: reduced rural poverty, improved food security, better nutrition and health, and the sustainable management of natural resources.

Studies have also shown that impact cannot be achieved at scale without explicitly addressing issues of equity, including gender gaps in agriculture and the vital role of youth in sustaining rural economies – hence the recent decision taken to elevate the Program's gender and youth strategy (see article, *Women and Youth: Dryland Systems priorities*).



The Dryland Systems theory of change where key elements of the agricultural system interact to improve human welfare and the management of natural resources