ICARDA's West Asia Regional Program

ICARDA's regional program in West Asia encompasses the Fertile Crescent, where agriculture began some 10,000 years ago. It is still home to the genetic resources of globally important crops, but seriously threatened by the rapid loss of biodiversity in the region. The water scarcity, land degradation and desertification are also leading to increased poverty, especially in rural areas where rainfed agriculture predominates. Overgrazed rangelands are less able to support the increasing numbers of livestock, and irrigated production is declining due to depletion of groundwater and increased problems of salinity. And the problems are only getting worse.

ICARDA's West Asia Regional Program (WARP) coordinates agricultural research and development activities in Cyprus, Iraq, Jordan, Lebanon, the Palestinian Authority, Syria and lowland Turkey. With its head office in Amman, Jordan, the program plays a key role in joint bilateral and regional initiatives, as well as implementing several projects.

Farmers now participate directly in selecting improved crop varieties.

Working in partnership

ICARDA's partners in implementing research projects are the national agricultural research and extension systems, and increasingly, NGOs, farmer associations and local community groups. ICARDA also works with ministries of agriculture, the environment, water and irrigation, and many regional and international organizations – to better serve agricultural development in the region.

New improved crop varieties

Each year, ICARDA provides research institutions in the region with plant material for their breeding programs on barley, wheat, lentil, chickpea, faba bean and grasspea. Many improved varieties have been released by national programs in these countries over the years, originating from ICARDA germplasm. ICARDA also introduced 'participatory plant breeding' with scientists and farmers working in partnership. Following successes achieved with barley, it is now being institutionalized in Jordan and extended to wheat and pulses.

Saving the Fertile Crescent's genetic resources - thanks to three decades of hard work

During the last 30 years, ICARDA has carried out 100 seed collection missions throughout the region. Along with material supplied by country partners, more than 20,000 additional accessions have been conserved and documented at ICARDA's genebank. The invaluable genetic material it holds is freely available for national crop breeding programs, and over 18,000 accessions have been distributed to countries in the region over the last quarter of a century.

Reversing land degradation

Water harvesting and fodder shrub planting in the badia rangelands of Jordan and Syria have proved successful in reversing rangeland degradation. Micro-catchments and contour ridges are easily made and greatly increase fodder production and erosion control. Local communities have been fully involved and have begun to use the techniques themselves, suggesting high potential for widespread adoption.

*Saltbush (*Atriplex*) planted along contour ridges provides valuable dry season fodder.*

Improving water use efficiency

ICARDA's collaborative research on water and land management has identified options for the improved use of scarce water resources. Integrated and complementary approaches include water harvesting techniques, tillage, supplemental irrigation, and crop residue management.

Supplemental irrigation gives 'more crop per drop'

Applied in spring, when rainfall is not enough to meet the crop's water needs, only a small amount of irrigation more than doubled wheat yields in Iraq, Lebanon and Syria, and this is now being out-scaled.

Training and community partnership are essential in ensuring impacts.

People and policies

Researching policy and institutional options is important to improve uptake and impact of results. For example, community models have been developed to assess the effects of different policy reforms on farmers, including an innovative decision-making tool that evaluates the effects of technical, policy, and institutional options.

Property rights – assessing best options for improved use of tribally-owned rangelands

Of three land-use management systems introduced in Jordan's badia, a survey found that herder-driven cooperatives were the best option, reducing household feed costs by 21%, state grazing reserves increased feed costs by 30%, and giving common use rights was worst. Land tenure arrangements were clearly a crucial factor affecting farmers' investment decisions.

Counting the benefits

The adoption and impacts of improved crop and livestock technologies introduced in the region were assessed from on-farm surveys. Improved barley varieties were grown by half of the farmers surveyed in Iraq, Lebanon and Jordan, and a third of those in Syria, and over half of the total barley growing area was planted to the new varieties in Jordan and Iraq, and one fifth in Syria. The feed block technology was taken up by most sheep owners in Iraq and one fifth of farmers in Jordan. In Syria, other successes included growing vetch in barley rotations and early weaning of lambs, both adopted by almost 30% of farmers.

Proving that new technologies increase productivity

Using performance indicators, the net benefit from improved barley varieties on productivity was 20% in Iraq and Syria, which increased household food security (kg of barley per household per year) by 14% compared to local varieties. Use of feed blocks increased the efficiency of sheep production by 32% in Iraq from more meat, milk and lambs, with an internal rate of return of 87%.

Training for the future

Human resources are the cornerstone for success of rangeland development, so it is essential to continue to build individual and institutional capacity. Appropriate training and education is undertaken, especially in planning and evaluation, and strengthening ties with the national programs and policy makers is also a top priority. In thirty years, 4600 people from the region have received training, including 2679 from Syria, 726 from Iraq, 580 from Jordan, 501 from Lebanon, and the first 76 from Palestine.

Increasing impacts

The work continues, but with more investment, more benefits can be achieved in the region to further reduce poverty. Based on previous impacts, this is immediately achievable in the areas of on-farm water use, conservation agriculture, rangelands and livestock, biodiversity conservation, adaptation to climate change, integrated pest management, crop diversification, poverty mapping, and capacity building.

West Asia saw the birth of agriculture, but now it must see a rebirth if it is to meet the challenges ahead.

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About ICARDA

Established in 1977, the International Center for Agricultural Research in the Dry Areas (ICARDA) is one of 15 centers supported by the CGIAR. ICARDA's mission is to contribute to the improvement of livelihoods of the resource-poor in dry areas by enhancing food security and alleviating poverty through research and partnerships to achieve sustainable increases in agricultural productivity and income, while ensuring the efficient and more equitable use and conservation of natural resources.

ICARDA has a global mandate for the improvement of barley, lentil and faba bean, and serves the non-tropical dry areas for the improvement of on-farm water use efficiency, rangeland and small-ruminant production. In the Central and West Asia and North Africa (CWANA) region, ICARDA contributes to the improvement of bread and durum wheats, kabuli chickpea, pasture and forage legumes, and associated farming systems. It also works on improved land management, diversification of production systems, and value-added crop and livestock products. Social, economic and policy research is an integral component of ICARDA's research to better target poverty and to enhance the uptake and maximize impact of research outputs.