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# Central Asia and the Caucasus Regional Program

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## Introduction

Established in 1998, the Central Asia and the Caucasus (CAC) Regional Program is one of the youngest outreach programs in ICARDA, working for sustainable agricultural development. The Program promotes regional cooperation in research, capacity building and human resource development in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan in Central Asia and Armenia, Azerbaijan and Georgia in the Caucasus. Since establishment, significant results have been achieved in partnership with the CAC NARS in the areas of germplasm improvement, plant genetic resources, soil and water management, integrated feed and livestock production, capacity building and human resource development. Funding support for these research activities has been received from various agencies including ACIAR, ADB, FAO, GCDT, IFAD, and USDA. Technical support is received from all MPs and units of ICARDA.

## Achievements

### Partnerships

- The Regional Program has enabled CAC NARS to have regular scientific interaction, providing a neutral forum for an effective interface among NARS. These interactions have enabled the Program to have a research prioritization exercise completed, as a bottom up initiative, so that on-going programs are restructured to address new priorities.
- Through ICARDA, a Regional Forum of the CAC countries known as Central Asia and the Caucasus Association of Agricultural Research Institutions (CACAARI) has been established, which is now forging linkages among the NARS and also with other international organizations at the global level.

### Research

- ICARDA has provided considerable technical support for PGR related activities to organize 17 joint collection missions in different countries. So far 2,781 valuable germplasm accessions including wild species have been collected. The Uzbek Gene Bank in Tashkent has been renovated and presently more than 20,000 accessions of valuable agricultural crops are being stored there. Also, the National Genetic Resource Centers with medium-term cold storage facilities have been established in Tajikistan, Kyrgyzstan, Azerbaijan, Georgia and Turkmenistan. A similar effort is ongoing in Armenia.
- Annually, a large number of breeding lines from 80 different nurseries of cereals, legumes, and forage legumes were supplied through MP2. These are being tested fur-

ther for selection and release. Already nine varieties of winter wheat, one of spring barley, three of chickpea, one of lentil and one of *Lathyrus* have been released in the region. These varieties have recorded consistently higher yields with superior quality and disease resistance over the local checks. In addition, more than 60 promising varieties of different crops are presently being tested by the State Variety Testing Commissions (SVTC) of CAC countries, and await their final release. Efforts are also directed towards large-scale seed production and availability of new varieties to farmers.

- Research on crop diversification has demonstrated convincingly that crops such as chickpea, lentil, soybean, mung bean, cowpea, groundnut, buckwheat, maize, *Lathyrus*, and safflower, can be grown for increased farm income. Also, sowing wheat in standing cotton using minimum tillage permits increased cropping intensity in view of the limited arable land in most of the countries.
- Conservation tillage practices, such as zero tillage, minimum tillage, and raised bed planting, have shown good results in Central Asian countries, where deep tillage had been a predominant practice. Thus, large-scale demonstrations to promote conservation tillage practices have offered new options for the farmers, as these cost saving technologies help reduce cost of production.
- On-farm water-use efficient technologies, such as alternate furrow irrigation in cotton and improved *joyak* (zigzag) irrigation system in wheat, use of plastic chutes and drip irrigation in sloppy lands, have been found promising. These technologies are helping in saving as much as 30% of water used. Similarly, drain and treated wastewater use for raising cotton, forages, and trees has been found useful.
- A number of livestock production practices have been studied and those found promising for income generation are: early weaning, early lambing, market oriented lamb fattening and milking of Karakul and Sarajin ewes. Different options for range rehabilitation and feed production have been studied and best practices recommended. Valuable breeds of small ruminants have been studied in the CAC region for their molecular breed characterization.

### **Enhancing NARS**

- More than 4,500 scientists have either been trained or given opportunity to participate in various national, regional and international meetings, workshops and conferences under the CGIAR Consortium for CAC. Special efforts were made to impart English language training. So far, about 400 young scientists from the region have been trained with joint support of all CG Centers.
- Equipment in the form of agricultural machinery, computers, vehicles, weather stations, digital cameras, office and lab supplies have also been provided. ICT networking for efficient communication through e-mail and Internet access has been established. Also the Genebanks of 7 CAC countries have been renovated and made functional for medium term storage.
- A number of useful publications have been produced and distributed among NARS partners both in Russian and English languages. So far three proceedings of the conferences/symposia and one book have been published. A quarterly CAC Newsletter is

published regularly (both in English and Russian), covering various collaborative activities under the Program, and circulated widely among NARS partners. A Home Page of the CGIAR Consortium for CAC (<http://www.icarda.cgiar.org/CAC/index.htm>) has also been developed and linked to both ICARDA and CGIAR web sites.

## Current Activities

- Strengthening of Gene Banks is taking place in almost all CAC countries. Efforts are being made to develop a regional PGR strategy by active involvement of NARS partners. A web-page on Plant Genetic Resources activities in Central Asia and the Caucasus is now functional, which highlights the relevant achievements of the project.
- The efforts are being made to produce seed of the twenty new promising varieties consisting of winter wheat (9), triticale (2), spring barley (1), chickpea (4), lentil (1), *Lathyrus* (1) and groundnut (2) for large scale adoption in the region. In addition, breeding programs in the region for cereals and legumes are further being strengthened.
- Crop diversification, no-tillage, raised bed planting and water saving technologies are being demonstrated to the farmers on large scale for better impact. Also, efforts are now being made to provide alternative options to livestock farmers to raise their income.
- Information dissemination, capacity building and development of human resources in specialized areas are being given greater emphasis to strengthen the NARS. Also, regional partnerships among NARS are being built through CACAARI.

## Future Directions

Based on the updated priorities of CAC NARS, future activities will focus on varietal improvement, especially for drought and salinity tolerance, seed production of improved varieties, IPM, crop diversification, conservation tillage, water-saving technologies, integrated feed and livestock management and human capacity building. Special emphasis will be laid on technology transfer, knowledge management and socio-economic aspects.