

Integrated research approaches to increase resilience and improve well-being: launching the CGIAR Research Program on Dryland Systems in Central Asia

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Abstract

The agricultural sector in Central Asia is experiencing considerable difficulties in the management of production factors, specifically owing to soil and water salinity. The Soviet-era plan for development of irrigated area around the Amu Darya and Syr Darya rivers caused irreversible damage to the environment around the Aral Sea: ecosystem degradation, water quality and health issues, waterlogging and salinization of agricultural and pasture lands. With the subsequent low productivity, the lives of the farmers are significantly impacted. Climate variability, drought and extreme heat and cold stress exacerbate the situation in the Aral Sea Basin, which comprises the largest area of persistent severe droughts in the world. In addition, people in mountainous areas are eking their lives due to meagre agricultural and livestock production during short growing season, mudslides, poor accessibility to agricultural inputs and markets, lack of access to credit and agricultural extension, land degradation, lack of clean drinking water and heating in winter. Conversely, there are areas, such as the Fergana Valley, where irrigated agriculture has been very productive. However, due to high population density, lack of crop rotation, deteriorating state of irrigation and drainage infrastructure, inadequate market conditions, sustaining the profitability of irrigated agriculture is becoming an issue. The factors influencing agricultural production are inter-related and should be addressed through systemic, integrated research. And the solutions need to be based on a multi-disciplinary approach in identifying, testing, customizing, implementing and out-scaling relevant technology and innovation.

Following a two-year inception phase, the CGIAR Research Program on “Integrated Agricultural Production Systems for Improving Livelihoods in the Dry Areas” – or Dryland Systems in short was launched in October 2013. The research agenda was developed by an inter-disciplinary research team composed of ICARDA as the lead center and the partner international centers in close collaboration with national agricultural research partners, policy makers, farmers’ associations and development organizations. The results of the inception phase can be found at <http://cac-program.org/projects/crp>. The Program aims to pursue new technology, institutional and policy options for enhancing productivity and managing risks through diversification, sustainable intensification and integrated agro-ecosystem approaches in three selected Action Sites. These are the Aral Sea Region, Fergana Valley and Rasht/Kyzyl-Suu Valley.

The presentation will provide background information about key factors in agriculture and opportunities to address them through integrated research approaches; goals and expected impact pathways of the Dryland Systems Program. Results of studies carried out to date, and projected joint research activities will also be highlighted. They will lead towards (i) more resilient livelihoods for vulnerable households in marginal areas and more sustainable; and (ii) higher income and well-being in the areas with high potential for intensification in the Action Sites.

Key words: drylands; integrated research; marginal areas; irrigated agriculture; Aral Sea Basin