

Land degradation, climate change and farmers perspectives for promotion of Conservation Agricultural in the Kyrgyz Republic

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Picture 1. Location of Kyrgyzstan on the world map

Introduction

About 90% of agricultural land in Kyrgyzstan are severely degraded both under rainfed and irrigated farming systems and degradation has significantly accelerated under the influence of climate change. More than half of the cropland is subject to water and wind erosion. Particularly, flash flood irrigation is still practiced by farmers in the northern region which leads to significant loss of fertile soil. Moreover, this technology also facilitates water pollution and loss. Mono-cropping of cereals in drylands and intensive furrow irrigation also facilitate soil erosion and degradation. The risks intensify due to climate change followed by continued climatic stresses, especially drought followed by water stress. Therefore, the introduction and promotion of CA could significantly contribute not only to sustainable food production but also to the conservation of natural resources and saving inputs, particularly protection of soil and efficient utilization of water for irrigation.

Discussions and Results

Farmers in Kyrgyzstan began to realize the importance of soil conservation, the introduction of innovative technologies, and compliance with agricultural practices. Soil scientists and agronomists began to raise questions about soil degradation and preservation of fertility. Local NGOs also began to take an active part in the dissemination of knowledge with the support of international organizations, as the main development partners. Thus, there were several attempts on testing, demonstrating, and promoting resource-saving technologies in the farmers' fields in Kyrgyzstan. At the initial stage, CIMMYT and GIZ demonstrated the advantages of permanent no-till bed planting to improve water use efficiency for wheat production in Chuy valley in 2003. The series of research and development experiments on bed planting was carried out at the experimental stations and farm level. The outputs are also very useful for promoting CA on permanent raised bed systems. There were also experiments on covering the seedbed with plastic but that was not supported by farmers due to the cost and negative impact of plastics on the environment. Like in other countries, companies producing field machine were also supporting the promotion of CA in Kyrgyzstan. For instance, the JSC "Eurasia Group" as the official representative of John Deere was marketing different field equipment, including no-till drills and tools for minimum soil tillage during the last 10 years.



Picture 2. Field day at the farm of Tasin Izatov in the Issyk-Ata region, 2014

The development partners and the donors are actively supporting the government's initiatives on the sustainable development of agricultural production. In this framework, several projects with components on CA were successfully implemented through FAO, GEF, GIZ, GCF, UNDP, Aga Khan Foundation, ICARDA, etc. Civil society organizations were very active in supporting these projects in testing, demonstrating, and promoting CA.

The FAO project also supported the government in the formulation of a national strategy on further adoption and promotion of CA. One of the farmers pioneering CA in Chui valley was Tasin Izatov from Issyk-Ata Rayon who has 60 ha of cropland and over 50 head of cattle. Farmer Abdrakunov Dostuk from Jetey-Oguz Rayon promoted CA on 60 ha for wheat and barley seed production, where seed crops were rotated with perennial grass pasture.

There were several season-long trainings for the agricultural and extension specialists, researchers, and farmers conducted, and the training and extension materials were developed and published in Russian and Kyrgyz languages. Establishment and running of the Farmer Field Schools (FFS) have been tried for testing and promoting CA through training a big number of male and female farmers. During 2017-2018, under the FAO project funded by GEF "Sustainable management of mountainous forest and land resources under climate change conditions", 176 FFS were established for training farmers on sustainable crop and soil management. In this project, CA was a key practical topic. In total 2,493 farmers, including 573 women participated in the trainings. Moreover, 2,276 farmers, including 611 women received on-the-job training on CA.

Local NGOs also began to take an active part in the dissemination of knowledge with the support of international organizations, as the main development partners. The government recognizes that the degradation of agricultural land poses a significant threat to food security; therefore, they are addressed in the key strategic documents, including the "National Strategy for Sustainable Development for 2013-2017" and "National Development Strategy of the Kyrgyz Republic for 2018-2040".

Conclusions

The technical support and development projects paved the way for the introduction and adoption of CA by farmers in Kyrgyzstan. As the result, today the area under CA in Kyrgyzstan has grown to 60,000 ha. Farmers practicing CA realized that it has the potential to sustainably increasing productivity, reduce production costs, restore degraded land, minimize soil erosion, and improve ecosystem services. They are assured that CA is an ecosystem approach that not only can improve economic and ecological crop production and land use, but it is a key approach to sustainable intensification and facilitates to produce "more yield with fewer resources". However, the CA has not yet become a widespread production approach among farmers. There is a need to carry out more research and extension work, train qualified CA specialists, develop evidence-based recommendations and guides, etc. The government of Kyrgyzstan should also consider promoting CA through the adoption and implementation of relevant policies and strategies, providing incentives to the importers of CA field equipment and to CA farmers.