Improved Practices and Institutions Carry Potential for Productivity Increases in Karakalpakstan

The livelihoods of farmers in Karakalpakstan are being challenged by land degradation and lack of agricultural inputs such as seeds. Conservation agriculture – the practice of minimizing soil disturbance, maintaining soil cover, and rotating crops – can help improve soil fertility, while minimizing the efforts and costs associated with farming.

Key messages

- Low crop yields are caused by infertile soils and poor seed quality
- Training farmers on conservation agriculture practices improves soil health
- A seed growers network improves supply of high-quality seeds for increased productivity
Land degradation and poor quality seeds challenge farmers

Land degradation and low soil fertility remains a key problem for farmers in Karakalpakstan, an autonomous republic within Uzbekistan. Here, lack of soil nutrients and water often result in low crop production. Burning crop residues and ploughing also contribute to soil degradation as these practices reduce the organic matter of soil and destroy soil structure.

Another issue is a widespread lack of agricultural inputs such as high-quality seeds. Most cereal, legume, oilseed and forage crop varieties are still imported from abroad, which means there are no local seed production systems. The national seed system for forage crops is not well organized, and the demand for forage seeds exceeds the supply.

These problems directly affect the livelihoods of many farmers, and increasing agricultural productivity is very important. Therefore, scientists have been working with local partners to facilitate wide-scale adoption of conservation agriculture, which has many benefits and considerably saves resources as well as to establish a seed growers network to boost the supply of high-quality seeds.

The many benefits of conservation agriculture

Conservation agriculture has the potential to help farmers adapt to climate change and mitigate related risks. It involves no-till, which reduces surface runoff and soil erosion, and it facilitates greater soil moisture retention capacity. This practice can also help sequester soil carbon in soil, and in addition the reduced need for mechanized working of the soil both saves the farmer money and reduces carbon emissions.

Scientists organized a number of training courses and field days on no-till technology and crop diversification for 164 (134 male and 30 female) participants, including policy makers, specialists from district agricultural departments, researchers, and farmers. These events focused on issues and concepts around no-till technology, no-till equipment, crop diversification and rotation schemes, including field practices on no-till machinery, seed rate calibration, and distance between rows.

A new seed grower network named (SGN), called “Qorako’l” was established to increase production of salt- and drought-resistant crops, including sorghum, corn, sunflower, pearl millet, millet, sesame and field pea. The network is a self-managing group of farmers working together to operate and maintain their production of forage crops seeds to ensure fair and equitable seed distribution among network members and to increase crop yields.
New practices garner interest from farms

As the result of the training activities, 88 farmers in the region are now becoming increasingly aware of conservation agriculture as a new, promising technology.

As of 2016, the area under conservation agriculture is 570 hectares. Four different crops were planted in autumn of 2015 using no-till drill, including winter wheat, barley, corn, sorghum, oats, mungbean, sunflower, sesame, Sudan grass and forage pea. In the process, scientists and farmers learned how to adjust and use the new equipment for no-till farming.

In addition, eleven farmers have already started to produce good quality seed using no-till technology on five hectares of land. The expectation is that the network will produce forage crop seed, which will then be pooled for bulk-scale supply to forage farmers, who are located in the neighborhood. In 2015, the network produced 2,580 kg of forage seeds, which were distributed in 2016, and by June 2016 it had produced 8,161 kg of winter wheat, barley and rye seeds.

Healthy soils and improved seeds expected to boost yields

Furthermore, conservation agriculture improves soil quality and is expected to lead to both more sustainable use of land and bigger yields.

In addition, the new seed network is able to provide farmers with access to quality seed of new varieties, and it will facilitate the development of new plant varieties for farmers to increase crop productivity, food security and economic development.
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References


Outcome Story Coordinates

Country: Karakalpakstan
Region: South Asia
Agricultural livelihood system: Irrigated
Cross-cutting theme: Capacity building
CGIAR SLO: Reduced poverty
SDG: SDG 1: No poverty

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