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Crop Diversification as a Coping Strategy to Changing Environment

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Abstract

Humanities' ever increasing desire for consumer goods is resulting in mounting pressure on natural resources. The increasing consumer demand is not only related to food products, but also to clothing, the production of which is becoming unsustainable and encouraging farmers to engage more in cotton cultivation. Such an increase in demand negatively affects the small-scale cotton producing countries such as Tajikistan in Central Asia, where production resources are limited and the continued intensive cotton production will further exacerbate environmental problems of the country.

In Tajikistan, cotton monoculture practices were established during the Soviet era, and have left an indelible mark on its environment through the intensive use of land and water resources. Since the disintegration of the Soviet Union in 1991, the situation for cotton monoculture in Tajikistan has changed, and there has been a slow shift towards crop diversification in support of food security. While crop production patterns have not shifted completely, it is interesting to observe how has the shift from cotton monoculture to other crops started and is currently taking place in Tajikistan. It is important to understand whether farmers can move completely away from cotton production, and if so, what social, economic and environmental factors influence this transition?

A field research conducted during the cotton harvest season of 2019 in Khatlon region, one of the major cotton producing regions of Tajikistan, has shown that the majority of small-scale farmers prefer to gradually move away from cotton mainly because of declining yields, which inherently expose them to the high risks associated with low harvest and poor sales price. One of the reasons for declining yields is linked to a deterioration in land quality, manifested as increased level of soil salinity resulting from the long history of the excessive irrigation used during the Soviet era. Moving away from cotton production towards crop diversification is perceived by farmers as a coping strategy that addresses environmental changes such as soil degradation, increasing temperatures and decreasing water availability.

Keywords: Cotton monoculture, crop diversification, environmental change