



Tropentag, September 9-11, 2020, virtual conference

“Food and nutrition security and its resilience
to global crises”

Opportunistic Adaptation of Conserved Moisture for Food Sustainability in Arid Zone

DHEERAJ SINGH¹, M CHAUDHARY¹, CHANDAN KUMAR², M L MEENA²

¹Central Arid Zone Research Institute, Krishi Vigyan Kendra, India

²CAZRI KVK, India

Abstract

Climate change coupled with multiple stressors have compelled subsistence farmers to develop location specific adaptation strategies to sustain their livelihoods in risk-prone ecosystems. A study on the opportunity of using conserved soil moisture for food and livelihood security and its adaptation in rural areas was carried out in Hemawas check dam with its catchment area in Pali district of Rajasthan, India. In arid zone (study zone) farmers are exposed to a set of multiple stressors making their subsistence vulnerable and to sustain their livelihood under these conditions, farmers have adopted specific options to diversify their livelihood options. In recent years as the consequence of climate change the terminal heat and rising temperature in the winter season have diverted farmers in Pali to adapt muskmelon in late winters. This is a short duration crop, cultivated with very least external inputs and moderate vulnerability. As the water dry up in the dam the land is first sown with short duration varieties of wheat, barley, oats, mustard and vegetables. The standing water is utilised for irrigation and as the land becomes devoid of water, muskmelon is grown in the conserved moisture. Normal ploughing is done to open up the soil and then manual sowing is done in the open spaces using local variety of muskmelon. Local plants are used as windbreaks to protect the small plants from cold winds in initial period and from hot winds in later period. Due to surplus moisture on top layer the seed germinates and as the plant grows its long root system draws water from the deeper layers of soil profile. After 15–20 days planking is done on the germinated seed and vines to close the open soil strata and this practice kills insects and parasites hiding in the crevices besides conserving the moisture in the soil layers. The soil is very rich in organic matter and nutrients thus on getting favourable conditions the vines yield ample fruits to sustain farmers livelihood. As no chemicals and fertilisers are used the crop is purely organic and the entire produce is sold at farm gate.

Keywords: Arid zone, moisture conservation, muskmelon, opportunistic adaptation, organic