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Prospects of high value fruit crops under degraded gullied lands

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Horticultural production is becoming a valuable part of the rural economy, in particular for tropical situations like India. Looking into the prevailing agricultural scenario, it is emerging as a dominating business for farmers and rural growers. For such businesses water is an essential component, whether it is for irrigating field-scale fruits/vegetables, hardy nursery stock, flowers, or soft fruit. Without access to reliable and secure water supplies many of these businesses would simply not survive. But increasing regulation, droughts, and the longer-term risks of climate change threaten the sustainability of this industry and the rural livelihoods it supports. The present paper describes some of the emerging issues on water management in relation to horticultural land uses in Indian conditions. An overview is conceived and presented to reflect the impacts on water for horticulture under drought or flood situations, highlighting the limitations on water supplies for horticulture and the fragility of the water supply -demand balance. Impact pathways under climate change and its impact on irrigation water use by affecting soil water balances, cropping patterns, areas irrigated, methods used and the volumes of water demanded for irrigation. Authors own experience for converting degraded gullied lands into quality orchards of cashew nut, pomegranate, custard apples and sweet orange is incorporated in the paper. The scientific utilization of advanced irrigation methods and their influence on vegetative as well as fruit growth is well documented herein. The preliminary findings of this case study on a small natural catchment located nontribal area of middle Gujarat region of Gujarat findings is presented herein. Importance of on-farm water conservation to cope with changes in the reliability of water supplies, increased irrigation efficiency to get "more crop per drop", and higher water managerial issues led to enhanced water use efficiencies. A multipurpose rainwater harvesting structure was designed and constructed to harness the runoff in natural channels with huge water body to the tune of about 3 kilometer upstream of structure for most of the water scarce period of the year, giving ample opportunity to release higher ground water recharge and recycling of this water for life saving irrigation of newly developed orchards. A successful demonstration with modern irrigation methods and instrumentation is reflected in the write up, which is propagated in this less developed tribal region of Gujarat.

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