Adoption of Improved Varieties of *kachri* and its Economic Impact in Arid Region

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Introduction

The hot arid regions of India are spread over 32 million ha (0.32 million Sq.Km.) in the state of Rajasthan (61%), Gujarat (20%), Andhra Pradesh (7%), Punjab (5%), Haryana (4%), Karanataka (3%), and Maharashtra(0.4%) which are characterized by hostile agro-climatic conditions and fragile eco-system. Out of total hot arid area of the country (India), more than 60% area falls under the state of Rajasthan which covers 12 districts viz., Jaisalmer, Barmer, Bikaner, Churu, Sikar, Jhunhjunu, Naguar, Jodhpur, Pali, Jalor, Sriganganagar, and Hanumangarh of the state. In general, the hot arid region of Rajasthan receives very low rainfall, varies from 100 mm annun^{-1}in north-western district of Jaisalmer to 450 mm per annum in the eastern boundaries of arid district of Rajasthan. The potential evapo-transpiration varies from 2063 mm in Jaisalmer to 1503 mm in Sikar districts of Rajasthan. The rainfall is very erratic and often experienced prolong drought. The ground water table is very deep and often brackish in nature. The extremes of temperature having severe winter during December-January with temperature as low as -4 °C and very hot summer during May-June with temperature as high as 48-50 °C is another important characteristic of the hot arid regions. The solar radiation is very high. Atmospheric vapour pressure deficit reaches as high as 30 mb during summer (May-June). The wind velocity in June is very high which leads to heavy wind erosion and formation of sand dunes. Some time strong sand storms of very high speed (60-0 km h^{-1}) with huge amount of sand particles also occurs. The soils are coarse textured with low silt, clay and humus content and water holding capacity is very low and infiltration rate is very high. The soil fertility is very poor having low organic carbon (0.02-0.06%). Soil salinity, calcareousness and gypsiferous nature of soil add another dimension to these constraints in adoption