

Agrobiodiversity Assessment Along an Altitudinal Gradient in District Nainital, Uttarakhand: Crop Inventory, Agroforestry Systems and Conservation Challenges

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Abstract: *District Nainital in the Kumaon Himalaya of Uttarakhand harbours a diverse range of traditional agroecosystems that have sustained mountain communities across centuries. This paper presents a systematic inventory of agrobiodiversity in three development blocks — Dhari, Okhalkanda and Ramgarh — covering 30 villages and approximately 2,000 marginal rural households. The study documents crop diversity along an altitudinal gradient from 1,000 to 1,600 m above sea level, encompassing cereals, millets, pulses, oil seeds, vegetables, spices, fodder trees and horticultural fruit crops. A total of 18 agricultural crops, 19 vegetable and spice crops, 15 fodder tree species and 18 fruit tree species were recorded. The study further assesses the status of horticultural biodiversity, climate change impacts on traditional orchards — particularly the documented decline in apple cultivation — and the biodiversity context of the district including its avifaunal richness. The findings reveal a rich legacy of traditional agrobiodiversity that is currently under threat from climate variability, male out-migration, declining institutional support and market-driven monoculture transitions. The paper concludes with a SWOT analysis and recommendations for community-based conservation, organic value chain development and area-specific agri-horti tourism as pathways toward livelihood security and biodiversity preservation.*

Keywords: *agrobiodiversity; Himalayan agroforestry; altitudinal gradient; Kumaon; Nainital; traditional crops; horticultural diversity; climate change; organic farming; Uttarakhand*