

# Best Practices-01

## Research and Extension Programme for Sustainable Development

**Objectives of the Practice:** Addressing global food challenges demands comprehensive solutions. The university tackles this by connecting research with communities, exploring new research areas, empowering farmers with skills and knowledge, and ensuring locals have access to fresh produce and planting materials. These initiatives aim to enhance agricultural practices, boost farmers' financial well-being, and improve overall food availability and quality.

**The Context:** Hill farmers are embracing enhanced awareness and exploring new agricultural avenues for economic gains, encouraged by increased media connectivity and changing attitudes. Crop diversification in mountainous regions offers commercial prospects and alternative livelihoods, especially through off-season vegetable and fruit cultivation, floriculture, and medicinal plant industries. University facilitates this transition by organizing technology demonstrations and training programs for farmers and entrepreneurs, promoting the adoption of sustainable Himalayan bio-resource cultivation and conservation techniques.

**The Practice:** Hill farming faces challenges due to limited crop varieties, low and unpredictable agricultural output, and lack of support structures and market access. Addressing these challenges is crucial for the growth of the bio-economy in mountain regions. The adoption of advanced agricultural techniques and the cultivation of medicinal and aromatic plants, as well as high-yielding crop varieties and floricultural enterprises, can enhance farmers' income and create new livelihood opportunities. Scientific intervention is essential to develop appropriate technological support and establish a strong network of agri-enterprise activities. Garhwal University significantly offers extension services and training programs to farmers and students. It has successfully transferred cultivation and conservation technology of medicinal and aromatic plants from laboratories to fields by organizing numerous training programs, workshops in the region. The university, with its action, promotes organic farming, establishes seed production centers, enhances post-harvest processing, and improves storage, ultimately contributing to the sustainable growth of mountain regions.

**Problems encountered & Resources required:** The mountain ecosystems encounter specific challenges and opportunities. Though, it holds significant bio-resources, the lack of region-specific technology and expertise hampers growth. Stakeholders focus on medicinal plants, but scarcity of quality planting material, especially for sensitive species, is a major issue. Additionally, it is observed that farmers lack awareness of government schemes and incentives.

**Evidence of Success:** University's training initiative in Uttarakhand educated 3884 villagers (2407 male, 1477 female) from 195 villages about cultivating medicinal and aromatic plants. Approximately 18 hectares of land was transformed, cultivating plants like Kutki, Kuth, Atish, and Vanhaldi. Notably, Ghesh village in Chamoli District emerged as national model for medicinal plant cultivation. Over 300 villagers generate an impressive income of up to rupees ten million annually through these ventures.

**Problems Encountered and Resources Required:** Alpine Bugyals, once abundant with herbal plants, face a crisis due to excessive collection, rendering many species rare or endangered. Illegal harvesting, diseases, and pest issues exacerbate the problem. Stakeholders' preference for cultivating medicinal plants at lower altitudes further threatens these species. Research explores the feasibility of planting crops in lower terrains. Additionally, high-altitude regions lack proper irrigation and essential agricultural tools, hindering sustainable practices. Raising awareness is imperative to address this pressing issue and conserve the region's biodiversity.