VEGETABLE PRODUCTION DIVISION

Institute Projects

3.1. Precision farming in high value vegetable crops This project develops sensor-based irrigation and fertigation systems for optimizing water and nutrient use efficiency in high-value vegetables under open field and protected cultivation. Research encompasses soil moisture sensors, automated drip systems, and variable rate application technologies. Farmers benefit from reduced input costs and enhanced water productivity, while the technologies support sustainable intensification under water-scarce conditions.

3.10. Harnessing grafting techniques and bio-regulators to improve vegetable crops resilience against abiotic stresses The project focuses on developing grafting protocols using stress-tolerant rootstocks and optimizing plant growth regulator applications for mitigating waterlogging, drought, and salinity stress in vegetables. Research identifies compatible rootstock-scion combinations for tomato, brinjal, and cucurbits. Grafted seedling production offers entrepreneurship opportunities while enabling farmers to cultivate vegetables in stress-prone areas with sustained productivity.

3.11. Development of technologies for production of vegetables under organic farming This project develops comprehensive organic production packages for major vegetables including nutrient management through organic inputs, bio-intensive pest management, and soil health enhancement. Research validates performance of IIVR varieties under organic systems and develops quality certification protocols. The outcomes support India's Natural Farming Mission, enable farmers to access premium organic markets, and provide organic food industries with consistent supply chains.

3.12. Exploration of vegetables for processing amenability, bioactive potential and development of value added products The project evaluates vegetable genotypes for processing suitability, characterizes bioactive compounds, and develops value-added products including powders, flakes, and ready-to-eat formulations. Research establishes quality parameters for processing tomato, chilli, and leafy vegetables. Food processing industries gain access to suitable raw material varieties while farmers benefit from assured procurement and reduced post-harvest losses.

3.13. Validation and economic impact of technologies developed at ICAR-IIVR This project assesses adoption patterns, economic returns, and socio-economic impact of IIVR-developed technologies across different agro-climatic regions. Research generates evidence on benefit-cost ratios, yield advantages, and income enhancement from improved varieties and production technologies. The impact assessment guides research prioritization, provides feedback for technology refinement, and generates evidence for policy advocacy and investment decisions.