

Diversification to High-Value or Resilient Crops

In Odisha, farmers traditionally grow one or two cereal crops (mainly paddy) throughout the year. Shifting from single-cereal crop farming to diversified farming involving high-value crops or resilient crops will help increase farmers' incomes, build resilience against climate change, and improve farmers' household nutritional intake. Traditional crops such as millets and pulses require Fewer inputs, have higher tolerance for climate stresses, and perform well in rainfed and less fertile soils.

High-value crops



Vegetables
(tomato, brinjal, and okra)



Fruits
(banana, papaya, and mango)



Spices
(turmeric, ginger, and chilli)

Resilient / traditional crops



Millets
(ragi, foxtail millet, and little millet)



Indigenous pulses



Traditional leafy vegetables

Crop diversification: A step-by-step guide



Land preparation

Select the site/field based on soil type, water availability, and the crop being considered for cultivation. For vegetable cultivation, a well-drained loamy soil is best suited, while millets and pulses can be grown on low-fertility soils and in relatively low rainfall areas. Plough the soil adequately to prepare a good seedbed, improve aeration and water infiltration, and remove weeds. During land preparation, apply the recommended quantities of organic inputs, such as vermicompost or farmyard manure, to enhance soil fertility and moisture retention. Good land preparation helps promote root growth and penetration, thereby improving crop establishment. Even small farmers with limited resources can start crop diversification in a small area and gradually expand by taking advantage of government schemes and financial support.



Selection of crops and varieties

Choose the crop and variety according to season, local climate, soil suitability, and market demand. While selecting a particular crop or a variety, follow the recommendations of the local agricultural university, research station, or the krishi vigyan kendra (KVK). Growing different crops across seasons (e.g. vegetables in winter and millets or pulses in kharif) ensures year-round income and employment. Growing pulses improves soil health and helps reduce the need for chemical fertilisers for the following crop. Use certified quality seeds, including those for hybrid seeds, sourced from state seed corporations, KVKs, or registered seed dealers to ensure optimal germination and genetic purity. If vegetable pot tray seedlings are transplanted, ensure that they are procured from registered nurseries, so that they are healthy and virus-free.



Seed treatment

To protect against seed-borne diseases and improve germination, treat the seeds with recommended bioagents or traditional formulations such as *Bijamrut* as advised by the agricultural university or KVK. About 200–250 ml of *Bijamrut* is sufficient to treat 1 kg of seed, after which seeds should be shade-dried before sowing.



4

Planting

Because Odisha receives relatively high rainfall, planting vegetables on raised beds or ridges helps in proper drainage during high rainfall events. Maintain recommended spacing to ensure proper sunlight, airflow, and nutrient uptake. Following proper spacing reduces disease risk and improves yield.

- **Tomato**: 60 cm between paired rows; 45 cm between plants.
- **Brinjal:** 90 cm between paired rows; 75 cm between plants.
- **Millets:** 20 cm between rows; 10 cm between plants; sow 3–5 cm deep on ridges (raised soil line).
- **Gram:** (Bengal gram /chickpea): 30 cm between rows; 10 cm between plants.



5

Crop management

Apply recommended doses of organic manure and biofertilisers. Ensure timely irrigation at critical growth stages and adopt integrated pest, weed, and nutrient management practices. Farmers are encouraged to attend training programmes offered by KVKs and agriculture departments for technical guidance on individual crop cultivation practices



6

Harvesting and marketing

Harvest crops at the correct maturity stage to maintain quality and secure better prices. In the case of irrigated farmers in particular, careful selection of planting times so that the produce reaches the market when there is a shortage of the commodity helps farmers realise good profits. Clean and grade the produce before marketing. Linking with local markets, farmer producer organisations, or cooperatives can improve price realisation. Simple value addition, such as grading vegetables, processing millets into flour, or packaging, can further enhance income

Benefits of diversification to high-value or resilient crops

Lower resource input



Many forgotten traditional crops, such as millets and pulses, require comparatively less water and fewer chemical inputs, reducing cultivation costs and improving resilience under water-scarce conditions. Moreover, high-value crops can be cultivated using drip or sprinkler irrigation systems, which optimise water use. Although these technologies require high initial investment, government subsidies are often available to support adoption

Improved soil health



Growing a variety of crops with different root systems improves soil structure, fertility, and nutrient build-up and recycling

Reduced pest & disease incidence



Diversification reduces pest and disease incidence compared with monocropping

Higher returns & continuous income



Higher returns per hectare and multiple harvesting cycles result in cash flow through the year compared with single cereals.

Value addition opportunities



Diversified crops provide more opportunities for value addition and aggregation through FPOs to further increase incomes

Increased employment opportunities for women



Diversification strengthens local value chains and creates employment opportunities, particularly for women, in activities such as grading, sorting, processing, packaging, and marketing of horticultural crops.

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