

LEADS DEVELOPMENT MODEL

Sustainable Agriculture & Livelihood Initiative

MODEL : ANNAPURNA MODEL

Background

Jharkhand is home to a large number of small, marginal, and tenant farmers who depend on agriculture for their livelihood. However, shrinking landholdings, low soil fertility, erratic rainfall, and rising cultivation costs often limit agricultural productivity and household income. Many farming families are unable to produce sufficient food throughout the year and continue to face food and nutritional insecurity.



To address these challenges, LEADS has developed the Annapurna Model, an integrated farming system designed for a small landholding of half an acre (50 decimals). The model promotes diversified farming by integrating food grains, vegetables, pulses, oilseeds, fruit trees, and organic farming practices. It enables farming families to produce nutritious food throughout the year while generating sustainable income and improving soil health.

Concept

The Annapurna Model is a family-based integrated farming system developed for small and marginal farmers to maximise productivity from a half-acre of land. The model combines annual crops, vegetables, pulses, oilseeds, horticulture, and organic farming in a scientifically planned layout to ensure year-round food production and sustainable income.

The model promotes efficient utilisation of land, water, and locally available resources while reducing dependence on external agricultural inputs. It encourages the use of homemade organic manure, bio-fertilisers, botanical pesticides, and crop diversification to improve soil fertility and environmental sustainability.



The Annapurna Model ensures household food and nutrition security while generating an additional annual income of approximately ₹20,000 to ₹50,000. It also creates employment opportunities for all family members and encourages active participation of women in farming activities.

different farming activities.

Steps of Implementation

Step 1: Land Selection- Select a plot of half an acre (50 decimals) with proper access to water and good sunlight.

Step 2: Land Preparation- The land should be ploughed two to three times to prepare a fine seedbed and remove weeds.

Step 3: Boundary Trench- Dig a trench of approximately 1.5 feet width and 1 foot depth along the boundary of the plot to facilitate drainage and moisture conservation.

Step 4: Raised Bed Preparation- Prepare raised beds of 7 feet width with 2 feet wide and 1 foot deep V-shaped trenches between each bed.

Step 5: Soil Enrichment- Spread the excavated soil evenly over the raised beds and apply organic manure, compost, and tank silt to improve soil fertility and microbial activity.

Step 6: Bed Alignment- Prepare all raised beds in the East-West direction to ensure proper sunlight exposure and healthy crop growth.

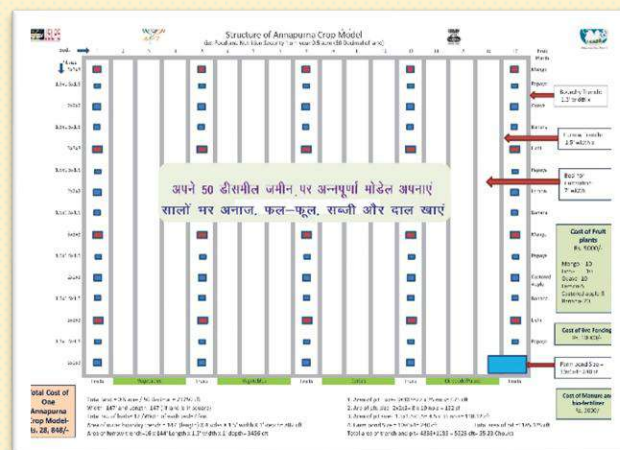
Step 7: Farm Pond Construction- Construct a farm pond measuring approximately 10 feet × 6 feet × 4 feet at the lower corner of the plot to collect excess rainwater for irrigation.

Step 8: Crop Plantation- Plant fruit trees, vegetables, pulses, millets, cereals, and oilseed crops according to the recommended spacing to maximise productivity throughout the year.



Cropping Pattern

- The Annapurna Model follows an integrated cropping system that combines perennial fruit trees with seasonal crops for efficient utilisation of land and continuous production.
- Perennial fruit trees such as Mango, Jackfruit, Guava, Lemon, Jamun, and Amla are planted along the field boundary.
- Short-duration horticultural crops such as Papaya, Banana, Drumstick, and Pomegranate are planted between the perennial trees to provide early returns.
- The raised beds are utilised for cultivating vegetables, leafy vegetables, pulses, millets, cereals, and oilseed crops during different seasons.
- Trap crops such as Marigold and Chrysanthemum are planted to minimise pest infestation naturally.
- Border crops such as Agave, Mehandi, Castor, Jowar, Maize, and Red Gram are planted around the field to protect crops and enhance biodiversity.
- Crop rotation and alternate cropping are practised on each bed to maintain soil fertility, reduce pest incidence, and improve overall productivity.
- Recommended Plant Spacing
- Large fruit trees such as Mango, Jackfruit, Jamun, and Amla should be planted at a spacing of 36 feet.
- Medium-sized fruit trees such as Guava, Lemon, Sapota (Chikoo), and Pomegranate should be planted at a spacing of 18 feet between the larger trees.
- Short-duration fruit crops such as Papaya, Banana, and Drumstick should be planted at a spacing of 9 feet.



12. Fruit trees should always be planted in the East-West direction to ensure proper sunlight distribution.
13. The remaining space between the tree rows is utilised for cultivating seasonal vegetables, pulses, millets, cereals, and oilseed crops on raised beds. This ensures efficient utilisation of land throughout the year.

Outcome for Sustainability

1. Household food and nutritional security improves through year-round production of diversified crops.
2. Annual farm income increases by adopting integrated farming practices.
3. Soil fertility improves through continuous use of organic manure and natural farming practices.
4. Efficient land and water management enhances agricultural productivity.
5. Crop diversification reduces production risks and strengthens climate resilience.
6. Women actively participate in farm management and household income generation.
7. Family members receive year-round employment opportunities within their own farms.
8. Reduced dependence on external agricultural inputs promotes low-cost and sustainable farming.
9. The model strengthens self-reliance and improves the long-term livelihood security of farming families.



LEADS Experience

LEADS has established and promoted 148 Annapurna Model Farms across Jharkhand to strengthen food and nutrition security, sustainable agriculture, and rural livelihoods among small and marginal farmers. The initiative has enabled farming families to maximise productivity from half-acre landholdings through integrated farming, crop diversification, horticulture, organic farming, and water conservation practices. The model has significantly improved household food availability, increased farm income, enhanced soil health, promoted climate-resilient agriculture, and encouraged active participation of women and family members in farming activities.

Concluding Remarks

The Annapurna Model demonstrates how a scientifically planned half-acre farming system can transform the livelihood of small and marginal farming families. By integrating diversified cropping, horticulture, organic farming, water conservation, and family participation, the model ensures year-round food production, improved nutrition, enhanced farm income, and sustainable use of natural resources. It offers a practical, low-cost, and replicable approach for strengthening rural livelihoods and promoting climate-resilient agriculture across Jharkhand.



