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Market-Led Extension Approaches in Horticultural Crops: Demand-Driven Production, Value Chains, and Price Signals

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The horticulture sector in India has emerged as one of the most dynamic segments of agriculture, contributing significantly to agricultural GDP while utilizing a relatively smaller share of cultivated land. India is the second-largest producer of fruits and vegetables globally, with total horticultural production exceeding 369 million tonnes, driven by rising domestic demand, export growth, urbanization, and increased awareness of nutritional security. Despite this growth, farmer income from horticultural crops often remains unstable due to price volatility, post-harvest losses, weak market linkages, and limited access to real-time market information. Traditional production-oriented extension systems, which emphasize yield enhancement alone, are increasingly inadequate in addressing these challenges. In this context, market-led extension approaches have gained prominence by aligning production decisions with market demand, value chain requirements, and price signals, thereby enhancing profitability and sustainability.

Importance and Benefits of Market-Led Extension

Market-led extension plays a critical role in transforming subsistence-oriented horticulture into a competitive, market-responsive enterprise.

1. Enhanced Farmer Income: By aligning crop selection, varieties, and production schedules with market demand, farmers can achieve better price realization. Demand-driven production reduces gluts and price crashes, ensuring stable returns.

2. Risk Reduction: Market intelligence helps farmers anticipate price trends and consumer preferences, reducing marketing risks associated with perishable horticultural produce.

3. Strengthened Value Chains: Market-led extension emphasizes integration across the value chain—input supply, production, post-harvest handling, processing, storage, and marketing—thereby reducing post-harvest losses and improving value addition.

4. Improved Decision-Making: Access to real-time price signals and market information empowers farmers to make informed decisions regarding harvesting, storage, and choice of marketing channels.

Key Components of Market-Led Extension Approaches

1. Demand-Driven Production

Demand-driven production focuses on crop planning based on:

- Consumer preferences
- Market demand forecasts
- Export potential

- Seasonal price trends

This approach encourages diversification toward high-value crops such as pomegranate, dragon fruit, exotic vegetables, spices, and medicinal plants.

2. Value Chain Development

A value chain approach integrates all stages from production to consumption:

Input Supply → Production → Post-Harvest Management → Processing → Storage → Transportation → Marketing → Consumer

Strengthening these linkages ensures quality compliance, value addition, and better market access.

3. Price Signals and Market Information Systems

Price signals guide farmers toward profitable production and marketing decisions. Digital platforms such as:

- **e-NAM (National Agriculture Market)**
- **e-Choupal**
- Market intelligence services and mobile apps provide real-time price discovery, demand information, and transparency in transactions.



Evidence and Practical Examples

Market-led horticulture has demonstrated tangible income benefits across several regions of India:

- **Dragon fruit exports from Odisha to Dubai** fetched prices of around ₹300 per kg, reflecting the benefits of demand-oriented diversification and quality production.
- Empirical studies indicate that **sales through regulated mandis provide 13–73% higher prices** compared to informal marketing channels for fruits and vegetables.
- Government initiatives such as the **Mission Organic Value Chain Development for the North Eastern Region (MOVCD-NER)** have strengthened organic horticulture value chains through integrated support for production, processing, and marketing.

Market-Led Extension Tools and Functions

Tool / Approach	Key Function
e-NAM	Real-time price discovery and digital trading
e-Choupal	Market and advisory information at village level
Farmer Producer Organizations (FPOs)	Aggregation and bargaining power
Cluster Development	Coordinated value chain development
Demand Forecasting	Market-aligned production planning

Conclusion

Market-led extension approaches are essential for achieving sustainable growth and profitability in India's horticulture sector. By integrating demand-driven production, value chain development, and price signal awareness, extension systems can transform farmers from mere producers into market-oriented agri-entrepreneurs. Strengthened digital market infrastructure, farmer producer organizations, and supportive policy frameworks will be crucial for scaling market-led extension and ensuring long-term income security for horticultural farmers.