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Organic Farming in Haryana with Special Reference to Agroha Block: A Case Study of Local Farmers

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Abstract

This research paper explores the status, significance, and future potential of organic farming in Haryana, with a special focus on the Agroha block of Hisar district. The study emphasizes how organic agriculture serves as a sustainable alternative to chemical-intensive farming, especially in regions experiencing soil degradation and water table depletion. Using a mixed-method approach—combining field interviews, GIS-based mapping, and case studies—the paper assesses farmer experiences, government interventions, technological integration (like RS-GIS), and marketing dynamics of organic produce. Farmer case studies from Agroha reveal encouraging trends, including women's participation and youth-led agri-entrepreneurship. Despite several challenges such as certification hurdles, input costs, and lack of infrastructure, the study concludes that with proper policy alignment, community training, and technological support, organic farming can be scaled successfully across Haryana. The paper offers strategic recommendations for building model organic villages, strengthening certification mechanisms, and leveraging RS-GIS tools to ensure data-driven, eco-friendly agricultural development.

Keywords: Organic Farming, Haryana Agriculture, Sustainable Agriculture, Soil Health, Biodiversity

1. Introduction to Organic Farming in Haryana

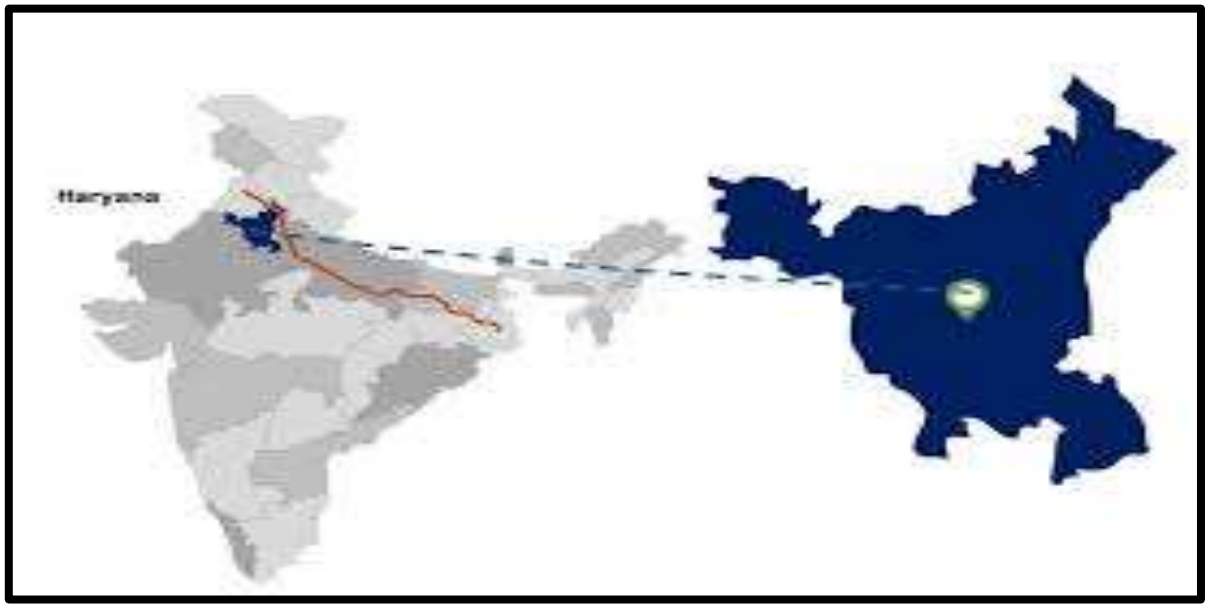
Organic farming, a method of agricultural practice that relies on ecological processes, biodiversity, and cycles adapted to local conditions, is increasingly recognized as a sustainable solution to food production. In Haryana, a state with intensive agricultural practices, the shift towards organic farming is gradually gaining momentum due to concerns over environmental degradation, rising input costs, and consumer demand for chemical-free food. Historically, Indian agriculture was organic by default before the advent of chemical-based Green Revolution techniques. However, soil fertility degradation, pesticide residues in food, and groundwater depletion have made organic farming a necessity in states like Haryana.

Agroha block in Hisar district exemplifies this trend. Farmers here are witnessing the ill effects of chemical-intensive farming, prompting them to revert to organic methods. The Government of India and Haryana State Agriculture Department are encouraging farmers through training and financial incentives. The resurgence of interest in traditional knowledge systems, coupled with scientific validation of organic practices, is laying a strong foundation for organic transformation. The combination of traditional wisdom and modern sustainable practices promises a brighter future for Haryana's agriculture.

Thus, reorienting the state's agricultural practices through organic farming is not only beneficial but necessary for long-term sustainability. Agroha block, located in the Hisar district, offers a unique case due to its proactive farmer groups, supportive infrastructure, and growing interest in organic methods. This paper aims to analyze Haryana's organic farming landscape through the lens of Agroha Block — examining challenges, government interventions, technological integration, and farmer case studies.

Historical Evolution and Current Status of Organic Farming in Haryana

Historically, Haryana's farmers have relied on cow dung manure, green manures, and crop rotation methods — especially in kharif crops like bajra and cotton. The advent of the Green Revolution shifted the paradigm toward high-yielding seeds and chemical inputs. However, over the decades, issues such as falling productivity, pest resistance, and farmer indebtedness have reignited interest in traditional, organic alternatives.



Currently, Haryana has more than 30,000 hectares under organic certification, with growing clusters in districts like Hisar, Sirsa, and Karnal. The state has also been part of the **Paramparagat Krishi Vikas Yojana (PKVY)**, under which 20+ organic clusters have been developed. Agroha Block has emerged as a standout performer, with nearly 150 farmers engaging in organic practices.

Organic farming in Haryana today includes practices like:

- Use of vermicompost and Panchagavya
- Biopesticides such as neem oil and cow urine
- Intercropping and trap crops to manage pests
- Minimal tillage and green manuring for soil health

2. Benefits of Organic Farming

Organic farming offers multifaceted benefits across environmental, health, and economic domains. Environmentally, it enhances soil fertility, reduces water usage, and fosters biodiversity. The use of compost, green manures, and biological pest control contributes to healthier soil ecosystems. Health-wise, organic produce is free from synthetic pesticides and fertilizers, offering safer food for consumers. Studies

have shown that organically grown food often contains higher levels of antioxidants and essential nutrients.

Economically, organic farming can reduce long-term input costs and fetch premium prices in the market. In Haryana, several farmers report 20-30% higher prices for their organic produce compared to conventional crops. Additionally, organic farming encourages local resource utilization, thereby generating rural employment and empowering women in agriculture.

Table 1: Comparison of Organic and Conventional Farming

Parameter	Organic Farming	Conventional Farming	
Soil Health	Improves	Degrades over time	
Water Use	Lower	Higher	
Chemical Use	Avoided	High	
Market Price	Premium	Standard	

Methodology

This study adopts a **mixed-method approach**, combining **field surveys, interviews, case studies**, and **RS-GIS analysis**. The Agroha block of Hisar district was **purposively selected** due to its active adoption of organic farming.

- **Primary data** was collected through structured interviews with 30 organic farmers, focus group discussions with SHGs and FPOs, and field visits.
- **Secondary data** sources included government reports, research publications, and RS-GIS data from Bhuvan and other platforms.
- **Sampling** was purposive, targeting experienced organic farmers, women-led households, and agri-startups.
- **Analysis** involved descriptive statistics, thematic coding for qualitative data, and GIS-based spatial mapping.
- **Tools** used: survey questionnaire, GIS software (QGIS), and observation checklists.

Government Policies and Schemes Supporting Organic Farming

To promote organic agriculture, the Indian government — and Haryana in particular — has launched several initiatives:

a) Paramparagat Krishi Vikas Yojana (PKVY):

- Focus: Cluster-based organic farming with Participatory Guarantee System (PGS).
- Financial Assistance: ₹50,000/ha over 3 years.
- Coverage: 13 clusters in Hisar region alone.

b) Rashtriya Krishi Vikas Yojana (RKVY):

- Includes assistance for training, vermicompost units, and marketing.

c) National Mission on Sustainable Agriculture (NMSA):

- Promotes soil health management and rain-fed organic farming.

d) State Initiatives in Haryana:

- Haryana Organic Farming Policy (Draft): Focuses on organic corridor development along Yamuna and Ghaggar rivers.
- Organic farmers are linked to Farmer Producer Organizations (FPOs).

Challenges in Policy Implementation:

- Certification delays (especially NPOP vs PGS)
- Lack of district-level support staff
- Minimal organic procurement by HAFED (state agri-coop)

Recommendations:

- Establish Haryana Organic Board
- Expand e-NAM linkage for organic produce
- Tax exemption for organic inputs

4. Organic Crop Patterns and Practices in Haryana

The agro-climatic diversity of Haryana supports a wide range of organic crops. Farmers grow cereals like wheat and bajra, pulses such as moong and urad, and vegetables including spinach, brinjal, and okra. Cash crops like mustard and organic cotton are also cultivated in certain belts. Traditional practices like intercropping, crop rotation, and use of natural pest repellents are widely followed. For instance, planting marigold alongside vegetables repels nematodes and whiteflies.

Training programs led by Krishi Vigyan Kendras (KVKs) and NGOs have helped farmers adopt methods such as composting, use of Panchagavya, and biopesticides. In Agroha, farmers utilize cow dung slurry, neem extracts, and fermented jaggery mixtures for soil and pest management. However, constraints such as limited organic seed availability and perishability of produce pose significant challenges.

5. Soil Health and Water Management in Organic Systems

Healthy soil and efficient water use are cornerstones of organic farming. Organic practices restore soil organic matter, enhance microbial life, and improve nutrient cycling. Techniques like mulching, cover cropping, and composting contribute significantly to these outcomes. In Haryana, areas practicing organic farming have shown increases in soil organic carbon by up to 0.4% over three years.

Water-saving practices such as drip irrigation and rainwater harvesting are increasingly adopted. Organic mulch helps in reducing evaporation losses, particularly in water-scarce regions of southern Haryana. Integrated nutrient management using compost, green manure, and biofertilizers enhances water infiltration and reduces runoff.

Table 2: Impact of Organic Techniques on Soil and Water

Practice	Soil Benefit	Water Benefit
Composting	Increases fertility	Improves moisture retention
Mulching	Controls temperature	Reduces evaporation
Cover Cropping	Prevents erosion	Enhances groundwater recharge

6. Integration of Remote Sensing (RS) and GIS in Organic Farming

Remote Sensing (RS) and Geographic Information Systems (GIS) technologies are increasingly supporting organic farming decision-making in Haryana. RS tools like NDVI (Normalized Difference Vegetation Index) allow farmers to monitor crop health, detect drought stress, and estimate biomass. GIS platforms facilitate mapping of organic zones, land suitability analysis, and resource planning.

In Agroha block, a pilot by CCS HAU mapped over 120 farms using satellite data. It revealed areas with declining water tables and nutrient deficiencies. Based on GIS analysis, organic clusters were formed near water-efficient zones and market proximity. These technologies also assist in tracing produce origin, thus enabling farm-to-fork transparency.

Though beneficial, these tools face hurdles like high costs, lack of local expertise, and limited digital literacy. Establishing community-level training and subsidies for digital tools can overcome these barriers and scale up the adoption.

7. Challenges Faced in Adoption of Organic Farming in Haryana

Despite its advantages, organic farming in Haryana encounters several obstacles. First, there's a knowledge gap. Many farmers are unaware of certification norms, organic input preparation, and pest control methods. Extension services need strengthening to bridge this gap.

Economically, the initial phase of transition—called the conversion period—can be financially stressful. Crop yields may dip slightly, while farmers bear the costs of certification and organic inputs. Furthermore, limited access to dedicated organic markets disincentivizes producers.

Infrastructure challenges such as lack of cold chains and storage facilities further complicate matters. Policy delays, fragmented implementation, and certification bureaucracy add to the burden. To overcome these, integrated support models with technical training, market linkages, and easier certification are necessary.

8. Farmer Case Studies from Agroha Block

Several farmers in Agroha have embraced organic farming with impressive outcomes. Menpal singhi, a vegetable grower from kajla, started with just 0.75 acres in 2018. Today, she manages 3 acres and has doubled her income through compost use and intercropping. Her initiative includes training programs for women in compost preparation.

Joginder and Sons practice mixed farming—integrating mustard, legumes, and dairy. They convert cow dung into biogas and organic fertilizer, creating a circular farming model. Pravesh Kumar, a young graduate, launched 'Harit Kranti', a farm-to-fork service employing five youths and linking 12 farms to urban consumers in Hisar.

These stories highlight key success factors: - Women's leadership in value-added composting - Youth involvement and entrepreneurship - Livestock integration for nutrient recycling

9. Conclusion and Recommendations

Organic farming offers a pathway for Haryana to achieve sustainable, profitable, and environmentally sound agriculture. The convergence of traditional knowledge, modern science, and policy support can catalyze this transformation. Government schemes are creating enabling conditions, but stronger focus on capacity building, market development, and digital integration is required.

Key Recommendations: - Introduce Haryana Organic Farming Policy - Build district-level organic mandis and cold chains - Expand RS-GIS support and mobile-based advisory tools - Promote Model Organic Villages in each district

With adequate support, Agroha block's transition can become a model for organic revolution across Haryana and North India.

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