



DAILY EDITORIAL ANALYSIS

TOPIC

**DIGITAL TECHNOLOGIES: WOMEN &
FARM WORK IN INDIA**

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Context

- Recent advancements in technology are empowering women farmers and giving them a stronger voice on farms.

Key Contributions of Women in Agriculture

- Agriculture is the backbone of India's economy, employing **nearly 54.6% of the total workforce** (Census2011), with **women making up about 75% of the full-time farm labor force**.
 - The workforce participation rate for rural females is significantly higher at 41.8% against urban women participation rate of 35.31% (MoSPI, 2017).
- Women comprise a substantial portion of the agricultural workforce, especially in **rural areas, where 80% of women rely on agriculture for livelihood (ICAR Data)**.
 - The work of rural women in India is responsible for 60-80% of the country's food production.

Role of Digital Technologies in Women's Agricultural Work

- Enhanced Decision-Making Through Digital Tools:** Mobile-based agricultural advisory services (such as Digital Green, Precision Agriculture for Development) provide *real-time weather updates, market prices, and farming techniques*.
- Increased Productivity and Reduced Labor Burden:** Irrigation technologies (**drip irrigation, solar-powered pumps**) provide women with greater autonomy over water management, especially in drought-prone areas.
 - Climate-resilient farming techniques**, including drought-resistant seeds and vertical farming, allow women to maintain productivity despite changing climate conditions.
- Mobile-Based Solutions for Market Access:**
 - eNAM (National Agriculture Market):** It allows women to connect with buyers directly.
 - Kisan Suvidha and AgriMarket App** help in price discovery and weather forecasts.
 - Pusa Krishi** offers expert agricultural advice to improve yields.
- Digital Financial Services for Women Farmers:** These enable women to receive payments securely, avail of loans, and participate in decision-making.
 - Aadhaar-enabled Payment Systems (AePS)**
 - Direct Benefit Transfer (DBT)** for subsidies
 - Access to Finance and Credit:** Initiatives like the **Pradhan Mantri Jan Dhan Yojana** and the **Self Help Group (SHG) - Bank Linkage** platforms like the **Mahila Kisan Sashaktikaran Pariyojana (MKSP)** have played a crucial role in improving women's access to finance.
- AI, IoT, and Smart Farming Technologies:**
 - AI-powered crop disease detection apps that provide real-time alerts.
 - IoT-based smart irrigation systems that optimize water use and reduce labor burden.
 - Precision Agriculture** technologies, such as **GPS-guided equipment and drones**, have significantly enhanced the efficiency and productivity of farming operations.
- Online Training & Capacity Building:** Government programs such as the **Digital India Initiative** and **National Rural Livelihoods Mission (NRLM)** have introduced digital literacy programs targeted at rural women. Online platforms like:
 - Digital Green:** Uses participatory videos to train women farmers.
 - YouTube Agricultural Channels:** Provide free farming lessons.
 - Organizations like the **M S Swaminathan Research Foundation** and various government agencies provide training on the **use of modern agricultural tools and techniques**.
- Gender-Inclusive Agri-Tech Startups:** Startups like Kalgudi, CropIn, and DeHaat provide AI-driven farm advisory, weather alerts, and soil analysis, empowering women farmers.

Challenges in Adoption of Digital Technologies

- **Limited land ownership:** Only about **12.8% of the operational holdings** were owned by women, which reflects the gender disparity in ownership of landholdings in agriculture.
 - ♦ Moreover, there is a concentration of operational holdings (25.7%) by women in the marginal and small holdings categories.
- **Gender wage gap:** Women agricultural workers earn 20-30% less than their male counterparts.
- **Limited Digital Literacy:** Many rural women lack the skills to operate digital platforms.
- **Gendered Socio-Cultural Barriers:** Societal norms restrict women's mobility and independent decision-making.
- **Financial Constraints:** Smartphones and internet access remain costly for some women.
- **Lack of Localized Content:** Many digital tools are in English or Hindi, limiting regional language accessibility.

Initiatives Supporting Digital Agriculture for Women in India

- **Digital Agriculture Mission (2021-2025):** It promotes digital technologies like AI, IoT, blockchain, and remote sensing in farming.
 - ♦ Women farmers can access precision agriculture tools, digital advisories, and financial services through this initiative.
- **National e-Governance Plan in Agriculture (NeGPA):** It focuses on the digital transformation of agriculture by integrating ICT-based solutions.
 - ♦ Special provisions are made for women farmers, including mobile-based advisories and digital market access.
- **Mahila Kisan Sashaktikaran Pariyojana (MKSP):** A **sub-component of the National Rural Livelihood Mission (NRLM)**, MKSP aims to empower women in agriculture.
 - ♦ Digital tools are used to train women in climate-resilient practices and sustainable farming.
- **Kisan Suvidha App:** A mobile app providing weather updates, market prices, and expert guidance.
 - ♦ It enables women farmers to make informed decisions in agriculture.
- **PM KISAN & Direct Benefit Transfers:** Ensures financial support directly to farmers' bank accounts, including women farmers.
 - ♦ Encourages financial independence and access to credit for women in agriculture.
- **AGRI STACK:** A digital database that helps create farmer-centric digital services.
 - ♦ Women farmers can access customized support for inputs, finance, and markets.

Conclusion

- The integration of technology in agriculture is transforming the landscape for women farmers, giving them greater control over their farming operations and enhancing their decision-making power.
- By providing access to digital tools, precision agriculture, financial services, mechanization, and training, these technologies are paving the way for a more inclusive and equitable agricultural sector.
- As women continue to embrace these innovations, they are poised to play an even more significant role in shaping the future of farming.

Source: IE

Mains Practice Question

[Q] Discuss how technological advancements in agriculture have empowered women farmers by enhancing their decision-making and productivity. What challenges still hinder their access to these technologies, and how can these barriers be addressed to ensure equitable participation in farming?

