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Women Farmers: The Driving Force of Agricultural Transformation

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WOMEN FARMERS: THE DRIVING FORCE OF AGRICULTURAL TRANSFORMATION

Dr. R. S. Paroda

Introduction

Agriculture remains the cornerstone of India's economy, providing food security, livelihoods, and nutrition to over a billion people. Within this critical sector, rural women represent one of the most vital yet under-recognized workforces, serving as the backbone of agricultural production and rural sustainability across the entire value chain. Their multifaceted contributions encompass field operations including sowing, transplanting, weeding, harvesting, and crop management, alongside comprehensive livestock management covering dairy, poultry, and animal husbandry. Women also drive allied sectors such as horticulture, fisheries, sericulture, and food processing, while managing essential post-harvest activities like processing, storage, and value addition.

Beyond direct agricultural engagement, rural women shoulder dual responsibilities that sustain both farm productivity and household stability. They establish critical market linkages through local trading and produce marketing, ensure family nutrition through child-care, cooking, and dietary management, and oversee household economy through financial management and resource allocation. Despite performing nearly 80% of farm operations, managing 90% of livestock care, and contributing over 50% to family income, women own less than 20% of agricultural land and remain significantly under-invested in terms of technology access, credit facilities, training programs, and decision-making authority.

This recognition-investment gap represents a substantial missed opportunity for India's agricultural transformation. Equipping rural women with modern tools, financial inclusion, skill development, and leadership opportunities holds transformative potential to increase agricultural productivity by 20-30% while ensuring sustainable rural development. When women gain equitable access to resources and opportunities, they don't just enhance farm output—they strengthen food systems, improve nutritional outcomes, empower households, and drive economic resilience across rural India.

Global Conference on Women in Agri-Food Systems (GCWAS-2026)

Driving Progress,
Attaining New Heights

March 12-14, New Delhi, India

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Many of these contributions remain invisible in formal economic statistics because they are not categorized as “economically active employment.” Nevertheless, their impact on rural livelihoods and family welfare is immense. Women’s labour supports not only agricultural productivity but also the well-being and stability of rural households. Their role in nurturing family health, ensuring food security, and encouraging education among children significantly shapes the socio-economic development of rural communities.

Despite this crucial contribution, women’s efforts are often undervalued, underpaid, or unrecognized. Understanding and strengthening women’s participation in agriculture is therefore essential for sustainable agricultural growth and rural

development.

2026 is the UN-designated International Year of the Woman Farmer (IYWF 2026), proclaimed by the UN General Assembly to recognize women’s essential yet often invisible contributions to global agrifood systems. It aims to drive policy reforms, boost investments, and foster partnerships to close these gaps, potentially increasing global GDP by \$1 trillion and reducing food insecurity for 45 million people.

The Multi-Dimensional Role of Women in Agriculture

Historically, women have played a fundamental role in the evolution of agriculture. Anthropological evidence suggests that women were among the earliest innovators of farming. While men were engaged in hunting activities, women began gathering seeds and experimenting with their cultivation. This gradual process eventually led to the domestication of

crop plants and the emergence of settled agricultural communities. Since then, women have remained central to the development and sustainability of agriculture. They contribute not only to food production but also to the conservation of natural resources such as land, water, forests, and biodiversity. Through traditional practices like organic recycling, seed preservation, and crop diversification, women have helped maintain soil health and genetic diversity in farming systems. Women's work in agriculture can broadly be categorized into three interconnected domains.

First, they play a significant role in farm production activities such as seed selection, sowing, transplanting, irrigation, application of fertilizers and pesticides, harvesting, threshing, winnowing, and storage of agricultural produce.

Second, women carry out numerous domestic responsibilities including cooking, child-rearing, collecting water and fuel, cleaning, and managing household consumption. These activities ensure the survival and welfare of farm households. Third, women are actively involved in allied agricultural sectors such as livestock management, dairy production, fodder collection, poultry keeping, and small-scale agro-processing.

Despite such extensive participation, women often have limited access to modern agricultural technologies, improved tools, credit facilities, and extension services. As a result, their labour-intensive work yields lower economic returns compared to men. In India, women contribute between 55 and 66 percent of the total labour involved in agricultural production. In certain regions the contribution is even higher. For example, studies conducted in the Himalayan region reveal that on a one-hectare farm, a pair of bullocks works about 1,064 hours annually, a man works around 1,212 hours, whereas a woman contributes nearly 3,485 hours of labour. This clearly demonstrates the magnitude of women's involvement in farming activities.

Globally, women farmers represent nearly a quarter of the world's population and produce more than half of the world's food. Women also reinvest a much larger portion of their earnings into family welfare compared to men. Studies indicate that women invest nearly ten times more of their income into children's education, nutrition, and healthcare.

Ensuring equal access to agricultural inputs, knowledge, and resources for women could significantly enhance global food production. It is estimated that bridging the gender gap in agriculture could increase crop productivity by 20–30 percent and raise overall agricultural output in developing countries by 2–4 percent, potentially reducing global hunger by up to 17 percent.

These observations highlight that empowering woman is not only a matter of social justice but also a powerful strategy for achieving food and nutritional security.

Limited Role of Women in Decision-Making

Although women form the backbone of the agricultural workforce, they continue to remain among the most vulnerable and marginalized groups in rural societies. In most developing countries, including India, women bear the double burden of agricultural labour and domestic responsibilities while having minimal influence in decision-making processes. In Indian agriculture, women undertake some of the most physically demanding farm operations. They perform nearly half of transplanting and threshing work, around one-third of harvesting activities, and a majority of post-harvest operations. Women are also primarily responsible for livestock care, fodder management, and household food preparation.

Yet their access to key resources such as land, credit, training, and agricultural inputs remains severely restricted. Land ownership in rural India is predominantly male-dominated, which automatically excludes many women from formal financial systems and government agricultural support schemes.

Statistics show that only around 11 percent of women have ownership of agricultural land, and even among them most are small or marginal farmers. Without land titles, women often face difficulty accessing institutional credit, insurance schemes, and agricultural subsidies.

Furthermore, marketing of agricultural produce is typically controlled by male members of the household. As a result, men often control the financial returns from women's labour. Industrialization and migration have also reshaped rural demographics. As increasing numbers of men migrate to urban areas in search of employment, women are left to manage farms and households simultaneously. Despite taking on greater responsibilities, their work remains largely unpaid and socially undervalued.

Another major challenge is that agricultural research and extension systems have historically been gender-blind. Technologies are often designed without considering women's physical needs, workload, or cultural constraints. Such inequalities not only limit women's potential but also hinder overall agricultural productivity and economic growth.

Women's Role in Agricultural Innovation Systems

Innovation plays a crucial role in transforming agriculture, but its success depends on whether it addresses the needs of all stakeholders, including women farmers. Historically, women have been largely excluded from innovation processes, including research planning, technology development, and policy discussions. To make agricultural innovations more inclusive and effective, women must be actively involved in knowledge generation and decision-making across the agricultural value chain.

Women already play an important role in post-harvest management, food processing, storage, and marketing. These

areas connect agricultural production directly with household nutrition and income generation. Therefore, innovations in these sectors can significantly enhance women's livelihoods.

For example, in the dairy sector, innovations such as milk chilling plants, refrigerated transport systems, and small-scale processing units for products like yogurt, ghee, and cheese can greatly improve value addition and income opportunities for rural women.

Similarly, women's participation in farmer producer organizations, rural enterprises, and agricultural cooperatives can strengthen rural economies while promoting gender equity.

To achieve this, agricultural innovation systems must adopt a holistic approach that recognizes women's roles in family welfare, child nutrition, food security, and rural livelihoods. Gender-sensitive policies and participatory research approaches are essential to ensure that new technologies genuinely benefit women farmers.

Empowering Women in Agriculture

In recent years, there has been growing recognition worldwide that empowering women is essential for achieving sustainable agricultural development and inclusive economic growth. Several international organizations, including agricultural research networks and development agencies, are working together to promote gender equality in agriculture.

India has been a pioneer in acknowledging the role of women in agriculture. In 1996, the country established the National Research Centre for Women in Agriculture in Bhubaneswar, which later evolved into the ICAR-Central Institute for Women in Agriculture (CIWA). This institution focuses on developing women-friendly agricultural technologies, improving gender-sensitive farming systems, and reducing drudgery in farm operations. The institute also conducts skill development programs, vocational training, and capacity-building initiatives aimed at empowering rural women

through technology adoption and entrepreneurship. Empowerment initiatives have gradually shifted women's roles from passive beneficiaries to active partners in development. Policy reforms have also been proposed to improve women's access to land, water, credit, and agricultural inputs.

One significant policy suggestion was the Women Farmers' Entitlement Bill (2011) proposed by Dr. M. S. Swaminathan, which aimed to recognize women as farmers and ensure their rights to agricultural resources and institutional support.

The First Global Conference on Women in Agriculture

Recognizing the importance of gender equality in agriculture, India hosted the First Global Conference on Women in Agriculture (GCWA) in New Delhi in March 2012. The conference brought together women farmers, scientists, policymakers, and development experts from over fifty countries to discuss strategies for reducing gender disparities in agriculture. During the conference, leaders emphasized that empowering women with knowledge, skills, and access to technology is essential for achieving food and nutritional security. It was also highlighted that much of the available agricultural technology fails to reach rural women due to social, institutional, and cultural barriers.

One of the key recommendations emerging from the conference was the establishment of Mahila Kisan Mandals (Women Farmers' Groups) at the village level. These groups could serve as platforms for training, knowledge sharing, and collective action in agriculture and marketing.

Another important proposal was the development of a global knowledge-sharing platform for gender issues in agriculture. Such a platform would facilitate collaboration among research institutions, governments, development agencies, and grassroots organizations to

address gender gaps in farming systems.

Global Conference on Women in Agri-Food Systems (GCWAS-2026)

To align with the UN's International Year of the Woman Farmer (IYWF 2026) proclaimed to recognize women's critical role in producing nearly half the world's food, bridge gaps in land and credit access, and unlock \$1 trillion in global GDP gains through FAO-led reforms—the Global Conference on Women in Agri-Food Systems (GCWAS-2026) concluded in New Delhi from March 12-14 with the adoption of the Delhi Declaration. This landmark document calls for a Global Alliance on Women in Agri-Food Systems (GAWAS) to champion gender-responsive policies and innovations.

Inaugurated by President Droupadi Murmu alongside Union Agriculture Minister Shivraj Singh Chouhan, the GCWAS-2026 convened policymakers, scientists, and leaders from 18 countries. The conference culminated in ICAR's announcing the creation of a 'National Gender Platform' linking over 900 institutions to strengthen women-centric research and extension services. Emphasis was placed on translating dialogue into institutional support for women, who form 60-70% of agricultural labor, alongside recommendations for leadership development, credit and market access, gender-disaggregated data, and climate-resilient practices under the One Health framework, thereby reinforcing India's leadership in sustainable agri-food systems.

Women and Household Nutritional Security

The relationship between agriculture, nutrition, and women's empowerment is widely recognized. Women play a central role in determining household food consumption patterns, nutritional choices, and child health outcomes.

Malnutrition remains a serious challenge in many developing countries, particularly among women and children in rural areas. Empowering women with income,



education, and decision-making power can significantly improve nutritional outcomes. Studies have shown that when women control household income, they are more likely to invest in better food, healthcare, and education for their children. Therefore, policies aimed at improving household nutritional security must prioritize women's empowerment. Agricultural research and development systems must also focus on promoting nutrition-sensitive agriculture, encouraging the cultivation of Nutrient-rich crops, and supporting women-led microenterprises in food processing and value addition. Improving women's access to market information, digital technologies, and agricultural infrastructure can further enhance their economic independence and contribution to rural development.

Ensuring Visibility of Women in Agriculture

Despite overwhelming evidence of

women's contribution to agriculture, many policymakers and development professionals still underestimate their role. This lack of recognition has resulted in policies and programs that fail to address the specific needs of women farmers.

Increasing women's visibility in agricultural value chains is therefore essential. This includes recognizing their contributions in crop production, livestock management, forestry, fisheries, and agro-processing.

Women should also be encouraged to take leadership roles in agricultural research institutions, farmer organizations, cooperatives, and policymaking bodies. Reliable gender-disaggregated data must be generated to accurately capture women's contributions and inform evidence-based policymaking. Most importantly, women themselves must become aware of the economic and social value of their work so that they can actively demand recognition, rights, and



opportunities.

Way Forward

Women play a vital role in almost every aspect of agriculture and rural livelihoods. However, achieving inclusive agricultural growth requires deliberate efforts to empower women and remove structural barriers that limit their participation.

First, there is a need for collective advocacy to raise awareness about women's contributions to agriculture and ensure their visibility in policy discussions. **Second**, education and skill development programs must be expanded to enable women to adopt modern farming techniques and participate in diversified agricultural enterprises.

Third, collective action through women's self-help groups, cooperatives, and producer organizations should be strengthened to enhance women's bargaining power in markets.

Fourth, efforts must be made to reduce

drudgery in farm operations by promoting women-friendly tools and technologies.

Fifth, gender-sensitive agricultural research and extension systems should be developed to address the specific needs of women farmers.

Sixth, policies and legal frameworks must ensure women's rights to land ownership, credit, markets, and institutional support.

Finally, social and cultural institutions must evolve to create an environment in which women can fully realize their potential as farmers, entrepreneurs, and leaders. Investing in women's education, skills, and leadership will not only improve agricultural productivity but also contribute to better nutrition, health, and education outcomes for future generations.

Empowering women in agriculture is therefore not merely a development priority it is a strategic necessity for achieving sustainable development and ensuring food and nutritional security for the world.

(About the Author: Dr. R. S. Paroda is the Chairman, Trust for Advancement of Agricultural Sciences (TAAS), Former Secretary, DARE & Director General, ICAR)