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Invisible yet indispensable: Exploring the role of women entrepreneurs in agriculture

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Abstract
Women have long been integral to India's agricultural system, contributing significantly to cultivation, livestock management, and food security, yet their labour remains largely invisible and unacknowledged in policy and practice. This paper aims to explore the avenues of women entrepreneurship in agriculture by examining their participation in primary production, analysing the phenomenon of feminisation of agriculture, and identifying the key barriers that hinder their recognition and empowerment. The study delves into the changing dynamics of gender roles in agriculture due to male migration and increasing female labour responsibilities, commonly referred to as the feminisation of agriculture. It reveals that while women have stepped into expanded agricultural roles, they continue to face systemic obstacles such as lack of land rights, restricted access to finance, limited mobility, and cultural constraints. Despite these challenges, women are gradually emerging as decision-makers and entrepreneurs in agriculture. The paper concludes that without structural reforms and institutional recognition, the potential of women agri-entrepreneurs will remain underutilised.

Keyword: Women entrepreneurs, agriculture, feminisation of agriculture, primary production, gender roles, rural development, underrepresentation, barriers to entrepreneurship

1. Introduction
Agriculture in India is not merely an occupation; it is a deeply embedded cultural and socio-economic activity that sustains over half the population. Traditionally perceived as a male-dominated sector, agriculture has witnessed a quiet yet significant transformation with women playing increasingly vital roles. Despite their growing involvement, women's contributions remain largely invisible and undervalued (Lahiri Dutt, 2014) [22]. The phenomenon of women stepping into roles of cultivators, labourers, and even entrepreneurs within agriculture has given rise to discussions around the feminisation of agriculture (Farnworth *et al*., 2023) [16].

The persistent underrepresentation of women in agricultural statistics and policies creates a gap in understanding the challenges and potential of women farmers and entrepreneurs. According to the Indian Council of Agricultural Research, women constitute a majority of the agricultural workforce in several sectors such as 75 percent in crop production, 79 percent in horticulture, and 90 percent in fisheries and animal husbandry, yet they receive minimal recognition, access to land, or economic benefits (Sapna and Navjot, 2025) [32]. Globally, this invisibility is echoed in the United Nations report which states that women comprise half the population, contribute 66 percent of labor, but receive only 10 percent of income and own a mere 1 percent of land resources.

With male migration to urban areas and growing distress in agrarian economies (Mishra, 2006; Dev, 2012) [26, 11], rural women have assumed expanded responsibilities in managing agricultural livelihoods. This shift, often driven by necessity rather than opportunity, has simultaneously increased their workload and opened new entrepreneurial avenues in agriculture. From primary production to value-added agro-based enterprises, women have begun to redefine their roles not just as farmhands but as decision-makers and entrepreneurs (Agarwal, 2012; Pattnaik *et al*., 2018) [2, 29]. However, this transition is fraught with systemic barriers including limited access to credit, technology, training, and land ownership.

This paper aims to explore the often-overlooked yet indispensable role of women entrepreneurs in Indian agriculture. It critically examines the implications of feminisation of

agriculture, the shifting identity of women from labourers to entrepreneurs, and the structural barriers that hinder their full participation. By analyzing women's roles in both traditional farming and emerging entrepreneurial ventures, the study seeks to reposition women from being invisible contributors to acknowledged leaders in agricultural innovation and sustainability.

2. Defining Agricultural Entrepreneurship

Agricultural entrepreneurship refers to doing agriculture in a business-oriented and innovative way. It means that instead of only growing crops for survival or family needs, people start thinking of farming as a business. They make plans, take calculated risks, adopt new technologies, and try to earn profits through various agricultural and allied activities (Kahan, 2013) [20]. Agricultural entrepreneurs do not just grow crops; they may also be involved in food processing, packaging, storage, marketing, or selling farm-related products and services.

In simple terms, an agricultural entrepreneur is someone who finds new and better ways of doing farming or related work and tries to turn it into a source of income and employment. This can include activities like starting a dairy business, setting up a mushroom unit, preparing organic compost, growing medicinal plants, or even offering agro-tourism experiences (Jhamtani & Singh, 2005) [19].

This concept is especially important in a country like India where agriculture supports a large population. Traditional farming is often less profitable and uncertain due to climate conditions and market risks. Therefore, shifting towards entrepreneurship in agriculture helps farmers become more self-reliant, earn better income, and reduce their dependence on middlemen (Sulaiman & van den Ban, 2000) [39].

For women, agricultural entrepreneurship opens up new opportunities. Many rural women already have skills in food preservation, seed management, and livestock care. If they are supported with training, credit, and market access, they can successfully run small agri-businesses. This not only improves their own economic condition but also contributes to rural development and women's empowerment (Mehta & Mehta, 2011) [24].

Thus, agricultural entrepreneurship is not just about doing farming, it is about turning farming into a sustainable and profitable activity using innovation, planning, and market understanding.

3. Underrepresentation and Invisible Work

Women have historically played a pivotal role in agricultural development, yet their labour remains largely unacknowledged and unrecorded in both national data systems and public discourse. The persistent underrepresentation of women in agricultural policymaking and research stems not from their absence in the sector, but from the invisibility of their contributions within formal and informal agricultural frameworks. Their work, often unpaid or underpaid, is rarely recognized as "economic activity," thereby excluding them from social security schemes, land rights, and decision-making bodies (Agarwal, 2003; Kelkar & Wang, 2007) [1, 21].

Agriculture has undergone significant changes across historical periods, but the perception of women as secondary or supportive labourers has remained deeply entrenched. As noted by Sapna and Navjot (2025) [32], even as technological and institutional advancements occur in farming systems, the status of women in agriculture remains marginalised. Despite their overwhelming involvement, their contributions are perceived as extensions of domestic roles rather than as skilled and essential components of agricultural productivity.

Empirical data support this dichotomy between contribution and recognition. According to the Indian Council of Agricultural Research (ICAR), women's participation rates in the production of major crops is around 75 percent, 79 percent in horticulture, 51 percent in post-harvest activities, and an astonishing 90 percent in fisheries and animal husbandry. Yet, women rarely own land, have limited access to institutional credit, are underrepresented in agricultural cooperatives, and are typically excluded from training and extension programs (Sapna & Navjot, 2025) [32]. These figures highlight how women remain the backbone of agriculture while occupying its most invisible margins.

The problem of invisibility is not confined to India. According to the United Nations, women constitute 50 percent of the global population, undertake 66 percent of the world's work, and produce half of its food. Yet, they receive only 10 percent of global income and own just 1 percent of the land (United Nations, n.d.). This global pattern reflects a systemic bias against recognizing women's labour as economically productive and worthy of remuneration or representation.

Women in rural households are typically involved in multiple agricultural tasks including sowing, transplanting, weeding, irrigation, harvesting, winnowing, and processing. However, such work is often classified as "helping" the male head of household, and therefore not considered formal work (Srivastava & Srivastava, 2009) [38]. Consequently, women's work in agriculture is often unpaid, unaccounted, and undervalued, contributing to what scholars refer to as the "feminisation of informal labour."

This invisibility is reinforced through the gendered division of labour where men are typically associated with mechanised or visible aspects of farming, such as ploughing and operating equipment, whereas women are relegated to manual and repetitive tasks. Furthermore, traditional norms discourage women from participating in public decision-making platforms or owning productive assets, which further limits their visibility in agricultural leadership roles (Lahiri-Dutt, 2014) [22].

Cultural norms also frame women's work as part of their familial duties, thereby diminishing its economic value. The domestic-agricultural overlap leads to what is referred to as "time poverty," where women shoulder a dual burden of unpaid household chores and intensive agricultural labour without social or financial recognition (Kelkar & Wang, 2007) [21]. As a result, policy frameworks that rely on quantifiable data often underestimate the real extent of women's involvement in agriculture.

Addressing this systemic invisibility requires not only improving statistical methods and gender-disaggregated data but also redefining how labour is recognised and valued within agricultural systems. Making women visible in agriculture is the first step toward ensuring equitable access to resources, technology, and decision-making power.

4. Women Entrepreneurs in Agriculture Primary Production

Primary agricultural production includes activities such as growing crops, managing livestock, and cultivating fruits and vegetables. Traditionally, these activities have been viewed as male-dominated. However, in recent decades, the role of women in primary agricultural production has increased significantly, particularly in rural areas. Many women are not just farm workers but also decision-makers and entrepreneurs in agriculture today (Srivastava & Srivastava, 2009) [38].

According to the National Sample Survey Organisation (NSSO), the percentage of women involved in farming has steadily risen over time. In 1999-2000, women made up 38 percent of all farmers in India, and this share increased to 42 percent by 2004-2005. By 2011-12, nearly 75 percent of rural women were working in agriculture, compared to 59 percent of men (NSSO, 2014). These numbers indicate that women are not just supporting agriculture - they are leading it in many parts of the country.

Despite their large presence, women often face barriers like lack of land ownership, limited access to credit, and minimal exposure to modern technology. Even when they take entrepreneurial roles such as producing organic vegetables, dairy products, pickles, or herbal products, their identity as "entrepreneurs" is often not recognized. They are frequently seen as "helping" the male head of the household, which makes their contribution invisible in official statistics (Chowdhry, 1993; Agarwal, 2003) [1, 8].

Still, women continue to innovate and sustain agricultural enterprises, especially in sectors like dairy, floriculture, poultry, and food processing. These activities fall under primary production and are often managed from home or small farm spaces. Through self-help groups (SHGs), cooperatives, and local networks, many rural women have become small-scale agri-entrepreneurs. Their businesses not only generate income but also create employment opportunities for other women in the community (Mehta & Mehta, 2011) [24].

The increasing feminisation of agriculture has led to a gradual shift in gender roles. Women are no longer just labourers but are emerging as economic agents who plan, manage, and invest in farm enterprises. Recognizing women as entrepreneurs in primary production is key to making agriculture inclusive, productive, and sustainable.

5. Feminisation of Agriculture

The migration of male members without the wife and children has become a culturally accepted trend in the developing regions. In patriarchal societies, migration is gendered (Srivastava, 2011) [37]. When husbands cross the border to work, they leave their families behind; wives and children do not accompany them, which seemed the most economically feasible option (Ullah, 2017) [42], and because of the adverse living conditions at the destinations (Biao, 2007) [6]. Women are left behind as guardians of the land to ensure food security, livelihood, and collateral (Srivastava, 2011) [37].

India's agricultural sector evinces numerous dimensions of crisis including declining plot sizes, food price inflation, increasing production costs relative to farm incomes, farmer suicides, and so on (Mishra, 2006; Dev, 2012; Pritchard *et al*., 2014) [26, 29]. Deepening agrarian crisis has encouraged rural men to seek livelihood opportunities outside of agriculture and to migrate out of rural areas in search of work (Tumbe, 2014; Agrawal & Chandrasekhar, 2015) [41, 3]. As women's roles in agriculture change, both in response to men's labour market activities and in pursuit of their own aspirations, the very idea of who might be considered a 'farmer' or of what constitutes a 'farming livelihood' is being reframed.

Due to the emergence of manufacturing and service sectors, men are moving to urban areas for non-agricultural work. The migration of men to urban areas has resulted in the phenomenon known as the 'feminization of agriculture'. This phenomenon can be described in two ways. In the first and narrower sense, it refers to 'an increase in the amount of related work performed by women, hence agriculture being feminised' (Lahiri-Dutt, 2014; Pattnaik *et al*., 2018) [22, 29]. In the second and broader sense, it denotes how women define, control and enact the social processes of agriculture, taking into consideration ownership of farmland, power to make decisions, access to credit and control over income (Agarwal, 2003; Chowdhry, 1993) [1, 8].

The 'feminization of agriculture' is generally understood to refer to an expansion of women's roles in agriculture (Farnworth *et al*., 2023) [16]. The concept of the 'feminization of agriculture' can be interpreted in at least two ways. In the first, and more limited sense, the concept of feminization refers to an increase in the amount or proportion of farm-related work undertaken by women-hence, agriculture being feminized. As noted by Lahiri-Dutt (2014) [22], this encompasses women's increased responsibilities in smallholder production as well as their growing participation as wage workers in non-traditional agro-export production. In the second, and more expansive sense, the concept addresses the extent to which women define, control and enact the social processes of agriculture-hence, feminization being played out in agriculture. Addressing this latter interpretation takes into consideration labour (Tamang, Paudel & Shrestha, 2014; Zuo, 2004; Duvvury, 1989; Chowdhry, 1993) [40, 44, 13, 8], ownership of farmland and other resources (Agarwal, 2012) [2], power to make decisions (Lastarria, 2006) [23], and recognition of women's various contributions in the public sphere, particularly with respect to matters seen previously as primarily male concerns (Deere, 2005) [10].

In addition to their expanding roles in labour and production, women are also gradually emerging as managers of agricultural enterprises. In many cases, women are now the sole decision-makers on farms, especially in male-absent households. Studies have shown that female-headed households in South Asia take independent decisions regarding crop selection, marketing, and use of technology, despite limited access to formal land titles (Gartaula, Niehof & Visser, 2010; Mukhamedova & Wegerich, 2018) [17, 27].

Two opposing interpretations of feminization of agriculture dominate the literature. One interpretation is of 'women being left behind' to work in agriculture. This scenario posits women as non-agentic victims as a result of men disengaging from agricultural work to move into non-agricultural employment; women's workloads increase while their capability for empowerment does not (Doss *et al*., 2021) [12]. The review by Slavchevska *et al*. (2016) [34]

indicates that research following this interpretation has generally fallen into one of two categories: (a) inquiries into (gendered) demographic changes in the agricultural workforce and, in some cases, the drivers behind them or (b) studies on the outcomes for 'women left behind' (Slavchevska *et al*., 2016) [34]. Domains of enquiry are often tied to the outmigration of adult men from their homestead and their potential effects on women's autonomy and labour burdens in farming (de Brauw *et al*., 2021; Gartaula *et al*., 2010; Radel *et al*., 2012; World Bank, 2015) [9, 17, 30, 43].

A second take on the feminization of agriculture focuses on new opportunities for women's empowerment arising from such changes in household arrangements or other agrarian, demographic or economic changes (Doss *et al*., 2021) [12]. Evidence shows that women may be involved in strategic decisions about the outmigration of a household member, may take on new roles and assume more decision-making power in the household and in farming following men's outmigration or may adapt livelihood strategies to deal with the decreased labour supply.

Further, there is growing evidence that feminisation may lead to higher resilience among rural households, as women diversify agricultural portfolios, integrate nutrition-sensitive farming practices, and participate in community-level decision-making forums. Programs like the Mahila Kisan Sashaktikaran Pariyojana (MKSP) in India have played a significant role in training women as agri-leaders and helping them access inputs, technology, and credit. Such initiatives strengthen the case for viewing feminisation not just as a demographic shift, but as a transformative process (FAO, 2020) [15].

6. Impact of Feminisation of Agriculture

Increasing participation among Indian women in agriculture (whether in absolute terms and/or relative to men's level of participation) raises questions about how such participation affects women's power and autonomy at home and in the community, and how agricultural work activities are managed in relation to traditional household duties (Shah & Pattnaik, 2015) [33]. As previous research has shown, processes of feminization can embody a number of potentially contradictory social and economic dynamics. Feminization may, for example, be evident in changing property relations including increases in ownership among women. Equally, feminization may be evident in women's ability to control their own labour and to assume authority to make decisions, and/or in the visibility of women's activities, needs and aspirations in policy and public discourse (Agarwal, 2012; Deere, 2005; Lastarria, 2006) [2, 10, 23].

Importantly, however, relationships between feminization and empowerment are not necessarily positive, especially in relation to paid employment. Growing numbers of women in particular occupations are often associated with tenuous and underpaid employment which is ultimately disempowering (Kelkar & Wang, 2007) [21]. Moreover, the causes and consequences of feminization are diverse. Increased participation by women in the labour force may reflect increased activity among women or decreased participation among men (Deere, 2005) [10]. Increasing female participation in absolute terms may reflect the importance of an activity to women or it may reflect a change forced upon them (Lahiri-Dutt, 2014) [22]. Finally, it needs noting that as women move from occupations that have been poorly or unremunerated, such as unpaid family labour, their visibility in the public sphere increases, but this might not be reflective of changing positions in the private spheres of household and family.

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While men usually perform ploughing, hoeing, and threshing, more labour-intensive work like transplanting, weeding, and harvesting are performed by women. In the absence of men, women are forced to perform male-dominated tasks such as fertiliser and pesticide application, land preparation, and irrigation (Bacud *et al*., 2021; Bhawana & Race, 2020; Gartaula *et al*., 2010; Mukhamedova & Wegerich, 2018) [4, 5, 17, 27]. However, ploughing is still not taken up by women due to gender norms (Gartaula *et al*., 2010; Spangler & Christie, 2020) [17, 36]. The share in agricultural labour does not likely differ between women who are household heads and those who live in extended families (Gartaula *et al*., 2010) [17]. The diversified role and active involvement of women in agriculture has led to the feminization of labour (Mukhamedova & Wegerich, 2018; Rajkumar, 2021) [27, 31]. Male migration leads to labour shortages on farms, which are compensated by the women (Bhawana & Race, 2020; Ghimire *et al*., 2021; Slavchevska *et al*., 2020; Mukhamedova & Wegerich, 2018) [5, 18, 35, 27]. The additional tasks performed by the women lead to drudgery and time poverty (Bacud *et al*., 2021; Spangler & Christie, 2020) [4, 36].

This additional burden has significant physical, social, and emotional impacts. Women's health is often compromised due to prolonged hours of fieldwork combined with domestic chores. Their nutritional status, access to healthcare, and time for rest or education declines. According to FAO (2020) [15], time poverty among rural women is directly linked to lower productivity and poor livelihood outcomes. On the other hand, the positive impacts of feminisation are also beginning to emerge in contexts where institutional support is provided. Women who have access to SHGs, microfinance, or state-sponsored training programs report higher levels of confidence, bargaining power, and community leadership. For example, under the Mahila Kisan Sashaktikaran Pariyojana (MKSP), thousands of rural women in India have been trained as agricultural leaders and resource persons, creating a ripple effect across villages (Ministry of Rural Development, 2022) [25].

In addition, feminisation has led to changing gender norms in some areas. With women taking on so-called "male tasks," the rigid division of agricultural labour is being renegotiated. Younger generations are observing women

leading farms, using mobile apps for agriculture, and managing finances - redefining the role of the farmer not by gender, but by skill (Spangler & Christie, 2020) [36].

Yet, these transformations remain partial and uneven. Without structural changes in access to land, technology, markets, and representation in decision-making bodies, feminisation may continue to be more about burden-sharing than empowerment.

7. Barriers for Women Entrepreneurs in Agriculture

While the feminisation of agriculture has expanded the roles of women in farming, their journey as entrepreneurs remains filled with systemic challenges. Women agricultural entrepreneurs face multiple layers of barriers including social, economic, institutional, and cultural factors, which limit their potential to participate fully and independently in agricultural value chains.

One of the most fundamental barriers is the lack of land ownership. Even though women contribute significantly to cultivation, very few own agricultural land in their names. According to the Census of India (2011) [7], women own only 13.96 percent of operational holdings despite forming nearly one-third of the agricultural workforce. Without legal titles, women cannot access agricultural credit, insurance, or government schemes, which makes them dependent on male family members for economic decisions (Agarwal, 2003; FAO, 2011) [1, 14]. Another major hurdle is limited access to credit and institutional finance. Financial institutions often perceive women farmers as high-risk borrowers due to the absence of collateral, limited financial literacy, and restricted mobility. As a result, women agri-entrepreneurs are often forced to rely on informal moneylenders, which increases their vulnerability to exploitation and debt (Mehta and Mehta, 2011) [24]. Even microfinance services sometimes fail to reach remote regions or adequately support investment needs at the enterprise level. Lack of information and training is also a persistent challenge. Women frequently have less access to agricultural knowledge, market information, weather updates, and digital tools. Agricultural extension services are rarely designed with women's schedules and needs in mind. A study by Jhamtani and Singh (2005) [19] revealed that only six percent of female farmers in India had access to extension services, compared to twenty-two percent of men. Cultural and social norms further restrict women's participation. In many rural communities, it is still considered inappropriate for women to travel alone to markets or attend training sessions. Such mobility restrictions prevent them from selling produce, negotiating prices, or joining cooperatives. This limits their visibility and bargaining power in the agricultural marketplace (Kelkar and Wang, 2007) [21]. Women also bear a double burden of responsibilities. In addition to managing farms and agri-enterprises, they are expected to carry out unpaid domestic work such as cooking, cleaning, child care, and elder care. This time poverty leaves women with little energy or opportunity to innovate, expand their businesses, or attend capacity-building programs (Bacud *et al*., 2021) [4]. Recognition is another invisible barrier. Despite their growing role in production and decision-making, women are often labelled as helpers or secondary contributors instead of being acknowledged as farmers or entrepreneurs. This lack of formal identity reduces their access to institutional resources, subsidies, crop insurance, and public procurement systems (Chowdhry, 1993; Srivastava and Srivastava, 2009) [8, 38]. Finally, challenges like climate change, unpredictable weather, and market volatility further affect women-led farms. With fewer assets, savings, and risk-mitigation tools, women are more vulnerable to crop loss, input price hikes, and income shocks. Without targeted policy support, these risks may deepen existing inequalities instead of empowering women in agriculture (Deere, 2005; FAO, 2020) [10, 15].

Overcoming these barriers requires more than just gender-sensitive policies. It needs structural reform, inclusive financing models, gender-balanced extension systems, and a collective shift in how women are perceived in the rural economy. Recognising women not only as workers but also as primary producers, investors, and leaders is essential for sustainable agricultural development.

8. Conclusion

The landscape of Indian agriculture is silently but significantly being reshaped by the increasing presence of women, who, despite being underrepresented and often rendered invisible, continue to sustain and lead rural livelihoods. As male migration rises, women have taken charge of primary agricultural production, performing both traditional and non-traditional tasks with resilience. This feminisation of agriculture, while empowering in some contexts, is largely driven by compulsion rather than choice, and is marked by limited access to land, credit, technology, and institutional support. Their entrepreneurial contributions remain overshadowed by patriarchal norms and policy neglect, despite growing evidence of their capacity to innovate, manage, and transform agricultural spaces. Recognising these women not as secondary helpers but as independent entrepreneurs is crucial for inclusive rural development. Without such recognition and structural support, the promise of women-led agricultural progress will remain unfulfilled, and their indispensable labour will continue to be both invisible and undervalued.

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