

Impact of Feminization of Agriculture on Agricultural productivity and household dynamics: A Sociological study of NCR Region

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I. INTRODUCTION

The term 'feminism' has been derived from the Latin word 'femina,' which means 'female or woman' and it was first used with regard to the issues of gender equality and feminist movement. The Oxford English Dictionary defines 'feminism' as a state of being feminine or womanly. The Webster's Dictionary defines the term 'feminism' as the principle that women should have political rights equal to those of men. Toril Moi says that "The word 'feminist' or 'feminism' are political labels indicating support for the aims of the new Woman's Movement which emerged in the late 1960s." Similarly, Simone de Beauvoir argues that the terms, masculine and feminine are used symmetrically only as a matter of form on the legal papers. 'Feminism' refers to a wide range of political, social and economic movements, or ideologies that share a common objective to define, establish, and achieve economic, political, and social equality. It initially emerged predominantly in Western societies; feminism is now a global movement with diverse organizations dedicated to advancing women's rights and concerns. Empowerment through feminism can be achieved when feminists wholeheartedly engage in their efforts (Oloo, Galie and Teufel 2023).

Indian feminism nowadays has been displaying some hopeful tendencies. First, more economic freedom is empowering women to challenge stereotypes. Second, the desires of women are evolving beyond economic rights to social and political liberties. Third, women are bargaining harder to enlarge their spaces rather than leaving them. Fourth, there is true cooperation and partnership between men and women, especially youngsters to give a meaning for gender equality

(Brizioli, 2021). The underline premise of Feminization is a process to put efforts to seek woman's equality and justice in every sphere of life and to provide equal opportunities for women to have the same access and hold on the resources that are having as a privilege by the men in our society (Randell 2022). feminization indicates towards diverse area of inquiry which deal with the history of woman's oppression, suppression and its possible means to overcome the 'anxiety of authorship' by establishing a literary canon of their own. Women must be active in development. Women need to have meaningful exercise of power for them to be 'for' development and 'in' development (Hans & Shakila, 2014).

"When women are empowered and can claim their rights and access to land, leadership, opportunities and choices, economies grow, food security is enhanced and prospects are improved for current and future generations"- Michelle Bachelet – Ex-President of Chile Executive Director of UN Women and United Nations High Commissioner for Human Rights

Over the past few decades, there has been a significant transformation in the agricultural sector globally, characterized by the increasing participation of women in agricultural activities. This phenomenon, often referred to as the "feminization of agriculture" refers to the increasing participation and involvement of women in agricultural activities, challenging traditional gender roles. It signifies a shift from agriculture being predominantly male-dominated to women taking on roles in farming, livestock rearing, agribusiness, and entrepreneurial endeavours. The feminization of agriculture has been observed across diverse regions, including both developed and developing countries, and has profound implications

for agricultural productivity and the distribution of household work.

The concept of the 'feminization of agriculture' can be understood in at least two distinct ways. In the first, more narrow interpretation, feminization in agriculture refers to the increase in the quantity or proportion of agricultural work carried out by women. This means that agriculture is becoming more feminized. As pointed out by (Lahiri-Dutt, 2014), this includes the heightened responsibilities of women in smallholder farming and their increasing involvement as wage labourers in non-traditional agro-export production.

In the second, broader interpretation, the concept examines the degree to which women shape, control, and participate in the social dynamics of agriculture. In this sense, feminization is evident within the realm of agriculture itself. Addressing this broader interpretation involves considering aspects such as labour (Tamang, Paudel, and Shrestha 2014; Zuo 2004; Duvvury 1989; Chowdhry 1993), land ownership and control over resources (Agarwal 2012), decision-making power (Lastarria 2006), and the acknowledgment of women's diverse contributions in the public sphere, especially in areas previously considered primarily the domain of men (Deere 2005). The agricultural sector contributes strategically to a nation's economic development. It has already had a substantial impact on the economic prosperity of advanced economies, and its contribution to the economic growth of developing nations like India. National Capital Region (NCR) is the heart of India includes the national capital Delhi, along with its surrounding regions in the states of Haryana, Uttar Pradesh, and Rajasthan, serves as the center of economic activity. The National Capital Region's (NCR) economic structure is rapidly changing as a result of shifting economic policies, privatization of Public Sector Undertakings (PSUs), government downsizing, and the removal of tax breaks and subsidies for business. The National Capital Region (NCR) in India has undergone significant agrarian transitions over the years, shifting socio-economic dynamics, such as rural-urban migration, male outmigration for non-agricultural employment, and changing land tenure systems, have altered the gender composition of agricultural labor (Klasen and Peters 2015). As a result, women's contributions to agriculture have become increasingly visible and

indispensable for sustaining rural livelihoods and ensuring food security. Industrialization and Urbanization have led to substantial changes in agrarian structure or in agricultural practices of NCR region. Agricultural land has been converted into urban and industrial areas, reducing the overall agricultural footprint in the region (Timsina et al., 2023) that insisted farmers to look for other economic sources for their livelihood and due to out migration of men women stepped to keep agricultural responsibility on their shoulders. Women contributed for 60% of work in agriculture and allied sector (Nandal, 2006) In rural India, about 84% of women depend on agriculture for their livelihood (Oloo, Teufel, Galie 2023) low literacy rate among women is another reason that they prefer to stay in agriculture sector because other sectors demand skills (Goldin, 1994). The increased participation of women in agriculture has both direct and indirect implications for agricultural productivity. On one hand, women's involvement in farm activities, such as planting, weeding, and harvesting, can enhance agricultural productivity by diversifying labor inputs and promoting the adoption of labor-saving technologies (Berg, 2001). Moreover, women often demonstrate greater attention to detail and resourcefulness in managing agricultural tasks, leading to improved crop yields and farm efficiency. Conversely, the feminization of agriculture may also pose challenges to productivity, particularly in contexts where women face systemic barriers to accessing land, credit, and extension services (Gaddis, Klasen 2014). Gender disparities in resource allocation and decision-making authority within farming households can hinder women's capacity to invest in productivity-enhancing inputs and adopt innovative farming practices. Furthermore, women's dual burden of agricultural and household responsibilities may result in time constraints and fatigue, limiting their ability to engage in labor intensive agricultural activities effectively (Gehrke, 2016).

In addition to influencing agricultural productivity, the feminization of agriculture reshapes household work dynamics and intra-household relationships (Sharma, 2011). As women take on greater responsibilities in farming, the division of labor within households undergoes transformation, challenging traditional gender roles and power structures (Binswanger, Singh, Singh 2014). While women's

increased engagement in agriculture may contribute to household income and food security (Das,2016), it also exacerbates their workload, leading to a redistribution of unpaid care and domestic labor (goel, 2022).

Moreover, the intersection of gender with other social identities, such as class, ethnicity, and age, shapes women's experiences within agricultural households differently (Pattnaik, 2018). For marginalized groups of women, such as female-headed households and indigenous women, the feminization of agriculture may exacerbate existing vulnerabilities, perpetuating cycles of poverty and exclusion.

By situating agriculture within its broader social context and analysing gendered shifts in labour and responsibility, this study contributes to sociological discussions on agrarian transformation, gender inequality, and rural livelihoods. The increasing feminization of agriculture raises pressing questions about productivity, equity, and sustainability, underscoring its academic and policy relevance within contemporary rural sociology.

Theoretical Framework

The present study is guided by an integrated theoretical framework drawing upon feminist political economy, agrarian political economy, social reproduction theory, and ecofeminism. This framework is best suited to examine the feminization of agriculture and its impact on agricultural productivity and domestic household dynamics, as it allows for a structural, relational, and gender-sensitive analysis of women agricultural labour.

Feminist Political Economy

The core theoretical foundation of the study is feminist political economy, which critiques mainstream economic approaches for overlooking women unpaid and under-recognized labour. The work of Bina Agarwal is central to this framework. Her scholarship on land rights and intra-household bargaining explains why women increased participation in agriculture does not necessarily translate into decision-making power or control over resources. This theory is directly relevant to analysing women access to land, credit, institutional support, and leadership roles, as explored across the thesis chapters.

Agrarian Political Economy

To contextualize feminization within broader structural changes, the study draws on agrarian political economy, rooted in the classical insights of Karl Marx on labour and exploitation. This perspective helps explain distress-led feminization, where declining farm profitability and male out-migration increase women agricultural responsibilities without corresponding economic returns. It is particularly relevant for interpreting patterns of productivity, labour intensification, and livelihood insecurity identified in the quantitative analysis.

Social Reproduction Theory

The study further employs social reproduction theory, which emphasizes the inseparability of productive and reproductive labour. Feminist theorists such as Silvia Federici highlight how women unpaid domestic and care work sustains both households and agrarian economies. This framework is essential for understanding the persistence of the double burden among women farmers and for analysing household dynamics, time allocation, and decision-making structures examined in the study.

Ecofeminism

Finally, ecofeminism, particularly the work of Vandana Shiva, informs the analysis of women ecological knowledge and farming practices. While acknowledging women close relationship with land and sustainability, the study adopts a critical stance, recognizing that market pressures and productivity demand often compel women to adopt chemical-intensive practices. This theory is relevant for interpreting women perceptions of agricultural productivity and environmental change without romanticization.

Together, these theories enable the study to conceptualize feminization of agriculture as a complex and contradictory process one that increases women labour participation while often reproducing gendered inequalities in control, recognition, and institutional support. This integrated theoretical framework provides a strong foundation for analysing the interlinkages between women agricultural labour, productivity outcomes, and household dynamics in rural India.

II. RESEARCH METHODOLOGY

Social and behavioural research demands a systematic and scientifically grounded methodological framework to ensure that findings are valid, reliable, and analytically meaningful. The present study adopts a carefully structured research methodology that aligns with the objectives of examining the feminization of agriculture and its impact on agricultural productivity and household dynamics in the NCR region, with special reference to Bharatpur district of Rajasthan.

Research methodology refers not only to the selection of methods but also to the rationale behind their use and their practical application within a specific socio-cultural context. This chapter details the research design, study area, sampling framework, tools of data collection, techniques of analysis, ethical considerations, and limitations of the study.

2.1 Research Design

The study employs an exploratory–cum–descriptive research design, which is particularly appropriate for sociological investigations that aim to both document existing conditions and explore under-researched social phenomena.

A descriptive research design was used to systematically document the socio-economic profile of women farmers, their participation in agricultural activities, and changing household roles. Descriptive studies are effective in capturing social realities as they exist, without manipulating variables, and are widely used in gender and agrarian research to examine structural patterns and social inequalities (Creswell, 2014; Neuman, 2014).

In addition, an exploratory research approach was adopted to investigate emerging dimensions of feminization of agriculture in NCR-adjacent rural areas, where limited micro-level research exists. Exploratory research is particularly useful in identifying patterns, relationships, and contextual factors that can later be examined through more focused analysis (Babbie, 2013; Dollard, 2020).

The combined design enabled the study to analyse how ecological stress, male out-migration, labour redistribution, and institutional constraints interact to shape women agricultural participation and household dynamics in a semi-arid NCR region.

2.2 Locale of the Study

The present study was conducted in Bharatpur district of East Rajasthan, which forms an important part of the National Capital Region (NCR). Bharatpur lies within a semi-arid agro-climatic zone, characterised by irregular rainfall, declining groundwater levels, increasing temperatures, and heavy dependence on monsoon-based agriculture.

As an NCR-border district, Bharatpur is strongly influenced by male out-migration to urban centres such as Delhi, Gurugram, and Noida, resulting in an increased agricultural and domestic workload for women. Despite their expanding roles, women continue to face structural constraints related to land ownership, access to irrigation, agricultural credit, and institutional support. These conditions make Bharatpur a relevant and analytically significant site for examining the feminization of agriculture and its implications.

2.3 Brief Profile of NCR Region and Bharatpur

The National Capital Region (NCR), constituted under the NCR Planning Board Act, 1985, covers parts of Delhi, Haryana, Uttar Pradesh, and Rajasthan and spans approximately 55,083 square kilometres (NCRPB, 2021). While the NCR is often associated with urban growth, substantial rural populations remain, particularly in the Rajasthan sub-region.

Within the NCR, East Rajasthan and specifically Bharatpur district represents a transitional agrarian zone experiencing ecological stress, urban pressure, and changing labour relations. Agriculture in the region includes crops such as wheat, mustard, bajra, gram, and seasonal vegetables, largely dependent on monsoon rainfall and limited canal irrigation. Increasing climate variability and water scarcity have intensified agrarian vulnerability, reinforcing women participation in agricultural labour (Agarwal, 2018).

2.4 Selection of State, District, Tehsils, and Villages

Rajasthan was purposively selected as the study state due to its high rainfall variability, semi-arid ecology, and increasing feminization of agricultural labour. Bharatpur district was chosen because of its strategic location along the Rajasthan Uttar Pradesh border, where agricultural practices are shaped by cross-border economic linkages and migration patterns.

Within Bharatpur district, Bharatpur and Deeg tehsils were selected owing to their high proportion of

agricultural households, notable male out-migration, and variability in irrigation and cropping systems. Ten villages Poochari, Dantlothi, Samai, Khera, Bahaj, Badoli, Nagla Dandu, Nagla Khuntela, Bedam, and Khera Brahman were purposively selected to represent diverse agro-ecological and socio-economic conditions.

2.5 Sample Selection and Size

The target population comprised women engaged in agricultural activities in the selected villages of Bharatpur district. Given the informal and largely undocumented nature of women agricultural labour, non-probability purposive sampling was adopted.

A total of 200 women respondents working on small (1–2 hectares) and semi-medium (2–4 hectares) operational holdings were selected. This sample size was considered sufficient to capture socio-economic diversity while allowing meaningful quantitative analysis. Purposive sampling was used at the village level to identify women actively involved in agricultural work, enhancing field feasibility and relevance (Kothari, 2004; Shukla, 2020).

2.6 Tools of Data Collection

2.6.1 Primary Data

Primary data were collected using a structured interview schedule, supplemented by case studies and focused group discussions. The interview schedule was designed in line with the objectives of the study and covered socio-economic characteristics, agricultural participation, productivity-related factors, and household dynamics. A pilot survey conducted in March 2025 helped refine the tools for clarity and reliability.

2.6.2 Secondary Data

Secondary data were collected from Census reports, Periodic Labour Force Survey (PLFS), Agricultural Census, NCRPB documents, government reports, academic journals, and books. These sources provided contextual and comparative insights to support the primary findings.

2.7 Methods of Data Analysis

Data analysis involved both descriptive and inferential statistical techniques. Frequency distributions and percentage analysis were used to examine socio-economic characteristics, patterns of women participation, and household-level changes.

For inferential analysis, the study employed binary logistic regression to examine the impact of women participation in agriculture on agricultural productivity and selected household outcomes. Binary regression was appropriate as key dependent variables such as improvement in productivity, participation in decision-making, and contribution to household income were measured in dichotomous form (yes/no). The model allowed estimation of outcome probabilities while controlling for variables such as landholding size, education, age, and access to agricultural resources.

2.8 Statement of the Problem

Over the past decade, Indian agriculture has witnessed a steady increase in women participation, driven by male out-migration, agrarian distress, and livelihood diversification. Despite their growing contribution, women recognition as farmers remains limited, with restricted access to land rights, institutional credit, and extension services (Agarwal, 2018).

While macro-level data indicate a feminization trend, micro-level evidence from NCR-adjacent rural regions remains limited, particularly regarding its implications for agricultural productivity and household dynamics. The present study addresses this gap by examining whether feminization functions merely as a coping mechanism or holds potential for enhancing gender equity and sustainable agricultural outcomes.

2.9 Objectives of the Study Objectives

1. To study the socio-economic status of women farmers in NCR region.
2. To identify the factors influencing women's participation in agriculture in NCR Region.
3. To examine the implications of women's participation in agriculture for agricultural productivity in NCR.
4. To analyze the effects of feminization of agriculture on household dynamics.
5. To evaluate the challenges faced by women farmers in NCR region.
6. To explore the policy framework and institutional support to women farmers in NCR region.

2.10 Research Questions

1. What is the socio-economic status of women farmers in the NCR region?

2. What factors influence women participation in agricultural activities in the NCR region?
3. How does women participation in agriculture affect agricultural productivity in the NCR region?
4. How has the feminization of agriculture influenced household roles, division of labour, and decision-making within farming households?
5. What major challenges are faced by women farmers in the NCR region?
6. How effective are existing government policies and institutional support systems for women farmers in the NCR region?

2.11 Significance of the Study

This research seeks to delve deeper into the complex interplay between the feminization of agriculture, agricultural productivity, and household dynamics in NCR region. By examining from diverse geographical and socio-economic contexts, it aims to uncover the nuanced effects of women's participation in agriculture on productivity outcomes and intra-household dynamics.

So, the relevance of the study is to create awareness among the researchers and authorities about the changing patterns of Indian Agriculture. It will add value to the existing knowledge on agrarian transition and the feminization of agriculture in the NCR region.

2.12 Research Ethics and Reflexivity

The study strictly adhered to ethical research principles. Participation was voluntary, anonymity was ensured, and informed consent was obtained. Recognising that complete objectivity is unattainable in social research (Weber), the researcher-maintained reflexivity and consciously minimised personal bias during data collection and analysis.

2.13 Limitations of the Study

The study is limited to selected villages of Bharatpur district, relies on self-reported data, and is constrained by limited gender-disaggregated statistics. Seasonal variations and the difficulty of measuring unpaid and invisible labour also pose methodological challenges. However, these limitations do not undermine the sociological significance of the findings.

III. SOCIO-ECONOMIC PROFILE OF THE RESPONDENTS

Chapter 3 examined the socio-economic status of women farmers in the NCR region to establish the structural conditions under which women participation in agriculture had occurred. Using quantitative data supported by qualitative case evidence, the chapter demonstrated that feminization of agriculture was shaped by social inequality, economic vulnerability, and institutional exclusion, rather than by processes of empowerment.

The age-wise distribution showed that women agricultural participation was concentrated in economically active age groups. A majority of respondents belonged to the 30–39 years age group (44%), followed by 20–29 years (22%), 40–49 years (18.5%), and 50–59 years (15.5%). This indicated that women in their prime working years carried the dual responsibility of agricultural labour and household care. From a social reproduction theory perspective, this revealed how women productive work in agriculture was inseparable from unpaid reproductive labour, resulting in extended work burdens.

Educational data revealed limited formal education among women farmers. A large proportion were illiterate (21%) or had only primary education (38%), while only 9% had completed graduation or higher education. These constrained women access to agricultural knowledge, institutional credit, and government schemes. As explained by feminist political economy, low educational capital reinforced women positioning as labourers rather than decision-makers in agriculture.

Marital status data showed that while 52.5% of respondents were married, a substantial proportion were widowed (23%), unmarried (18.5%), or divorced/separated (6%). This indicated that women agricultural participation often increased due to male absence or marital disruption. Case evidence confirmed that widowed and separated women were compelled to intensify agricultural and wage labour as survival strategies, aligning with agrarian political economy insights on household vulnerability.

Household structure data revealed that 37% of women lived in nuclear families, 35% in extended families, and 28% in joint families. The decline of joint households reduced labour sharing and increased women workload, particularly in nuclear households.

From a social reproduction perspective, this intensified women unpaid care and farm labour under feminized agrarian conditions.

Caste composition showed that feminization of agriculture was concentrated among socially marginalised groups, with 44.5% OBC and 33.5% SC respondents. This demonstrated that gendered agricultural labour intersected with caste-based disadvantage, limiting access to land, wages, and institutional support, as highlighted by agrarian political economy.

Land ownership data revealed a critical structural constraint: only 2.5% of women owned agricultural land in their own name, while 97.5% had no land rights. Ownership of non-agricultural land was also limited (19% yes), and 31.5% of women were unaware of land registration details. Despite extensive labour contributions, women remained excluded from asset ownership, confirming feminist political economy arguments that labour without ownership does not lead to empowerment.

Landholding size data showed dominance of small and marginal holdings, with 24% owning 0–2 hectares and 37% owning 2–4 hectares. Although 58.5% cultivated irrigated land, 24.5% depended on rainfed agriculture. Case studies showed that women in rainfed areas absorbed ecological risks through increased adaptive labour, which was consistent with ecofeminist perspectives on women embodied engagement with ecological stress.

Housing and income data indicated uneven economic security. While 57.5% lived in pucca houses, 42.5% resided in semi-pucca or kuccha houses. Agricultural income remained low, with 53% earning ₹1–3 lakh annually and 27% earning less than ₹1 lakh. Low-income levels increased reliance on women unpaid labour, linking feminization of agriculture to household survival rather than profitability.

Livelihood data showed that households depended on agriculture and livestock (29% each), wage labour (24.5%), and supplementary activities. A significant 78% of respondents reported additional income-generating activities beyond farming. Case evidence indicated that women managed most of these activities, increasing their economic contribution without corresponding control over income.

Perceptions of change in women agricultural roles were mixed. Only 33.5% clearly reported increased participation, while 44% responded “maybe,”

reflecting the normalization of women labour. The primary reasons for increased participation were male migration (39.5%), small landholdings (34.5%), and need for additional income (33.5%). Notably, 0% cited gender equality as a reason, confirming that feminization was necessity-driven.

Institutional support remained weak. Only 12.5% of women reported receiving any government financial support, while 87.5% remained excluded. This reflected structural barriers related to land ownership, awareness, and documentation, directly addressing the policy framework and institutional support to women farmers in NCR region.

In conclusion, Chapter 3 established that women socio-economic status in the NCR region was characterised by low education, limited asset ownership, caste-based marginalisation, low agricultural income, and weak institutional support. Feminization of agriculture emerged as a structurally compelled response to agrarian distress, where women labour expanded to sustain households and agriculture without transforming gender relations. These findings provided a critical foundation for analysing women participation, productivity, and household dynamics in subsequent chapters.

IV. WOMEN PARTICIPATION IN AGRICULTURE

The analysis showed that women were actively and regularly involved in agricultural labour. Nearly 49% of women spent 2–5 hours per day on farm work, while 16% worked between 5–8 hours, and 3% worked for more than 8 hours daily. Only 32% reported spending less than 2 hours, usually during specific agricultural seasons. These findings indicated that women had become an essential agricultural workforce. However, as explained through social reproduction theory, this agricultural labour had been performed alongside unpaid domestic responsibilities, which increased women workload and resulted in time poverty rather than independence or empowerment.

The analysis of agricultural activities revealed a clear gender-based division of labour. A majority of women (59%) participated in sowing, weeding, harvesting, and livestock care, which were labour-intensive and repetitive tasks. In contrast, women participation was much lower in irrigation (21%), machinery operation (13%), marketing (6%), and farm-related decision-

making (21%). From the perspective of feminist political economy, this pattern showed that women labour was heavily relied upon to sustain agricultural production, while men retained control over technology, markets, and income. Ecofeminist theory further explained that women close involvement with land, crops, and animals was socially naturalised as care work and therefore remained economically undervalued.

Regression analysis further clarified the factors influencing women decision-making roles. Women participation in selling agricultural produce was significantly influenced by land ownership (Odds Ratio = 2.67) and education (Odds Ratio = 1.18), while the number of hours spent on farm work alone had a limited effect. This showed that women who owned land or were more educated were more likely to participate in market-related decisions. These results supported the capability approach, which emphasised that access to resources and opportunities, rather than labour effort, shaped women agency in agriculture.

The construction of the Agricultural Activity Involvement Index showed that women who were involved in multiple stages of agriculture were more likely to be educated, own land, and spend longer hours on farm work. However, the sociological case studies demonstrated that this broader involvement often led to an expansion of unpaid and unrecognised labour rather than increased authority or control over agricultural outcomes. From a social reproduction perspective, women expanded labour had sustained both household livelihoods and agricultural productivity, while the costs of this labour were absorbed within households.

The analysis of primary decision-making authority showed that only 22% of women reported being the main decision-makers in agricultural activities, while 69% reported having no independent decision-making power, and 6% reported shared decision-making with family members. These findings highlighted the persistence of patriarchal norms and male control over productive resources, as explained by agrarian political economy, where land ownership and inheritance systems had continued to marginalise women from strategic decisions.

Seasonal analysis showed that women agricultural work was concentrated during the Rabi season (47%) and Kharif season (34%), confirming that women provided essential labour during peak agricultural

periods. While this increased women importance in sustaining agricultural cycles, it also exposed them to higher workloads and economic uncertainty. Ecofeminist perspectives helped explain how women labour followed ecological rhythms, while remaining undervalued within market-oriented agricultural systems.

The analysis of balancing agricultural and household responsibilities showed that women rarely managed both domains alone. Support from male family members, children, and hired labour significantly reduced the likelihood of women working independently. Working alone was found to reflect work burden rather than empowerment. The case studies illustrated that women relied on family and hired support as coping strategies to manage increasing responsibilities under feminization.

In conclusion, the study demonstrated that women participation in agriculture in the NCR region had increased substantially and had played a crucial role in maintaining agricultural productivity and household survival. However, this increased participation had not resulted in greater control over resources, decision-making power, or economic security. The combined insights from ecofeminism, feminist political economy, agrarian political economy, and social reproduction theory showed that feminization of agriculture in the NCR had reinforced existing gender inequalities rather than transforming them. Without structural changes in land rights, education, market access, and institutional support, women growing role in agriculture remained central to production but peripheral to power.

This conclusion provides a strong empirical foundation for the subsequent discussion on policy implications and recommendations, emphasizing the need to move beyond labour-centric narratives and towards a rights- and capability-based approach to women empowerment in agriculture.

V. IMPLICATIONS FOR AGRICULTURAL PRODUCTIVITY

The findings of this chapter lead to the central conclusion that feminization of agriculture in the Bharatpur NCR region had not translated into consistent improvements in agricultural productivity. Instead, women increasing involvement had largely functioned as a coping mechanism in response to

agrarian distress, male out-migration, and ecological uncertainty. Productivity outcomes remained uneven, shaped by access to credit, technology, institutional support, and social legitimacy rather than by gendered labour participation alone.

Women farmers demonstrated substantial agrarian knowledge, ecological awareness, and adaptive capacity. However, their productivity potential was constrained by structural inequalities, including gendered access to resources, male-centric extension systems, caste-based differentiation, and exposure to market-driven agricultural models. The persistence of declining or stagnant yields, soil degradation, and irregular adoption of modern techniques indicates that feminization without structural transformation risks reinforcing labour intensification rather than enabling empowerment or sustainable growth.

This chapter examined the implications of women participation in agriculture for agricultural productivity in the NCR region of Bharatpur, Rajasthan, using data from 200 women farmers, supported by binary logistic regression analysis and case studies, the chapter provided a nuanced understanding of how feminization of agriculture shaped productivity outcomes.

The analysis of agricultural inputs (Table 5.1) showed that 46 percent of respondents use mixed inputs, combining organic and chemical methods, while 32 percent rely primarily on chemical inputs and 22 percent use only organic inputs. This pattern reflects women adaptive strategies in balancing ecological knowledge with market pressures. As revealed in the case studies, women articulated a strong emotional and experiential connection to land *ज़मीन हमारी माँ जैसी है* (the land is like our mother)- yet simultaneously acknowledged the necessity of chemical inputs to meet productivity demands. This finding resonated with critical ecofeminism, which recognises women ecological consciousness but rejects the notion that women operate outside capitalist agricultural systems. Perceptions of crop yield changed over the past five years (Table 5.2) revealed that 43.5 percent of respondents reported a decrease in yields, while 29 percent reported stagnation and only 3.5 percent experienced significant increases. These figures indicated that increased women labour participation has largely helped sustain production rather than enhance it. Women repeatedly stated in interviews that

although they work more than before, yields have not improved proportionately. This empirical pattern reflected the logic of social reproduction theory, where women labour absorbs agrarian stress without generating structural transformation.

Respondents' views on whether feminization affects productivity (Table 5.3) further demonstrated this ambivalence. While 48.5 percent acknowledged that feminization affected productivity, 34.5 percent reported that it does so only sometimes, and 17 percent perceived no effect. When asked about the nature of this impact (Table 5.4), 57.5 percent reported no noticeable change, 39.5 percent perceived a negative impact, and only 3 percent reported a positive effect. These findings challenge assumptions within policy discourse that women increased participation automatically leads to productivity gains. Instead, they align with feminist political economy, which emphasises that labour participation without access to resources, decision-making power, and institutional support produces limited returns.

The perception of changes in productivity following increased women involvement (Table 5.5) reinforces this conclusion. A majority of respondents (52 percent) reported a decrease in production, while 42 percent reported no change, and only 6 percent reported an increase. Ethnographic narratives explain this decline not as women incapacity but as the outcome of labour intensification, time poverty, and unequal access to technology. Women often contrasted their work with men's earlier role, stating, *“पुरुष लोग खेती ज़्यादा अच्छे से करते थे”* (men used to farm better), reflecting internalised gender norms rather than objective assessments of skill.

Ecological implications were captured through perceptions of land fertility (Table 5.6). While 42.5 percent reported soil degradation, 40.5 percent observed no change, and only 17 percent perceived improvement. Case studies revealed that women possess detailed knowledge of soil quality, irrigation cycles, and fertiliser use, yet structural constraints compel them to prioritise short-term yields over long-term soil health. This finding situated women practices at the intersection of ecofeminism and agrarian political economy, where ecological care is mediated by survival and market imperatives.

Access to modern farming techniques and training (Table 5.9) shows that 47 percent of women reported

having access, but 37.5 percent had only occasional access, and 15.5 percent had none. Even among those with access, 54 percent used modern techniques only occasionally (Table 5.10). This discontinuity reflected gendered extension systems and limited institutional recognition of women as farmers. Guidance in using machinery (Table 5.11) was largely mediated through male family members (44.5 percent), reinforcing patriarchal control over technical knowledge despite women central role in agricultural labour.

The role of broader structural forces was evident in perceptions of climate change and mechanization (Table 5.12), where 52.5 percent agreed that these external factors significantly affect women agricultural work. However, 26.5 percent remained undecided, indicating differentiated exposure based on caste, landholding, and irrigation access. Case studies revealed that women from SC and ST, households often experienced feminization as agrarian survival, while women from higher-caste households were more affected by male migration and disengagement from agriculture.

Regression analysis consolidated these findings by demonstrating that productivity is significantly influenced by access to credit, technology, manpower, and institutional support, while constraints such as lack of technological skills and social support sharply reduce productivity likelihood. Crucially, lack of traditional agricultural knowledge was not a significant constraint, affirming women experiential competence.

Overall, this chapter established that agricultural productivity is a sociological outcome, shaped by the intersection of gender, caste, ecology, technology, and political economy. Feminization of agriculture must therefore be understood not as an inherently positive or negative process, but as a contingent one whose outcomes depend on broader institutional and structural conditions. This insight provides a critical foundation for the policy implications and recommendations discussed in the subsequent chapter.

VI. HOUSEHOLD AND SOCIAL DYNAMICS

Chapter 6 analysed how the increasing feminization of agriculture had reshaped household and social dynamics, drawing on survey data from 200 women respondents and detailed case studies. The findings revealed that women expanding agricultural roles had

intensified their labour and responsibilities without producing proportional shifts in household power, gender relations, or social status.

Time-use data (Section 6.1) showed that women spent approximately 2–4 hours daily on domestic chores, primarily during mornings and evenings. Findings demonstrated that this domestic labour was not reduced but compressed around agricultural work, particularly during sowing and harvesting seasons. In line with social reproduction theory, women reproductive labour continued to sustain both the household and agricultural production, resulting in work intensification rather than redistribution.

Gender relations within households (Section 6.3) showed strong continuity, with 89.0% of respondents (178 women) reporting no noticeable change. Even where 9.5% (19 women) experienced positive shifts, these were subtle and relational rather than structural. This finding reflected the resilience of patriarchal norms highlighted in agrarian political economy, where role changes were absorbed without disrupting existing hierarchies.

Decision-making patterns (Sections 6.2 and 6.5) reflected partial and negotiated agency. While 21.5% of women (43 respondents) reported a clear increase in decision-making power, the majority (64.0%, 128 respondents) experienced influence only sometimes. Regression-based classification showed that 60.5% of households involved women in decision-making (alone or jointly), yet evidence revealed that strategic decisions especially land transactions and agricultural investments remained male-dominated. This supports feminist political economy arguments that increased labour contribution does not automatically translate into authority.

Women economic contribution through agriculture (Section 6.4) emerged most clearly through case studies. Agricultural income, often managed by women, was primarily used for savings, health care, education, and major household needs, while daily expenses were covered through men's supplementary earnings. This pattern illustrates women role as financial planners and risk managers, aligning with feminist political economy's emphasis on women invisible economic labour.

Male support in agriculture (Section 6.6) was largely situational, with 71.0% of women (142 respondents) receiving help only when needed and 28.0% (56 respondents) receiving regular support. Case studies

revealed that such support was framed as temporary assistance rather than shared responsibility, reinforcing women primary accountability for both farm and domestic work.

Perceptions of status (Section 6.7) remained ambivalent. While 28.0% (56 women) reported improved status, 32.0% (64 women) reported no change and 14.5% (29 women) perceived a decline. A substantial 25.5% (51 women) expressed uncertainty, underscoring that increased labour does not guarantee enhanced recognition, a point central to critical ecofeminist critiques of labour valorisation without empowerment.

Workload change (Section 6.9) was the most pronounced outcome, with 83.5% of women (167 respondents) reporting increased workload after taking greater responsibility in farming. Ethnographic evidence showed that productivity was sustained through women physical endurance, time compression, and emotional labour, rather than through technological relief or household reorganisation. Case studies demonstrated that domestic work was continuously adjusted around agricultural demands, rather than reduced or redistributed. This reflected a broader pattern in which women managed both productive and reproductive labour simultaneously, reinforcing a persistent double burden.

The chapter also explored women economic contribution through agriculture and its implications for household finances. Case studies revealed a clear distinction between daily income and agricultural income. While daily household expenses were often met through men's supplementary earnings, women agricultural income was strategically used for savings, major household needs, education, health care, and emergencies. This positioned women as key financial planners and risk managers within the household, even when they lacked overt financial authority. Their contribution thus played a critical role in ensuring household stability and continuity. Women perceived social status within the household and community reflected a deeply ambivalent reality. While some women experienced improved recognition due to their visible contribution to agriculture, many reported no change. The findings on workload change provided one of the clearest patterns in the chapter. A large majority of women reported a significant increase in workload after taking on greater agricultural

responsibility. Women absorbed additional responsibilities through longer working hours, reduced rest, and greater physical and emotional strain. Seasonal fluctuations intensified this burden further during sowing and harvesting periods.

In sociological terms, this chapter had shown that even as women take on more work in agriculture, traditional gender roles inside the household largely remain unchanged. Women increased responsibilities in farming exist alongside strong patriarchal norms, which means that their greater labour does not automatically lead to greater power or authority. Instead of formal empowerment, women manage their roles through everyday negotiation, adjustment, and quiet endurance. The chapter clearly connected the feminization of agriculture with continuing household inequality. It demonstrated that improvements in agricultural productivity were mostly achieved through women increased labour and effort, rather than through a fair sharing of decision-making power and responsibilities within the household. This understanding was crucial for explaining why women remain overburdened even as their contribution to agriculture becomes more important.

VII. CHALLENGES FACED BY WOMEN FARMERS

This chapter analysed women agricultural experiences in the Bharatpur district of Rajasthan within the broader NCR context by integrating quantitative survey data with qualitative case studies. The quantitative analysis, presented through Tables 7.1 to 7.4, was used to identify the major challenges, safety perceptions, safeguard practices, and support requirements of women farmers, while the case studies contextualised these findings within women lived realities.

The quantitative findings clearly show that financial constraints dominate women agricultural experiences. As presented in Table 7.1, 91 per cent of respondents reported poor access to credit, making it the most widely experienced challenge. The logistic regression analysis further confirmed the severity of this constraint, showing that women were over eleven times more likely (OR = 11.25) to face credit-related problems than not. Women field narratives strongly echoed this statistical pattern. In conversations, women repeatedly described money as the most urgent

requirement for sustaining agriculture—needed for seeds, fertilisers, pesticides, hiring labour, and coping with crop failure. Rather than speaking about profit or expansion, women spoke about survival, continuity, and the anxiety caused by recurring financial shortages, especially under conditions of uncertain rainfall and rising input costs.

Other challenges identified in Table 7.1 also reveal important dimensions of women agricultural marginalisation. Nearly half of the respondents (48.5 per cent) reported lack of machinery, with regression results showing that women were 2.56 times more likely to face this constraint. Similarly, 43.5 per cent reported lack of training (OR = 2.18), and 36 per cent experienced gender discrimination (OR = 1.88). Case studies illustrated how these constraints intersect in everyday life: women described performing labour-intensive tasks manually, being excluded from training programmes dominated by men, and having limited say in decisions involving technology or markets. Although only 19.5 per cent of women identified lack of land ownership as a challenge, qualitative evidence revealed that this low figure reflects social normalisation rather than absence of inequality. Women repeatedly stated that farmland has always been in men's names and that this arrangement is rarely questioned, even though it restricts their access to credit, government schemes, and formal recognition. This qualitative insight explains why land ownership appears statistically less prominent while remaining structurally significant.

Women working conditions and safety were examined in Tables 7.2 and 7.3. Table 7.2 shows that 57 per cent of women reported feeling safe while working in fields located far from home. However, this sense of safety was far from uniform, as 29.5 per cent reported feeling unsafe and 23.5 per cent felt safe only sometimes. Field conversations revealed that women feeling of safety often depended on familiarity with the area, the presence of other women, and daylight hours rather than on any formal protection. Table 7.3 further highlights this vulnerability, showing that 56 per cent of women never used safeguard measures during field visits, while only 14.5 per cent did so regularly. Women narratives suggested that the absence of safeguards was not simply due to lack of awareness but was shaped by time pressure, workload, and the normalisation of risk as part of agricultural labour. Many women continued to work despite fear or

discomfort, adjusting their routines rather than withdrawing from work.

The analysis of support mechanisms in Table 7.4 provides further insight into women priorities. Financial support was identified by 94.5 per cent of respondents, and the regression analysis showed a very strong association (OR = 14.58), underscoring its central importance. Skill training camps (47.5 per cent; OR = 2.03) and family support (41.5 per cent; OR = 1.79) were also statistically significant. The case studies deepen this picture by showing how women interpret support in practical terms. Financial support was described as necessary to manage seasonal risks and household expenses; training was valued when it offered usable, locally relevant knowledge; and family support was seen as essential for managing the dual burden of agricultural and domestic work. Institutional or “other” forms of support were weakly articulated, reflecting women limited expectations from state agencies and their reliance on informal and household-based arrangements.

Taken together, the statistical findings and ethnographic evidence support the study's theoretical framework grounded in feminist political economy and agrarian sociology. The data show that feminization of agriculture in the Bharatpur–NCR region has led to an increase in women labour and responsibility without a corresponding increase in access to resources, security, or institutional power. Women emerge as central managers of agrarian risk, absorbing economic, ecological, and social uncertainties through unpaid labour, informal borrowing, and everyday adaptation.

In conclusion, this chapter demonstrates that increased participation of women in agriculture does not automatically translate into empowerment or improved productivity. Instead, feminization of agriculture, as revealed through both numbers and narratives, often reflects the redistribution of agrarian distress onto women bodies, time, and emotional labour. Addressing these inequalities requires structural interventions that go beyond recognising women participation to ensuring their access to finance, technology, safety, and supportive household and institutional arrangements. Overall, the combined evidence from Tables 7.1–7.4 and the case studies demonstrates that the feminization of agriculture in the Bharatpur–NCR region has resulted in an intensification of women responsibilities without a

parallel increase in access to resources, security, or institutional support. Women continue to function as central managers of agrarian risk, absorbing economic, ecological, and social uncertainties through unpaid labour and everyday adaptation. The chapter thus reinforces the central argument of the thesis: increased participation of women in agriculture does not automatically translate into empowerment, and meaningful improvements in agricultural productivity and household well-being require structural interventions that address finance, technology, safety, and intra-household support.

VIII. POLICY FRAMEWORK AND INSTITUTIONAL SUPPORT

Chapter 8 examined the policy framework and institutional support available to women farmers in the NCR region and analysed how these policies were experienced and interpreted in everyday agrarian life. Using quantitative data presented in Tables 8.1 to 8.8 along with qualitative insights from case studies, the chapter addressed Objective 6 of the study and responded directly to Research Question 6, while also remaining connected to the other objectives related to women participation, productivity, household dynamics, and challenges.

The findings showed that awareness of government schemes among women farmers had been limited. Table 8.1 indicated that only 37.0 per cent of respondents were aware of schemes supporting women farmers, while 46.5 per cent reported that they did not clearly know about such schemes and 16.5 per cent were not aware at all. This pattern suggested that policy information had not reached women directly and had largely circulated through informal social networks. This reflected the arguments of feminist political economy, which highlighted how women agricultural labour had been recognised in practice but not fully acknowledged within institutional structures. Women experiences with government schemes and NGOs had been mixed and uneven. As shown in Table 8.2, the largest proportion of respondents, 39.5 per cent, had reported being somewhat satisfied, while 23.5 per cent had expressed dissatisfaction. Only 16.0 per cent had reported fully satisfactory experiences. These responses indicated that institutional support had been partial and irregular, often shaped by local implementation rather than policy intent. From an

agrarian political economy perspective, this demonstrated how structural inequalities, bureaucratic processes, and land-based power relations had constrained the effectiveness of state interventions.

Despite these limitations, women farmers had expressed strong belief in the possibility of policy improvement. Table 8.3 revealed that 77.0 per cent of respondents had agreed or strongly agreed that government policies could be improved to better support women farmers, while 23.0 per cent had remained undecided and none had disagreed. This absence of negative responses suggested that women had not rejected the state but had continued to hold expectations from it. This finding aligned with social reproduction theory, which explained how women had maintained engagement with institutions in order to sustain household and agricultural reproduction.

Access to agricultural credit and subsidies had also been uneven and gendered. Table 8.4 showed that 46.5 per cent of women had access to credit or subsidies, 36.5 per cent had access only sometimes, and 17.0 per cent had no access at all. Access had often been mediated through male family members or dependent on land ownership, limiting women financial autonomy. Feminist political economy helped explain this pattern by highlighting the separation between women productive labour and their control over economic resources.

Institutional support in the form of training and extension services had remained particularly weak. Table 8.5 demonstrated that only 19.0 per cent of respondents had received any training or extension services during the last three years, while a large majority, 81.0 per cent, had received none. This gap indicated that women growing participation in agriculture had not been matched by institutional investment in their skills and knowledge. This lack of support had implications for agricultural productivity and reflected ecofeminist arguments that women had been compelled to rely on experiential and traditional knowledge rather than formal technical training.

The chapter further showed that women had continued farming largely due to structural and social compulsions rather than institutional encouragement. Table 8.6 indicated that land transition and inheritance (36.5 per cent), financial necessity (34.5 per cent), and family responsibilities (20.5 per cent) had been the main motivations for continued participation in agriculture. This finding supported social reproduction

theory by illustrating how women had sustained both household survival and agricultural production under conditions of constraint.

Collective institutional participation had remained limited. As presented in Table 8.7, only 11.5 per cent of respondents had been members of Self-Help Groups or cooperatives, while 88.5 per cent had not been part of any collective. This low level of collectivisation had restricted women access to social capital, information, and bargaining power, reinforcing their marginal position within agrarian institutions, as explained by agrarian political economy.

Women leadership aspirations within farmer organisations had also been shaped by household power relations. Table 8.8 showed that only 10.5 per cent of respondents had been willing to independently accept leadership roles, while a significant proportion had deferred decisions to family members or husbands, or had reported that their participation would depend on circumstances. This demonstrated that women agency in public and institutional spaces had been negotiated rather than autonomous, consistent with feminist political economy perspectives.

The qualitative case study and field-based narratives further revealed that women had perceived government schemes as present but distant. Policies had been evaluated based on their accessibility, clarity, and relevance to daily life rather than on their stated objectives. Women had demanded recognition as farmers, simplified procedures, localised training, direct access to credit, and respectful institutional engagement. These insights resonated strongly with ecofeminism, which emphasised women close relationship with land and survival-oriented farming, and with social reproduction theory, which highlighted women continuous labour in sustaining households and agriculture despite limited institutional support.

Overall, the chapter concluded that although the feminisation of agriculture had increased women participation and labour burden in the NCR region, institutional support systems had not fully adapted to this shift. Policies had existed but had not translated into consistent recognition, access, or empowerment for women farmers. The findings fulfilled Objective 6 and addressed Research Question 6, while also linking with all other objectives of the study. Through the combined lenses of feminist political economy, agrarian political economy, social reproduction

theory, and ecofeminism, the chapter demonstrated that meaningful improvement in women agricultural conditions had required structural changes in policy design and implementation, rather than the mere expansion of schemes.

IX. CONCLUSION

This research examined the feminization of agriculture in the NCR region, with specific reference to Bharatpur district, and to analysed its implications for agricultural productivity, household dynamics, and women socio-economic positioning. Drawing on mixed-methods data from 200 women farmers, supported by statistical analysis and case studies, the study demonstrated that feminization of agriculture in the study region was not an outcome of gender empowerment but a structurally compelled response to agrarian distress, male out-migration, ecological uncertainty, and institutional exclusion. Women labour has expanded significantly, yet this expansion had occurred without parallel transformation in ownership, authority, recognition, or security. The study accepted the central theoretical proposition that feminization of agriculture was a complex and contradictory process. While women have become indispensable to agricultural production, household stability, and risk management, this has occurred largely through an intensification of labour rather than a redistribution of power, resources, or recognition. The findings rejected labour-centric narratives of empowerment and demonstrate that without structural reform, feminization risks reinforcing existing gender inequalities.

The research highlighted that meaningful improvement in agricultural productivity, household well-being, and gender equity requires institutional recognition of women as farmers, redistribution of productive resources, gender-responsive extension services, and acknowledgment of reproductive labour. By situating empirical findings within a robust sociological framework, this study contributed to a deeper understanding of agrarian transition in NCR-adjacent rural regions and emphasizes that women empowerment in agriculture must be grounded in rights, resources, and recognition, rather than participation alone.

By integrating feminist political economy, agrarian political economy, social reproduction theory, and

ecofeminism, the study offered a multidimensional sociological understanding of how gender, caste, ecology, institutions, and political economy interact to shape contemporary agrarian realities. The findings collectively challenged policy narratives that equate women increased participation with empowerment or productivity gains.

Feminization of Agriculture as Structural Compulsion, Not Empowerment

Across all chapters, the thesis establishes that feminization of agriculture in the NCR region was driven primarily by necessity rather than choice. Chapter 3 showed that women participation was concentrated among economically active age groups (30–39 years: 44%), socially marginalised castes (SC: 33.5%; OBC: 44.5%), low-education households, and families experiencing male absence due to migration, illness, or death. The fact that 0% of respondents cited gender equality as a reason for increased agricultural participation decisively rejects liberal empowerment narratives.

This pattern strongly supported agrarian political economy, which locates feminization within broader processes of agrarian distress, declining farm profitability, fragmentation of landholdings, and withdrawal of male labour from agriculture. Women increased agricultural responsibility emerges as a survival strategy that stabilises household reproduction rather than a pathway to agrarian transformation.

Feminist Political Economy: Labour Without Power or Ownership

The findings across Chapters 3, 4, 6, 7, and 8 strongly support feminist political economy, which argued that women labour participation does not automatically lead to empowerment in the absence of control over resources, decision-making, and institutions.

Empirical evidence clearly demonstrates this disconnect:

- 97.5% of women did not own agricultural land
- Only 22% reported independent decision-making authority
- 87.5% had never received direct government financial support
- 81% had no access to training or extension services

Chapter 4 revealed that women perform the most labour-intensive tasks (sowing, weeding, harvesting, livestock care: 59%), while men retain control over machinery (13%), irrigation (21%), marketing (6%), and strategic decisions. Regression analysis further confirms that land ownership (OR = 2.67) and education (OR = 1.18) not labour hours significantly influence women participation in market decisions.

These findings supported feminist political economy by empirically confirming that women expanding labour sustains agricultural production and household survival while patriarchal property relations, inheritance systems, and institutional biases prevent redistribution of power. The study rejected any assumption that labour visibility alone can dismantle gendered inequalities.

Social Reproduction Theory: Sustaining Agriculture Through Women Invisible Labour

Social reproduction theory was one of the most consistently validated frameworks across the thesis. Chapters 3, 4, 5, and 6 collectively demonstrated that women agricultural labour was inseparable from their unpaid domestic, emotional, and care work.

Key empirical patterns include:

- Women spending 2–4 hours daily on domestic work, compressed around agricultural labour
- 83.5% reporting increased workload after assuming greater farming responsibility
- Agricultural income managed by women being prioritised for education, health, savings, and emergencies
- Productivity maintained through time compression, endurance, and emotional labour, not technological support

Chapter 5 showed that despite increased labour input, 52% reported declining productivity, and 42% reported no change, confirming that women labour primarily absorbs agrarian stress rather than generating productivity gains. This directly supported social reproduction theory, which explained how women unpaid and underpaid labour stabilises both households and agrarian systems during crises.

Rather than redistributing responsibilities within households or institutions, feminization had led to work intensification, reinforcing women double burden. The study thus confirmed social reproduction

theory while rejecting any interpretation of feminization as a transitional stage toward equality.

Ecofeminism: Ecological Knowledge Without Structural Power

The study provided nuanced support to ecofeminism, particularly by rejecting romanticised notions of women as naturally empowered ecological caretakers. Chapter 5 showed that women possess deep ecological knowledge of soil fertility, crop cycles, and livestock care, reflected in the widespread use of mixed inputs (46%).

Case narratives such as “जमीन हमारी माँ जैसी है” illustrated women affective relationship with land. However, this ecological consciousness existed within market-driven and survival-oriented agricultural systems, compelling women to prioritise short-term yields over long-term sustainability.

Soil degradation perceptions (42.5%) and inconsistent access to training and technology showed that women ecological ethics were constrained by structural forces. This supported ecofeminism, which emphasises that women relationship with nature is mediated by political economy, caste, and institutional power, rather than being inherently liberatory.

Achievement of Research Objectives

The study successfully fulfilled all research objectives:

1. Socio-economic profiling (Objective 1) revealed structural inequality and vulnerability.
2. Women participation (Objective 2) showed increased labour without authority.
3. Productivity implications (Objective 3) demonstrated labour intensification rather than gains.
4. Household dynamics (Objective 4) exposed persistent patriarchal arrangements.
5. Challenges (Objective 5) identified financial, technological, and safety constraints.
6. Policy framework (Objective 6) revealed institutional mismatch with feminized agriculture.

Suggestions for the future

Based on the combined quantitative evidence and qualitative insights, this study proposes the following future-oriented suggestions aimed at strengthening

agricultural productivity while improving women farmers' household and social well-being.

First, agricultural policy must formally recognize women as independent farmers rather than auxiliary labour. Provision of joint or individual land titles, farmer identity cards in women names, and gender-disaggregated records can significantly enhance women access to credit, schemes, and institutional support, while also strengthening their decision-making power within households and agrarian institutions.

Second, future policies should be designed around women lived realities and time constraints arising from their dual responsibility for productive and reproductive labour. Flexible timings, localized delivery of services, and simplified procedures can reduce exclusion and make agricultural interventions more accessible and effective for women farmers.

Third, access to credit must be reimagined beyond land ownership. Women should have direct access to low-interest, need-based agricultural loans tailored to crop cultivation, livestock, and allied activities. Such financial autonomy can improve productivity and enhance household food security.

Fourth, agricultural extension systems need to be restructured to place women at the centre of knowledge dissemination. Regular village-level trainings, use of local languages, and the engagement of female extension workers and community facilitators can strengthen women technical capacity, particularly in climate-resilient and sustainable practices.

Fifth, women collectivization through Self-Help Groups, cooperatives, and farmer collectives should be strengthened beyond mere participation. Sustained capacity-building, leadership training, and market linkages can enhance women bargaining power and reduce economic vulnerability.

Finally, future agrarian policies must integrate household dynamics and social reproduction concerns such as care work, health, and nutrition. Participatory, bottom-up policy feedback mechanisms that actively involve women farmers can help bridge the gap between policy design and lived realities, ensuring more inclusive and sustainable agrarian development quickly.

Further studies could:

- Conduct longitudinal research on feminization of agriculture and its long-term effects on productivity and household dynamics.
- Undertake comparative regional studies to capture spatial variations.
- Explore intersections of caste, class, age, and landholding in shaping women agrarian experiences.
- Examine the impact of climate change and technological interventions on women farmers' labour and agency.

Overall, the future of agricultural sustainability and rural development is closely tied to the recognition, empowerment, and institutional inclusion of women farmers. This thesis suggests that meaningful change lies not in isolated schemes, but in a structural shift toward gender-responsive, context-sensitive, and participatory agrarian governance.

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