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The Role of Agriculture in Shaping the Socioeconomic Status of Women farmers in Tando Allahyar: An Empirical Investigation

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Abstract

Agriculture is the primary occupation in Taluka Jhando Mari, with a majority of the rural population residing in small villages of 25–50 households. Among female respondents, 71% are actively engaged as farmers or farmworkers. The area reflects a balance between traditional joint families (51%) and contemporary nuclear households, highlighting diverse socio-cultural structures. While 17% of women serve as the main breadwinners, most (83%) do not, indicating the persistence of traditional family roles. Medium-sized families are most prevalent, with an average household size of 8.9 members. The majority of women farmers (57%) are aged 31–41, married, and predominantly illiterate (74.2%), showing significant educational disparities compared to men. Crop farming constitutes the primary economic activities, with most women working 3–5 hours daily in agricultural practices. Despite 93% having more than five years of farming experience, only 0.8% are formally skilled, suggesting a gap between practical experience and recognized agricultural expertise. Seasonal wage patterns indicate higher earnings during the Kharif season (53.8%) compared to Rabi (29%), typically ranging from PKR 3,000–5,000. Household expenditures are dominated by healthcare costs (84%) and food (8%), reflecting economic vulnerability. Annual income analysis shows that 41% of households earn PKR 200,000–250,000, with only 2% surpassing PKR 500,000, while 37% report struggling financially. These findings emphasize the need for targeted interventions, including educational programs, skill development, and income diversification strategies, to enhance the socioeconomic status of women farmers and improve resilience and productivity in rural agricultural communities.

Keywords: Agriculture, Socio Economic Status Tando Allahyar, Women Farmers.

Introduction

Agriculture remains a cornerstone of global economies, providing food, raw materials, and livelihoods for billions of people. It is engaging more than 27 percent of the people around the world and about 43 percent of them are women in developing countries (FAO, IFAD, WFP & CGIAR GENDER Impact Platform, 2023). Women who participate in agriculture are mainly unpaid and work under poor conditions with severe challenges such as access to land, credit, technology, and policing resources. Despite engaging in labor-intensive tasks like sowing, weeding, and harvesting, their work is often overlooked in policy and economic assessments. Recent research also shows that gender inequities in land ownership, disparities in extension services, credit further limit their productivity and perpetuate poverty. In South Asia, women's legal ownership is restricted to only 15% of farmland, which is a dire situation economically (Food Policy, 2025; Sraboni et al., 2025). The United Nations Sustainable

Development Goals (SDGs), particularly SDG 5 (gender equality) and SDG 2 (zero hunger), emphasize the need to empower women farmers to enhance productivity and reduce poverty. The World Development study (2024) highlighted that access to credit and training for female farmers in Sub-Saharan Africa boosted their productivity by 27%, resulting in enhanced socioeconomic standing (Njuki et al., 2024).

Agriculture is the second engine of growth in the economy of Pakistan, forming around 24 percent of GDP and almost half of the agricultural workforce are women (Pakistan Bureau of Statistics, 2023) that make up 67.9% of the workforce (2020–2021). Women still not getting recognition and vulnerable due to restricted limited access to resources and decision-making power remain an issue (Science Direct, 2025). District Tando Allahyar in Sind province is an example of these problems while having unique regional characteristics. Women farmers take and crucial the bearing the production and family responsibilities, yet face make and a critical gap remain the access to damaging resources, socio-cultural movement restrictions, and the 2022 flooding which severely impacted agriculture and food security in Sind. This is violence with the coming together of global warming and patriarchy. Women farmers experience the most severely of the agricultural distress. This study is not addressing the gap, but within an estimated 2020-2025 timeframe studying the socioeconomics of agriculture on women farmers in Tando Allahyar. This is within the impacts, issue and the strategic area of attention for status elevation. Answering a critical few for Tando Allahyar, using external datasets (Pakistan Business Council 2023, 2024, World Bank 2025 and FAO 2025), the study explores for ranging economic participation from household to community, productivity barriers on gender, and climate shocks and policies intersection. By studying Tando Allahyar, this addition to the literature on agricultural development and gender equity sheds light on policies for the support of women farmers in similar circumstances globally.

This paper aims to fill this gap by exploring how agricultural participation influences the socio-economic status of women farmers in Sindh. This research can apprise strategies to boost rural economies and improve the overall well-being of rural communities. Moreover, the study will enhance our understanding of the socio-economic status of Women Farmers in Union Council (UCs) Dasori, Meerabad & Mail Mori of Taluka Jhando Mari of district Tando Allahyar which holds immense significance for fostering sustainable agricultural practices, economic empowerment, gender equity, and community development in this area.

Objectives

- To investigate the socio-economic status of Women Farmers in District Tando Allahyar
- Evaluating Policies intervention at promoting socio economics status of Women farmers

Literature Review

Analysing the literature helps in recognising the area of focus for research gap which makes it a crucial component. There is an extensive range of literature concerning women participation in agricultural activities. Thus, by reviewing the preceding studies, the study will make a liaison with existing knowledge. Habib, et al. (2022) analysed that gender responsiveness is a critical aspect in achieving all-inclusive economic and developmental growth of an economy. Mohiuddin, et al. (2020) reported that the agricultural labor is mostly informal, especially for women and has not been properly recognized despite have significant participation in the agricultural labor force in Pakistan. Further discovered that the participation of family women wages depends largely on the status of the landowners, the type of family, the size of the household and the level of education. Joshi and Kalauni's study in 2018, agriculture is one of the predominant industries which employs many people. The study assesses the participation of male and female laborers in the vegetable production processes and revealed that there are gender specific domains in the rural farming system men had relatively greater access and access to farm resources and played a greater role in decision-making than women. But still men had relatively greater access to farm resources and play a greater role in decision-

making than women. Therefore, gender-friendly technology and policy need to be developed. Nahusenay, (2017) identified that women play an important role in labor research. They are particularly busy in storage preparation (84%) and crop processing (81%), warehouse cleaning (61), cooking (94%), grinding (88.5%), picking materials (80%), firewood (75%) and harvesting and farming (52), but yet remain lagged behind for a long time. They have limited access to and control over agricultural products, extension services and information. This is due to social, cultural and work discrimination and have been empowered to make self-esteem decisions. Therefore, in order to empower and promote women economically, socially and politically, federal and regional governments and relevant institutions must take appropriate steps to ensure that women are equal with men.

Ishaq, et al. (2016) studied the role of women in Agriculture. In rural areas of Pakistan, the role of women in agriculture is more pronounced because they contribute a lot to agriculture. Findings indicate that a greater proportion of women (42.02%) started working between the ages of 29 and 39 and predominantly (86.95%) were illiterate. Most of the respondents (81.64%) were sourcing agricultural information from family members. Moreover, 56.52% of rural women worked 8-10 hours a day. From this study, it was also discovered that all respondents (100%) reported wheat and rice as the major crops they cultivated. With regards to seed bed preparation, there was a positive response of 94.2% among all pre-harvesting activities. A majority of rural women reported participating in shed cleaning (85.02%), dung collection (88.88%), and fodder cutting (95.65%). Among the surveyed rural women, 31% claimed that limited agricultural products were primarily responsible for the lack of involvement in agricultural marketing. Regarding household activities, 43.5% among rural women cited conflicts between spouses as the predominant issue in their lives.

Noor et al. (2015) studied the economic analysis of women labor participation in agricultural production. According to this study, women were mostly employed in agriculture during their Kharif and Rabi seasons (67 and 53 days respectively). The total annual employment of women laborers stood at 120 days. The peak periods of employment for the laborers was weeding (64 days) followed by harvesting and post-harvest operations (34 days). With the exception of the harvest and post-harvest operations, all the other activities were remunerated on a cash basis. The daily working hours were 7-8 hours. Women laborers experienced maximum unemployment days during the summer season (120 days) because this period is the off season for farming in the region under study. Their family consumption expenditure, their savings and debt position is presented the average debit amount was Rs.3100.00 in Kharif. It increased in Rabi Rs. 4700.00. The impact of seasonal woman unemployment in agriculture on the income of the laborers, their family consumption expenditure, their savings and debt position. That the during Kharif season the laborers got on an average Rs. 19700.00 as income. But during rabbi their receipt were only Rs. 18000.00 in wage earning agriculture. Food items expenditure was Rs. 10300. Kharif. During rabbi it reduced by 13.94 per cent 8300.00. Non-food items expenditure was also reduced from Rs. 7500.00 to Rs. 62000.00. The change was Rs.1300. Due to lack of employment in agricultural off-seasons, the female laborers became compelled to look for alternative sources of employment such as activities, construction works, tile manufacturing, and many more. The effect of this seasonal woman unemployment has been tremendous on the income of the laborers, family expenditures, their savings, and debt level.

Recent studies indicate that women farmers persistently face low socio-economic status as a result of structural inequalities and limited access to productive resources. Research indicates that women agricultural workers frequently experience stagnation in their roles, encountering ongoing vulnerability and marginalization. This situation underscores the need for targeted interventions aimed at enhancing livelihood security and empowerment (FAO, 2022; World Bank, 2025; UN Women, 2023).

Research Gap

On the basis of mentioned various literature review it has been explored that the socio-economic conditions on Women Farmers in agriculture need to be improved for sustainable agricultural

development and economic growth and yet needs more attention to research for rural development and designing effective policies and programs that empower women farmers. Keeping in view the facts and figures the present study had been developed in order to analysis socio-economic status of women farmers in agriculture as the same situation had been found in number of districts of Sindh. Here the district Tando Allahayar need to be explored as 49% populated ratio consist on females and majority's livelihoods are rural. This research gap highlights the need for a focused investigation of how local socioeconomic factors exclusively influence women farmer participation, decision-making power, and well-being in this particular area. Filling this gap can inform targeted interventions to mitigate negative effects and social empowerment of women farmers.

Methodology

This study was conducted in the region district Tando Allahyar, to investigate the existing women labor participation in Union Councils (UCs) Dasori, Meerabad, and Mail Mori of Taluka Jhando Mari. Out of the UCs, representative villages were selected randomly and from these, the sample were 383 women farmers who were active in agriculture were identified using multi-stage random sampling. The close-ended questionnaire was designed to systematically collect primary data on the socio-economic status of family income, household composition, age groups, and participation of women in agriculture. The data collection instrument was designed to be straightforward and clarity was guaranteed through pre-testing and revision based on the feedback from the respondents. This approach fostered a reliable, representative, and scientifically rigorous understanding of the study area. The descriptive statics have been applied for data analysis.

Demographic Status of Study Area

In the context of Tando Allahyar District, understanding the demographic status of women farmers in each union council as Dasori, Mail Mori, and Mirabad of Taluka Jhando Mari is particularly important due to the diverse socio-economic and cultural landscape within the region. Therefore, localized demographic data is crucial for designing effective and equitable interventions to improve their socio-economic well-being and contribute to the overall development of Sindh's agricultural sector.

Table. 1. Distributions according to demographic status through sampling and population of the study area

Union Council	Frequency (% of Total)	Village Population Category	Frequency (% of Total)	Average (Estimated Midpoint)	Contribution
Dasori	(132) 35%	Less than-25	(100) 26.1%	12.5	1,250
Mail Mori	(88) 23.0%	25-50	(189) 49.3%	37.5	7,087.5
Mirabad	(163) 43%	51-75	(18) 4.7%	63	1,134
Total	383	76-100	(76) 19.8%	88	6,688
Average Village Population per house group is approximately = 16,159.5 / 383 ≈ 42.192 houses					16,159.5

Source: Authors calculation from survey, note: the () represents the frequencies

Table 1 demonstrate the demographic status through sampling and population of houses captures all three strategic councils Mail Mori, Mirabad and Dasori. The data indicates that in the Union Councils of Dasori, Mail Mori, and Mirabad within Tando Allahyar District, 35% (n=132), 23% (n=88), and 43% (n=163) of their populations, respectively, are primarily engaged in agriculture. This suggests that while agriculture is a significant occupation in these areas, a considerable portion of the population is involved in other sectors such as livestock rearing, services, or various forms of employment. Moreover, it illustrates that Mirabad carries out the lead of 163 respondents out of the total data with 43% which shows that Mirabad has either a greater population or a higher survey participation rate

than the other union councils.
The survey data in table 1 shows a clear pattern of settlement between the different union councils according to the total number of houses in the village. The data demonstrate that an average village population per house group based on the midpoints and frequencies is approximately 42.192 houses. Further, the number of houses category acts as a proxy for village population size by assuming relative consistent average number of people per household. The compared distribution with in each study area determined that the most common size of settlements are small villages of majority of respondents 49.3% (n=189) reside in places with 25–50 houses indicating a moderate level of housing density, followed by the lower population density about 26.1% (n=100) of respondents live in very small villages of less than 25 dwellings in rural areas. This result suggesting population prevalence of medium-sized rural communities along with significant number of smaller villages. Whereas, another notable proportion 19.8% (n=76) live in slightly larger villages of 76–100 houses, indicating highest density in contrast, relatively low proportion of respondents from medium-sized villages just 4.7% (n=18) reside in larger population neighborhoods with 51–75 houses is significant. This result indicates for a larger number of smaller settlements. Such unequal distribution can reflect different levels of urbanization or patterns of habitation in the areas under investigation. These results can help in planning rural development programs by suggesting that interventions should be tailored to the needs of predominantly small-scale rural communities.

Type of Land and Type of Family
Land ownership constitutes a major symbol of wealth and standing in society and offers better livelihood options especially in rural areas (Britannica Money, 2025). A farmer with a piece of land gains the ability to directly earn an income, and a substantial number of landless agrarian workers who depend on wage labor are able to earn a living. In fact, the whole family structure likely exists on it for their livelihood.

Table 2: Distributions of respondents according to have type of land and type of family in the study area

Type of Land	Frequency (% of Total)	Type of family	Frequency (% of Total)
Owner	(28) 7%	Joint	(194) 51%
Shared tentative	(85) 22%	Nuclear	(189) 49%
Farmer/worker	(270) 71%	Total	(383) 100.00

Source: Authors calculation from survey, note: the () represents the frequencies

The survey results (table 2) highlight a significant disparity in land ownership among respondents. Land ownership constitutes a small fraction of 7% (n=28) while marginally, the number of farmers with land ownership of 22% (n=85) is only shared or tentative. Most of the 71% (n=270) are farmers or farmworkers, indicating that they do not possess secure tenure to land. This imbalance highlights the major issues of landlessness and insecure ownership that are present in the agricultural sector, and the consequences of which can be dire on productivity, the economy, and social inequity. The data also describes an nearly equal division in family structure among the respondents (table 2). Joint families are slightly more prevalent with 51% (n=194) as opposed to a significant proportion of 49% (n=189) who come from nuclear families. This balance reflects the coexistence of traditional (multi-generational) and contemporary (single-unit) family structures in the region, suggesting varying socio-cultural interactions. Due to family farming practices and management systems, the assistance of joint families become common, particularly in the countryside, where it is a strong tradition. In rural communities, particularly among those involved in agriculture, this practice optimally integrates the use of labor, resources, and age-old farming acumen to improve farming resilience. It also aids in the distribution of workload, the intergenerational transfer of learning, and the multiplication of agricultural output.

For community programming and policy implementation to be effective, it is essential to integrate systems that accommodate the diverse needs of joint and nuclear families.

Family Size and Household Respondent

A family is a fundamental social unit consisting of persons those have strong bonds of emotions as are the members of that particular household. Traditionally a family is dependent on a single breadwinner (often the father) in Asian countries like Pakistan. A father not only provides shelter, but also plays an important role in taking care of the necessities of life, food, health, education, and financial responsibilities. Because of mutual agreement between a couple that one person will focus on earning income while others manage the household. Whereas, in rural areas, the situation is a bit different due to the joint family system, where members of various age groups, regardless of gender, contribute to fulfilling the family's financial needs, which depend on the size of the family. Here, a breadwinner arises when one or more members are financially dependent on another.

Table 3: Distributions of the respondents according to their family members and breadwinner in the study area

Family Size (Members)	Frequency (% of Total)	Average (Estimated Midpoint)	Contribution	Household Breadwinner	Frequency (% of Total)
Less than 5	(45) 12%	2.5	112.5	No	(318) 83%
6-10	(226) 59%	8	1,808	Yes	(65) 17%
11-15	(105) 27%	13	1,365	Average Family Size per member is approximately = 3,411.5/ 383 ≈ 8.9 members	
Above-15	(7) 2%	18	126		
Total	(383) 100.00		3,411.5		

Source: Authors calculation from survey, note: the () represents the frequencies

The results (table 3) exhibit that only 17% (n=65) of women farmers respondents in the studied area are the main provider of their household, while the vast majority 83% (n=318) are not. A significant proportion of households rely on other family members to provide most of their income, presumably reflect traditional family systems where some members have greater financial responsibility than others, On the other hand, the low share of primary breadwinners indicates the existence of joint economic resources within households or the prevalence of multiple income families. These results highlight the importance of taking account of household economic dynamics during allocation of resources. In the table 03, data confirmed that medium-sized families are the most common. 59% of households (n=226) are in the range of 6 to 10 members, which illustrates a normative family structure within this population. A considerable 27% (n=105) of survey respondents belong to families with 11-15 members, which points to the existence of larger families as a normative standard within the overall structure. The enormous size only 2% (n=7) of families found rare constitute more than 15 members. The data also highlighted a small family size of less than 5 members accounted for 12% (n=45) respondents. While the average family size is 8.9 members which is ideal balance between labor input and consumption requirements in this agrarian context in the rural areas as family size has a direct impact on livelihood strategies and resource constraints. These results suggest the role of women farmers and their contribution as breadwinner is directly depends on the family size to reduce economic stress within the household.

Age and Marital Status

Age is an important factor of gaining knowledge by the spending period of time as it becomes proxy for the accumulated years of learning and practices. It refines their abilities by self-learnings and deep understanding in the specific area. So chronological age is a measure of time to acquire significant skills of experiences. While the marital statuses and its alternatives describe the different conditions

of being responsible and supported as its spousal states that mention their obligations and privileges towards a family. However regardless of age or marital status, women often face gender bias in performance evaluations.

Table 4: Distributions of the respondents according to their age and marital status in the study area

Age years	Frequency (% of Total	Average (Estimated Midpoint)	Contribution	Marital Status	Frequency (% of Total
18-30	(10 1) 26%	24	2,424	Single	(67) 18%
31-41	(220) 57%	36	7,920	Married	(281) 73%
60 and above	(62) 16%	65	4,030	Divorced/ Widow	(35) 9%
Total	(383) 100.00		14,374		(383) 100.00
Average Age of respondent per age group is approximately = 14,374 / 383 ≈ 37.53 years					

Source: Authors calculation from survey, note: the () represents the frequencies

The data highlights (table 4) a diverse age distribution which is overlooked as correlation with their respective marital statuses (single, married, divorced, etc.). The results indicate that the majority of respondents, 57% (n=220), fall within the 31-41 age range, making this the largest demographic group compare to a significant proportion, 26% (n=101), are between 18-30 years old, representing a younger segment of the population. Conversely, a smaller share representation of older individuals, 16% (n=62), are 60 years old or above. Meanwhile, the women farmer average age is approximately 37.53 years of per age group engaged in agriculture. These results of age groups define their physical fitness and capabilities to perform their tasks. In addition time period of maturity develops their skilled full experiences.

According to the results in the table 4, the majority individuals were married, comprised 73 % of respondents 281, which is the most frequently reported population within this survey. Whereas, the adequate number of the respondents, 67 or 18% claimed to be single while, the lower number of individuals only 35 or 9% were identified as widows. This distribution signifies a family-oriented social structure. Generally, married persons entails shared responsibilities, mutual support and legal rights to property, inheritance, healthcare decisions and more. This marital status also focus its social status with in a community. Previous results suggest that supportive marriages can enhance women's work attitude. Single respondents may reflect its autonomy and independence since they are not bound by the mutual and legal agreements. It has been noticed that single individuals of mature aged have broader social networks and more involvement in their community. Modestly represented widower group highlights the surviving individuals face the challenges of life adjustment without their partner as their lifestyle significantly changed under the emotional stressed conditions due to the loss of support. In addition the divorced entities are significantly recognized by their emotional and social adjustments in the communities. Although separated by the spouse but still have continuous obligations and alimony to support their children. The marital status widely reveals some social norms surrounding the individuals that vary from across culture and country. Overall these consequences of age and marital status have both positive and negative influence on the women respondent in performance evaluations.

Education Level

The education of women farmers has a significant positive impact on their deeds and decision-making evolutions. It is crucial factor of enhancing productivity and empowerment of agriculture sector through adaptation of improved technologies.

Table 5: Distribution of the respondent according to their education level in the study area

Table 5 indicates inclusive gap in literacy rate among rural women farmers, with 74.2% (n=284) identifying as illiterate and only 25.8% (n=99) claiming to be literate that exhibit low literacy compared to man. Such disparities hinder their abilities to understand information of new technology. The literacy and educational qualifications reveal a diverse range of educational backgrounds of respondents, with a significant portion lacking formal education.

Literate	**Frequency (% of Total**	**Qualification**	**Frequency (% of Total**
No	(284) 74.2%	Illiterate	(252) 65.8%
Yes	(99) 25.8%	Primary	(73) 19.1%
Professional degree/diploma		Middle	(44) 11.2%
Yes	(16) 4.2%	Matriculation	(11) 2.9%
No	(367) 95.8%	Intermediate	(3) 0.8%
Total	(383)100.00	Graduate	(1) 0.3%

Source: Authors calculation from survey, note: the () represents the frequencies

The majority of respondents, 65.8% (n=252), are illiterate, demonstrating that a considerable proportion of the population has not accessed basic formal schooling. While those with some primary level of education, is 19.1% (n=73) and only 11.2% (n=44) have attained a middle school level of education. A smaller proportion, 2.9% (n=11), have completed matriculation, and an even smaller percentage, 0.8% (n=3), reached the intermediate level. Notably, 10.7% (n=41) of respondents are graduates, representing the highest level of educational attainment within the group. Remarkably, the least proportion 0.3% (n=1), in the studied group is a degree holder in educational attainment. The data highlights a significant literacy gap, as large proportion of respondents being illiterate. Moreover it reveals that mainstream of the heads of rural families were illiterate. The lower education leveled or illiterate women farmers are facing number of challenges in accessing extension services, credit due lack of awareness, and also are less able to advocate their rights and fair wages even become less efficient in resource management. Therefore, the quality education for rural women is necessary and will have far reaching positive impacts on individuals, communities and the national economy.

About the professional degree or certification, the data in table 5 describes that the vast majority of 95.8% (n=367) respondents had no specialized training, and just 4.2% (n=16) individuals hold a diploma or certification in agriculture, indicating a disquieting deficit of formal agricultural education. This lack of education may limit the local agriculture sector's ability to adapt to new technologies and increase productivity.

Farming Experiences

Farming experience can be referred as the practical knowledge, skills, and time a person has devoted to the occupation of farming. It is a measure of a person's professional history in agriculture.

Table 6: Distributions of respondents according to years of farming experiences in the study area

Farming as Primary Occupation	**Frequency (% of Total**	**Farming Experience Years**	**Frequency (% of Total**	**Average (Estimated Midpoint)**	**Contribution**
Agriculture	(151) 39%	3-5	(25) 6.5%	4	100
Livestock	(211) 55%	6-8	(195) 50.9%	7	1,365
Both	(21) 6%	Above 8	(163) 42.6%	9.5	1,548.5
Total	(383) 100.00	Total	(383) 100.00		3,013.5
Average farming experience per yearly group is approximately = 3013.5 / 383 ≈ 7.86 years					

Source: Authors calculation from survey, note: the () represents the frequencies

The results illustrate (table 6) that female farmers mainly fall into one of the three categories: agriculture, livestock, or both. A prominent significant, 55% (n=211) of respondents are engaged in livestock while agriculture follows with 39% (n=151) of respondents, and only 6% (n=21) work in both agriculture and livestock. This shows that livestock is the principal economic activity for a majority of the female respondents. Involvement in agriculture, even to a much lower degree, is secondary. The small number of respondents who engage in both activities may indicate that the combination of crop and livestock activities is poorly developed, perhaps due to limited resources or an inadequate understanding of one domain.

The findings illustrate that participants possess a varied and commendable range of experience in agriculture work as a profession. A minimal number of respondents, 6.5% (n=25) have spent 3 to 5 years in farming, which indicates that they are somewhat new to the profession. Nevertheless, the greatest proportion, and largest group, 50.9% (n=195) have worked in farming for 6 to 8 years, which shows a considerable level of skill and acquainted knowledge in the field of agriculture. Furthermore, an even larger segment, 42.6% (n=163) with a proportion of over 8 years indicates that they are farming and committed deeply within the agriculture field and are involved and have considerable experience accumulated in the field. The average farming experience per yearly group is approximately 7.86 years. Whereas, the overall data exhibits that the majority of respondents are skilled farmers, with over 93% having more than 5 years of agricultural experience this suggests a strong foundation of agricultural expertise within the community.

Types of labor and Types of Agricultural Activities

A farmer or agriculturalist directly involved in agricultural activities like crop cultivation, production and raising of livestock. While types of labor are classified on the bases of acquired skills, training, and education. Skilled labor referred is an educated, trained, and technical expert in his field while unskilled is known to have gain knowledge by repetition tasks without formal training or education.

Table 7: Distributions of respondents according to the type of labor and agricultural activities in the study area

Are you the agriculturalist?		**Agricultural Activities**	**Frequency (% of Total)**
Yes	(246) 64.2%	Crop Farming	(345) 90.1%
No	(136) 35.5%	Livestock rearing	(30) 7.8%
Type of labor	**Frequency (% of Total)**	Poultry farming	(5) 1.3%
Skilled	(3) 0.8%	Dairy farming	(2) 0.5%
Un-Skilled	(380) 99.2%	Others	(1) 0.3%
Total	(383) 100.00	Total	(383) 100.00

Source: Authors calculation from survey, note: the () represents the frequencies

Table 7 indicates that a significant segment of the women population 35.5% (n=136) does not engage in agricultural practices while the vast majority of women respondent's population 64.2% (n=246) consider themselves as agriculturalists. This suggests the agricultural economic activities of the area still holds considerable significance as over two-thirds of the women population surveyed owe their livelihood to agriculture in comparison to a significant rise in livelihood diversification is occurring, with over a third of rural people becoming non-agriculturalists due to urbanization and new economic options. Skill development for all levels of agrarian-workers is crucial for improving productivity, sustainability, and the overall economic well-being of the farming community. Table 7 detailed the practical and theoretical professional skills in agriculture and the respondent's competencies. The data showed that the majority of the respondents, 99.2% (n=380), were unskilled, and only 0.8% (n=3) respondents were identified as skilled which indicated that only few women farmers possess formal training. This lack of training represents a missing opportunity that could negatively impact the

productivity, income, and training on modern technology and value-added agro-based enterprises for women farmers in the region. Additionally, the distribution of different types of agricultural activities in table 7, prior to describing the household labor dynamics, underscored the large share of respondents (90.1%, n=345) engaged primarily in crop farming, in comparison to the smaller, yet secondary, share of 7.8% (n=30) who participated in the domestic livestock rearing. An even smaller share, 1.3% (n=5), practiced poultry farming, and only 0.5% (n=2) of respondents were engaged in dairy farming. Similarly, a very small share, 0.3% (n=1), of respondents was busy with other, more arduous, farming tasks. All in all, the data paints a picture of dominance of crop farming as the first and principal other activities offered were the secondary enterprise of livestock farming, leaving very limited participation in the dairy, poultry, and livestock farming activities. This may indicate an opportunity to expand agricultural methods and consider other livelihood activities to improve livelihoods and economic resilience.

Number of female and male family members engaged in agricultural activities

The rural communities have joint family system and most of the family members often engaged in their agriculture as predominantly provides the labor for the farm. This family based labor force are distinguish as unpaid or semi-paid labor as they work without formal wages but just gets remuneration in the form of shelter, food and other marginal benefits from the family's joint revenue or farm harvest. Agriculture remains a significant employer in Pakistan, accounting for approximately 37-38% of the total national workforce and women constitute a significant portion of this workforce though their contributions are often not recognized or compensated (write the reference). The composition of the agricultural labor force by gender varies significantly depends on the region and the specific role.

Table 8: Distributions of respondents according to number of female and male family members engaged in agricultural activities in the study area

The categories as number of family workers data (table 8) declared that, 24% (n=91) of working females in a household are less than 3 which represent their limited participation in agriculture followed by 12% (n=45) of working force in a household are 3 to 5 females reflecting moderate participation. Whereas a larger proportion 22% (n=84) of working respondents are 6 to 8 females suggesting their higher engagement in this segment. While the majority of 43% (n=163) a higher group more than 8 females in a household are working in the agriculture field which highlights a strong presence of women in farming activities.

No. of Female Workers	**Frequency (% of Total**	**Average (Estimated Midpoint)**	**Contribution**
Less than 3	(91) 24%	2	182
3-5	(45) 12%	4	180
6-8	(84) 22%	7	588
Above 8	(163) 43%	9.5	15,48.5
Total	(383)		2,498.5
Average female farmers per worker group is approximately = 2498.5 / 383 ≈ 6.52 workers			
No. of Male Workers	**Frequency (% of Total**	**Average (Estimated Midpoint)**	**Contribution**
Less than 3	(65) 17%	2	130
3-5	(196) 51%	4	784
6-8	(94) 25%	7	658
Above 8	(28) 7%	9.5	266
Total			1,838
Average male farmers per worker group is approximately = 1838 / 383 ≈ 4.79 workers			

Source: Authors calculation from survey, note: the () represents the frequencies

Whereas the average female farmers per worker group is approximately 6.52 worker in a household. Similarly the data suggests (table 8) a varied distribution of male participation in agriculture. Like a smaller proportion 17% (n=65) workforce are grouped less than 3 males in a household involved in agriculture, whereas moderate participation 51% (n=196) categorized 3-5 males in a household working in agriculture. An involvement of over 25% (n=94) shows that 6-8 males constitute the agrarian workforce, and only 7% (n=8) of respondents indicate that there are more than 8 males in the household, which suggests that larger working groups are rarely found in the farming community. On average, however, male farmers are associated with groups of about 4.79 males. The data indicates that from the frequency distribution, male involvement in the 3 to 5 category predominates, and smaller underage's as well as larger groups show less male involvement. Overall, this result highlights the significance of providing tailored support to help and uplift women farmers, which includes training and resources designed to help them reach their full potential in the agricultural sector.

Working Hours

Working hours refers to the amount of time, a person spent in his or her defined job. These hours significantly vary based on types of task and performances. Typically intense long hours in the agricultural work is variability and a strong tendency towards extended shifts during time-sensitive critical phases like planting and harvesting. The working hours fluctuate significantly depends on agricultural season, size or type of farm, land, and more available advanced tools or equipment.

Table 9: Distributions of respondents according to working hours in agricultural practices in the study area

The table 9, exhibited that, the massive majority of respondents, 86% (n=329) works between 3 to 5 hours per day in agricultural practices which determines that a considerable number of people dedicate a moderate amount of time on farming activities. Whereas a smaller 13% (n=48) respondents work longer hours ranging 6 to 8 hours a day, suggesting a more intensive engagement.

Working Hours	Frequency (% of Total	Average (Estimated Midpoint)	Contribution
3-5	(329) 86%	4	1,316
6-8	(48) 13%	7	336
Above 8	(6) 2%	9.5	57
Total	(383)		1,709
Average working hours per hours group is approximately = 1709 / 383 ≈ 4.46 hours			

Source: Authors calculation from survey, note: the () represents the frequencies

Merely very small percentage, 2% (n=6), work more than 8 hours daily that is uncommon among the respondents. An average working hours per hour group is approximately 4.46 hours. This result suggests that most individuals allocate an adequate amount of time to agricultural work, with less devoting longer hours to farming activities. Such distribution may reflect variations in farm size, labor requirements, or other socioeconomic factors influencing daily work routines.

Daily wages

Daily wages refer to the payment a laborer receives for services or work completed on a per-day basis and pay is not fixed, directly depends on the number of days they actually work. In rural communities most of the farmers seeking extra seasonal daily wage income from seasonal crop earnings to manage their financial uncertainty and fulfill their basic household necessities. During the Kharif and Rabi peak agricultural seasons there is a high demand of labor to handle implanting and managing various crops and often work longer hours compare to off-season or depending on the urgency of the tasks or weather conditions.

Table 10: Distributions of respondents according to their daily wages in per income group in the study area

Rabi (additional daily wages) income PKR.	**Frequency (% of Total**	**Average (Estimated Midpoint)**	**Contribution**
Less than 1500	(180) 47.0%	500	90,000
2000-4000	(114) 29.8%	300	342,000
Above-7000	(89) 23.2%	8000	712,000
Total	(383) 100.00		1,144000
Average additional daily income per wage group is approximately = 1144000 / 383 ≈ 2986.9 PKR income or earnings			
Kharif (additional daily wages) income PKR	**Frequency (% of Total**	**Average (Estimated Midpoint)**	**Contribution**
Less than -2000	(72) 18.8%	1000	72,000
3000-5000	(206) 53.8%	4000	824,000
Above-8000	(105) 27.4%	9000	945,000
Total	(383) 100.00		1,841,000
Average additional daily income per wage group is approximately = 1841000/ 383 ≈ 4806.8 PKR income or earnings			

Source: Authors calculation from survey, note: the () represents the frequencies

It is predicted from the data (table 10) that concerning wages, almost half of the women (47%) found earning less than PKR 1500 in the Rabi season which indicates lowest income compare to the Kharif season, (18.8%) earned less than PKR 2000. While maximum (53.8%) wages earnings income found in Kharif season compare to in Rabi season as (29%) between PKR 3000-5000 indicating enhanced income levels during this season. Moreover, more women in the Kharif season (27.4%) than in the Rabi season (23.2%) earned more than PKR 8000. While an average additional daily income per wage group in Rabi and Kharif season is approximately PKR 2986.9 and PKR 4806.8 earnings respectively. This data suggests that income potential is more favorable during the Kharif season probably because of increased demand for labor or better crop returns.

Seasonal Agriculture Activities to Earn Income

Women are crucial to the production of seasonal crops in Pakistan, despite their significant labor input in production, their generated share of income is often low compare to their contribution.

Table 11: Distributions of respondents according to seasonal agriculture activities to earn income in the study area

The analysis data (table 11) indicates that the higher percentage of female respondents 87.5% (n=335) are earning maximum from their seasonal agriculture activities which suggest the most participants rely on seasonal agriculture as their main source of income.

The majority of women performing post-harvest activities, 76.8% (n=294) and engaged in weeding comprise with small fraction 12.5% (n=48). While sowing and harvest are even less at 6% (n=23) and 2.9% (n=11) respectively. Other listed extra activities include kitchen gardening (1.3%, n=5) and value addition (0.5%, n=2). This result reflects strong participation of rural women in agricultural activities.

Agricultural Activities	Frequency (% of Total	Other Activities	Frequency (% of Total
Respondent with 'Yes'	(335) 87.5%	**Respondent with 'No'**	48) 12.5%
Sowing	(23) 6%	Busy with kids	(210) 54.8%
Weeding	(48) 12.5%	Routine home work	(80) 20.9%
Harvesting	(11) 2.9%	Value addition	(2) 0.5%
Post-harvest	(294) 76.8%	Other things	(51) 13.3%
Kitchen gardening	(5) 1.3%	Overage	(42) 11%
Total	(383) 100.00	Total	(383) 100.00

Source: Authors calculation from survey, note: the () represents the frequencies

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Alternatively, with the remaining participants, 12.5% (n=48) who claim not to be involved in farming workload found busy with childcare 54.8% (n=210) and domestic tasks responsibilities 20.9% (n=80), with other commitments such as sewing and embroidery 13.3% (n=51), or simply aged 11% (n=42) as primary constraints. Women could provide and increase potential household income by performing various tasks inside home or outside fields.

Fulfilment of expenditures and financial requirements

Fulfilment of expenditures and financial requirements in rural communities refers to the ability of households or farmers to access and manage sufficient financial resources to meet their daily needs. In fact, many agricultural households are only partially self-sufficient to ensure food security for their families or merely afford food expenditures and allocate their seasonal agricultural income to various essential expenditures.

Table 12: Distributions of respondents according to their fulfilment of expenditures and financial requirements in the study area

Financial Fulfillments	Frequency (% of Total	Spends Income	Frequency (% of Total
Savings	(34) 9%	Food	(16) 4%
Selling Livestock	(309) 81%	Health	(323) 84%
Taking Loans	(35) 9%	Cloth	(30) 8%
Others	(5) 1%	Education	(5) 1%
Total	(383) 100.00	Others	(9) 2%

Source: Authors calculation from survey, note: the () represents the frequencies

The table 12 revealed that, the vast majority of respondents (81%, n=309) found selling livestock as their main financial strategy, highlighting the animal's significant role in the local economy as in emergency supportive finance source. Just 9% of respondents (n=34) rely on savings, which may indicate a lack of financial planning skills or low business margins that prevent reserves from raising up. In this case, equal proportions of the surveyed group 9% (n=35) of respondents currently depending on loans suggest both perhaps debt vulnerability as well as some level of access to credit on the case- by- case basis. The evidence of respondents using some other means, as noted, is very slim, therefore implying dominance in these three methods, precisely 1% (n=5) using alternative

means. Most farming households viewed and still see their stock of animals as a lucrative means and system for financing and as cash flowing continuously. The extra information included in the document outlines the consistent patterns in household spending, which includes health, education, food, clothing, and even social gatherings like weddings and funerals. For healthcare, the data point, which constitutes the largest portion of a rural household budget, indicates that healthcare spending remains at 84% (n=323), a primary concern, as opposed to an 8% (n=16) meager portion of the budget dedicated to food expenditure. Furthermore, farmers allocate their income differently, which indicates their primary priorities as clothing 4% (n=30), education 1% (n=5), and 2% (n=9) as other expenditure. This pattern illustrates that the rural, and especially farming, population faces a larger burden of unmanageable and probably uncovered or inadequately insured healthcare costs. Low education expenditures might due to limited access to schools or the prioritization of abrupt needs over long-term security.

Household Income and Economic Status

Household economic status refers to a household's financial position, mainly determined by its overall income from wages, salaries, savings, and other sources, categorizing it as low, middle, or high, and influencing access to resources, lifestyle, opportunities, and social standing.

Table 13: Distributions of respondents according to their overall household income and economic status of woman farmers from farming activities in the study area

Income per year	**Frequency (% of Total**	**Average (Estimated Midpoint)**	**Contribution**
Less than150000	(70) 18%	125,000	8,750,000
200000-250000	(157) 41%	225,000	35,325,000
250000-300000	(149) 39%	275,000	40,975,000
Above 500000	(7) 2%	525,000	3,675,000
Total	(383)100.00		88,725,000
Average household income per income group is approximately = 88,725,000/ 383 ≈ 231,657.963 income per year			
Economic Status	**Frequency (% of Total)**		
Struggling	(141) 37%		
Poor	(23) 6%		
Moderate	(139) 36%		
Well-off	(80) 21%		
Total	(383)100.00		

Source: Authors calculation from survey, note: the () represents the frequencies

The survey results (table 13) indicates a distinct income categories distribution among farming households. It depicts that a greater proportion of households 41% (n=157) fall within the income range of PKR 200,000-250,000 per year, whereas 39% (n=149) had a slightly better average of PKR 250,000-300,000. In addition, there is also a smaller band of 18% (n=70) claimed into the lowest income category less than PKR 150,000, suggesting low productivity in agriculture or small sized landholdings. The rest, only 2% (n = 7) of households earning more than PKR 500,000, shows that such high agricultural income is exceptional. While at this income group average household income is 231,657.963 per year. These outcomes of the income distribution analysis confirm the sampled population have subsistence livelihood and the surveyed area or in the moderate-income range of 2-3 lacs annually.

Table 13 provides insight into the economic status and income levels of farming families. Most households are economically stricken or struggling as indicated by the 37% (n=141) response rate, while 36% (n=139) indicated moderate economic conditions. Moreover, only 21% (n=80) classified themselves as economically affluent and 6% (n=23) consigned themselves as economically poor. The large distribution, as noted, shows many farming families are still economically struggling or only

moderately stable. However, the number of families who have economically stable conditions is very small. These figures indicate the economic condition is uneven in the population surveyed.

Housing Infrastructure and Domestic Facilities

Housing infrastructure and domestic facilities refers community level of standard, which includes the basic facilities, services, systems, and necessary installations for supporting housing development projects that are important for comfortable and safe daily life. Domestic facilities are the in–house amenities with the dwelling.

Table 14: Distributions of respondents according to their housing infrastructure and domestic facilities in the study area

Housing Infrastructure	Frequency (% of Total	Domestic Facilities	Frequency (% of Total
Bamboo	(43) 11%	Boundary Wall	(228) 60%
Mud	(206) 54%	Pure Drink Water	(102) 27%
Pakka	(115) 30%	Toilet	(46) 12%
Timber	(19) 5%	Electricity	(7) 2%
Total	(383) 100.00	Total	(383) 100.00

Source: Authors calculation from survey, note: the () represents the frequencies

Table 14 indicate that, mud homes are the most common dwelling 54% (n=206), which indicates traditional construction and perhaps a lack of resources for more than half of the respondents One third, or 30%, of the (n=115) households have Pakka (permanent) homes. This suggests an improvement in the economic standing of the respondents. For the less durable housing types, bamboo comprised 11% (n=43) and timber 5% (n=19). These findings still point to the need for housing repair assistance to make homes more secure and durable. Additionally, the mix of housing captures the community's limited resources and the gradual transition to more permanent constructions. Access to necessary facilities dramatically decreases even though most respondents, sixty percent (n = 228), state having walls, or minimal property separation and protection, suggesting improved security. However, only 27% of 102 respondents having access to clean drinking water signifies serious water security challenges. Toilets also brings huge sanitation issues, with only 12% of 46 respondents highlighting critical sanitation gaps overall. Among 7 respondents, 2% signifies bad access to electricity.

Basic Needs Perception

Basic needs refer to access to fundamental requirements in rural communities that extend beyond food, water, and shelter to encompass essential services.

Table 15: Distributions of respondents according to their perception of basic needs of a family in the study area

Basic Needs Perception	Frequency (% of Total
Own House/Land	(287) 74.9%
Adequate food/clothing/house	(59) 15.4%
Children's education/school in locally	(11) 2.9%
Life durables e.g., T.V refrigerator etc.	(16) 4.2%
Community facilities e.g. Gas, sewerage/health centers	(6) 1.6%
Higher Education to Cities Schools	(4) 1%
Total	(383) 100.00

Source: Authors calculation from survey, note: the () represents the frequencies

The Pakistani farmers deploy various measures to fulfill the family needs. These measures are around efficient agricultural practices and resources. Table 15 shows that a significant portion of respondents, 74.9% (n=287), value owning a home or land, reflecting the importance of secure and stable living conditions. A smaller segment, 15.4% (n=59), prioritize on basic needs such as adequate food, clothing, and housing, indicating a focus on meeting fundamental daily needs, highlighting the significance of fulfilling essential daily requirements. Children's education, especially in local schools, is a priority for 2.9% (n=11) of those surveyed, while 4.2% (n=16) focus on obtaining durable goods like televisions and refrigerators, signifying aspirations for enhanced living standards. Useful community amenities such as gas, sewage, and healthcare facilities are emphasized by 1.6% (n=6), whereas 1% (n=4) of respondents aim at schooling concentrate on higher education in urban schools. This result suggests that, beyond land, food, and shelter, other essential factors for sustaining a comfortable life, such as quality healthcare, education, access to energy sources like gas and electricity, and transportation, are inadequate.

Conclusion

This study identifies the key determinants of the socioeconomic status of women farmers in Taluka Jhando Mari, highlighting income levels, consumption expenditures, and crop production as direct economic factors. Landlessness and insecure land tenure remain major challenges, undermining productivity and social equity. Land ownership and family size further contribute to stability by ensuring labor support. However, most women farmers are illiterate and unskilled compared to men, limiting their ability to adopt modern technologies despite education being a crucial driver of empowerment and productivity in agriculture. The findings show that average seasonal incomes are higher during Kharif due to better crop returns or labor demand. Most households fall in the 2 - 3 lacs annual income subsistence or lower-moderate brackets. Women contribute significantly by taking care not only of the household responsibilities but also engaging in fieldwork. Exploring agriculture diversification and alternative income generating opportunities has the viable potential to improve livelihoods. Access to healthcare and reliable education and other services like energy and transport infrastructure still remain inadequate, which suggests the importance of rural development focused planning on smallholder farming communities.

Recommendations

In light of these findings, it is recommended that, development programs may intend relevant and integrated approaches to fill in the gaps. Priority needs to be directed towards affirming women's income earning potential, not only in subsistence agriculture but also in diversification and other income generating activities, supporting smallholder secure land tenure, and building livestock asset based financial- economically resilient. Educational and training opportunities should be demand driven and realistically accessible, and hands on practical training that is in demand will improve outreach to rural women. Extension services should take practical participatory approaches, and the policies of the development plan should cover beyond the agriculture sector, to improve the accessibility of core services of healthcare, education, and energy.

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