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The Participation of Rural Afghan Women in Small-Scale Dairy Farming

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Abstract

Afghanistan is an agricultural country, where more than 80% of the population depends on agriculture for their livelihoods. The livestock sector contributes perhaps half of the licit agriculture's contribution to the national GDP. Small-scale dairy farming is an important component of Afghanistan's rural economy. Milk and dairy products are crucial for the daily food security and income generation of most Afghan households. Rural women play a significant role in agriculture production, but their contribution remains un-recognized by researchers and policymakers. This study intends to examine the role and extent of the participation of rural women in small-scale dairy farming. There are no data available for an objective understanding of the role played by women in the rural economy of Afghanistan. The data was obtained from a sample of 180 rural women using a random sampling technique through a dairy farm survey in the Mousahi district of Kabul, Afghanistan during August and September 2021. Descriptive statistical tools like frequency, average, and percentage were used for the analysis. The study concluded that rural women's contribution is one of the most significant elements of the operation of small-scale dairy farming, and most dairy farming work, from fodder collection to feeding, watering, animal management, and health care, is conducted by women.

Keywords: Small scale dairy farming, Mousahi, Afghan women, Livelihood, Rural economy, Food security.

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Ethical: This study followed all ethical practices during writing.

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1. Introduction

Afghanistan is an agricultural country, where more than 80% of the population depends on agriculture for their livelihoods [1]. This sector makes significant contributions to economic growth, job creation, poverty reduction, and food security in the country [2] and accounts for about a quarter of the national GDP. It is also the second-largest sector after

services [3]. Afghanistan is traditionally known as a livestock country, with an estimated 45% of its land area classified as rangeland [4]. The livestock sub-sector contributes perhaps half of the licit agriculture's contribution to the GDP and supports employment, reducing reliance on imports and exploiting more export opportunities [5]. Livestock leverages substantial agro-processing activities at the small and medium scales and creates about 1.1 million full-time jobs in rural areas [2-6]. Over 85% of Afghan households in rural areas own livestock [5]. In the livestock sector, the dairy portion is a key source of household income and quality nutrition. Small-scale dairy farming is a significant component of Afghanistan's rural economy, involving more women than men and serving as an important source of income for rural households [3-6]. The sector is at an early stage of development. Most of the producers are small-scale farmers scattered across villages, and very few are of a substantial size, concentrated in peri-urban areas [7]. Rural Afghan women play a key role in agricultural activities and related areas such as dairy farming, poultry farming, sheep rearing, mushroom production, cultivation of high-value vegetables, and other horticultural crop-growing in mini-greenhouses and kitchen gardens, etc. Boros and McLeod [8]; Food and Agriculture Organization [9]. Afghan women account for 33% of all workers in agriculture and related occupations and for nearly half of the total employment in craft and related occupations [10, 11]. Small-scale dairy farming is the major occupation of women in rural Afghanistan. Traditionally, Afghan women are mainly involved in milk production [12].

2. Literature Review

The relevant literature pertaining to the contribution and role of women in agriculture in general and livestock management, in particular, are reviewed to provide the necessary background for carrying out this study. The purpose of this review is to inquire into the role of women in agriculture and livestock development from both national and international perspectives. The case studies and evidence from Afghanistan and other countries are expected to provide information for designing the empirical study on the contribution of rural women in small scale dairy farming in Afghanistan, such as identifying the scope of the study, designing the questionnaires for the dairy farm survey, and preparing questions for interviews with agricultural extension workers and other key informants.

Livestock rearing constitutes the most inclusive production activity in Afghanistan and is widely done by the poor in all regions providing protein-rich food staples in everyone's diet. It is done largely by women, for some of whom it is a vital source of employment [9]. Intensive livestock production systems can also be competitive by growing opium poppies [2]. Evidence from studies shows that rural women in Afghanistan undertake a wide range of agricultural and livestock management activities, but their role in the rural economy has never been fully appreciated. Livestock management is largely a women's job [6]. Although many activities are traditionally performed by rural women, they do not generate direct cash income [9]. Household cash income is normally controlled by men, and women's involvement in income-generating activities such as agriculture and livestock are also under men's control [6].

According to a few available time allocation studies, the estimated time spent by a woman on livestock-related activities ranges from four to five hours per day [6]. In a study conducted by Tavva et al. [13] in five villages in northern Afghanistan, women have been found to be more knowledgeable than men regarding livestock management. The probability of diseases found in animals is relatively lower, and income generation is higher from the animals reared by women than those managed by men. Highly significant results show a positive impact on women's participation in livestock management and thus in poverty alleviation [14].

According to Tavva et al. [13], women's involvement is more than men's in livestock-related activities and less than men's in crop-related activities. The research suggests that any agricultural development program intending to involve women will be effective only if it has a large component of livestock-related activities. Hutchens et al. [10] found that women in Afghanistan are major contributors to household income and nutrition and are often involved in livestock management but have limited access to agricultural input, including access to information through extension services. Kamran [5] conceptualized that although rural women play a very important task in agriculture and livestock and contribute to all operations related to crop and livestock production, still today, women are faced with various constraints. Although Afghan rural women make major contributions in the agricultural and livestock sector, inequality still exists between men and women in education, health, income-earning opportunities, control over assets, and participation in social events [6]. Afghan rural women have restricted access to income-earning activities and less scope to contribute to the wellbeing of their families due to social and cultural barriers [15]. Rural women are mostly not allowed to participate in economic activities outside their homes and are, therefore, not able to assist their families in reducing poverty [15].

Small-scale dairy production can potentially reduce rural poverty, provide food security, improve family nutrition, and generate income and employment for most rural Afghan households [9]. Milk and other dairy products not only meet household consumption needs but are also income-generating when sold in a market for cash. Livestock rearing substantially increases the workload of women who not only have to shoulder the daily burden of housework but also have to provide meals for all those working in the fields Boros et al. [11]. Women carry out a wide range of tasks in the dairy sector, including feeding, collecting fodder, grazing, cleaning animals and their sheds, making dung cakes, collecting manure, milking, processing milk, and even marketing dairy products like butter, butter oil, or ghee, etc. Mukhtar et al. [12]. Reduction of rural poverty will not be possible unless women achieve economic independence. Therefore, the emancipation of women is a significant step in overcoming poverty [13].

Overall, the past literature tends to emphasize the positive contribution of women in the development of agriculture and the improvement of household livelihoods. With the substantial contribution of women to agrarian society seen in various countries in mind, this study is aimed at empirically investigating the contribution of women in dairy farming in rural Afghanistan.

2.1. Problem Statement and Objectives

Women and children represent a major part of the Afghan rural poor. Even though Afghan rural women perform most of the work in agriculture, livestock management, and allied activities, their work remains unrecognized, unacknowledged, underestimated, and undervalued and is considered part of their routine responsibilities like household chores and housekeeping activities. Very few studies have been carried out to date to examine and evaluate these women's value addition and contribution to the household economy. Furthermore, to our knowledge, no study has empirically investigated their participation and contribution to small-scale dairy farming. This study intends to examine the role and extent of participation of rural women in small-scale dairy farming, using data obtained through a dairy farm survey from a sample district of the country. The findings will provide input into a government formulation of rural women's economic development programs, especially for developing small-scale dairy farming that is owned and supervised by women in rural areas. The study will contribute to providing benchmark information that can be used for follow-up studies. The information will also be valuable as a reference comparison for other researchers who wish to extend the study into other parts of the country.

2.2. Study Site and Approach

This study is conducted in the Mousahi district of Kabul from August to September 2021. This district was selected because most (90%) of its residents are engaged in small-scale subsistence agriculture and dairy farming as the main source of their livelihoods [16], and it possesses many opportunities for the development of small-scale dairy farming. Also, the proximity to Kabul city, the state capital, provides a safe environment for conducting the survey. Mousahi district is 25 km south of Kabul and is categorized as an agricultural area. The most common crops grown here are wheat, tomatoes, onions, potatoes, peppers, and cucumbers. Fruit trees like mulberries, apples, and apricots often border vegetable fields and family compounds, providing a significant source of nutrition, income, and job opportunities for most farmers. Wheat as a staple crop plays a very important role for Mousahi inhabitants.

The district is a well-organized and united community with strong social bonds. Generally, the women farmers of the district are engaged in small-scale animal husbandry, keeping cows and rearing sheep and chickens for home consumption and income. Adult male family members in some households are likely to engage in off-farm activities. Some work as manual laborers at stone quarries in the nearby mountains or in Kabul, while others are shopkeepers in the village. In addition to such activities in the informal sector, some well-educated adult men are formally employed in Kabul, where they commute daily. Some households receive remittances from family members working abroad.

The study used both primary and secondary sources of data. The primary data was collected from 180 women dairy farmers and some key local informants using a researcher-administered survey and intensive semi-structured personal interviews. Both farmers and local informants were personally met in the field. The sample units were randomly chosen to ensure the results were suitably representative of the population characteristics. The farmers chosen for the sample shared a common pattern of economic diversification and were mainly the ones farming on a small-scale (about two dairy cows) for whom dairy farming was an important source of livelihood and income. Some data was also collected from secondary sources like the District Agriculture Department, dairy associations, and milk collection centers located in the study area. This data was cross-checked and verified before being used in research. Following the completion of the data collection, the respondents' inputs were cleaned, coded, tabulated, classified, and further categorized for systematic statistical analyses. Descriptive statistical tools like frequency, average, and percentage were used for the analysis.

3. Results and Discussion

3.1. Socio-Economic Characteristics of the Respondents

The study reveals that 42.8% of the respondents (women) in the study area were middle-aged, followed by young (40.0%) and old (17.2%). The mean reported age of respondents was 34.9 years, ranging from eighteen to sixty-five years old. From the above discussion, it can be concluded that most of the women belonged to the middle-aged group. The probable reason is this age is viewed as when rural women actively work and are responsible for raising their families and pursuing small dairy farming as a profitable avenue, taking it up as a subsidiary occupation. The findings are supported by the findings of other researchers [Tekale \[17\]](#); [Chayal et al. \[18\]](#).

The study reveals that 2.8% of women farmer respondents are educated up to primary level, followed by 1.7% educated up to secondary level, and only 1.1% of respondents had completed high school. None had graduated from college or university. Generally, 5.6% of women farmers are literate, while 94.4% of women farmers are illiterate. The study proves that the literacy rates of Afghan women are the lowest in the world. Social and cultural beliefs, early marriages, a weak education system, poverty, lack of parents' attention, and lack of facilities were the main factors inhibiting or influencing girls' participation in education. Similar findings were also reported by [Madden et al. \[19\]](#).

The data regarding the experience of farm women in dairy occupation shows that 41.7% of the respondents had medium level (six to ten years) experience, followed by 31.1% with low level (one to five years) of experience, and 27.2% had high level (11 plus years) experience in dairy farming. It can be concluded that two-thirds of the women had medium and high-level experience of dairy farming. This may be because most respondents had been practicing dairy farming since they were eight to 25 years old. Furthermore, dairy farming provides additional income that motivates them to engage in small-scale dairy farming. The findings confirm the results reported by [Ganesh \[6\]](#).

Regarding occupation, the study found the majority (81.1%) of households in the study area did dairy farming along with small-scale agriculture, and among these, very few (3%) were performing only animal husbandry. Around 8.3%, 6.7%, and 3.9% of households had their main occupation as miscellaneous (shopkeeper, carpenter, etc.), ordinary labor, and

government work, respectively. The reason might be that the respondents may have found farming and small-scale animal husbandry to be fruitful businesses. The findings are supported by [Echavez \[20\]](#).

Our study reveals that 75.6% of the respondents are married, while 12.8 % and 11.1% of rural women are unmarried and widowed, respectively. The main reason for married women being in the majority is most respondents are categorized as young and middle-aged. Similar findings were also reported by the [Central Statistics Organization \[3\]](#). Regarding the size of landholding, the study reveals that most households (73.3%) are small-scale farmers with irrigated land of sizes from 0.1 to 3 Jeribs (1 Jerib = 0.2 ha), followed by medium-sized farmers (21.7%) with 3.1 to 5.0 Jeribs of land, and only 5.0 % of households are large-scale farmers with more than 6.0 Jeribs of land. Regarding dairy herd size, 62.8% of the households are small-scale livestock holders (one to three milking cows), followed by (36.1%) medium-sized livestock holders (four to seven milking cows), and only 1.1 % are large-scale holders with more than seven milking cows. Based on these results, it can be concluded that most households have small-sized landholdings of up to 3.0 Jeribs and were small-scale livestock holders. The findings have been supported by the [World Bank \[2\]](#). [Table 1](#) summarizes the basic socio-economic characteristics of the respondents.

Table 1.
Socio-economic characteristics of the respondents (N= 180).

S. No	Characteristics	No.	%	
1	Age			
	18 - 30 years (young)	72	40.0	
	31 - 45 years (middle-aged)	77	42.8	
	46 - < years (old)	31	17.2	
2	Education			
	Literates	Primary level	5	2.8
		Secondary level	3	1.7
		High school	2	1.1
		Bachelor's degree	0	0.0
		Illiterate	170	94.4
3	Dairy farming experience			
	1 - 5 years (low level)	56	31.1	
	6 - 10 years (medium level)	75	41.7	
	11 - < years (high level)	49	27.2	
4	Specific livelihood			
	Agriculture/ dairy farming	146	81.1	
	Labor	12	6.7	
	Government work	7	3.9	
	Miscellaneous	15	8.3	
6	Marital status			
	Married	136	75.6	
	Unmarried	23	12.8	
	Widowed	20	11.1	
	Divorced	0	0.0	
7	Agricultural own land			
	Small-scale (0.1 - 3.0 Jeribs)	132	73.3	
	Medium-scale (3.1 - 5.9 Jeribs)	39	21.7	
	Large-scale (6.0 - < Jeribs)	9	5.0	
8	Livestock holding			
	Small (1 - 3 cows)	113	62.8	
	Medium (4 - 7 cows)	65	36.1	
	Large (8 - < cow)	2	1.1	

Source: Authors' calculation based on the data obtained from the dairy survey, 2021.

3.2. Participation of Rural Women in Small-Scale Dairy Farming

The participation of rural women in small-scale dairy farming was studied on six major operations of dairy farming, comprising feeding, breeding activities, livestock management, health care activities, processing, and marketing and miscellaneous activities as outlined by [Lahoti et al. \[21\]](#); [Arshad et al. \[22\]](#); [Rathod et al. \[23\]](#); [Fayaaz \[24\]](#), and [Ogdand and Hembade \[25\]](#). The findings of the study are depicted in [Table 2](#).

3.2.1. Feeding and Watering Activities

The study reveals that most of the work regarding feeding and watering cows, storage of feed and fodder, and feeding animals were the responsibility of women. Among these activities, women's participation was found to be highest (97.2%) in feeding animals, followed by watering cows (91.2%). Farm women were also involved in preparing and chafing fodder for animals (88.9%) and collecting and storing fodder (83.3%) in the study areas. These findings agreed with the results

reported by Ogdand and Hembade [25]; Arshad et al. [22], and Lahoti et al. [21]. They found that nearly all the tasks connected with dairy production are performed by rural women.

Table 2.
Participation of rural women in different dairy farming activities (N=180).

S. No	Activities	No.	%
1	Feeding and watering		
	Fodder harvesting	17	9.4
	Fodder collecting and storing	150	83.3
	Chafing of the fodder	160	88.9
	Feeding	175	97.2
	Watering	173	96.1
	Grazing	4	2.2
2	Breeding activities		
	Carrying animals to AI or service center	0	0.0
	Care of newborn calves	174	96.7
3	Livestock management		
	Collecting cow dung	169	93.9
	Making dung cakes	176	97.8
	Cleaning animal shed	171	95.0
	Milking	175	97.2
	Maintaining milk records	10	5.6
4	Health care activities		
	Health care of pregnant animals	174	96.7
	Care of sick animals	163	90.6
	Cleaning and bathing cows	129	71.7
	Vaccinating and de-worming	69	38.3
	Maintaining health records	10	5.6
5	Processing & marketing		
	Processing of milk	105	58.3
	Sale of milk and milk products	26	14.4
	Sale & purchase of animals	9	5.0
	Purchase of feed for animals	8	4.4
6	Miscellaneous		
	Getting loan from financial organization	5	2.8
	Maintaining financial records	10	5.6

Source: Authors' calculation based on the data obtained from the dairy farm survey, 2021.

In the study area, less involvement by women was found in fodder harvesting (9.4%) and taking cows for grazing; only 2.2% of women, mostly in the old age category, were involved in taking their animals outdoor for grazing. Similar results were also reported by Boros and McLeod [8] and found that, due to social restrictions and cultural beliefs, women in rural areas cannot work outside their houses in most parts of the country. Most livestock-related activities where women are predominant were carried out inside the house. Women's participation depends on how strongly social norms operate against women or favor men's involvement in certain activities, as well as on how strongly individuals or households adhere to local norms and practices Boros et al. [11] and Ganesh [6].

3.2.2. Breeding Activities

Animal breeding activities like Artificial Insemination (AI) or veterinary services sometimes require the animal to be taken outside of the home to a veterinary unit or AI center. As indicated in Table 2, the participation of women in breeding activities of dairy cows outside the home was found to be the least among all the selected activities due to dominant social mores and the conservative culture in Afghan society. This study observed that no women are involved in animal breeding and taking cows for a pregnancy diagnosis. If cows need AI or a veterinarian, the husband or a male family member typically take animals to the AI centers or call the veterinarians. In the Afghan family structure, a male member of the family acts as the connection with the outside world while women's focus is on managing the home and activities they can do inside the home like small-scale dairy farming, and poultry and sheep rearing, Gilmour [26]. In the case of newborn calves, rural women are often the primary caregivers. It was observed that 96.7% of respondents look after newborn calves. These results are confirmed by Boros and McLeod [8]; Yasmin and Ikemoto [27], and Kabir et al. [28].

3.2.3. Livestock Management

Livestock management activities are an essential element of operating and maintaining a dairy farm and in which women actively participate. Our study revealed that 97.8% of women are involved in making dung cakes, followed by collecting cow dung (93.9%). Rural women play a key role in transforming cow-dung into economically valued products (dung cakes) used as the main fuel source in rural areas to minimize their expenditure on other energy sources. The cleaning of animal sheds

was also mainly performed by women (95.4%). Similar statistics were reported by [Boros and McLeod \[8\]](#) and [Yasmin and Ikemoto \[27\]](#). Milking activities were also among the main jobs of women; 97.2% of respondents were involved in this activity. However, due to the high level of illiteracy in rural Afghanistan, women's participation in maintaining milk records was found to be less than all other management activities. It was observed that only literate women (5.6%) kept milk records in the study area. Similar findings were reported by [Hutchens et al. \[10\]](#) and [Kaur \[14\]](#).

3.2.4. Health Care Activities

This study found that 96.7% of respondents were actively engaged in the health care of pregnant animals and calves' delivery process. This indicates strong feelings for the animals, and the women give of their time to tend to the pregnant animals. The findings agree with the findings of [Hutchens et al. \[10\]](#) and [Lahoti et al. \[21\]](#). The study also revealed that 90.6% of women were taking care of cows, 71.7% were involved in cow cleaning and washing, and 38.3% were in cow vaccinating and de-worming. Their concern with taking care of dairy animals helps them to sustain their farming interests. Due to a high rate of illiteracy in rural areas, only 5.6% of women maintained health records. Similar findings were reported by [Fayaaz \[24\]](#) and [Kaur \[14\]](#).

3.2.5. Processing and Marketing

Women's participation in processing and marketing activities was found to be insignificant. Rural women rarely participate in milk processing and making dairy products such as butter, buttermilk, chakka, yogurt, dough qrut (dried yogurt balls), ghee, etc. for home consumption and income generation. The respondents feel that preparing dairy products is an extra burden, and another common perception is that processing requires more time. The same findings were reported by [Hutchens et al. \[10\]](#), that only 58.3% of women take up processing on a small-scale and at a basic level. Due to the lack of regular milk and dairy marketing channels in the study area, poor access to market information, and the dominance of men in household decision making, only 14.4% of women were involved in direct marketing of dairy products to consumers, while the remaining milk was sold by the male members of households to local milk collectors and neighbors at low prices. The study also revealed that women's participation was negligible when compared with men in the sale and purchase of animals (5.0%) and purchase of feed and fodder (4.4%). Similar results were reported by [Boros and McLeod \[8\]](#) and [Ganesh \[6\]](#). They found that buying animals and feeds, taking the animals to market, and selling dairy products are mainly carried out by male household members.

3.2.6. Miscellaneous

Due to a high level of illiteracy in rural areas, most rural women are ignorant of record maintenance, and it was found that only 5.6% of women maintain financial records. Similar findings were reported by [Fayaaz \[24\]](#) and [Kaur \[14\]](#). Due to the lack of financial organizations in the study area and a lack of information, the contribution women made to getting loans and credit from banks and financial organizations was negligible, with only 2.7% of women, mostly literate ones, being involved in this activity. Similar findings were reported by [Ganesh \[6\]](#).

4. Conclusion

This paper examines the role and extent of the participation of rural Afghani women in small-scale dairy farming. Though the study is confined to a small domain in one district, the findings have general applicability given the predominantly agrarian nature of the country's economy. The findings of the present study show that rural women are significant actors in operating small-scale dairy farms and all activities related to dairy farming such as fodder collection and storage, fodder chaffing, animal feeding, watering, caretaking of newborn calves, collecting cow dung, making dung cakes, cleaning animal sheds, milking, caretaking of pregnant and sick cows, cleaning and bathing animals, and milk processing at a basic level are conducted mainly by women. Although rural women play a key role in conducting small-scale dairy farming activities, their influence and freedom in decision-making on the sale of dairy products and animals and purchasing of animal feed is negligible. The decisions in this regard are primarily made by men. However, through participation in small-scale farming, rural women have been able to increase their consciousness and household economic levels and thereby make a significant contribution to the wellbeing of their families. Ultimately, they have been able to break the cycle of poverty. Therefore, the participation of rural women in small-scale dairy farming has been a key factor for poverty reduction in rural areas in Afghanistan.

5. Recommendations

Rural women in Afghanistan play significant roles in handling small-scale dairy farms and the wellbeing of their households. Based on findings from this study and the authors' observations through field investigations, the below recommendations are made for various stakeholders to develop and improve the economic outcome for Afghan rural women in the agriculture sector in general and small-scale dairy development in particular.

1. Due to stagnation in agricultural growth, widespread rural poverty, vulnerability, and unemployment, small-scale dairy farming can be an alternative for small farmers and rural women to increase their income.
2. To encourage rural women to actively participate in small dairy farming and increase their income from dairy farming, they should be technically trained and empowered through extension facilities by government and international donors.
3. Small-scale women dairy farmers should be given more subsidies, loans, and marketing facilities for their businesses.

4. Veterinary unit activities should be made more effective as government veterinary services were not available in the study area.
5. Government should strictly monitor the work of local extension workers to promote their extension services for small-scale dairy farming.
6. More scientific knowledge on livestock production should be provided by the government for the women who want to be involved in dairy farming.
7. The government and international organizations should implement disease control programs in the livestock sector in rural areas.
8. Better facilities should be provided for vaccination, medicine, and artificial insemination for animals, along with dairy processing machines.
9. Awareness programs should be launched by non-government organizations (NGOs) in the study area for the better handling of the small-scale dairy industry and to improve the living standards of rural women.
10. Detailed studies should be conducted on a similar topic in other parts of the country to improve the data needed for policymaking.
11. Small-scale women farmers should be organized into a small group of 15 - 30 members to benefit from economies of scale in the purchase of inputs, processing, and marketing of their dairy products.
12. The policies on gender empowerment and gender mainstreaming should be part of the policy for the sustainable development of women smallholder farmers.
13. The government, NGOs, and development partners should identify and support women's roles as livestock owners, processors, and users of livestock products while strengthening their decision-making power and capabilities.

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