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Empowering rural livelihoods and enhancing nutritional security through homestead kitchen gardening

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Abstract

Kitchen gardening is essential for addressing nutritional and economic concerns by providing households with regular, organically grown fresh vegetables. Particularly crucial for rural families, it helps combat micronutrient deficiencies through dietary diversification. Krishi Vigyan Kendra, Mandya, demonstrated 50 homestead kitchen gardens in Hullenahally and Kannahatti villages, Mandya district, to analyze their nutritional security and economic impact amidst farmer constraints. Results showed a total income of Rs. 2491/- from Rabi vegetables and Rs. 4508/- from Kharif vegetables, summing up to Rs. 6999/- in six months from a 250 m² area, using organic manures. Constraints included untimely availability of seasonal vegetable seed kits and limited knowledge in pest and disease management. Nevertheless, homestead kitchen gardens significantly improve the well-being of rural communities, serving as supplementary food and income sources, promoting healthier lifestyles and overall prosperity.

Keywords: Homestead kitchen gardening, economic analysis, constraints

Introduction

Homestead gardens are characterized by mixed cropping, incorporating vegetables, fruits, and medicinal plants, and serving as supplementary sources of food and income. For economically disadvantaged families unable to afford expensive animal products to meet their nutritional requirements, these gardens offer an affordable source of nourishing foods. Additionally, they contribute to increased household income through the sale of garden produce or by reducing the need to purchase food from markets, which can consume a significant portion of the family's income. Kitchen gardening has proven to be a cost-effective and sustainable approach to producing organic, fresh vegetables. As such, these gardens can play a pivotal role in alleviating issues of hunger and malnutrition. Consequently, this study aims to explore the enhancement of nutritional security and economic well-being in rural livelihoods through homestead kitchen gardening practices, communities can address issues of hunger and malnutrition in a proactive manner. Given the significance of homestead kitchen gardening in promoting nutritional security. Given the significance of homestead kitchen gardening in promoting nutritional security and economic upliftment in rural livelihoods, this study seeks to delve deeper into its potential benefits. Through a detailed investigation, this research aims to understand and highlight the ways in which these gardens can be optimized to positively impact the well-being of disadvantaged communities. By identifying best practices and potential areas for improvement, this study aims to contribute to the broader goal of ensuring food security and improved livelihoods for vulnerable population.

Materials and Methods

During 2021-22, an investigation on homestead kitchen gardening was conducted in Hullenahally and Kannahatti villages of Mandya district. Fifty demonstrations were carried out and farmers received vegetable kits for both Rabi and Kharif seasons. The kits contained various vegetable seeds, and 10 farmers were randomly selected from each village to study the nutritional security and economic viability of kitchen gardens. Farmers were advised to use organic manures and practice manual or mechanical weed management and pest control methods.

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Economic returns were calculated based on the yield of vegetables and their retail market prices. The study also focused on understanding the constraints perceived by the growers. Major constraints were identified, including input, technical, socio-cultural, post-harvest, and general constraints. Primary data were collected through interviews with 50 farmers and the severity of constraints was scored and analysed. Overall, the investigation aimed to popularize the concept of kitchen gardening and assess its benefits while addressing the challenges faced by farmers.

Results and Discussion

The data presented (Tables 1 and 2) illustrate the average yield and economic returns of Kharif and Rabi vegetables produced by ten randomly selected farmers. It is evident that, from an area of 250 m², the selected families achieved an average vegetable production of 133.2 kg during the Rabi

season and 146.5 kg during the Kharif season. The total vegetable income during the Rabi and Kharif seasons was Rs. 2491 and Rs. 4508, respectively, within a three-month period, resulting in a combined six-month vegetable worth of Rs. 6999.0 (Tables 3 and 4).

The observed yield in demonstrations was lower than the potential yield of vegetables. This discrepancy may be attributed to the fact that the farm women were advised to use only organic manures for their consumption. Additionally, some of the selected farmers might not have followed the recommended package of practices promptly and completely. However, these findings align with a study conducted by Gurdarshan Singh and R. K. Singh (2017) ^[2], highlighted that kitchen gardens serve as an effective solution for vulnerable households by providing food security, nutritional diversity and economic stability.

Table 1: Average yield of vegetables grown in Kitchen garden during *Rabi* season (Kg/250M²)

Sl. No.	Spinach	Coriander	Amaranthus	Methi	Tomato	Brinjal	Radish	Chilli	Cumulative yield
1	23	6	19	4	15	36	32	6	141
2	21	7	23	06	22	24	29	8	140
3	8	9	21	05	14	27	22	11	117
4	20	12	26	9	26	30	28	9	160
5	15	4	12	4	23	26	24	12	120
6	14	5	18	12	13	31	30	7	130
7	15	8	14	6	21	23	22	10	119
8	23	4	16	4	16	32	20	11	126
9	19	13	18	8	18	21	32	8	137
10	22	11	25	11	19	20	28	6	142
Total	180	180	180	180	180	180	180	180	1332
Average	18.0	7.9	19.2	6.9	18.7	27.0	26.7	8.3	133.2

Table 2: Average yield of vegetables grown in Kitchen garden during *Kharif* season (Kg/250M²)

Sl. No.	Bitter guard	Bhendi	Bottle guard	Ridge guard	Pumpkin	Tomato	Brinjal	Chilli	Cumulative yield
1	12	14	14	21	32	17	38	12	160
2	10	12	12	16	28	24	29	9	140
3	9	15	19	19	24	16	25	8	135
4	13	18	16	14	30	29	31	13	164
5	11	13	20	17	18	20	28	14	141
6	8	11	23	26	22	24	30	9	153
7	12	13	25	23	23	20	18	12	146
8	10	9	16	20	16	26	28	9	134
9	11	10	14	18	22	24	34	8	141
10	14	17	24	23	18	18	27	10	151
Total	110	110	110	110	110	110	110	110	1465
Average	11.0	13.2	18.3	19.7	23.3	21.8	28.8	10.4	146.5

Table 3: Economic analysis of vegetable production during *Rabi* season

Sl. No	Name of crop	Average yield (Kg)	Market price (Rs./ Kg)	Average income (Rs.)
1	Spinach	18.0	15	270
2	Coriander	7.9	30	237
3	Amaranthus	19.2	15	288
4	Methi	6.9	25	173
5	Tomato	18.7	25	467
6	Brinjal	27.0	20	540
7	Radish	26.7	10	267
8	Chilli	8.3	30	249
Total (Rs.)				2491

Table 4: Economic analysis of vegetable production during *Kharif* season

Sl. No	Name of crop	Average yield (Kg)	Market Price (Rs./Kg)	Average Income (Rs.)
1	Bitter guard	11.0	40	440
2	Bhendi	13.2	20	264
3	Bottle guard	18.3	30	549
4	Ridge guard	19.7	40	788
5	Pumpkin	23.3	25	583
6	Tomato	21.8	50	1090
7	Brinjal	10.4	20	208
8	Chilli	14.65	40	586
Total (Rs.)				4508

Table 5 presents data on the constraints faced by farmers/farm women in kitchen gardening. Among the input constraints, the most significant issue was the untimely availability of seeds for seasonal vegetables in the form of kits, with 84% of respondents indicating this challenge. Following closely, 82% of respondents identified a lack of knowledge in managing major pests and diseases as the second major technical constraint. Other technical constraints included a lack of knowledge about improved varieties, seed rate, and sowing time (80%), as well as difficulties in using organic manures and household waste (76%). Regarding socio-cultural constraints, the foremost concern was the lack of interest

among rural youth, with 74% of respondents highlighting this issue. Rural youth are increasingly migrating to urban areas in pursuit of government jobs, while parents often prefer their children to pursue careers as doctors or engineers rather than farmers. Moreover, kitchen gardening is given less importance compared to growing seasonal crops (72%) due to social stigma, as rural women tend to avoid such tasks. Two additional socio-cultural constraints were identified: the fear of theft of farm produce (68%) and the limited involvement of household women in kitchen gardening (64%). These constraints collectively hinder the successful implementation of kitchen gardening practices in the rural context.

Table 5: Constraints in adoption of kitchen gardening in rural Families (N=50)

Sl. No.	Constraints	Particulars	Percent Score
1	Input	Timely non availability of seeds of seasonal vegetables in the form of kits	84.00
		Lack of knowledge on use of organic manures and household waste	76.00
2	Technical	Lack of knowledge about improved varieties, seed rate and sowing time	80.00
		Lack of knowledge regarding identification of major pests and diseases and management	82.00
		Lack of knowledge about efficient use of organic manure	74.00
3	Socio-cultural	Lack of interest among rural youth	74.00
		Fear of theft of kitchen garden produce	68.00
		Less involvement of household women in kitchen gardening	64.00
		Menace due to domestic animals	52.00
4	Post-harvest	Not interested in selling of excess produce	66.00
		Lack of knowledge regarding preservation of vegetables	60.00
5	Other	Less importance is given to kitchen gardening than growing seasonal crops	72.00

According to Heyzer and Sen (1994)^[3] women in poverty-stricken areas take on multiple roles and employ various survival strategies. Therefore, to create economic opportunities for the poor, it is essential to direct resources towards women (Krems *et al.*, 2004)^[4]. The data presented in this study reveals that significant post-harvest constraints include the difficulty in selling small quantities of surplus produce (66%) and a lack of knowledge regarding the preservation of the produce (60%). These findings align with the results of previous studies conducted by Sisodia and Rathore (2004)^[8], Kumar *et al.*, (2011)^[5], Sethy *et al.*, (2010)^[7] and Deepa *et al.*, (2017)^[1]. The consistent results across these studies emphasize the importance of addressing post-harvest challenges to enhance economic opportunities and improve livelihoods in impoverished regions.

Conclusion

Malnutrition is a prevalent issue in rural areas of our country, primarily caused by the inadequate intake of balanced nutrients among impoverished households. Micronutrients are mainly obtained from vegetables and fruits, making homestead kitchen gardening a viable solution for vulnerable households. The implementation of kitchen gardens plays a crucial role in addressing malnutrition and micronutrient deficiencies in rural areas, leading to various social benefits, including improved health, nutrition, employment, and food

security within the household. Kitchen gardens promote dietary diversity by providing organic fruits and vegetables in sufficient quantities to meet the family's nutritional needs, thereby reducing the financial burden. Despite its positive impact, the successful adoption of kitchen gardening faces certain constraint, such as input limitations, technical challenges and sociocultural practices.

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