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Dual purpose nutritional garden for food and nutritional security in Rewa district

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Abstract

The Nutritional Gardens were laid out by the Rural Families of Rewa District with the objective to fulfill the daily requirement through various types of seasonal vegetables. These vegetables were grown in the kitchen garden to combat malnutrition by adding different kind of nutrients grown in the diet of the farm family without spending significant money. Study shows that more than 20 types of vegetable seeds produced 11.9 quintals of vegetables (Average) with maximum production of 17.8 q and minimum production of 7.4 quintals.

Keywords: Mmalnutrition, nutritional security, rural household, backyard, nutritional garden

Introduction

Rural population, especially the vulnerable class such as women and children suffer from malnutrition and food insecurity due to imbalanced diet. Poor economic condition, lack of knowledge, poor access to balanced diet, lack of availability of fruits and vegetables are few of the many reasons of malnutrition in rural area.

India is ranked 101st amongst 116 countries on the Global Hunger Index which is rated as a serious condition (Global Hunger Index report -2021, FAO). National Family Health Survey - 5 Report (2019-21) states that in Rewa District, 18.7% to 37 % of the total children under the age of 5 years were suffering from malnutrition under various categories. It was found that there were 40.8 to 44.4% of total women of 15 to 49 years of age were found anemic, under various categories whereas 16.5% of total women under the age of 15-49 years of age had Body Mass Index (BMI) below normal (BMI<18.5Kg/m²).

Nutritional and food Security is pivot for all development programmers. A large segment of Indian population thrives on nutritionally deficient food. Along with various plans and programmers run by State and Central Government; Krishi Vigyan Kendra's are also combating malnutrition through many ways all over the country. Nutritional Garden laid out at the backyard of Rural Household is considered to be very beneficial and an effective vehicle for regular supply of different types of vegetables for Nutritional and Food Security.

In the recent past nutritional garden is identified as an important tool in combating malnutrition and food insecurity, which is a small piece of fertile land at the backyard or area adjacent to the house with partial or complete irrigation facility and fencing for protection.

Nutritional Garden supplies vitamins and mineral through fruits and vegetables which are excellent source of fiber and antioxidants. It makes available a variety of colorful, seasonal and garden-fresh fruits and vegetables in sufficient quantity at hands distance. It saves time and money and at the same time it helps in keeping fit as it provides an opportunity to exercise while working in the garden. To improve the condition of the vulnerable class, Nutritional Garden can be an effective program, as establishment of nutrition garden is found to be low cost, sustainable approach for reducing malnutrition, increasing awareness about vegetable production, increasing working hours and achieving food, nutrition and economic security for rural families (Nandal 2012) [12].

Observing the need of the rural population and considering the fact that kitchen gardens have great potential for improving household food security and alleviating micronutrient deficiencies (FAO 2018) [9], the main objectives of this study was to explore the benefits of the nutritional gardening and yield output of nutritional gardens, and to investigate the farm women's perceptions and constraints observed. Hence, this study sought to summarize specific benefits of Nutritional Garden with the following objectives

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1. To know Perception of farm women towards nutritional garden.
2. To study the extent of change in knowledge on various nutritional gardening aspects after training of beneficiaries
3. To identify constraints in growing all season nutritional garden.

Methodology

Women farmers from rural households of Reiwa and Seymour block of Reiwa District of Madhya Pradesh with at least 400 sq ft of available land at the backyard of the house or adjacent to the house, with fencing and irrigation facility were chosen purposively, who were in need and willing to participate in the nutritional garden program. Total 30 participants were provided with training on purpose, methods and layout along with management of nutritional garden as well as on composting and wormy composting. Participants were provided with hybrid seed of Pumpkin, Cluster Bean, Okra, Bitter Gourd, Sponge Gourd, Bottle Gourd, Cucumber,

Muskmelon, Water Melon and High Yielding Variety of Spinach, Coriander, Amaranth in a form of seed kit. Participants were also provided with diary and pen to record the production of vegetable. Similarly, for winter season French bean, Beet Root, Turnip, Amaranth, Carrot, Fenugreek, Spinach, Brinjal, Coriander, Radish, Cauliflower, Cabbage, Chili and Okra were provided to participants. Farm families were asked to record the consumption, distribution and sale of these seasonal vegetables with amount received, separately against the date. Final yield data was collected and analyzed. For the analysis of yield data, proximate principles of Indian Council of Medical Research were used for nutritional quantification.

To collect the data about perception, yield and constraints of the respondents, the target group was interviewed through standard tool and the collected data was analyzed in frequency, percentages, mean and standard deviation.

Result and Discussion

Table 1: Socio- personal characteristics of respondents

Name of Variable		Frequency	Percentage (%)
Age	Young (Up to 35 years)	12	40.00
	Middle aged (36-55 years)	15	50.00
	Old (56 and above)	03	10.00
Education	Up to Middle School	13	43.33
	High School and Above	17	56.67
Caste	SC/ST	02	06.67
	OBC	22	77.33
	General	06	20.00
Family Size	Up to 7 members	25	83.33
	Eight members and above	05	16.67
Perception regarding Nutritional Garden	Low	1	03.33
	Medium	17	56.63
	High	12	39.96
Attitude towards Nutritional Garden	Unfavorable	-	00
	Un- decided	03	10.00
	Favorable	27	90.00

The data in table 1 show that majority of respondents engaged in Nutritional gardening practices were middle aged (50.00 percent), followed by young (40.00 percent) and old (10.00 percent). It was found that 56.67 percent of women farmers were educated up to high school and our followed by up to middle school 43.33 percent. Maximum women farmers belong to OBC category 77.33 percent followed by General (20 percent) and SC/ST (6.67 percent).

Family size of women farmers was limited up to 7 members

(83.33 percent) whereas 16.67 percent women farmers had 8 members or above in their family. About 90 percent women farmers had favorable attitude towards Nutritional Garden followed by 10 percent who were undecided. As far as perception regarding Nutritional Garden was concerned; it was found that 56.63 percent of rural women had medium perception followed by high (39.96 percent) and low perception (03.33 percent).

Table 2: Extent of Change in knowledge on various Nutritional gardening aspects after training of rural women

Aspect	Before Training			Total Score	After Training			Total Score	Change in Knowledge	Rank
	Low	Med	High		Low	Med	High			
Land Preparation	24	4	2	38	3	18	18	66	28	VI
Improved varieties	23	6	1	38	2	21	21	65	27	VII
Sowing time and seed rate	24	4	2	38	0	22	22	68	30	V
Composting and Nutrient Management	21	7	2	41	3	12	12	72	31	IV
Irrigation	26	2	2	36	0	12	12	78	42	III
Intercultural Operations	16	12	2	46	6	14	14	64	18	VII
IPM	26	3	1	35	3	5	22	79	44	I
Value Addition	27	2	1	34	0	13	17	77	43	II

Data in table 2 denotes extent of change in knowledge on various technical aspects required to grow a successful

Nutritional Garden and to earn profit. A pre and post evaluation was conducted to know the level of knowledge. It

was found that maximum change in knowledge was observed in the IPM practices (Rank I) followed by value edition (Rank II) and irrigation pattern (Rank III) of management in Nutritional Garden.

Change in knowledge was observed comparatively low in composting and nutrient management (Rank IV), sowing time

and seed rate (Rank V), land preparation (Rank VI) and improved varieties (Rank VIII). Since women were well aware regarding weeding, thinning and gap filling operations before training therefore a little change in knowledge was observed in inter cultural operations. (Rank VIII).

Table 3: Vegetable production in different seasons in Nutritional Garden

Season	Minimum Production (Kgs)		Maximum Production (Kgs)		Average Production (Kgs)	
	Farmers Practice	Recommended Practice	Farmers Practice	Recommended Practice	Farmers Practice	Recommended Practice
Rabi	155.5	385.5	629.6	902.5	406.5	723.8
Zaid	121.0	417.9	486.8	1780.00	315.5	1180.2

Data in table 3 presents vegetable production in different seasons in nutritional garden. It shows that the minimum production of vegetable was obtained in farmers practice of Zaid season (121.0 kgs) followed by farmers practice of Rabi season (155.5 kgs). Whereas the minimum production under recommended practice in Rabi season was found 385.5 kgs and in zaid (419.7 kgs).

The maximum production was found under zaid season in recommended practice (1780.00 kgs) followed by the recommended practice in rabi season (902.5 kgs), farmers

practice in rabi season (629.6 kgs) the maximum production under Zaid season was found 486.8 kg under farmers' practice.

The average production was found to be 274.07 percent higher i.e. 1180.2 kilogram in recommended practice of Zaid in comparison to 315.5 kg in farmers practice of Zaid. Whereas 78.05 percent higher i.e. 723.8 kilogram in recommended practice of Rabi in comparison to 406.5 kilogram in farmers practice of Rabi.

Table 4: Constraints in Adoption of Nutritional Garden as perceived by Women farmers

Constraints	Frequency	Rank
Lack of protected/ boundary space in Nutritional Garden	25 (83.33)	III
Unavailability of quality seeds for Nutritional Garden	22 (73.33)	IV
Adoption of traditional practices for growing Nutritional garden	29 (96.66)	I
Low availability of water for irrigation	11 (36.66)	VI
Lack of technical knowledge related to Nutritional Garden	14 (46.66)	V
Lack of time required in management of Nutritional Garden	26 (86.66)	II
Lesser priority is given to Nutritional gardening by family members	08 (26.66)	VII

Data in table 4 presents constraints in adoption of nutritional garden as perceived by women farmers. It shows that Adoption of traditional practices for growing nutritional garden ranked first followed by lack of time required in management of nutritional garden (rank II), lack of protected/ boundary space in nutritional garden (rank III), unavailability of quality seeds for nutritional garden (Rank IV), lack of technical knowledge related to nutritional garden (Rank V), low availability of water for irrigation (Rank VI) and lesser priority is given to nutritional gardening by family members (Rank VII).

In a study conducted at Burdwan district of West Bengal, it was found that input constraint was most important constraint as it was ranked in 1st position (Sethy *et al.*, 2010) [5]. Another study reported the unavailability of quality planting material and seeds of HYVs of vegetable as major bottleneck in successful adoption of kitchen gardening (Sharma *et al.*, 2011) [7]. Similar results were also reported by Biswas and Jamir (2015) [1].

Conclusion

A systematic, well planned and well facilitated nutritional garden is a major tool to combat malnutrition and ensure nutritional security. However, it is difficult to grow in each and every house because of unavailability of land and lack of resources. Therefore, beneficiaries of this programmed were motivated to share the surplus with resource poor of the vicinity which has given a positive response and on an average 10-15% of total produce was distributed by

beneficiaries. Reportedly, growing nutritional garden is a great hobby which makes a person emotionally elated and makes one feel happy by just being there. Hence, it is also good for emotional health too. Constraints can be removed by providing technical knowhow and resource management practices.

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