



IMPROVEMENT IN NUTRITIONAL SECURITY OF TRIBAL FAMILIES THROUGH KITCHEN GARDENING IN REMOTE AREAS OF THE DINDORI DISTRICT (MP), INDIA

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Abstract

Dindori is a tribal district located on the Eastern borders of Madhya Pradesh (M.P.), touching Chhattisgarh. Under nutrition and malnutrition is a serious nutritional problem in tribal remote areas of Dindori, resulting in different types of nutritional deficiency diseases which impacts on health triangle by hampering combination of physical, mental, emotional and social well-beings. For poor people households, vegetables and fruits are often the only source of micronutrients in the family diet. Homestead production of fruits and vegetables provides the poor people the direct access to important nutrients that may not be readily available or within their economic reach. Hence kitchen gardening is an important strategy to improve household nutritional security. Present study was conducted in 4 remote villages namely Jalda, Bona, Chhata and Rusamal of Dindori district by involvement of 80 tribal farmers' family to assess the impact of kitchen garden in improvement of nutritional security of households in remote tribal areas. The result suggests that kitchen gardening has proved a feasible livelihood strategy for resource poor tribal people in terms of nutrient as well as calorie intake and economic performances.

Keywords : Nutrition, Kitchen Garden, Food security, Average production, Tribal farmers' families

Introduction

Dindori is one of the tribal population dominated district of Madhya Pradesh (MP), having 65% tribal population. This District is abode to identified "Special Primitive Tribal Groups" since 20,000 years. Baigas are one of the most primitive tribes and are declared as 'National Human'. In remote villages of Dindori district under-nutrition, malnutrition and poor health status is a common problem. It retards growth, increases the risk and duration of illness, reduces work output and slows social and mental development. On the other hand, majority of the population comes under small size of holding below 2.0 ha. The irrigated area is only about 3% of the total cultivated area. The crop production is completely dependent on rainfall. In such condition, tribal farmers follow survival oriented system of Agriculture with integrated approach of farming, hunting and minor forest collections. Establishment of Kitchen Garden in remote areas is easy due to availability of space and farm families are already engaged in agriculture practices. Kitchen gardening is one of the world's most ancient food production practices and is practiced throughout the world (Landauer and Brazil, 1985). Vegetables play a crucial role in human's diet and rural generation should get the awareness about the importance of vegetables (Simple Jain, 2017). So, kitchen gardening would be a good mean to improve household food security (Talukder *et al.*, 2002). Therefore, present study was conducted to see the Impact of Kitchen Gardening in improving the

nutritional security of households in remote tribal villages of Dindori of MP. Technical support were provided especially important when new gardening techniques are being promoted such as growing new or increased number of varieties or year-round vegetable production. Training need regarding household food security through kitchen garden is one of the major thrust areas in rural areas (Kirtimani *et al.*, 2016) and regular trainings are required to fill the training gap. Tribal women were actively involved in kitchen gardening activity which may result in the better use of household resources and improved caring practices and employment generation. Kitchen gardening also addresses a important area of poverty alleviation (Arya *et al.*, 2018) and provides important socio-economic returns through lower health and welfare costs and important contribution to the overall development of communities.

Materials and Methods

The present study was conducted in 4 remote villages i.e. Jalda, Bona, Chhata and Rusamal of Dindori district of MP to investigate the role of kitchen gardens in addressing food security. Twenty families from each village were selected randomly by involving total 80 tribal farmers' family. Different capacity building activities including training, exposure visit and farmer's scientist's interaction on various aspects including organic vegetable production, homestead vegetable utilization, average vegetable consumption, nutrient contribution from homestead vegetable

gardening were planned and undertaken. Pre-survey was conducted to obtain information regarding profile and respondent's dietary food habits and nutritional deficiency diseases were also pre-surveyed. The villages were guided and advised about planning a kitchen garden in scientific and organic way that all the seasonal vegetables could be grown fresh and thus available round the year. Use of high yielding varieties of different vegetables i.e. Methi, Radish, Carrot, Tomato, Brinjal, Cabbage and Cauliflower were grown in Kitchen Garden. The size of the garden was designed to be big enough to produce sufficient vegetables for the family, (70sq mt). The basic functions of food and nutrition education were taken in consideration while planning the kitchen garden. Total amount of vegetable were recorded of each family and average were calculated for each village garden are recorded in Table 3. Savings (Rs) and satisfaction quotient were also recorded with pre structured questionnaire (Arya *et al.*, 2018).

Result and Discussion

Socio-economic characteristics

Present study revealed remarkable socio-economic changes in feeding/ eating behaviours of the selected remote village tribal farmers of the Dindori district. The table no. 1 showed that 57.5 % and 42.5 % of respondents were belonged to joint and nuclear family respectively. The majority of the family belongs to medium size (52.5%) followed by small (28.75%) and big size (18.75%). Results on family income showed that majority (82.25 %) of respondents belonged to income group of less than Rs. 50,000. While looking at their educational status, results revealed that 52.5% heads of the family were illiterate followed by primary level education (26.25%). Results on land holding reflect that majority (81.2%) had small scale land holding followed by medium (16.2%) scale land holding.

Table 1 : Socio personal characteristics of respondents

Variable	Categories	Number	Percent
Type of family	Joint family	46	57.5
	Nuclear family	34	42.5
Size of family	Small size (1-4 members)	23	28.7
	Medium size (5-7 members)	42	52.5
	Big Size (>7 members)	15	18.7
Income annual (Rs.)	50000	65	82.2
	50000-100000	12	15.0
	>100000	3	3.7
Education	Illiterate	42	52.5
	Primary	21	26.2
	Middle	12	15.0
	Graduation	5	6.2
Land holding	Small (< 2 ha)	65	81.2
	Medium (2-5 ha)	13	16.2
	Large (> 5 ha)	0	0

Intervention and evaluation of kitchen garden

Table 2 revealed that before demonstration respondents cultivated 2-3 different vegetables such as brinjal, okra, and radish. But after intervention they had grown 07 types of vegetables like methi, raddish, carrat, tomato, brinjal, cabbage and cauliflower in Kharif, and Rabi seasons. Table 2 demonstrated that kitchen garden resulted in increase in nutritional vegetable production, consumption and distribution/sale of excess vegetables to neighbourhood and relatives. Before intervention,

respondents were practicing traditional methods; they used to grow only one or two seasonal vegetable. To fulfill the requirement, they had to purchase vegetables from market for consumption. It is obvious from Table 2 that production of vegetables at beneficiaries increased 950% which resulted in increased consumption (263%), distribution (100 %) and purchase of vegetables was decreased by 37.5%. The present findings find similarity with Araya *et al.* (2018) and Nandal and Vashisth, (2009).

Table 2 : Vegetable production and utilization

	Production (Kg)	Purchase (Kg)	Distribution	Consumption
Before intervention	20	120	00	95
After intervention	210	75	78	250
Change	100	-45	+78	+345
Per cent change	950	37.5	100	263

The average vegetable production during the year 2016-17 is presented in Table 3. Data in Table 3 showed the total average production of four villages was 215.32 Kg during the Kharif and Rabi season. After the overall consumption of vegetables by the families had increased 263 % (Table 2), the economic benefit in the term of average income (Table 3) of Rs. 3550 was recorded.

Table 3 : Average Vegetables production during 2016-17

Name of vegetables	Jalda	Bona	Chhata	Rusamal	Average Production (Kg)	Average Rate (Kg)	Average Income (Rs)
Methi	6	8	6.5	5	6.4	50	250
Radish	40	30	35	32	34.3	20	595
Carrot	20	25	30	22	24.3	40	875
Tomato	70	50	80	45	61.3	10	520
Brinjal	35	32	40	37	36.0	15	425
Cabbage	32	25	25	22	26.0	20	400
Cauliflower	35	22	32	20	27.2	20	485
Total	238	192	248.5	183	215.32	175	3550

Conclusion

The establishment of kitchen gardens had immense role in tackling the problem of malnutrition in remote areas of Dindori. The intervention on kitchen gardening was very much successful and acceptable model for people/women empowerment for alleviation of malnutrition and poverty among tribal people of remote villages. The present study reflected that there is a lot of potential in the knowledge accumulated in societies over time and only require the right trigger to unlock it for the benefit of the same societies and the nation at large. The process of extension had made differences through public motivation and awareness about the kitchen garden as strong foundation for society for food security and nutritional diversity.

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