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### Frontline demonstrations on kitchen gardening: An impact assessment

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#### Abstract

Kitchen gardens can be grown in the empty space available at the backyard of the house or a group of women can come together, identify a common place or land and grow desired vegetables, fruits, *etc.* that can benefit the women and community as a whole. Vegetables are major source of vitamins, minerals, and fibres; their nutritive and medicinal values in human life are well recognized. These vegetables also provide taste, palatability, better digestibility to us and increase the appetite.

The present work was carried out by Krishi Vigyan Kendra, Fatehabad in the year of 2018-19. Two villages namely Sehnal and Gorakhpur were selected purposively for this study. 200 Front Line Demonstrations (FLDs) were conducted during rabi and kharif seasons in these two villages. 100 farmers/farm women in each village were supplied seasonal vegetables seeds for both the summer (*Kharif*) and winter (*Rabi*) seasons as demonstration kit. The kit comprised of seeds of vegetables *viz.*, okra, sponge gourd, bottle gourd, bitter gourd and cowpea for the summer season and carrot, radish, spinach, coriander and methi for the winters season. The objectives of these FLDs were to provide them knowledge about vegetables production technology for kitchen gardens and quick access of raw vegetables for daily home consumption. Therefore the present study was designed to assess the impact of these FLDs on beneficiary's knowledge regarding vegetable cultivation and their liking about growing of vegetables. Data was collected through well-structured interview schedule on their basic profile, growing and liking pattern of the respondents and their knowledge about different vegetables demonstrated under FLDs.

It is quite encouraging that majority of the respondents were less educated, yet succeeded in gaining sufficient level of knowledge regarding vegetable cultivation. There was difference in the knowledge of respondents at pre- and post exposure stage for all the vegetables cultivation activities. Maximum gain in knowledge (45.00%) was received in irrigation and their critical stages followed by plant protection measures (42.50%), improved varieties (42.00%) and post harvest management (38.00%). The data on growing and liking pattern of vegetables revealed that farmers are ready to adopt the kitchen gardening technology demonstrated under FLDs. They prefer to grow vegetables like okra, bitter gourd and bottle gourd in kharif season whereas coriander, methi and spinach in winter season. On the basis of above findings it can be concluded that frontline demonstrations are effective in increasing the knowledge level of beneficiaries and adoption of kitchen gardening practices.

**Keywords:** Kitchen gardening kit, FLD, vegetables, impact assessment, gain in knowledge, liking pattern

#### 1. Introduction

Food security and nutritional diversity is one of the key areas that a developing country like India should be concentrated on it. With varying local opportunities and challenges, the kitchen garden forms a universal remedy that can address food insecurity and bring in self-reliance, sovereignty and dignity. Households have labour power– the physical ability of household members to generate income (Christopher, 2006) <sup>[1]</sup>. Continuously increasing food prices of basic kitchen items, fruits and vegetables, the poor and fixed income groups are suffering from the decreasing real incomes and purchasing power. With increasing civilization and western education, kitchen gardens are being incorporated into modern houses for easy and quick access to fresh food produce and products (Sanogo, 2007) <sup>[6]</sup>. Kitchen gardens can be grown in the empty space available at the backyard of the house or a group of women can come together, identify a common place or land and grow desired vegetables, fruits, *etc.* that can benefit the women and community as a whole (Christensen, 2011) <sup>[2]</sup>. The nutritional home

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Garden or kitchen garden is generally located close to the house and is used for growing vegetables, fruits, and other food crops for the family. Many social benefits have emerged from kitchen gardening practices; better health and nutrition, increased income, employment, food security within the household and community social life. Households and small communities take advantage of vacant land and contribute not only to their household food needs but also to the needs of their resident city.

Vegetables are major source of vitamins, minerals, and fibers; their nutritive and medicinal values in human life are well recognized. These vegetables also provide taste, palatability, better digestibility to us and increase the appetite. Vegetables are suitably grown in kitchen gardens, as they are mostly short duration crops. A family can take vegetables from these kitchen gardens round the year. It not only saves money and time but also can provide a healthy, useful and environment friendly hobby for whole family. Home gardens can help us in recycling of household waste especially, when a compost pit is developed. One of the easiest ways of ensuring access to a healthy diet that contains adequate macro- and micronutrients is to produce many kinds of foods in the home garden. This is especially important in rural areas where people have low purchasing power and distant markets. Kitchen gardening directly provides food and nutritional security by making access to food that can be harvested instantly, prepared and fed to family members daily or whenever required. Apart from having a good amount of production of vegetables at national level, the per capita availability in diet is quite low in our country. The daily requirement of vegetable is around 300 g as per ICMR but the availability is one third *i.e.* very low. Still, they lack in adequate consumption of vitamins and minerals because of unorganized cultivation of vegetables. Keeping in view the importance of vegetables in daily diets and its low availability, the Krishi Vigyan Kendra, Fatehabad (Haryana) has conducted frontline demonstrations (FLDs) on kitchen gardening during the year 2018-19. The objectives of these FLDs were to provide them knowledge that desired vegetables can be suitably grown in kitchen gardens and their easy and quick access of raw vegetables for daily home consumption.

## 2. Materials and methods

The present work was carried out by Krishi Vigyan Kendra, Fatehabad in the year of 2018-19. Two villages namely Sehna and Gorakhpur of district Fatehabad were selected purposively for this study. Two hundred front line demonstrations of vegetable minikits were conducted during rabi and kharif seasons in these two villages. One hundred

farmers/farm women in each village were supplied seasonal vegetables seeds as a kit for both the summer (*Kharif*) and winter (*Rabi*) seasons. The kits comprised of seed of different vegetables *viz.*, okra, sponge gourd, bottle gourd, bitter gourd and lobia for the summer season and carrot, radish, spinach, coriander and methi for the winter season. Since large no. of FLDs were conducted on kitchen gardening vegetable minikits, therefore it was felt necessary to assess the impact of these FLDs on beneficiary's knowledge regarding vegetable cultivation and their liking about growing of vegetables. Data was collected through well-structured interview schedule on their basic profile, growing and liking pattern of the respondents and their knowledge about different vegetables demonstrated under FLDs. Pre- and post-knowledge was assessed to find out gain in knowledge regarding vegetable cultivation.

## 3. Results and discussion

### 3.1 Personal profile of Respondents

The data regarding socio-personal attributes of respondents were analysed and presented in Table-1. The data regarding age of the respondents in Table- 1 reveals that 41.50 per cent of the respondents were of younger age group followed by middle age group (38.00%) and upper age group (20.50%) respectively. About 51.50 per cent of total respondents belong to backward caste, 15.50 per cent were from general caste and 33.00 per cent belonged to scheduled caste categories.

The data regarding educational level presented in Table -1 depicts that 29.50 per cent respondents were educated up to secondary school followed by primary (25.00%), respondents who can read and write only were 20.50 per cent, whereas 11.00 per cent respondents educated up to senior secondary level. Only 4.00 per cent of total respondents were educated up to graduation/post-graduation level. It is well exhibited that 53.50 per cent of the respondents had cultivation as their main occupation whereas, 24.00 per cent respondents were found to be agriculture labourers followed by respondents who were in caste wise occupation (14.50%), respectively. Near about half of the respondents (45.00%) were landless, whereas about one third of the respondents (27.50%) had land up to 5.00 acres. It is further pointed out that (20%) of the respondents had land between 5 to 10 acres. Only 7.50 % respondents were having land more than 10.0 acres, respectively. Similar findings were reported by Gita (2010) which revealed that most of the respondents were of younger age group, illiterate, married and having medium family education status, joint family having 5-6 members and farming was their main occupation. Deepthi (2008) [3], Renu (2009) [5] and Yadav (2013) [7] also support the findings.

**Table 1:** Personal profile of rural farmers/farm women N=200

S. No	Variable	Category	Sehna (N=100)		Gorakhpur (N=100)		Total (N=200)	
			Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1.	Age	Younger (<30 yrs)	47	47.00	36	36.00	83	41.50
		Middle (31-45 yrs)	34	34.00	42	42.00	76	38.00
		Upper (>45 yrs)	19	19.00	22	22.00	41	20.50
2.	Caste	Scheduled Caste	32	32.00	34	34.00	66	33.00
		Backward Caste	55	55.00	48	48.00	103	51.50
		General	13	13.00	18	18.00	31	15.50
3.	Education	Illiterate	12	12.00	08	08.00	20	10.00
		Can read and write only	23	23.00	18	18.00	41	20.50
		Primary	20	20.00	30	30.00	50	25.00
		Secondary	32	32.00	27	27.00	59	29.50
		Senior Secondary	08	08.00	14	14.00	22	11.00
	Graduate/Post graduate	05	05.00	03	03.00	08	4.00	
4.	Family	Cultivation	45	45.00	62	62.00	107	53.50

	occupation	Agri. Labourer	33	33.00	15	15.00	48	24.00
		Caste occupation	17	17.00	12	12.00	29	14.50
		Service	05	05.00	11	11.00	16	8.00
5.	Land holding	Land less	55	55.00	35	35.00	90	45.00
		Small (<5.0 acre)	30	30.00	25	25.00	55	27.50
		Medium (5.0-10.0 acre)	10	10.00	30	30.00	40	20.00
		Large (>10.0 acre)	5	5.00	10	10.00	15	7.50

### 3.2 Growing and liking pattern of kitchen gardening kit

Vegetable cultivation was not practiced earlier by the farm families at their farm or home in the selected villages, as cotton- wheat, rice-wheat is their main cropping system. Therefore the FLDs on kitchen gardening were demonstrated by the KVK to popularize the technology and adoption of vegetable production technology for their home consumption. The adoption of kitchen gardening will not only meets the daily requirement of vegetable but also enrich their diet with minerals and vitamins.

A kitchen gardening kit of ten vegetables were supplied to 200 farmers/ farm women as a frontline demonstration for both summer (*Kharif*) and winter (*Rabi*) season. Since kitchen gardening of vegetables being practiced first time by the respondents, so their liking and growing pattern towards vegetables provided in minikit was observed in both the villages for summer and winter season on the basis of weighted mean scores and their respective ranking. Analysis

of the data regarding liking pattern of vegetables presented in Table-2 reveals that okra crop (2.50) was most liked during kharif season by the FLD farmers of Sehna village followed by bitter gourd (2.35), bottle gourd (2.31), ridge gourd (2.20) and cowpea (1.93). Whereas in village Gorakhpur, the crop bitter gourd was most liked by the farmers and ranked first with weighted mean score of 2.49 followed by okra (2.28), cowpea (2.25), ridge gourd (2.15) and bottle gourd (2.05). Similarly the growing and liking pattern of beneficiaries towards vegetables under kitchen gardening was also observed in winter season also and it was found that crops coriander, methi and spinach were ranked first, second and third respectively in both the villages i.e Sehna and Gorakhpur. On the basis of above findings, it can be concluded that farmers are ready to adopt kitchen gardening technology they prefer to grow vegetables like okra, bitter gourd and bottle gourd in kharif season whereas coriander, methi and spinach in winter season.

**Table 2:** Growing and liking pattern of vegetables under FLDs on kitchen gardening

S. No.	Vegetable	Sehna (N=100)					Gorakhpur (N=100)				
		Most liked (3)	Liked (2)	Least liked (1)	Weighted mean score	Rank	Most liked (3)	Liked (2)	Least like (1)	Weighted mean score	Rank
Summer (Kharif)											
1.	Okra	55	40	5	2.50	I	38	52	10	2.28	II
2.	Bottle gourd	34	63	3	2.31	III	30	45	25	2.05	V
3.	Bitter gourd	42	51	7	2.35	II	58	33	9	2.49	I
4.	Ridge gourd	30	60	10	2.20	IV	35	45	20	2.15	IV
5.	Cowpea	27	39	34	1.93	V	40	45	15	2.25	III
Winter (Rabi)											
6.	Methi	57	30	13	2.44	II	52	36	12	2.40	II
7.	Coriander	78	20	2	2.76	I	77	23	0	2.77	I
8.	Spinach	40	55	5	2.35	III	39	42	19	2.20	III
9.	Carrot	42	50	8	2.34	IV	51	38	11	2.40	II
10.	Radish	22	47	31	1.91	V	30	44	26	2.04	IV

### 3.3 Impact of kitchen gardening FLDs on knowledge level of respondents

Before lay out of FLDs at farmer's field, the beneficiaries existing knowledge level regarding cultivation of vegetables was assessed with the help of structured interview schedule. Thereafter, kitchen gardening technology was demonstrated and beneficiaries were trained about production technologies of vegetables crops contained in demonstrated kit. Kitchen gardening demonstrations were regularly monitored by Home scientist and other experts of KVK Fatehabad. Different capacity building and extension activities like farmers group meeting, field day etc. were organised to improve knowledge of the farmers. The knowledge of the FLD farmers/ farm women was further assessed to find out whether FLDs has an impact on their knowledge or not. The data on knowledge

level of respondents before and after the demonstration was computed, analysed and results so obtained has been presented in Table-3.

Perusal of data presented in Table 3 depicts that respondent's knowledge has been increased in all the aspects of vegetable production technology due to demonstration of kitchen gardening through FLDs. The comparison of knowledge before and after FLDs revealed that of maximum gain in knowledge (45.00%) was received in irrigation and their critical stages followed by plant protection measures (42.50%), improved varieties (42.00%) and post-harvest management (38.00%). However, minimum gain in knowledge was observed in land preparation and layout (25.50%).

**Table 3:** Impact of kitchen gardening FLDs on knowledge level of respondents

S. No	Vegetable cultivation aspects	Knowledge of farmers/farm women (N=200)				Gain in Knowledge (%)
		Before FLD		After FLD		
		Frequency (No.)	Percentage (%)	Frequency (No.)	Percentage (%)	
1.	Land preparation and layout	124	62.00	175	87.50	25.50
2.	Improved varieties	41	20.50	125	62.50	42.00
3.	Appropriate sowing time of various vegetables and their seed rates	76	38.00	145	72.50	34.50
4.	Nutrient management	75	37.50	150	75.00	37.50
5.	Irrigation and their critical stages	87	43.50	177	88.50	45.00
6.	Weed management and Intercultural operations	115	57.50	187	93.50	36.00
7.	Plant protection measures	75	37.50	160	80.00	42.50
8.	Post harvest management	100	50.00	176	88.00	38.00

#### 4. Conclusion and suggestions

It is quite encouraging to record that majority of the respondents being less educated, yet succeeded in gaining sufficient level of knowledge regarding vegetable cultivation. After the demonstration, the respondents had increased their knowledge in all the aspects of vegetable production technology. Respondents were able to gain sufficient knowledge regarding irrigation and plant protection measures aspects which they have very less knowledge before demonstration. The data on growing and liking pattern of vegetables revealed that farmers are ready to adopt the kitchen gardening technology demonstrated under FLDs. They prefer to grow vegetables like okra, bitter gourd and bottle gourd in kharif season whereas coriander, methi and spinach in winter season. On the basis of above findings it can be concluded that frontline demonstrations are effective in increasing the knowledge level of beneficiaries and adoption of kitchen gardening practices. Many other social benefits have emerged from demonstrations on kitchen gardening practices as the demonstrated farmers were aware about better health and nutrition, income saving by reducing expenses of vegetable from market. The FLDs on kitchen gardening established a belief that household and small communities can take advantage of vacant land and contribute to their household food needs. Therefore it is suggested that kitchen gardening technology should be popularized for its wider adoption.

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