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Contribution of farm women in vegetable cultivation: An empirical study of Bihar

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Divakar**

Abstract

We can't deny the fact that vegetable production contributes highly in income as well as employment of our country. A large number of women are participating in vegetable cultivation activities. They are not only involving in production related work but also have a great knowledge about cultivation practices right from beginning to end. Vegetable growing is very much popular among farm women due to their high economic value and market availability. So, there is a need of increasing farm women knowledge as well as their requirement for training about vegetable production. The main aim of this study was to analyse the contribution of farm women in vegetable cultivation. Data was collected from 120 women vegetable growers in Bhagalpur district through schedule. It was concluded that participation of farm women was the highest in case of manually weed control (83.34 per cent), washing of crops (tomato, carrot, radish) (80 per cent) and land clearing of vegetable field (76.66 per cent).

Keywords: Vegetable cultivation, Farm women, Contribution, Bihar

Introduction

We all know the role of vegetables in our diet and the benefits they provide in the form of nutrition is a kind of bliss for a human being. They are loaded with abundance amount of nutrients, fibres, minerals, vitamins etc. Vegetables not only provide all the essential nutrients to the body but it also helps in maintaining health and improving our dietary lifestyle. As we see the scope of Bihar in terms of vegetable production, we cannot ignore its importance among vegetable producing states. Being able to produce almost all kind of vegetables whether it is solanaceous, okra, cole crops, and root crops, there is a high expectation from Bihar in terms of production as well as productivity. Women are actively engaged in almost all stages of farm production right from production to marketing. In other vegetable cultivation activities such as seed bed preparation, sowing, irrigation, weeding, harvesting, compost making etc. farm women showed high level of involvement. They possess a very good knowledge about irrigation and fertilizer application, weed control, cleaning, harvesting and other post-harvest techniques. The role of women in farm cannot be neglected and this shows that women continue to form an important part of farming community, not particularly due to their large number but because of their active participation and knowledge.

Farm women were mostly engaged in vegetable cultivation activities such as sowing, transplanting, harvesting and post harvesting operations (Jahan and Khan, 2016) [3]. The Finding shows that majority of the rural women (60 per cent) were participating independently in home garden vegetable cultivation while 40% women participated jointly with men (Bargali and Shahi, 2015) [1]. Participation of women was more in case of cleaning of land, sowing of seed, transplanting of vegetable nursery, hoeing and weeding, harvesting and processing of

vegetable. The non-participation of women in various operations is due to high fatigued, requirement of more muscle power, lack of knowledge and awareness regarding various activities (Kumari and Laxmikant, 2015) [4]. Different types of vegetables were being grown by the vegetable growers in summer season such as spinach, bitter gourd, cowpea, pumpkin, okra, water spinach, pointed gourd while red amaranth, brinjal, tomato, bean, radish, pepper were being grown in the winter season (Hasan and Sultana, 2011) [2].

Methodology

In Bihar, Sabour block of Bhagalpur district was selected purposively as a study area for the reason that potentiality of

growth of vegetables crops throughout the year due to good agro climatic conditions and near to the gangetic plain. Under this block, four villages named, Badi Dhankar, Chhoti Dhankar, Chhoti Ibrahimpur and Sardho which have maximum number of women vegetable growers were selected for further research work. Thirty women vegetable growers from each village were selected randomly for the research study. Data was collected from the respondents through structured schedule on their houses or farms.

Results and Discussion

Table 1: Socio-personal characteristics of women vegetable growers (N=120)

Characteristics	Category	Frequency	Percentage	Cumulative Percentage	Mean	Standard Deviation
Age (in year)	Young (18 to 35 years)	48	40.00	40.00	41.05	8.64
	Middle (>35-55 years)	62	51.67	91.67		
	Old (More than 55 years)	10	08.33	100		
Education	Illiterate	32	26.70	26.70	2.30	1.02
	Functional literacy	36	30.00	56.70		
	Up to primary	38	31.60	88.30		
	Up to secondary	12	10.00	98.30		
	Up to intermediate	2	01.70	100.00		
Size of land holding	Marginal (below 1.00 ha.)	84	70.00	70.00	0.81	0.66
	Small (1.00-2.00 ha.)	24	20.00	90.00		
	Semi-medium (2.00-4.00 ha.)	12	10.00	100		
	Medium and large (4 ha. & above)	0	00.00			
Annual income from vegetable farming	Low (Up to 23,000 Rs.)	12	10.00	10.00	37683.33	14632.16
	Medium (>23,000-52,000 Rs.)	96	80.00	90.00		
	High (> 52,000 Rs.)	12	10.00	100		
Farming experience	Low (Up to 10 years)	26	21.70	21.70	17.50	7.17
	Medium (>10 years to ≤25 years)	80	66.60	88.30		
	High (>25 years)	14	11.70	100		
Contact with extension personnel (public)	Low (Up to 17 score)	19	15.83	15.83	21.10	4.10
	Medium (18-25 score)	80	66.67	82.50		
	High (≥26 score)	21	17.50	100		
Contact with extension personnel (private)	Low (Up to 7 score)	36	30.00	30.00	8.82	1.94
	Medium (8-11 score)	62	51.67	81.67		
	High (≥12 score)	22	18.33	100		

The findings regarding socio-personal characteristics of women vegetable growers are presented in table-1. It was found that most of the women vegetable growers (51.67 per cent) belonged to middle age group (>35 to 55 years), had education up to primary level of education (31.60%). The data in table-1 shows that out of 120 women vegetable growers, more than half of the total women vegetable growers (70.00%) were growing vegetables in marginal land holding

(below 1 ha.) and also belonged to medium income category (>23,000-52,000 Rs.). It was found that nearly 66.60 per cent of the total women vegetable growers had medium level of farming experience (>10 years to ≤25 years). The above table-1 shows that majority of the women vegetable growers had medium level of contact with extension personnel in public and private sector.

Table 2: Vegetable crops grown by the farm women in different seasons

Crops	Pre-Kharif season f(%)	Kharif season f(%)	Rabi season f(%)	Total f
Sponge gourd	30 (75.00%)	10 (25.00%)	-	40
Bitter gourd	13 (65.00%)	7 (35.00%)	-	20
Okra	10 (62.50%)	6 (37.50%)	-	16
Chilli	3 (25.00%)	-	9 (75.00%)	12
Cauliflower	-	-	61 (100.00%)	61
Cabbage	-	-	34 (100.00%)	34
Brinjal	-	6 (33.33%)	12 (66.67%)	18
Radish	-	5 (27.78%)	13 (72.22%)	18
Onion	-	8 (15.38%)	44 (84.62%)	52
Potato	-	-	70 (100.00%)	70
Palak	-	-	14 (100.00%)	14

A variety of vegetable crops are being grown by farm women in different season. Major vegetable crops were sponge gourd, bitter gourd, okra, chilli, brinjal, cauliflower, cabbage, onion, potato, radish and palak. The above table-2 data revealed that out of 120 women vegetable growers, 40 women vegetable growers were growing sponge gourd. Among 40 women vegetable growers, 30 women vegetable growers were growing sponge gourd in pre-kharif season and 10 in kharif season. Similarly, out of 120 women vegetable growers 20, 16,

12, 61, 34, 18, 18, 52, 70 and 14 were growing bitter gourd, okra, chilli, cauliflower, cabbage, brinjal, radish, onion, potato and palak respectively. Majority of the women vegetable growers were growing potato, cauliflower and onion. In pre-kharif season, major vegetable crops were sponge gourd, bitter gourd, okra and chilli. Kharif season vegetable crops were sponge gourd, bitter gourd, okra, brinjal, radish and onion. Rabi season vegetable crops were chilli, cauliflower, cabbage, brinjal, radish, onion, potato and palak.

Table 3: Gender contribution in vegetable cultivation n= 120

Sl. No.	Gender contribution	Male	Female	Joint (Male & Female)	Remarks on contribution
1.	Purchasing of seeds	18.34% (22)	28.33% (34)	53.33% (64)	Joint > Female > Male
2.	Seed treatment	15.00% (18)	38.33% (46)	46.67% (56)	Joint > Female > Male
3.	Seed Bed / Nursery Bed Preparation for vegetable cultivation is performed by				
a.	Ploughing	45.00% (54)	13.33% (16)	41.67% (50)	Male > Joint > Female
b.	Harrowing	43.33% (52)	15.00% (18)	41.67% (50)	Male > Joint > Female
c.	Levelling	43.33% (52)	15.00% (18)	41.67% (50)	Male > Joint > Female
d.	Dibbling	41.67% (50)	16.66% (20)	41.67% (50)	Male = Joint > Female
4.	Sowing of seeds	15.00% (18)	35.00% (42)	50.00% (60)	Joint > Female > Male
5.	Field preparation for vegetable cultivation is performed by				
a.	Ploughing	43.33% (52)	15.00% (18)	41.67% (50)	Male > Joint > Female
b.	Harrowing	43.33% (52)	15.00% (18)	41.67% (50)	Male > Joint > Female
c.	Levelling	43.33% (52)	15.00% (18)	41.67% (50)	Male > Joint > Female
6.	Operation of major agricultural implements				
a.	Cultivator	51.67% (62)	11.66% (14)	36.67% (44)	Male > Joint > Female
b.	Disk harrow	55.00% (66)	10.00% (12)	35.00% (42)	Male > Joint > Female
c.	Sprayer	45.00% (54)	18.33% (22)	36.67% (44)	Male > Joint > Female
d.	Pump	30.00% (36)	21.67% (26)	48.33% (58)	Joint > Male > Female
7.	Transplanting	08.33% (10)	53.34% (64)	38.33% (46)	Joint > Female > Male
8.	Organic Fertiliser Application	15.00% (18)	50.00% (60)	35.00% (42)	Female > Joint > Male
9.	Chemical Fertiliser Application	51.67% (62)	11.66% (14)	36.67% (44)	Male > Joint > Female
10.	Making soil irrigation & drainage channels	85.00% (102)	08.33% (10)	06.67% (8)	Male > Female > Joint
11.	Irrigating the vegetable field				
a.	By pump	13.33% (16)	28.33% (34)	58.34% (70)	Joint > Female > Male
b.	By water cane	08.33% (10)	40.00% (48)	51.67% (62)	Joint > Female > Male
12.	Loading & Cleaning of Spraying Equipment	63.33% (76)	11.67% (14)	25.00% (30)	Male > Joint > Female
13.	Spraying of Pesticides	61.66% (74)	11.67% (14)	26.67% (32)	Male > Joint > Female
14.	Spraying of Herbicides	58.33% (70)	11.67% (14)	30.00% (36)	Male > Joint > Female
15.	Weed control (manual)	03.33% (4)	83.34% (100)	13.33% (16)	Female > Joint > Male
16.	Earthing up in radish	21.67% (26)	46.66% (56)	31.67% (38)	Female > Joint > Male
17.	Pruning in crops (tomato, okra, brinjal)	20.00% (24)	40.00% (48)	40.00% (48)	Female = Joint > Male
18.	Training in crops (tomato, cauliflower, bitter gourd, bottle gourd)	18.33% (22)	36.67% (44)	45.00% (54)	Joint > Female > Male
19.	Monitoring of crop in pest and disease infestation	05.00% (6)	60.00% (72)	35.00% (42)	Female > Joint > Male
20.	Land clearing of vegetable field	01.67% (2)	76.66% (92)	21.67% (26)	Female > Joint > Male
21.	Picking of crops (tomato, chilli, okra, brinjal, cauliflower, cabbage)	03.33% (4)	66.67% (80)	30.00% (36)	Female > Joint > Male
22.	Harvesting of vegetable crops	05.00% (6)	36.67% (44)	58.33% (70)	Joint > Female > Male
23.	Pre cooling of crops (tomato, okra, brinjal)	06.66% (8)	46.67% (56)	46.67% (56)	Female = Joint > Male
24.	Washing of crops (tomato, carrot, radish)	01.67% (2)	80.00% (96)	18.33% (22)	Female > Joint > Male
25.	Grading of crops (okra, radish, carrot, tomato)	01.67% (2)	75.00% (90)	23.33% (28)	Female > Joint > Male
26.	Packaging in capsicum	06.67% (8)	43.33% (52)	50.00% (60)	Joint > Female > Male
27.	Selling of vegetables	11.67% (14)	36.67% (44)	51.66% (62)	Joint > Female > Male

The data regarding gender contribution are presented in table-3. Data revealed that participation of women vegetable growers was the highest in case of manually weed control (83.34 per cent), washing of crops (tomato, carrot, radish) (80 per cent), land clearing of vegetable field (76.66 per cent), grading of crops (okra, radish, carrot, tomato) (75.00 per cent), picking of crops (tomato, chilli, okra, brinjal,

cauliflower, cabbage) (66.67 per cent), monitoring of crop in pest and disease infestation (60.00 per cent), organic fertiliser application (50.00 per cent), pre cooling of crops (tomato, okra, brinjal) (46.67 per cent), earthing up in radish (46.66 per cent) and pruning in crops (tomato, okra, brinjal) (40.00 per cent). Majority of the rural women were participating jointly with men in vegetable cultivation activities such as irrigation

through pump (58.34 per cent), harvesting of vegetable crops (58.33 per cent), purchasing of seeds (53.33 per cent), irrigation through water cane (51.67 per cent), selling of vegetables (51.66 per cent), packaging in capsicum (50.00 per cent), sowing of seeds (50.00 per cent), operating pump system (48.33 per cent), seed treatment (46.67 per cent), training in crops (tomato, cauliflower, bitter gourd, bottle gourd) (45.00 per cent) and transplanting (38.33 per cent). The above findings revealed that rural women had the maximum share in growing and managing vegetables.

Conclusion

Vegetables are important source of nutrient and an important item of the balance diet of human being. In the Bhagalpur region of Bihar, most of the farm women were growing different kinds of vegetables throughout the year because of favourable agro-climatic conditions. The above research shows that a large number of farm women is actively involved in vegetable cultivation activities for their livelihood. Participation of female was the highest in case of weed control, washing of crops and land clearing of vegetable field. From the study it is concluded that there are various complex procedures that make women unable to participate significantly in male dominated operations. So, adequate extension programmes and exposure of latest technologies should be provided to women vegetable growers to acquaint them with latest innovation in vegetable development.

References

1. Bargali K, Shahi C. Contribution of rural women in vegetable cultivation in homegardens of Nainital district, Kumaun Himalaya, India. *Current agriculture research journal*. 2015; 3(2):91-100.
2. Hasan SS, Sultana S. Food and economic security through homestead vegetable production by women in flood affected "char" land. *Sci J Krishi Foundation*, 2011; 9(1):44-45.
3. Jahan N, Khan N. To study the participation of farm women in various agriculture and allied activities. *International Journal of Home Science*. 2016; 2(2):180-186.
4. Kumari AR, Laxmikant. Participation of rural women in vegetable production. *Advance Research Journal of social science*. 2015; 6(2):258-260.