

## ADOPTION LEVEL OF FARMERS ABOUT CULTIVATION PRACTICES IN CUCURBITACEOUS CROPS

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### ABSTRACT

*This study was carried out in Kheda district of middle Gujarat to find out the adoption of farmers about cultivation practices in cucurbitaceous crops and the study revealed that majority of untrained respondents and the vast majority of trained respondents had adopted cultural practices as per the recommendations. But as far as chemical measures of weed, insect and diseases management is concerned, very few of untrained respondents while the majority of trained respondents had adopted the recommended doses of herbicide, insecticide and fungicide.*

**Keywords:** adoption, cucurbitaceous growers, cultivation practices

### INTRODUCTION

A number of agricultural improvement programmes have been introduced in India to increase the agricultural production and income of the farming community, but the outcome of these programmes is not satisfactory in terms of achieving higher agricultural production. The most important factor identified for this poor outcome was the lack of understanding by the farmers about various technological recommendations made by the research institutes. As a result, more emphasis on farmers training activities is being given by the ICAR, SAUs along with the respective State Department of Agriculture. It is a known fact that training to farmers increases the technical efficiency of an individual. Cucurbits belong to family *Cucurbitaceae*, includes about 118 genera and 825 species. In India, a number of major and minor cucurbits are cultivated, which share about 5.6 % of the total vegetable production. They are consumed in various forms *i.e.*, salad (cucumber, gherkins, long melon), sweet (ash gourd, pointed gourd), pickles (gherkins), and deserts (melons). In many developing countries, a majority of the population still produces cucurbits for their own food and depends on small-scale farming for income and livelihoods. Cucurbit crops are very important for small land holding farmers and this is the cash crop for several rural families. In India, a number of major and minor cucurbits are cultivated in several commercial cropping systems and also as popular kitchen garden crops. Cucurbits share about 5.6 % of the total vegetable production of India and according to FAO estimate, cucurbits were cultivated on about 4,290,000 ha with the

productivity of 10.52 t/ha. According to an estimate, India will need to produce 215,000 ton of vegetables by 2015 to provide food and nutritional security at the individual level and, being a large group of vegetables, cucurbits provide better scope to enhance overall productivity and production. In the research area, majority farmers grow cucurbitaceous crops for commercial basis as well as for their home consumption. However, they get very low yields due to not adopting cropping practices as per recommended by SAUs. In order to bring out the lacunas from farmers, the present study was undertaken.

### OBJECTIVE

To know the adoption level of farmers about cultivation practices in cucurbitaceous crops

### METHODOLOGY

Farm Technology Training Centre (FTTC), Nenpur was purposively selected for the study. The enquiry was conducted on 60 trainees and 60 non-trainees from the covering area of the FTTC. In this study, cucurbitaceous crops *viz.*, bottle gourd, bitter gourd and sponge gourd were considered for the investigation. The study was carried out in twelve villages of Kheda districts under the domain of FTTC Nenpur, where most of the farmers are growing cucurbitaceous crops. In order to measure the adoption level of the farmers, the farmers were grouped as 'trainees' and 'non-trainees' and a random sample of 60 farmers from each group thus 120 farmers were drawn from twelve villages for testing their level of knowledge by means of a well structured

interview scheduled. The interview schedule was prepared in accordance with the objectives. The data were collected personally, tabulated, analyzed and interpreted with frequency and percentage.

## RESULTS AND DISCUSSION

**Table 1 : Characteristic of the cucurbitaceous growers**

(n= 120)

Sr. No.	Characteristics	Frequency	Per cent
<b>1</b>	<b>Age</b>		
i	Young Age ( up to 30 years)	23	19.16
ii	Middle Age (31 to 50 years)	62	51.67
iii	Old Age (Above 50 years)	35	29.17
<b>2</b>	<b>Education</b>		
i	Illiterate	02	01.67
ii	Primary education (up to vii std.)	30	25.00
iii	Secondary education(viii to x std)	41	34.16
iv	Higher secondary(xi to xii std)	29	24.17
v	Graduate	18	15.00
<b>3</b>	<b>Extension contact</b>		
i	Very low	13	10.84
ii	Low	22	18.33
iii	Medium	52	43.33
iv	High	28	23.33
v	Very high	05	04.16
<b>4</b>	<b>Mass media exposure</b>		
i	Very low	23	19.16
ii	Low	15	12.50
iii	Medium	32	26.67
iv	High	24	20.00
v	Very high	26	21.67
<b>5</b>	<b>Land holding</b>		
i	Up to 1 hectare	34	28.33
ii	1.1 to 2 hectares	48	40.00
iii	Above 2 hectares	38	31.67

Table 1 shows that more than half (51.67 per cent) of cucurbitaceous growers were belonging to the middle age group. More than two fourth (59.16 per cent) of cucurbitaceous growers had secondary to the primary level of education followed by 39.17 per cent from them had graduation to the higher secondary level of education. Two third (66.66 per cent) of respondents had high to medium level of extension contact while slightly less than half (46.67 per cent) of respondents had high to medium mass media exposure. Two fifth (40.00 per cent) of cucurbitaceous growers had up to two hectare land holding followed by 31.67 per cent and 28.33 per cent of respondents had above two hectares and up to one hectare of land holding respectively.

### Adoption of recommended production technologies in cucurbitaceous crops

The data presented in table 2 indicate that nearly two third (63.37 per cent) of untrained cucurbitaceous growers

had followed timely sowing practices whereas nearly three forth (71.66 per cent) of trained respondents followed timely sowing practices More than one half of untrained respondents (55.00 per cent) had adopted seed rate of bottle gourd as per the recommendation followed by 46.66 per cent in case of bitter gourd and 48.34 per cent in case of sponge gourd while overwhelming majority (83.33 per cent) of trained respondents had adopted recommended seed rate of bottle gourd followed by 71.66 per cent in case of bitter gourd and 73.33 per cent in case of sponge gourd. Slightly less than half (48.34 percent) of untrained respondents adopted improved varieties of bottle gourd recommended by SAUs followed by 40.00 per cent in case of bitter gourd and 31.66 per cent in case of sponge gourd whereas two third (66.67 per cent) of trained respondents adopted improved varieties of bottle gourd recommended by SAUs followed by 70.00 per cent in case of bitter gourd and 56.66 per cent in case of sponge gourd.

Table 2 : Adoption of recommended production technologies in cucurbitaceous crops

Sr. No.	Particulars	Adoption level			
		Untrained (n=60)		Trained (n=60)	
		Frequency	Percent	Frequency	Percent
1	<b>Time of sowing</b>				
	♦ Early sowing	07	11.67	05	08.33
	♦ Timely sowing	38	63.37	43	71.66
	♦ Late sowing	15	25.00	12	20.00
2	<b>Seed rate</b>				
	<b>Bottle Gourd</b>				
	♦ As per recommendation	33	55.00	50	83.33
	♦ Above recommendation	14	23.33	07	11.67
	♦ Below recommendation	13	21.67	03	05.00
	<b>Bitter Gourd</b>				
	♦ As per recommendation	28	46.67	43	71.67
	♦ Above recommendation	21	35.00	11	18.33
	♦ Below recommendation	11	18.33	06	10.00
	<b>Sponge Gourd</b>				
	♦ As per recommendation	29	48.34	44	73.33
	♦ Above recommendation	20	33.33	07	11.67
	♦ Below recommendation	11	18.33	09	15.00
3	<b>Improved variety</b>				
	<b>Bottle Gourd</b>				
	♦ Recommended by SAU	29	48.34	40	66.67
	♦ Research Varieties	31	51.66	20	33.33
	<b>Bitter Gourd</b>				
	♦ Recommended by SAU	24	40.00	42	70.00
	♦ Research Varieties	36	60.00	18	30.00
	<b>Sponge Gourd</b>				
	♦ Recommended by SAU	19	31.66	34	56.67
	♦ Research Varieties	41	68.34	26	43.34
4	<b>Spacing</b>				
	<b>Bottle Gourd</b>				
	♦ As per recommendation	26	43.33	35	58.33
	♦ Above recommendation	23	38.33	16	26.67
	♦ Below recommendation	11	18.34	09	15.00
	<b>Bitter Gourd</b>				
	♦ As per recommendation	31	51.67	41	68.33
	♦ Above recommendation	19	31.66	13	21.67
	♦ Below recommendation	10	16.67	06	10.00
	<b>Sponge Gourd</b>				
♦ As per recommendation	28	46.67	39	65.00	
♦ Above recommendation	20	33.33	13	21.67	
♦ Below recommendation	12	20.00	08	13.33	
5	<b>Farm Yard Manure</b>				
	♦ Not adopted	41	68.33	21	35.00
	♦ As per recommendation	08	13.33	32	53.33
	♦ Below recommendation	11	18.34	07	11.67
6	<b>Fertilizers</b>				
	<b>Nitrogen</b>				
	♦ As per recommendation	28	46.67	44	73.33
	♦ Above recommendation	21	35.00	11	18.33
	♦ Below recommendation	11	18.33	05	08.34

Sr. No.	Particulars	Adoption level			
		Untrained (n=60)		Trained (n=60)	
		Frequency	Percent	Frequency	Percent
	<b>Phosphorus</b>				
	♦ As per recommendation	20	33.33	37	61.67
	♦ Above recommendation	29	48.33	17	28.33
	♦ Below recommendation	11	18.34	06	10.00
	<b>Potassium</b>				
	♦ As per recommendation	13	21.67	33	55.00
	♦ Above recommendation	33	55.00	19	31.67
	♦ Below recommendation	14	23.34	08	13.33
7	<b>Weed Management</b>				
	<b>Manual</b>	46	76.66	53	88.33
	<b>Chemical</b>				
	♦ Pendimethalin @1.0 kg/ha				
	♦ As per recommendation	27	45.00	41	68.33
	♦ Above recommendation	07	11.67	03	05.00
	♦ Below recommendation	26	43.33	16	26.67
8	<b>Insect Management</b>				
	<b>Fruit fly</b>				
	♦ As per recommendation	20	33.33	33	55.00
	♦ Above recommendation	29	48.32	18	30.00
	♦ Below recommendation	11	18.34	09	15.00
	<b>White fly</b>				
	♦ As per recommendation	19	31.66	35	58.33
	♦ Above recommendation	26	43.33	19	31.67
	♦ Below recommendation	15	25.00	06	10.00
9	<b>Disease Management</b>				
	<b>Downy mildew</b>				
	♦ As per recommendation	31	51.66	40	66.67
	♦ Above recommendation	18	30.00	08	13.33
	♦ Below recommendation	11	18.33	12	20.00
	<b>Mosaic</b>				
	♦ As per recommendation	22	36.66	34	56.66
	♦ Above recommendation	24	40.00	17	28.33
	♦ Below recommendation	14	23.33	09	15.00
10	<b>Irrigation</b>				
	♦ As per recommendation	38	63.33	46	76.67
	♦ Above recommendation	06	10.00	03	05.00
	♦ Below recommendation	16	26.67	11	18.33

Now moving to spacing, slightly more than two fifth (43.33 per cent) of untrained respondents followed recommended sowing distance followed by 51.67 percent and 46.67 per cent in cases of bitter gourd and sponge gourd respectively while more than half (58.33 per cent) of trained respondents followed recommended sowing distance followed by 68.33 percent and 65.00 per cent in cases of bitter gourd and sponge gourd respectively.

Very few (13.33 per cent) of untrained respondents adopted the application of FYM as per recommendation

whereas more than half (53.33 per cent) of trained respondents adopted recommended FYM application. Slightly less than half (46.67 percent) of untrained respondents adopted recommended nitrogenous fertilizer application in cucurbitaceous crops followed by 33.33 per cent adopted recommended phosphatic fertilizer application and 21.67 per cent adopted recommended pottasic fertilizer application whereas majority (73.33 per cent) of trained respondents adopted recommended nitrogenous fertilizer application in cucurbitaceous crops followed by 61.67 per cent adopted recommended phosphatic fertilizer application and 55.00 per

cent adopted recommended potassic fertilizer application.

As far as weed management is concerned majority (76.66 per cent) of untrained respondents followed manual weed management practices while the vast majority (88.33 per cent) of trained respondents followed manual weed management practices in cucurbitaceous crops. In case of chemical control of weed management, less than half (45.00 per cent) of untrained respondents adopted recommended dose of herbicide whereas the majority (68.33 per cent) of trained respondents adopted recommended dose of herbicide in said crops.

In the case of insect management in cucurbitaceous crops, one third (33.33 per cent) and 31.66 per cent of untrained respondents had adopted recommended dose of insecticide to control fruit fly and white fly respectively whereas more than two fourth (55.00 per cent and 58.33 per cent) of trained respondents adopted recommended dose insecticide to control fruit fly and white fly respectively.

Moving to disease management practices, slightly more than half (51.66 per cent) and slightly more than one third (36.66 per cent) of untrained respondents adopted recommended fungicidal doses to control downy mildew and mosaic disease while two third (66.66 per cent) and more than half (56.67 per cent) of trained cucurbitaceous growers adopted recommended doses to control said diseases.

As far as the application of irrigation is concerned in case of untrained cucurbitaceous growers more than three fifth (63.33 per cent) from them followed recommended schedule for applying irrigation while the vast majority (76.67 per cent) of trained respondents adopted recommended irrigation schedule.

## CONCLUSION

To encapsulate the results it can be said that majority of the farmers belonged to middle age group, having secondary to the higher secondary level of education, had small to medium size of land holding, high to medium level of extension contact as well as mass media exposure. As far as adoption of cucurbitaceous cultivation practices is concerned, majority of untrained respondents and the vast majority of trained respondents had adopted cultural practices as per the recommendations. But as far as chemical measures of weed, insect and diseases management is concerned, very few of untrained respondents while the majority of trained respondents had adopted the recommended doses of herbicide, insecticide and fungicide.

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