

## Adoption of Farmers About Scientific Cultivation of Maize in Panchmahal and Dahod District

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### ABSTRACT

The study was conducted in Panchmahal and Dahod districts of middle Gujarat Agro climatic Zone-III Morva Hadaf, Santrampur, Limkheda, Devgadbaria and Dhanpur talukas were selected purposively as the majority of farmers in these talukas are growing maize as main crop in kharif season. Twenty villages were selected from these five talukas by simple random sampling techniques. A list of 200 maize growers was prepared from the selected villages. 10 respondents were selected from each village by proportionate random sampling technique. Thus, total number of respondents was 200. The data were tabulated, analyzed and interpreted in the light of the objectives. Majority of the respondents were in middle age group having illiterate to primary education, less participation in social activities, had annual income up to ₹10000 to ₹ 20000/- were engaged in Farming + Animal Husbandry + Labour work as main occupation possessed 1.01 to 4.00 ha of land were found to have medium levels of economic motivation and medium levels of knowledge on maize production technology.

**Keywords:** Adoption, Maize growers, Scientific cultivation.

### INTRODUCTION

Maize is grown as main crop in Panchmahals and Dahod districts of Gujarat state and it is cultivated in approximately 2.70 lakh hectare area in kharif season. Research scientists, extension workers and farmers have responsibilities to maximize the production and productivity of maize in per unit area. The productivity of maize in the state at present is 1300 kg ha<sup>-1</sup>. It is less than the national Average (2300 kg ha<sup>-1</sup>) and world average (5500 kg ha<sup>-1</sup>), respectively. The low productivity in maize was due to lack of scientific cultivation knowledge, poor nutrient management and lack of knowledge on insect pests and disease management. Keeping all these views, the research study "Adoption of farmers about scientific cultivation of maize in Panchmahal and Dahod district" was taken with following objectives.

### OBJECTIVES

- (i) To study the selected characteristics of farmers
- (ii) To study the adoption of different scientific cultivation method of maize in middle Gujarat

### METHODOLOGY

The study was conducted in tribal areas of Panchmahal and Dahod district of the Gujarat state. Five tribal Talukas were selected and Total 20 village were selected randomly from these talukas. Ten tribal farmers were selected from each village. This constituted total sample of 200 tribal farmers. The data were collected by personal interview technique and analysed with number & percentage.

### RESULTS AND DISCUSSION

#### Selected characteristics of farmers

#### (i) age

**Table 1: Distribution of maize growers according to their age** n=200

Sr. No.	Age group	Number	Per cent
1	Young age (Up to 30 year)	13	6.50
2	Middle age (31 to 50 year)	107	53.50
3	Old age (Above 50 year)	80	40.00

From the data presented in Table 1 shows that

majority (53.50 percent) of the respondents was in middle age group followed by 40.00 percent of the respondents belonging old age group and only 6.50 percent were under young age group.

**(ii) Education**

**Table 2: Distribution of maize growers according to their level of education** n=200

Sr. No.	Level of education	Number	Per cent
1	Illiterate	72	36.00
2	Primary education (Up to VII Std.)	68	34.00
3	Secondary education (VIII to X Std.)	38	19.00
4	Higher Secondary education (XI to XII Std.)	15	07.50
5	College and above education	07	03.50

A perusal of data presented in Table-2 reveal that majority (36.00 percent) of the respondents were illiterate followed by 34.00, 19.00, 7.50 and 3.50 percent were primary school level, secondary school level, Highersecondary level and college level education respectively. This information gives indication that the literacy rate in tribal area is still very low.

**(iii) Social Participation**

**Table 3: Distribution of maize growers according to their social participation** n =200

Sr. No.	Social participation	Number	Per cent
1	No membership	165	82.50
2	Membership in one organization	21	10.50
3	Membership in more than one organizations	11	05.50
4	Holding position	03	01.50

The data in Table 3 revealed that majority (82.5 percent) of the respondents were not participated in any social activity followed by 10.50 percent in one activity and 5.50 percent engaged in more than one activity.

**(iv) Land holding**

**Table 4: Distribution of soybean growers according to their size of land holding** n =200

Sr. No.	Land holding	Number	Per cent
1	Marginal farmers (Up to 1.00 ha)	34	17.00
2	Small farmers (1.01 to 2.00 ha)	74	37.00
3	Medium farmers (2.01 to 4.00 ha)	84	42.00
4	Large farmers (Above 4.00 ha)	08	4.00

It is evident from the data in Table-4 revealed that 42.00 percent farmers possessed 2.01 to 4.00 ha of land followed by 37.00 percent having 1.01 to 2.00 ha of land and 17.00 percent having land up to 1.00 ha. While only 4.00 percent having above 4.00 ha of land.

**(v) Cropping intensity**

**Table 5: Distribution of maize growers according to their cropping intensity** n =200

Sr. No.	Cropping intensity	Number	Per cent
1	100	34	17.00
2	200	76	38.00
3	233	47	23.50
4	300	29	14.50
5	400	07	03.50
6	500	06	03.00
7	700	01	00.50

It is revealed from Table-5 that 38.00 per cent farmers growing crop twice in a year. While 23.50 per cent having 233 per cent cropping intensity. 14.50 percent farmers having 300% cropping Intensity. While 17.00 per cent farmers having 100 per cent cropping intensity.

**(vi) Occupation**

**Table 6: Distribution of maize growers according to their occupation** n =200

Sr. No.	Occupation	Number	Per cent
1	Only farming	03	01.50
2	Farming + Animal Husbandry	79	39.50
3	Farming + Animal Husbandry + Labour work	65	32.50
4	Farming +Animal Husbandry + Service	53	26.50

From the data presented in Table-6 observed that 39.50 percent farmers possessing Farming and Animal husbandry as a occupation while 32.50 percent farmers possessing farming and Animal husbandry with labour work also. While 26.50 percent possessing farming Animal husbandry with job in private public sector organization only 1.50 percent farmers possessing farming occupation only.

It is apparent from Table-7 that more than half (56.00 percent) of the farmers had annual income up to ₹ 10001 to 20000. while 26.00 percent having less than ₹ 10000 income. 12.00 percent having the income between ₹ 20000 to 30000 while no one having Income above ₹ 50000.

### (vii) Animal income

**Table 7: Distribution of maize growers according to their annual income** n =200

Sr. No.	Annual income	Number	Per cent
1	Less than 20,000	51	25.50
2	20,000 to 30,000	07	3.50
3	31,000 to 50,000	84	42.00
4	50,000 to 70,000	41	20.50
5	70,000 and above	17	8.50

### Knowledge about scientific maize production technology

**Table 8 : Adoption of improved farm technology of maize crop**

n=200

Sr. No.	Practices	Particular	No. of Respondents	Per cent
1	Improved variety	University recommended varieties		
		1 Gujarat Maize-2	16	08.00
		2 Gujarat Maize-4	10	05.00
		3 Gujarat Maize-6	55	27.50
		4 Narmada Moti	15	07.50
		5 HQPM-1	12	06.00
		Private varieties	35	17.50
	Deshi varieties	57	28.50	
2	Seed rate	Below adoption	0	00.00
		As per recommendation	100	50.00
		Over adoption (up to 20 per cent)	55	27.50
		Over adoption (More than 20 per cent)	45	22.50
3	Seed treatment	Used readymade treated seed	130	65.00
		Treated in correct way by own & used	70	35.00
4	Use of culture	Non-adoption	130	65.00
		Treated in correct way	70	35.00
5	System of sowing	Drilling	03	01.50
		Dibbling (Recommendation)	197	98.50
6	Time of sowing	Earlier than recommended time	0	00.00
		As per recommended time	200	100.00
		Later than recommended time	0	00.00
7	Row spacing	30x10	17	08.50
		30x15	02	01.00
		45x10	15	07.50
		45x15	23	11.50
		45x20	17	08.50
		45x25	01	00.50
	60x10	01	00.50	

Sr. No.	Practices	Particular	No. of Respondents	Per cent
		60x15	16	08.00
		60x20 (Recommendation)	87	43.50
		60x25	01	00.50
		75x10	01	00.50
		75x15	08	04.00
		75x20	10	05.00
		75x25	03	01.50
8	Thinning days after sowing of maize	15 days	94	47.00
		20 days	31	15.50
		25 days (Recommendation)	48	24.00
		30 days	27	13.50
9	Earthing up after sowing of maize	30 days	120	60.00
		40 days(Recommendation)	72	36.00
		50 days	08	04.00
10	Manure	No-adoption at all	23	11.50
		Below recommended dose	139	69.50
		As per recommended dose (10 ton/ha)	38	19.00
		More than recommended dose	0	00.00
11	Fertilizer	N		00.00
		No-adoption at all	51	25.50
		Less quantity than recommended dose (Kg)	100	50.00
		As per recommended does(Kg)	14	07.00
		More quantity than recommended does	35	17.50
		P		00.00
		No-adoption at all	0	00.00
		Less quantity than recommended dose (Kg)	98	00.00
		As per recommended does(Kg)	68	00.00
More quantity than recommended does	34	00.00		
12	Plant protection Measures	Not adopted at all	200	100.00
13	Storage	Storage bin	62	31.00
		Deshi Kothi	91	45.50
		Gunni bags	47	23.50

#### (1) Improved variety

More than 50 per cent farmers adopting improved variety of maize for cultivation while 28.50 per cent adopting local deshi varieties. About 17.50 percent farmers adopting private varieties.

#### (2) Seed rate

Half fo the farmers were adopting seed rate as per scientific recommendation. While more than 40 percent farmers were adopting seed rate more than recommendation.

#### (3) Seed treatment

Sixty five per cent farmers were using readymade treated seed. While 35 per cent farmers were treated the seed in correct way by own and used for sowing.

#### (4) Use of culture

Sixty five per cent farmers were non adopting the culture while 35 per cent using in proper way.

#### (5) System of sowing

About 98.50 per cent farmers were adopting as per

recommendation *i.e.* dibbling method while 1.50 per cent adopting drilling method.

#### **(6) Time of sowing**

Cent percent farmers were adopting the sowing time as per recommendation.

#### **(7) Row spacing**

Nearly 43.50 per cent farmers were adopting row spacing as per recommendation while others were adopting their own method.

#### **(8) Thinning**

More than 86.00 per cent of farmers were adopting thinning (15 to 25 DAS). 13.50 per cent were not adopting as per recommendation.

#### **(9) Earthingup**

More than 96.00 per cent of farmers were adopting earthing up (30 to 40 DAS). only 4.00 per cent not adopting as per recommendation.

#### **(10) Manure**

Only 19.00 per cent adopting as per recommendation while 69.50 per cent adopting below recommendation. 4.00 per cent were not adopting at all.

#### **(11) Chemical fertilizer**

##### **(a) Nitrogen**

Half of the farmers were adopting the dose of below recommendations while 17.50 percent were adopting more than recommendation. 25.50 percent were not adopting at all.

##### **(b) Phosphorus**

Nearly 49.00 percent were adopting the dose of phosphorus below recommendation. 34.00 percent were adopting as per recommendation while 17.00 percent were adopting more than recommended dose.

#### **(12) Plant protection measures**

Cent percent of farmers were not adopting at all.

#### **(13) Storage**

About 45.50 percent were stored maize grain in Deshi Kothi, 31.00 percent were stored maize grain in storage bin while 23.50 percent using gunnibags for storage of maize grain.

#### **CONCLUSION**

From the above discussion, it could be concluded that majority of the respondents was in middle age group, were illiterate, were less participate in social activities, had annual income is ₹ 10001 to 20000 were engaged in farming + Animal husbandry as main occupation, possessed less than 2.00 ha land were found to have medium level of knowledge about scientific maize production technology and were medium adopters of the maize production technology.

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