

ADOPTION OF IMPROVED PIGEON PEA PRODUCTION TECHNOLOGY BY TRIBAL PIGEON PEA GROWERS IN DAHOD DISTRICT

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ABSTRACT

Present study was conducted in Dahod district which one of the tribal area of Gujarat state to find out the adoption level of pigeon pea (Tur) growers regarding various aspects of improved pigeon pea production technology. Total 150 farmers selected for final study. The study indicated that majority of pigeon pea growers were growing their seed in sandy loam soil, local seed for sowing, over seed rate than recommendation, not adopting chemical seed treatment, not using application of culture, timely sowing of seeds, mixing fertilizer with seed (faulty adoption as sowing system), sowing their seed in 90X15 cm² spacing, manure below the recommendation, not using N fertilizer, using less quantity than recommended dose of P fertilizer, not applying irrigation, doing one hand weeding, not adopted plant protection measures to control pest and disease and keeping their produce in gunny bags for storage.

Keywords: tribal, adoption level, pigeon pea

INTRODUCTION

India is the largest producer, consumer and importer of pulses. Pulses are a good and chief source of protein for a majority of the population in India. Protein malnutrition is prevalent among men, women and children in India. Pulses contribute 11% of the total intake of proteins in India (Reddy, 2010). In India, frequency of pulses consumption is much higher than any other source of protein, which indicates the importance of pulses in their daily food habits. Keeping the cheapest source of protein, it is important to increase pulses production to increase balanced diet among the socially and economically backward classes. India accounts for 33% of the world area and 22% of the world production of pulses. About 90% of the global pigeon pea, 65% of chickpea and 37% of lentil area falls in India, corresponding to 93%, 68% and 32% of the global production, respectively (FAOSTAT, 2011). Although it is the world's largest pulses producer, India is importing 3-4 million tons (MT) of pulses every year to meet its domestic demand. However, during the last decade, growth in pulses production has increased significantly. India achieved a record 18.1 MT pulses production in 2010-11 with in Pigeon pea (3.27 MT), chickpea (8.25 MT), moong (1.82 MT) and urad (1.74 MT). Pulses are grown across the country with the highest share coming from Madhya Pradesh (24%),

Uttar Pradesh (16%) and Gujarat (23 %).

Even though pulses production increased significantly during the last decade but continuing the faster growth is a bigger challenge for researchers, extension agencies and policy makers to fulfill the domestic demand of its in India. The productivity of pulses in India (694 kg/ha) is lower than most of the major pulse producing countries. In Gujarat, pulse were cultivated an area (6.18 Lakh ha) with production (4.68 Lakh T) and productivity (757 kg/ha) during the year 2010-11 (DOA, 2011). Among all the agricultural inputs, only seed had inbuilt potential, whereas other inputs like nutrients, irrigation and plant protection chemicals, contribute to the production potential of the seed. If potential of the seed is poor, optimum yield is not possible in spite of judicious use of inputs. Research findings reveal that 10-12 per cent increase in yield is attributed to good quality seed. Pigeon pea (Tur) is the main pulse crop in south Gujarat. Tribal belt is preferring tur as a main leguminous food in their daily diet. Tribal of Dahod district are cultivating pigeon pea with traditional practices. The area of pigeon pea crop is 12496 ha but the productivity of pigeon pea crop is very low (494 kg/ha) as compare to Gujarat state. So, there is a need to find out adoption level of improved technologies available and actually applies by farmers in their fields. Therefore,

the study entitled “Adoption of improved pigeon pea (Tur) production technology by tribal pigeon pea growers in Dahod district” was undertaken.

OBJECTIVES

- (a) To study personal profile of pigeon pea growers
- (b) To find out the adoption level of improved pigeon pea production technology

METHODOLOGY

The present study was carried out by the Krishi Vigyan Kendra, Anand Agricultural University, Dahod in kharif, rabi and summer seasons in the farmers fields of 15 villages of Dahod district during 2015-16. Fifteen villages of Dahod district and ten farmers from each village were selected randomly for the study. Thus, in all 150 pigeon pea growers constituted the sample for this investigation. The field data along with other required information pertaining to the selected holdings were collected through pre-structure interview schedules by personal interview/method, where farmers were asked to give the account of package of practices they followed in pigeonpea. The data were analyzed in light of objectives.

RESULTS AND DISCUSSION

The collected information were analyzed for ascertaining the level of adoption of recommended technology in pigeonpea cultivation.

Profile of Pigeonpea growers

The data depicted in Table 1 shows that maximum number of farmers (49.33 per cent) were found in middle age group followed by young 33.33 per cent.

Table 1: Distribution of farmers according to age

n=150

Sr. No.	Age group	Number	Percent
1	Young age (Up to 30 year)	50	33.33
2	Middle age (31 to 50 year)	74	49.33
3	Old age (Above 50 year)	26	17.33

The data depicted in Table 2 indicate that 31.33 per cent farmers were educated up to higher secondary education, while 20.67 per cent were educated up to secondary education.

Table 2: Distribution of farmers according to their level of education

n=150

Sr. No.	Level of education	Number	Percent
1	Illiterate	30	20.00
2	Primary education (Up to VII Std.)	28	18.67
3	Secondary education (VIII to X Std.)	31	20.67
4	Higher Secondary education (XI to XII Std.)	47	31.33
5	College and above education	14	9.33

A look into Table 3 reveals that 52.00 per cent farmers had no membership in any organization. While, 26.67 per cent farmers had membership in one organization.

Table 3: Distribution of farmers according to their social participation

n =150

Sr. No.	Social participation	Number	Percent
1	No membership	78	52.00
2	Membership in one organization	40	26.67
3	Membership in more than one organizations	23	15.33
4	Holding position	09	6.00

A look into Table 4 shows that nearly half (48.67 per cent) were found small farmers followed by marginal farmers (29.33 per cent).

Table 4: Distribution of farmers according to their size of land holding

n =150

Sr. No.	Land holding	Number	Per cent
1	Marginal farmers (Up to 1.00 ha)	44	29.33
2	Small farmers (1.01 to 2.00 ha)	73	48.67
3	Medium farmers (2.01 to 4.00 ha)	29	19.33
4	Large farmers (Above 4.00 ha)	04	02.67

A look into Table 5 shows that 40.00 per cent farmers were having 200 per cent cropping intensity followed by 250 per cent cropping intensity found by 16.67 per cent farmers.

Table 5: Distribution of farmers according to their cropping intensity n =150

Sr. No.	Cropping intensity	Number	Percent
1	125	01	0.67
2	130	01	0.67
3	150	21	14.00
4	155	01	0.67
5	165	02	1.33
6	175	04	2.67
7	180	04	2.67
8	190	02	1.33
9	195	01	0.67
10	200	60	40.00
11	205	01	0.67
12	210	02	1.33
13	220	01	0.67
14	225	21	14.00
15	245	01	0.67
16	250	25	16.67
17	300	02	1.33

The data presented in Table 6 revealed that nearly half (48.67 per cent) of the farmers were engaged in Farming + Animal Husbandry followed by 40.00 per cent of the farmers who were engaged in farming + Animal Husbandry + Labour work.

Table 6: Distribution of farmers according to their occupation n =150

Sr. No.	Occupation	Number	Per cent
1	Only farming	02	01.33
2	Farming + Animal Husbandry	73	48.67
3	Farming + Animal Husbandry + Labour work	60	40.00
4	Farming +Animal Husbandry + Labour work + Service	15	10.00

The data presented in Table 7 shows that majority of farmers (41.33 per cent) were having annual income between Rs. 10,001 to 25,000 followed by Rs. 25,001 to 50,000 annual income (29.33 per cent).

Table 7: Distribution of farmers according to their annual income n =150

Sr. No.	Annual income (₹)	Number	Percent
1	Up to 10,000	13	08.67
2	10,001 to 25,000	62	41.33
3	25,001 to 50,000	44	29.33
4	50,001 to 75,000	19	12.67
5	75,001 to 1,00,000	09	06.00
6	1,00,000 and above	03	02.00

The result of the study reported in Table 8 reveals that more than three- fourth (78.00 per cent) of the farmers had medium extension participation whereas (14.00 per cent) had high extension participation, respectively.

Table 8: Distribution of farmers according to their level of extension participation n =150

Sr. No.	Extension participation	Number	Percent
1	Low (< 1.66 score)	12	08.00
2	Medium (Between 1.66 to 23.95 score)	117	78.00
3	High (23.95> score)	21	14.00

Mean: 12.80 S.D. 11.15

A perusal of data presented in Table 9 reveals that 83.33 per cent of the farmers had medium sources of information utilized. Whereas 13.33 per cent and 3.33 per cent of the farmers had high and low sources of information utilized, respectively

Table 9 : Distribution of farmers according to their sources of information utilized n =150

Sr. No.	Sources of information utilised	Number	Per cent
1	Low (< 7.53 score)	05	03.33
2	Medium (Between 7.53 to 19.63 score)	125	83.33
3	High (>19.63 score)	20	13.33

Mean: 11.06 S.D. 7.82

Extent of adoption of recommended technology in Pigeon Pea cultivation

The data presented in Table 10 shows that 49.33 per cent farmers were growing pigeon pea in sandy loam (Goradu) soil, 74.00 per cent farmers were using local seed for sowing, 59.33 per cent farmers were using over seed rate (up to 20 per cent) than recommendation, 80.67 per cent farmers were not adopted chemical seed treatment, 95.33 per cent farmers were not using culture treatment, 92.67 per cent farmers were sowing their seed timely, 52.67 per cent farmers were mixing fertilizer with seed (Faulty adoption), 30.00 per cent farmers were sowing their seed in 90X15 cm² spacing, 48.67 per cent farmers were using manure below the recommendation, 52.00 per cent farmers were not using N fertilizer, 68.67 per cent farmers were using less quantity than recommended dose of P fertilizer, 59.33 per cent farmers were not applying irrigation, 88.00 per cent farmers were doing one hand weeding, 50.00 per cent farmers were not

adopted plant protection measures to control pest, 68.67 per cent farmers were not adopted plant protection measures to control disease and 82.67 per cent farmers were keeping their produce in gunny bags for storage.

Table 10: Distribution of Pigeon pea growers according to their adoption of improved pigeon pea production technology n =150

Sr. No.	Practices	Particular	No. of Farmers	Percent
1.	Soil	Sandy	12	08.00
		Sandy loam (Goradu)	74	49.33
		Black	64	42.67
2.	Use of variety	Local	111	74.00
		AGT-1	17	11.33
		BDN-2	22	14.67
3	Seed rate	Below Recommendation	00	00.00
		As per recommendation	16	10.67
		Over adoption (up to 20 per cent)	89	59.33
		Over adoption (More than 20 per cent)	45	30.00
4	Seed treatment	Not adopted at all	121	80.67
		Treated in correct way by own & used	29	19.33
5	Use of culture	Non-adoption	143	95.33
		Treated in correct way	07	04.67
6	Time of sowing	On set of monsoon	64	42.67
		July	75	50.00
		Late sowing (August and September)	11	07.33
7	System of sowing	Mixed with fertilizer (Faulty adoption)	79	52.67
		Separate with fertilizer (Recommendation)	71	47.33
8	Spacing (cm)	60X15	32	21.33
		60X20	38	25.33
		75X15	27	18.00
		90X15	45	30.00
		90X25	08	05.33
9	Manure	No-adoption at all	20	13.33
		Below recommended dose	73	48.67
		As per recommended dose	57	38.00
10	Fertilizer	N (as Urea base)		
		No use	78	52.00
		Less than recommended dose (Kg)	36	24.00
		As per recommended dose(Kg)	28	18.67
		More than recommended dose	08	05.33
		P (As DAP base)		
		No use	32	21.33
		Less than recommended dose (Kg)	103	68.67
		As per recommended dose(Kg)	11	07.33
		More than recommended dose	04	02.67
11	Irrigation	No irrigation	89	59.33
		One time (At critical stage)	37	24.67
		Twice	21	14.00
		Third	03	02.00
12	Weeding	No weeding	16	10.67
		One Hand weeding	132	88.00
		Chemical weedicide used	08	05.33

Sr. No.	Practices	Particular	No. of Farmers	Percent
13	Plant Protection Measures	Insect A		
		No-adoption at all	75	50.00
		Totally faulty adoption of chemicals	15	10.00
		Below recommended dose	08	05.33
		As per recommended dose	41	27.33
		More than recommended dose	11	07.33
		Disease A		
		No-adoption at all	103	68.67
		Totally faulty adoption of chemicals	13	08.67
		Below recommended dose	15	10.00
		As per recommended dose	17	11.33
More than recommended dose	02	01.33		
14	Storage	Storage bin (Iron pip)	56	37.33
		Deshi Kothi	28	18.67
		Gunni bags	124	82.67

CONCLUSION

The study also indicate that majority of pigeon pea growers were growing their seed in sandy loam (Goradu) soil, local seed for sowing, over seed rate than recommendation, not adopting chemical seed treatment, not using application of culture, timely sowing of seeds, mixing fertilizer with seed (faulty adoption as sowing system), sowing their seed in 90X15 cm² spacing, manure below the recommendation, not using N fertilizer, using less quantity than recommended dose of P fertilizer, not applying irrigation, doing one hand weeding, not adopted plant protection measures to control pest, and disease and keeping their produce in gunny bags for storage.

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