Guj. J. Extn., Edn. IV & V, 1993 & 1994

RESEARCH NOTE

A Study of Constraints and Adoption of Gobar-gas Technology

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INTRODUCTION

The Ministry of Agriculture, Government of India had undertaken gobar gas programme on a large scale. The Government advanced loans and subsidies to encourage the farmers for setting up of gobar gas plants. Various institutions and agencies have made their efforts to popularise gobar gas plant for solving the problem of fuel as well as manure. Inspite of these efforts, the level of adoption of gobar gas plant is quite uneven in various parts of the state. Therefore, the present study has been undertaken in Kheralu taluka of Mehsana district of Gujarat State to know the constraints in adoption of gobar gas technology with the following specific objectives :

(1) To study the socio-economic characteristics of the adopters of the gobar gas plant

(2) To study the constraints expressed by the adopters in adoption of gobar gas plant

(3) To study the suggestions of the adopters of gobar gas plant to over come the constraints

METHODOLOGY

In the present investigation, the population consisted of adopters of gobar gas plant in Kheralu taluka of Mehsana district. The three stage sampling procedure was followed in the study. Of the eleven talukas of Mehsana district, Kheralu taluka was selected for this study as maximum gobar gas adopters were found in the taluka. For selecting villages from the taluka, a list of all those villages having gobar gas plants was prepared with the help of Khadi Gramodyog Supervisor. At a second stage, from a list of villages, a sample of 4 villages were taken at random. At the third and final stage, all the adopters of gobar gas plant were selected for the study. The village-wise number of gobar gas plants were 26 in Madhasana, 1 in Valasana, 2 in Undani and 1 in Halol. The data were collected by personal interview through the pre-tested schedule developed for the purpose of the study. The data were collected in the year September, 1987.

RESULTS AND DISCUSSION

Socio-economic characters are the factors which might have some influence in adoption of gobar gas plant. The distribution of respondents according to their socio-economic characteristics are presented in Table 1.

Table show that 53.3 percent adopters were in the middle age group (31 years to 50 years), whereas 40 per cent were in old age group. Table further reveal that 80.0 per cent and 16.7 per cent of the adopters had studied upto primary and high school level respectively. Only 3.3 per cent of them were found having higher education

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Table 1. Distribution of the gobar gas plant adopters according to their socio-economic characters.

Sr. No.	Characters	Adopters number (n=30)	Per cent
(1)	**Age**		
	(i) Young aged (below 30 years)	2	6.7
	(ii) Middle aged (31 to 50 years)	16	53.3
	(iii) Old aged (above 50 years)	12	40.0
(2)	**Education**		
	(i) Primary (upto VII std.)	24	80.0
	(ii) High school (VIIto XI std.)	5	16.7
	(iii) College	1	3.3
(3)	**Occupation**		
	(a) **Main**		
	(i) Farming	29	96.7
	(ii) Dairying	1	3.3
	(b) **Subsidiary**		
	(i) Dairying	23	76.7
	(ii) Business	5	16.7
	(iii) Service	1	3.3
	(iv) Agril. Labour work	1	3.3
(4)	**Size of land holding**		
	(i) Landless	1	3.3
	(ii) Marginal	6	20.0
	(iii) Small	16	53.3
	(iv) Medium	7	23.3
(5)	**Herd size**		
	(i) 1 to 3 animals	12	40.0
	(ii) 4 to 6 animals	16	53.3
	(iii) Above 6 animals	6	6.7

(i.e. at college level). Looking to occupation, table indicate that 96.7 per cent plant owners had farming as main occupation and 76.7 per cent had dairying as a subsidiary occupation. So far size of land holding was concerned, a little more than half (53.3 per cent) of the adopters belonged to small farmers group and 23.3 per cent were from medium farmers group, whereas, 20.0 per cent and 3.3 per cent were marginal farmers and landless farmers respectively. An important character herd size of the respondents was also studied whewrein majority (53.3 per cent) of the adopters were found possessing 4 to 6 animals, whereas 40.0 per cent adopters were having 1 to 3 animals. Only 6.7 per cent adopters were having more than 6 animals.

Constraints faced by the respondents in adoption of gobar gas plant :

Adoption of an innovation is, in general, depending on surrounding human environment. The respondents were asked to pin- point constraints faced by them in adoption of gobar gas plant. The data are presented in Table 2.

The data indicate that 96.66 per cent adopters faced the constraint of seasonal effect on gas production followed by 73.33 per cent adopters who reported the constraint of accumulation of water in gas pipe line. Nearly 23 per cent adopters faced difficulty of inlet and outlet pipe often got chocked and 20.00 per cent adopters faced difficulty of leakage of gas from gas tank.

Different socio-economic constraints in operating the plant were also expressed by respondents wherein 13.33 per cent reported about the inadequate availability of dung for operating their plant and 10.00 per cent respondents faced the problem of disposal of high moisture content of the slurry requires the construction of more number of pits for its solidification requiring more space and also increasing the cost.

In the study area, Khadi and Village Industries Commission and Gujarat Agro Industries Corporation were engaged in promoting and installing the gobar gas plants. The common organizational problems of the plant owners were lack of follow-up service by the agencies for the maintenance and repairs of installed plants and lack of technical guidance by the staff to the plant owners.

Suggestions given by the respondents to overcome the constraints in adoption of gobar gas plant :

After knowing the constraints of respondents in adoption of gobar gas plant, it is of great importance for extension agencies to know the suggestions to overcome these constraints so that adoption of gobar gas technology can be popularised at a greater extent. For this purpose, the respondent wee asked to pin-point suggestions to overcome the constraints faced by them. The data collected were analysed and are presented in Table 3.

As revealed from the data presented in Table 3, the important suggestions offered by the respondents were that the rate of subsidy should be increased, seasonality effect should be controlled, bio-gas should be started on community basis, immediate service and guidance should be provided and accumulation of water in gas pipe line should be avoided through developing new techniques.

Table 2. Constraints faced by the respondents in adoption of gobar gas plant.

Sr. No.	Constraints	Adopters number (n=30)	Per cent
1.	Seasonal effect on gas production	29	96.66
2.	Accumulation of water in gas pipe line	22	73.33
3.	Inlet and outlet pipe often got chocked	7	23.33
4.	Leakage of gas from gas tank	6	20.00
5.	Dung come out without complete gas production	4	13.33
6.	Gas leakage from gas burner	4	13.33
7.	Burning problem	3	10.00
8.	Lack of dung	4	13.33
9.	Problem of slurry disposal	3	10.00
10.	Lack of follow-up service by the agencies for the maintenance of plants and lack of technical guidance by the staff to the plant owners	8	26.70

Table 3. Suggestions given by the respondents to overcome the constraints in adoption of gobar gas plant.

Sr. No.	Type of suggestions	Adopters number (n=30)	Per cent
1.	Increase rate of subsidy	26	86.7
2.	Seasonally effect should be controlled	21	70.0
3.	Bio-gas should be started on community basis	15	50.00
4.	Immediate service and guidance should be provided	8	26.7
5.	Accumulation of water in gas pipe line which should be avoided through developing new techniques	8	26.7
6.	Inlet and outlet pipe line should be larger in diameter	7	23.3
7.	Subsidy should be given to purchase the animals	5	16.7

CONCLUSION AND IMPLICATIONS

Majority of the gobar gas plant adopters belonged to middle age group, had primary education with farming as main occupation and dairying as subsidiary occupation. Higher percentage of gobar gas plant owners had small size of land holding (1.0 ha. to 2.0 ha.) and possessed 4 to 6 animals.

Mostly gobar gas plant adopters faced technical constraints such as seasonality effects on gas production and accumulation of water in gas pipe line.

The important suggestions given by the adopters were : (i) rate of subsidy should be increased, (ii) seasonal effect should be controlled, (iii) bio-gas should be started on community basis and (iv) accumulation of water in gas pipe line should be avoided through developing new technique.

Gobar gas is relatively a new technology for the rural people of India. For making the gobar gas popular among rural families, there is a need to develop technology suitable for different agro-climatic and socio-economic conditions and creation of service and extension infrastructures in rural areas. As ultimate users of the gobar gas plants are the women folk, educational programmes for them may increase the adoption of the technology.

I KEEP SIX HONEST SERVING MEN.
THEY TAUGHT ME ALL I KNOW. THEIR
NAMES ARE **WHAT**, **WHY** AND **WHEN**
AND **HOW** AND **WHERE** AND **WHO**.

— Rudyard Kipling