



## Attributes of sugarcane technologies as perceived by the farmers of quasi-government and private extension services

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### ABSTRACT

Sugarcane is one of the important commercial crops in India and it plays a vital role in the socio-economic transformation of the country. To increase the sugarcane production and productivity, there is an urgent need to transfer the recommended technologies to the sugarcane farmers. Extension agencies of both co-operative and private sugar factories were effectively involved in the transfer of improved sugarcane technologies to the farmers. Perception of farmers towards attributes of sugarcane technologies are considered as the vital factors influencing effective transfer of technologies. Keeping this in view, a study was conducted in Cuddalore district of coastal Tamil Nadu. To measure the attributes of sugarcane technologies, five major attributes *viz.*, relative advantage, compatibility, complexity, observability and trialability have been included in this study. The findings on the overall attributes of technologies revealed that majority of the respondents of quasi-government extension service expressed the attributes as less favourable for adoption of sugarcane technologies, whereas majority of the farmers of private extension service expressed the attributes as more favourable for adoption of sugarcane technologies.

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### INTRODUCTION

Agriculture is the life line of Indian economy. Agriculture continues to be the occupation and way of life for more than half of the Indian population. Among the major commercial crops, sugarcane occupies a very important position in Indian agriculture and its economy. It is one of the most important non-food grain crops as it contributes about seven per cent of gross value of agriculture output. Sugar industry is the second biggest industry after cotton textiles in agriculture sector. There are about 365 sugar factories and nearly 25 million farmers are engaged in the cultivation of sugarcane in the country.

Improved technology can lead to higher production by means of effectively transferring the technology and its adoption by the farmers. Further, improved technologies can reduce the cost of cultivation and increase the agricultural productivity. It gives a positive effect on national economy. So, effective technology transfer in agriculture acts as an important factor not only in agriculture economy but also in national economy.

Extension plays a major role in harvesting

the full benefits of farm science research. In the process of transfer of technology, the extension approaches are being refreshed from time to time based on relevant needs and objectives. The advancement of government policies and effectiveness of the extension methods play a major role in redesigning the process of extension approach to be followed in the transfer of technology.

Co-operative sector agencies especially extension wing of co-operative sugar factories transfer the improved sugarcane technologies to the farmers. The co-operative sugar factories by themselves are not enough to handle the multifarious demands of the sugarcane farmers and is being supplemented by the private extension agencies of private sugar factories.

The pattern of technology transfer is not only an important factor for effective TOT, but perceived attributes of technology are also the important factors affecting transfer of technologies. Attributes are qualities, characteristics (or) traits possessed by a technology. Each and every technology has some qualities or characteristics. It is not the

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intrinsic quality but the quality or characteristic of the technology as farmers perceive them. Keeping this in view, a study was taken to assess the attributes of technologies as perceived by the farmers of quasi-government and private extension services.

## METHODOLOGY

For the diagnostic study of the research, it was proposed to select Cuddalore district of Tamil Nadu state as sugarcane was cultivated under maximum area in the district. Further, both the co-operative and private sugar factories are located in this district. Moreover, familiarity of the researcher with the culture and formal dialect of the people of the district was the other reason for the selection of the district. Proportionate random sampling technique was employed to select 240 respondents totally, of which 120 respondents were selected from registered sugarcane farmers of MRK Co-operative sugar factory and 120 respondents were selected from registered sugarcane farmers of EID Parry Ltd. sugar factory.

Attributes of sugarcane technologies in the present study were assessed among the respondents of quasi-government and private extension clientele. The data were collected with the help of a well structured and pre-tested interview schedule. In the schedule a number of statements on five attributes emphasized by Rogers (1962) *viz.*, relative advantage, compatibility, complexity, observability and trailability were collected from review of literature, discussion with extension scientists and farmers. The statements were revised and restructured and finally selected by relevancy analysis based upon judges opinion.

The responses were obtained from respected category of farmers on a three point continuum *viz.*, Agree (A), Undecided (UA) and Disagree (DA) with a weightage of 3, 2 and 1 for positive statements and reverse scoring system was employed for negative statements. Economic characteristics of the technology have been also assessed based on the excludability and substractability principles of welfare economic. The

principles of excludability and substractability determine whether a good (or) service is closer to being public or private.

## OBSERVATION AND ANALYSIS

The experimental findings of the present study have been presented in the following sub heads:

### Overall attributes of technology:

Overall attributes of sugarcane technologies as perceived by the respondents of both quasi-government and private extension services have been presented in Table 1.

From the data in Table 1, it could be seen that two-fifth of the respondents of quasi – government extension service (40.00 per cent) have perceived the attributes of sugarcane technologies as less favourable followed by favourable (38.33 per cent) and more favourable (21.67 per cent).

Majority of respondents of private extension service (70.00 per cent) had received the attributes of sugarcane technologies as more favourable, followed by favourable (26.67 per cent) and less favourable (3.33 per cent).

A great majority of farmers under private sugarcane factory had favourable perception towards the sugarcane technologies transferred by private extension agencies. This might be the following reasons as the technologies was based on dissemination of location and client specific, need based, locality feasible technologies with more emphasis on local wisdom with traditional knowledge and proper supply of input materials and implements. In case of quasi – government extension service, they generally transferred a wide range of improved sugarcane technologies among the clients without relevant visualized evidence which was comparatively weak. Follow-up activities were also comparatively less. Hence, clients might have perceived the attributes of sugarcane technologies as less favourable.

**Table 1: Overall attributes of sugarcane technologies as perceived by the farmers of quasi-government and private extension services**

Sr. No.	Category	Score	Respondents of quasi – government extension service (n=120)		Respondents of private extension service (n=120)	
			Number	Percentage	Number	Percentage
1.	Less favourable	Up to 24.54	48	40.00	4	3.33
2.	Favourable	24.55 to 32.64	46	38.33	32	26.67
3.	More favourable	32.65 and above	26	21.67	84	70.00

**Relative advantage :**

The data on attributes on sugarcane technologies as perceived by the respondents have been analysed and results are presented in Table 2.

Data in Table 2 revealed that majority of the respondents of quasi-government extension service had low perception (50 per cent) followed by medium (26.66 per cent) and high (23.33 per cent) levels of perception on relative advantage of sugarcane technologies. Under private extension service, majority of the respondents perceived high level (83.33 per cent) of perception on relative advantage followed by medium (13.33 per cent) and low (3.33 per cent) levels of perception.

The prime aim of quasi – government extension would be probably to promote technologies without taking into account the past and future consideration. The clients had a feeling that many times pest and disease control measures were not yielding the expected results. Nearly one-fourth of the farmers perceived medium and high level of relative advantage mainly due to the fact that they were not able to adopt improved practices such as poly bag sets, drip irrigation, machine harvesting etc.

Interestingly, great majority of the clients of private extension agencies perceived high level of relative

advantage. This may be due to their continuous guidance on soil and water testing, land development, sett selection and suitable sowing methods and all other operations upto harvest. As the message on highly farmer specific and regular technical guidance increased the income of the farmers through adoption of improved practices from selection of sett to harvest. This finding is in line with the observations made by Saravanan (2002).

**Compatibility :**

High proportion of respondents of quasi-government extension service (40.00 per cent) had perceived low level of compatibility on sugarcane technologies followed by medium (36.67 per cent) and high (23.33 per cent) levels of compatibility.

In contrast to this, half of the private extension clients (50.00 per cent) had perceived that sugarcane technologies were highly compatible followed by medium (46.67 per cent) and low (3.33 per cent) levels. Majority of the clients of quasi-government extension service perceived low (46.67 per cent) and medium (33.33 per cent) level of compatibility. This might be due to the fact that quasi-government extension service suggested new varieties, practices and plant protection chemicals, which

**Table 2: Attributes of sugarcane technologies as perceived by the farmers of quasi-government and private extension services**

Sr. No.	Category	Score	Respondents of quasi – government extension service (n=120)		Respondents of private extension service (n=120)	
			Number	Percentage	Number	Percentage
1.	Relative advantage	Up to 6.58	60	50.00	4	3.33
	Low	6.59 to 9.40	32	26.66	16	13.33
	Medium	9.41 and above	28	23.33	100	83.33
	High					
2.	Compatibility					
	Low	Up to 4.75	48	40.00	4	3.33
	Medium	4.76 to 6.59	44	36.67	56	46.67
	High	6.60 and above	28	23.33	60	50.00
3.	Complexity					
	Low	Up to 4.44	56	46.67	68	56.67
	Medium	4.45 to 6.36	40	33.33	48	40.00
	High	6.37 and above	24	20.00	4	3.33
4.	Observability					
	Low	Up to 3.33	56	46.67	4	3.33
	Medium	3.34 to 4.77	20	16.67	52	43.39
	High	4.98 and above	44	36.67	64	53.33
5.	Trialability					
	Low	Up to 4.49	50	41.67	4	3.33
	Medium	4.50 to 6.42	38	31.67	44	36.67
	High	6.43 and above	32	26.67	72	60.00

were not known and not regularly practiced by the clients. This finding derives support from the earlier reports of Sakthivel and Kanagasabapathi (2008). The private extension agencies concentrated on new technologies, with more emphasis on local wisdom. This may be the probable reason for perceiving the sugarcane technologies as more compatible.

**Complexity :**

Nearly half of the proportion of the clients of quasi-government extension service (46.67 per cent) perceived the sugarcane technologies as less complex followed by medium (33.33 per cent) and high level of complexity (20.0 per cent), respectively.

Majority of the respondents of private extension service (56.67 per cent) belonged to low level of complexity followed by medium (40.00 per cent) and high level of complexity (3.33 per cent).

This might be due to the fact that both quasi government and private extension agencies took more effort to improve the scientific techniques in sugarcane cultivation. These improved technologies minimized the complexity of the technologies among the farmers. Further, various extension activities taken by the both extension agencies to transfer the technologies in a rational way by using local wisdom. This finding derives support from the results of Terrence Thomas *et al.* (2008).

**Observability :**

Nearly half the proportion of the clients of quasi-government extension service had perceived low (46.67 per cent) level of observability followed by high (36.67 per cent) and medium (16.67 per cent) level of observability. Majority of the respondents of private extension service (53.33 per cent) had perceived high level of observability followed by medium (43.39 per cent) and low (3.33 per cent) levels of observability.

Low level of observability of technologies was commonly noticed among the clients of quasi-government extension agencies. This might be due to the fact that transfer of recent technologies would have led to low level

of perception on observability. Due to lack of adequate demonstration with respect to the advanced technologies may also be the other reason for the perceived low level of observability. This finding is in line with the observations of Kalidasan (2008)

Generally, private extension agencies concentrated on new advanced and more profitable technologies. They took more effort to visualize these technologies before the farmers by developing some model farms.

**Trialability :**

Substantial number of respondents of quasi-government extension service had perceived low (41.67 per cent) levels of trialability followed by medium (31.67 per cent) and high (26.67 per cent) level of trialability,

whereas majority of the respondents of private extension service had perceived high (60.00 per cent) level of trailability followed by medium (36.67 per cent) and low (3.33 per cent) levels of trialability.

Private extension agencies recommended the technologies, which are more localized by the extension agencies with the relevant materials supports. Systematic follow-up programmes by the extension agents are also the other reasons, resulting with more feasible and trialable technologies among the clients. But under quasi-government sector, inadequate material and input support and weak follow-up activities would have made them to perceive as less trialable among the clients. This finding derives support from the observations made by Sujatha and Vasanthakumar (2008) and Balamurugan (2006).

**Economic characteristics of sugarcane technologies:**

The data in Table 3 indicated that a great majority of the clients (75 per cent and 68.33 per cent) of quasi-government and private extension agencies perceived medium level of economic characteristics in adopting the sugarcane technologies. Considerable proportion of clients in quasi – government category (11.66 per cent) perceived high economic characteristics, whereas among private extension clients 20.83 per cent of the respondents perceived

**Table 3: Economic characteristics of sugarcane technologies as perceived by the farmers of quasi-government and private extension services**

Sr. No.	Economic characteristics	Score	Respondents of quasi – government extension service (n=120)		Respondents of private extension service (n=120)	
			Number	Percentage	Number	Percentage
1.	Low	Up to 7.07	16	13.33	13	10.83
2.	Medium	7.08 to 14.51	90	75.00	82	68.33
3.	High	14.52 and above	14	11.66	25	20.83

high level of economic characteristics and nearly one-third (13.33 per cent and 10.83 per cent) of the respondents of quasi-government and private extension agencies, perceived low level of economic characteristics of attributes, respectively.

### Conclusion:

The findings on overall attributes of sugarcane technologies as perceived by the respondents of both quasi-government and private extension services showed a controversial level of favourables of sugarcane technologies. Two-fourth of the respondents of quasi-government extension service have perceived the sugarcane technologies as less favourable. Where more than two-third of the respondents of private extension service perceived the sugarcane technologies as more favourable.

Majority of the farmers of quasi-government extension service perceived low level of relative advantage, low level of compatibility, low level of complexity, low level of observability and low level of trialability of sugarcane technologies.

Majority of the respondents of private perceived high level of relative advantage, high level of compatibility, low level of complexity, high level of observability and high level of trialability of sugarcane technologies.

With regard to economic characteristics of sugarcane technologies, three-fourth respondents of quasi government and more than two-third of the respondents of private extension service expressed medium level of economic characteristic of sugarcane technologies.

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