RESEARCH REVIEW JOURNALS
Volume-04
Issue-03
March-2019

ISSN: 2455-3085 (Online)
RESEARCH REVIEW International Journal of Multidisciplinary
www.rrjournals.com[UGC Listed Journal]

Extent of Adoption of Latest Sugarcane Technologies by the Farmers in Cuddalore District of Tamil Nadu State

[1]R. Rajesh kannan & *[2]Dr.B.Sudhakar

[1]*P.G Student, Dept. of Agrl. Extension, Faculty of Agriculture, Annamalai University, Chidambaram, Tamil Nadu (India)*
[2]*Assistant Professor, Dept. of Agrl. Extension, Faculty of Agriculture, Annamalai University, Chidambaram, Tamil Nadu (India)*

ARTICLE DETAILS

Article History
Published Online: 13 March2019

Keywords
Adoption, Consumers, Production, Sugarcane .

***Corresponding Author**
Email: ban1974sudh@gmail.com

ABSTRACT

In Cuddalore district of Tamil Nadu state the sugarcane was cultivated in 30304 ha with a production of 31.90 million tonnes during the year 2015-2016. The yield of sugarcane has declined from 116 t/ha in 2001-2002 to 108 t/ha in 2015-2016. Recurring surpluses and deficits in the production of sugarcane and mass consumption have become a serious concern of Sugar Industry. The uncertainty and instability in production hits not only the economy and industry but also the sugarcane growers and consumers. It is important that the productivity of sugarcane has to be increased for meeting the increasing requirement of sugar consumption. (Suganya, 2016). Hence, there is an urgent need to channelize our efforts to increase the yield of sugarcane in low yield regions. Increasing sugarcane production may be possible by through the adoption of latest technologies in sugarcane cultivation.

1. Introduction

The sugarcane is the only raw material for all the major sweeteners produced in the country. The total cane currently produced in the country is able to meet our requirements besides having potential for some exportable surplus of sugar. Sugar factories, being located in the rural areas, support huge economic activities in the rural India. In addition to improving the economic condition of the farmers and agricultural labourers engaged in sugarcane farming, they also support several others like transport operators, agro-service agencies, input dealers, petty businessmen and financial institutions. Most of the factory workers are drawn from the surrounding areas. Thus sugar factories generate rural employment. Many sugar factories also promote education and co-operative movement in their areas of operation. India occupies around 3.8 million hectares of land with an annual cane production of around 270 million tonnes. That is, it occupies about 2.8 per cent of the cultivated land area and contributes about 7.5 per cent to the agricultural production in the country. About 35 million farmers grow and depend on sugarcane for their livelihood. And an equal number of agricultural labourers earn their living by working in sugarcane farms. . (Crop production manual. 2016.). Hence, there is an urgent need to channelize our efforts to increase the yield of sugarcane in low yield regions. Increasing sugarcane production may be possible by through the adoption of latest technologies in sugarcane cultivation.

2. Specific Objective of the Study

The objective of the study was the extent of adoption of latest technologies in sugarcane by the farmers in Cuddalore district of Tamil Nadu state.

3. Review of Literature

Kannan (2013) reported that half the proportion of the respondents (50.00 per cent) were found to be medium adopters, followed by low (26.67 per cent) and high (23.33 per cent) levels respectively in maize cultivation.

Jeremy konsam (2014) stated that majority of the respondents (54.17 per cent) had medium level of adoption followed by 26.67 per cent and 19.16 per cent of the respondents with low and high levels respectively in paddy cultivation.

Loganathan (2015) indicated that majority of the respondents (57.00 per cent) had medium level of adoption followed by high (32.00 per cent) and low (11.00 per cent) levels respectively in groundnut cultivation.

Suganya (2016) revealed that more than half the proportion of the sugarcane respondents (57.00 per cent) had medium level of adoption and (29.00 per cent) of the respondents were comes under high level of adoption. A lesser number of respondents (14.00 per cent) were found to be under the category of low level of adoption in sugarcane cultivation.

Priya (2017) observed that majority of the respondents (75.00 per cent) were found to have high level of adoption followed by medium (15.00 per cent) and low (10.00 per cent) levels respectively in paddy cultivation.

4. Research Methodology

Cuddalore District in Tamil Nadu was selected for this study because of Cuddalore district ranks 3rd among the districts in Tamilnadu with maximum area and production in sugarcane. The maximum area criterion was followed in the selection of block. Among the fourteen blocks in Cuddalore district, Panruti block first place in area under sugarcane cultivation. Hence, this block was selected for study. A list of villages for the selected block was collected from Office of the Asst. Director of Agriculture, Panruti. From the list of villages six villages were selected from the block based on the

maximum area under sugarcane cultivation. Thus a total of six villages were identified for the study. A sample size of 120 was fixed for the study considering the limitations of time and other resources. From the list of farmers in each of the selected villages, farmers cultivating sugarcane were identified.

5. Results And Discussion

5.1. Extent of adoption of latest sugarcane technologies by the farmers

In general, knowledge leads to adoption. To know whether such a fact is exhibited in case of sugarcane growers also, an analysis was taken up. The extent of adoption of recommended technologies by the sugarcane growers was worked out and salient findings are given in Table 1.

Table 1.
Distribution of respondents according to their overall adoption level of recommended sugarcane practices
(n=120)

S. No	Category	Number	Per cent
1.	Low	15	12.50
2.	Medium	26	21.67
3.	High	79	65.83
	Total	**120**	**100.00**

It could be seen from the Table 1 that the 65.83 per cent respondents of had high level of adoption and 21.67 per cent of the respondents were comes under medium level of adoption. A lesser number of respondents (12.50 per cent) were found to be under the category of low level of adoption. Hence, it could be concluded that 87.50 per cent of the respondents comes under the category of medium to high level of adoption. This might be due to state government recommended sugarcane technologies adopted by majority of the farmers in the study area.

5.2. Practice–wise adoption level of latest sugarcane technologies by the farmers

Table 2.
Distribution of the respondents according to their practice – wise adoption level
(n = 120)

S. No	Practices	Number	Per cent
1.	Variety [Paneer karumbu]	120	100
2.	Planting Season [Dec-Jan]	120	100
3.	Sett rate [3 Budded setts]	120	100
4.	Spacing [90-120 cm]	120	100
5.	Manuring [FYM & NPK]	120	100
6.	Irrigation [Furrow & Drip method]	120	100
7.	Pest management	119	99.16
8.	Herbicide application	118	98.33
9.	Disease management	117	97.50
10.	Propping	112	93.33
11.	Sett treatment [Fungicides]	106	88.33
12.	Earthing up	106	88.33
13.	Detrashing	100	83.33
14.	Gap filling	82	68.33
15.	Trash mulching	81	67.50
16.	Inter-cropping	27	22.50
17.	Bio-control	19	15.83

1) Variety

It could be observed from the Table 2 that cent per cent of the respondents adopted the recommended varieties for their sugarcane cultivation. This respondents reported that the easy availability of setts of recommended sugarcane varieties. They highly adopted the local variety called “panner karumbu” or “rasthali karumbu” comes under the species of *Saccharum officinarium* due to the high level of production and yield when compared to other species which is the optimum variety suitable for local environmental conditions where it is considered as the traditional variety and it is cultivated mainly for the purpose of pongal festival.

2) Planting season

Season of planting was found to be adopted by cent per cent of the respondents. All the sugarcane farmers are cultivating same season in the study area. They have cultivated the setts in the early season of planting (Dec - Jan). It is the optimum season for the cultivation of edible sugarcane varieties and it is a one year crop mostly planted in early season because the harvesting of sugarcane was coincide with pongal festival (January month). The climatic condition is most highly suitable for germination for sugarcane crop in that particular season on planting.

3) Sett rate

It could be observed that all of the respondents had adopted the recommended sett rate. The adoption level of the sett rate is high due to the easy availability of required setts which is suitable for the climatic region of the cultivable area .They mostly planted the three budded setts thus the sett rate of the sugarcane will be minimized when compared to the other planting methods. This finding is in line with the findings of Suganya (2016).

4) Spacing

It could be observed that 100 per cent of the respondents had adopted the recommended spacing. The respondents opined that optimum population could be obtained only by the correct adoption of spacing and the sufficient spacing would leads to handling of intercultural operations. Weeds are the main problem in sugarcane crop the optimum spacing will be helpful in identification and prevention of weed growth level. Due to proper spacing the nutrients will reached the crop plants in a proportionate level. This finding is in line with the findings of Suganya (2016).

5) Manuring

The Table 2 shows that 100 per cent of the sugarcane farmers adopted recommended quantity of FYM and NPK fertilizers in their field. The reason opined by the farmers for adoption of fertilizers due to the fact that the correct dosage of fertilizers application would influence the yield of crop. Due to application of manuring it increases the soil fertility and the water holding capacity of the soil. It supplies sufficient nutrients for the growth of sugarcane and also increases the juice content of the cane and therefore increases the productivity of sugarcane.

6) Irrigation

From the Table 2, it may be seen that 100 per cent of the respondents had irrigate their field at frequent interval. The adopted respondents reported that the furrow and drip method of irrigation system for sugarcane requires only sufficient water level whereas increases water level also affected the soil structure, chances of accumulation of salt content it leads to water logging and finally it affected the growth and development of the sugarcane cultivation.

7) Pest management

Pest management practices was adopted by 99.16 per cent of the respondents. The reason for adoption of pesticides by respondents believed that the correct application of pesticides would influence the protection of crop from various pests. Pest management is adopted most of the respondents because the damage caused by pests will be more in sugarcane cultivation. Thus it also affected the beneficial insects and other protective microorganisms present in the soil surface. Hence, the non adoption of pesticides will minimized the yield level of sugarcane growers.

8) Herbicide application

Herbicide application was adopted by 98.33 per cent of the respondents. The adopted farmers reported that the production and productivity of the sugarcane will be decreased by the weeds. The weeds also affected the nutrient management of the sugarcane cultivation by absorbing more nutrients rather than the nutrients uptake by the sugarcane crop.

9) Disease management

It could be observed from the Table 2 that 97.50 per cent of the respondents adopted the recommended disease control measures. The adopted farmers reported that the severe problems caused by the diseases which will affect their yield of crops. The diseases are urged to managed because it can be easily transmitted from the affected plant to healthy plants as well as one field to another by spores are carried by blowing winds. Due to diseases the standard of sugarcane is minimized as results in the loss of profit. So the diseases management is essential in sugarcane cultivation.

10) Propping

The Table 2 shows that 93.33 per cent of the respondents had adopted propping. The non-adopted farmers felt that propping is labour intensive. The adopted farmers felt that of propping prevention of lodging of canes as well as to control the breakage of canes during heavy winds. This also results in cutting of cane during harvested period in a simple and easy way to preventing physical damages. The non adoption of propping leads to pests infestation of certain disease spread through the breaking or loading of canes. It results in the loss of cane as well as the yield will suffered and the quality of the cane is reduced. This finding is in line with the findings of Suganya (2016).

11) Sett treatment

Sett treatment was adopted by majority of the respondents (88.33 per cent). The adopted farmers opined that sett treatment for the purpose of preventing the sett rot disease which is the most common disease in sugarcane affected the setts of the sugarcane in early stages as well as in nursery area. Remaining 12.67 per cent of the respondents will not adopted the sett treatment because they are not sufficient knowledge in the adoption of sett treatment technology.

12) Earthing up

Earthing up was adopted by 88.33 per cent of the respondents. The adopted farmers opined that earthing up is an important operation to ensure uniform irrigation for the entire field and ensure more number of tillers per sett. The earthing up will also plays an important role in sugarcane cultivation to preventing the lodging of canes and to provide the strong support for the canes in a beneficial way. It makes the basal region of the sugarcane more strong and protective in nature.

13) De-trashing

Of the total respondents de-trashing was adopted by 83.33 per cent of the respondents. This adopted respondent felt that de-trashing reduces the labour requirement during cane cutting and maintaining the optimum plant population while without using the de-trashing technology the trashes are intersect each others and it was affected the intercultural

operations. It could be the chance of presence of insect eggs in the trash as well as the diseases affected leaves also removed by using de-trashing.

14) Gap filling

Of the total respondent 68.33 per cent of the respondents adopted gap filling practice. The adopted farmers reported that gap filling is one of the important practice for getting higher yield .The some of the setts after the cultivation were affected by the physical damages and some other environmental conditions. Beyond this to maintain the plant population in a proportional level and to get the productivity in a sufficient way.

15) Trash mulching

From the Table 2 it may be seen that 67.50 per cent of the respondents had adopted the trash mulching. The remaining 32.50 per cent of the respondents did not adopt this practice. The non-adopted respondents believed that intercultural operation was difficult due to trash mulching. The adopted farmers opined that the loss of moisture content from the soil is prevented by the using the technology of trash mulching. The non-adopters might thought that the labour requirement will be high as well as the cost of labour will also be increased.

16) Inter cropping

It could be observed from the table 2 that inter-cropping was adopted by 22.50 per cent of the respondents. The non-adoption of inter cropping might be due to lack of interest of the respondents in intercropping, due to inter cropping the management of intercultural operations were affected by obtaining minimum number of spacing. The expenditure of the inputs was increased when compared to solo cropping of sugarcane cultivation.

17) Bio-control agents

Bio-control agents was adopted by 15.83 per cent of the respondents. The reason for non-adoption reported by them was lack of knowledge about bio-control agents. They do not have awareness about the bio-control as they mostly adopted chemical method of pest control rather than the usage of natural method of pest control using natural enemies. Due to low level in extension agency contact, the guidance of usage of bio-control method is negligible.

6. Conclusion

The productivity of sugarcane in Tamilnadu is 108 t/ha. In Cuddalore district sugarcane was cultivated in 30304 ha with a production of 31.90 million tonnes during the year 2015-2016. The yield of sugarcane has declined from 116 t/ha in 2001-2002 to 108 t/ha in 2015-2016. To feed the growing demand the production of sugarcane has to go up. There is a scope to expand sugarcane production by enhancing productivity. Most of the respondents of had high level of adoption and 21.67 per cent of the respondents were comes under medium level category. A lesser number of respondents (12.50 per cent) were found to be under the category of low level of adoption. In practice-wise adoption cent per cent of the respondents adopted the practices viz., Variety [Paneer karumbu], planting season [Dec-Jan], sett rate [3 Budded setts], spacing [90-120 cm], manuring [FYM & NPK] and irrigation [Furrow & Drip method] followed by pest management (99.16 per cent), herbicide application (98.33 per cent), disease management (97.50 per cent), propping (93.33 per cent), sett treatment [Fungicides] (88.33 per cent), earthing up (88.33 per cent), detrashing (83.33 per cent), gap filling (68.33 per cent), trash mulching (67.50 per cent), inter-cropping (22.50 per cent), and bio-control agents (15.83 per cent).

References

1. **Crop production Manual. (2016). Food and Agricultural Organization of United Nations, 2016.** Retrieved 2016-03-22.
2. **Jeremy Konsam. (2014).** A study on knowledge and adoption behaviour of paddy growers. **Unpublished M.Sc., (Ag.) Thesis,** Annamalai University, Annamalai Nagar.
3. **Kannan, J. (2013).** A study on knowledge and adoption behavior of maize growers. **Unpublished M.Sc., (Ag.) Thesis,** Annamalai University, Annamalai Nagar.
4. **Loganathan, R. (2015).** Knowledge and adoption of groundnut growers of Villupuram district. **Unpublished M.Sc., (Ag.) Thesis,** Annamalai University, Annamalai Nagar.
5. **Loganathan. B. (2017).** A study on Technological gap and yield gap analysis among cotton growers in Perambalur district. **Unpublished M.Sc., (Ag.) Thesis,** Annamalai University, Annamalai Nagar.
6. **Prithiviraj, M. (2009).** A study on adoption of biofertilizers in sugarcane. **Unpublished M.Sc., (Ag.) Thesis,** Annamalai University, Annamalai Nagar.
7. **Priya, K. (2017).** Yield gap and technological gap of paddy growers in Trichy district. **Unpublished M.Sc., (Ag.) Thesis,** Annamalai University, Annamalai Nagar.
8. **Suganya, S. (2016).** A study on yield gap and constraints of sugarcane farmers in cuddalore district. **Unpublished M.Sc., (Ag.) Thesis,** Annamalai University, Annamalai Nagar

