

## **RELATIONSHIP BETWEEN CHARACTERISTICS OF COTTON GROWERS WITH DRIP IRRIGATION SYSTEM AND TECHNO ECONOMIC CHANGES**

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### **ABSTRACT**

*The present investigation was undertaken in Saurashtra region which is comprised of eleven districts. Out of these, four districts have been selected for this study, and of each of district, one taluka was selected purposively. These talukas having higher number of farmers of drip irrigation system adopted in cotton crop. Among these four selected talukas, three villages from each of selected taluka were selected randomly. From each selected village, fifteen farmers who are having drip irrigation system in cotton crop were selected. Thus, total 180 cotton growers have been selected to know the techno economic changes of cotton growers due to drip irrigation system, and were interviewed with a structural pre-tested interview schedule. The result of research indicated that majority (85 %) of the cotton growers with drip irrigation system were medium to high level of techno-economic changes. The independent variables like education, social participation, socio economic status, annual income, occupation, size of land holding, cropping intensity, economic motivation, risk preference, scientific orientation, adoption of DIS, contact with extension agencies and utilization of information sources had positive and highly significant correlation with techno-economic changes of cotton growers.*

**Keywords:** cotton growers, drip irrigation system, techno-economic change

### **INTRODUCTION**

Drip-irrigation is introduced primarily to save water and increase the water use efficiency in agriculture. However, it also delivers many other economic and social benefits to the society. Reduction in water consumption due to drip method of irrigation over the surface method of irrigation varies from 30 to 70 per cent for different crops (Narayanamoorthy, 2006). The techno economic changes in cotton growers with usage of drip irrigation system are considered in present study.

### **OBJECTIVE**

To know the relationship between characteristics of cotton growers with drip irrigation system and techno economic changes

### **METHODOLOGY**

The present investigation was undertaken in Saurashtra region which comes under the jurisdiction of Junagadh Agricultural University, Junagadh. Saurashtra region is comprised of eleven districts. Out of these, four districts have been selected for this study, and of each of district, one taluka was selected purposively. These talukas having higher number of farmers of drip irrigation system adopted in cotton crop. Among these four selected talukas,

three villages from each of selected taluka were selected randomly. From each selected village, fifteen farmers who are having drip irrigation system in cotton crop were selected. Thus, total 180 cotton growers have been selected to know the techno economic changes of cotton growers due to drip irrigation system, and were interviewed with a structural pre-tested interview schedule with an aim to study the personal, socio economic, situational, psychological and communicational characteristics of the cotton growers with DIS and their relationship with techno-economic changes. The collected data were classified, tabulated and analyzed in order to make the findings meaningful. The statistical measures such as percentage, mean score, standard deviation and co efficient of correlation were used.

### **RESULTS AND DISCUSSION**

#### ***Level of techno economic change***

Techno-economic Changes are the changes that occur to an individual or a technical system as a result of adoption or rejection of an innovation. It is the assessment of changes in terms of techno-economic change aspect. In this study, the resultant changes occurred among the cotton growers as a result of adoption of drip irrigation system technology in the form of techno-economic changes have

been studied. The techno-economic changes were measured in terms of six aspects namely- change in irrigation area, change in land use, change in cropping pattern, change in crop production and change in self-sufficiency. The data presented in Table 1 indicated that majority (60 per cent) of cotton growers had medium level of techno-economic changes, whereas 25.00 and 15.00 per cent had high and low level of techno-economic changes, respectively. Thus, it can be stated that a good majority (85.00 per cent) of the cotton growers had medium to high level of techno-economic changes. Therefore, it can be concluded that this results showed the positive consequences among cotton growers. The results are in accordance with the results of Patel *et al.* (1995) and Desai (1997).

**Table-1 : Distribution of the respondents according to their level of techno-economic changes**

n = 180

Sr. No.	Level of techno-economic changes	No.	Percent
1	Low ( Below 13.229 scores)	26	14.44
2	Medium (13.229 to 15.471 scores)	109	60.56
3	High ( Above 15.471 scores)	45	25.00
Mean = 14.350		S.D. = 1.121	

**Relationship between characteristics of cotton growers with DIS and their techno economic changes**

In order to determine the relationship between the personal, socio-economic, situational, psychological and communicational characteristics of the cotton growers with DIS and their techno-economic changes, it was observed that out of the sixteen variables, one variable age had a negative and non-significant correlation with their techno-economic changes, while credit orientation had positive and non significant relationship with techno economic changes, and rest fourteen variables had positive and highly significant relationship with their techno-economic changes (Table 2). This was determined and tested with help of Karl Pearson’s (1978) coefficient correlation test. The independent variables like education, social participation, socio economic status, annual income, occupation, size of land holding, cropping intensity, economic motivation, risk preference, scientific orientation, adoption of DIS, contact with extension agencies and utilization of information sources had positive and highly significant relationship with techno economic changes of cotton growers with DIS. The negative and non-significant association between age and techno economic changes indicates that old aged farmers were similar in their economic consequences. This might be fact that younger generation

could pick up farmers’ experience and farming knowledge by exposing themselves to the technically sound innovations. The positive and non-significant association between credit orientation and techno economic changes indicates respondents had higher education, social status and well economic condition could not have reaped the advantages of the credit institutions and financial incentives in form of subsidies granted by the government. The results are in accordance with the results of Patel *et al.* (1995) and Desai (1997).

**Table 2 : Relationship of independent variables with techno economic changes**

n = 180

Sr. No.	Independent variables	Correlation coefficient ('r')
<b>Personal</b>		
X <sub>1</sub>	Age	-0.0942 <sup>NS</sup>
X <sub>2</sub>	Education	0.4251 <sup>**</sup>
X <sub>3</sub>	Caste	0.2268 <sup>*</sup>
<b>Socio - economic</b>		
X <sub>4</sub>	Social participation	0.5347 <sup>**</sup>
X <sub>5</sub>	Socio-economic status	0.5132 <sup>**</sup>
X <sub>6</sub>	Annual income	0.5342 <sup>**</sup>
X <sub>7</sub>	Credit orientation	0.1257 <sup>NS</sup>
<b>Situational</b>		
X <sub>8</sub>	Occupation	0.4911 <sup>**</sup>
X <sub>9</sub>	Size of land holding	0.6128 <sup>**</sup>
X <sub>10</sub>	Cropping intensity	0.3459 <sup>**</sup>
<b>Psychological</b>		
X <sub>11</sub>	Economic motivation	0.4748 <sup>**</sup>
X <sub>12</sub>	Risk-preference	0.5158 <sup>**</sup>
X <sub>13</sub>	Scientific orientation	0.4667 <sup>**</sup>
X <sub>14</sub>	Adoption of DIS	0.6197 <sup>**</sup>
<b>Communicational</b>		
X <sub>15</sub>	Contact with extension agency	0.5808 <sup>**</sup>
X <sub>16</sub>	Utilization of information sources	0.4729 <sup>**</sup>

NS = Non-Significant;

\* = Significance at 0.05 level (0.146)

\*\* = Significance at 0.01 level (0.243)

**CONCLUSION**

It can be concluded that majority (85.00 %) of the cotton growers with DIS were medium to high level of techno-economic changes. The independent variables like education, social participation, socio economic status, annual income, occupation, size of land holding, cropping intensity, economic motivation, risk preference, scientific orientation, adoption of DIS, contact with extension agencies and utilization of information sources had positive and highly significant relationship with techno economic changes of

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cotton growers with DIS expect age and credit orientation.

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