

## **Entrepreneurial Behaviour and Socio-Economic Characteristics of Farmers Who Adopted Sustainable Agriculture in India\***

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**Abstract :** This study was conducted during 1997-98 on farmers who attended 3rd IFOAM-ASIA Scientific International Conference to know the Socio-economic characteristics and entrepreneurial behaviour of farmers who adopted sustainable agriculture in India. According to the findings of the study the farmers young age having high education level, big holdings, high organisational participation and high extension participation adopted sustainable agriculture had high entrepreneurial behaviour compare to the farmers of old and middle age, low education, small size holding, low organisational participation and low extension participation. Further, there was close association between socio-economic characteristics and entrepreneurial behaviour of farmers.

### **Introduction**

Entrepreneurial behaviour is too complex phenomenon to be explained by a single factor. It is a combination of several factors or components. However, entrepreneurial behaviour is defined as a combination of seven components viz., Innovativeness, Decision making ability, Achievement motivation, Information seeking ability, Risk taking ability, Co-ordinating ability and Leadership ability. The combined contributed of the above seven factors to an individual behaviour is being expressed in terms of entrepreneurial behaviour. Sustainable agriculture is a complex phenomenon, difficult to define by a single agricultural practice. However, sustainable agriculture is defined as a proper combination and appropriate use of seven sustainable agricultural practices viz., Organic Farming, Integrated Farming, Integrated Pest Management, Integrated Nutrient Management, Agro-forestry, Soil and Water Conservation and Bio-fertilizers use for conservation and management of natural resource base while preserving high productivity and quality of land with social and economic

viability. The present study would be in the interest of the country to use and invest in sustainable agriculture. The entrepreneurial behaviour of farmers who adopted sustainable agriculture has not been studied in systematic way. In a heterogeneous and stratified society like India, it is not adequately realised that the entrepreneurial behaviour may not be uniform for its different strata, what could be entrepreneurial behaviour particular section of the population may not be considered so in other sections. Presently, development of farmers for adoption of sustainable agriculture is the primary concern of the country. Thus, there is an urgent need for conducting research on the socio-economic characteristics and entrepreneurial behaviour of farmers for adoption of sustainable agriculture. Hence, the following objectives were formulated for the study. (1) to ascertain the age group of farmers who adopted sustainable agriculture, (2) to know the educational level of farmers who adopted sustainable agriculture, (3) to find out agricultural land owned and entrepreneurial behaviour by farmers who adopted sustainable agriculture, (4) to identify the organisational

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participation and entrepreneurial behaviour of farmers who adopted sustainable agriculture, (5) To measure the extension participation and entrepreneurial behaviour of farmers who adopted sustainable agriculture.

# Material and Methods

The study was conducted during 1997-98. The study was aimed at findings socio-economic characteristics and entrepreneurial behaviour of farmers who adopted sustainable agriculture. Therefore, the study was purposively taken up in the 3rd IFOAM -ASIA Scientific International Conference "Food Security in harmony with nature" held at University of Agricultural Sciences, Bangalore from Dec. 1-4, 1998. Population for the study consisted of 250 farmers who attended the conference from seven different states of the country .The list of 250 farmers who attended the scientific conference were collected, among them 60 farmers who adopted sustainable agriculture in different parts of the country were selected randomly. The details of respondent farmers are presented in table 1.

Age of the respondents was measured as revealed by the respondents in the form of number of completed years as on 1-1-1997. The categorization of farmers was made as suggested by Dwarakinath ( 1973) .

Age category	No. of completed years
Young	Upto 35 years
Middle	> 35 upto 55 years
Old	56 years and above

Education is the amount of formal schooling of a farmer it was measured in years of schooling completed by a respondent farmer as recommended by UNESCO (Roy and Iyer, 1967) has been followed in the study with slight modifications. The categorization is as follows :

Educational Group	No. of years of schooling
Illiterate	0
Primary	1-4
Middle	5- 7
High school	8-10
College	Above 10

Table 1. Details of respondent farmers belonging to different states of the country

Sl. No.	State	Farmers responded	
		No.	Per cent
1.	Andhra Pradesh	9	15.00
2.	Gujarat	5	8.33
3.	Karnataka	10	16.67
4.	Kerala	7	11.67
5.	Maharashtra	11	18.33
6.	Tamil Nadu	8	13.33
7.	Uttar Pradesh	10	16.67
Total		60	100.00

Respondents were grouped into two categories as per their size of land holdings as suggested by Narayana Swamy (1995).

Category	Number of members
Small farmers	Upto 5 acres
Big farmers	More than 5 acres

Respondents were grouped into three categories based on their membership in local organisations.

Category	Membership in organisations
High	Member in more than 3 organisations
Medium	Member in 2 -3 organisations
Low	Member in 0 -1 organisation

The respondent farmers extent of involvement in the extension educational activities refers to extension participation. As suggested by Muniraju (1976) the respondents were categorized into three groups viz., low extension participation, medium extension participation and high extension participation.

Category	Extension activities
Low extension participation	0-1
Medium extension participation	2-3
High extension participation	Above 3

## **Results and Discussion**

The data of the table 2 (a) revealed the mean entrepreneurial behaviour index of farmers who adopted sustainable agriculture in different age groups. One way analysis of variance was conducted for data and presented in table 2 (b). The computed F ratio was significant. This indicates the significant difference in the entrepreneurial behaviour of farmers who adopted sustainable agriculture under different age groups.

The results of the study indicated that entrepreneurial behaviour of farmers who adopted sustainable agriculture differs with their age groups. Young farmers had higher entrepreneurial behaviour index compared to middle and old age groups. The findings of the study get support from Moulik and Rao (1979). However, the present results differ from Nandapurkar (1980) who studied entrepreneurial behaviour of small farmers. This may be because of majority of farmers who adopted sustainable agriculture in the present study belonged to high education groups and owned large size holdings.

The results of table 3 (a) indicated the mean entrepreneurial behaviour index of farmers who adopted sustainable agriculture under different educational levels. The data of above table was subjected to the one way analysis of variance and the findings were furnished in table 3(b). The F ratio was found significant at one per cent level. Hence, there was significant difference in the entrepreneurial behaviour of farmers belonging to different educational levels.

The findings of the study indicated that farmers who adopted sustainable agriculture had high educational level and also had high entrepreneurial behaviour as compared to those had low education. The findings of the study that support from research reported Derossi (1971) and Nandapurkar (1980). Similar results have been observed in case of adoption studies under Indian conditions, where education had been observed to be a significant factor encouraging farmer adoption.

Data on this aspects were presented in table 4 (a). The one way analysis of variance was conducted for the data and the results were summarised in table 4 (b). The F ratio calculated was found significant at one per cent level. This

Table 2(a). Entrepreneurial behaviour and age group of farmers who adopted sustainable agriculture

Category	Numbers of farmers	Mean entrepreneurial behavior index
Young	14	84.32
Middle	32	78.86
Old	14	77.82

Table 2(b). One way analysis of variance of entrepreneurial behaviour of farmers who adopted sustainable agriculture in different age groups

Source	df	Sum of squares	Mean squares	F
Between	2	927.03	463.52	5.41**
Within	57	4879.75	85.61	-
Total	59	5806.78	-	-

\*\* = Significant at 1 per cent level

Table 3(a). Entrepreneurial behaviour and education level of farmers who adopted sustainable agriculture

Category	Numbers of farmers	Mean entrepreneurial behaviour index
Primary	8	70.77
Middle school	6	75.40
High School	8	78.15
College	38	82.34

Table 3(b). One way analysis of variance of entrepreneurial behaviour of farmers who adopted sustainable agriculture in different educational level

Source	df	Sum of squares	Mean squares	F
Between	3	1031.53	343.84	47.80**
Within	56	402.81	7.19	-
Total	59	1434.34	-	-

\*\* = Significant at 1 per cent level

Table 4(a). Entrepreneurial behaviour and agricultural land owned by farmers who adopted sustainable agriculture

Category	Number of farmers	Mean entrepreneurial behaviour index
Small farmers	2	50.40
Big farmers	58	80.91
Total	60	-

Table 4(b). One way analysis of variance of entrepreneurial behaviour of farmers who adopted sustainable agriculture and land owned by them

Source	df	Sum of squares	Mean squares	F
Between	1	1800.44	1800.44	194.98**
Within	58	535.56	9.23	
Total	59	2336.00		

\*\* = Significant at 1 per cent level

indicated that there was significant differences in the entrepreneurial behaviour of farmers having different sizes of land holding.

According to the present study, big farmers who adopted sustainable agriculture had high entrepreneurial behaviour compared to small farmers. Earlier studies have not reported on this aspect. However" Nandapurkar (1980) reported that if the training on management aspects is provided small farmers will also improve their entrepreneurial behaviour .

Information on entrepreneurial behaviour of farmers who adopted sustainable agriculture and their organisational participation was presented in table 5 (a). The data were subjected to one way analysis of variance were furnished in table 5 (b). The F ratio obtained was significant at one per cent level. This indicated that there was

significant difference in the entrepreneurial behaviour of farmers having low, medium and high organisational participation.

As indicated by the results of the study farmers who adopted sustainable agriculture had high organisational participation with high entrepreneurial behaviour index. The findings of the study get support from Pareek and Nadkarni (1978) and Nandapurkar (1980). This may be because of the organisations played imported role in exposing farmers who adopted sustainable agriculture which in turn influenced entrepreneurial behaviour .

The mean entrepreneurial behaviour index of farmers who adopted sustainable agriculture and their level of extension participation was presented in table 6 (a). The data were subjected to one way analysis of variance and furnished in

Table 5(a). Entrepreneurial behaviour and organisational participation of farmers who adopted sustainable agriculture

Category	Numbers of farmers	Mean entrepreneurial behaviour index
High	30	86.10
Medium	24	74.69
Low	6	69.73
Total	60	

Table 5(b). One way analysis of variance of entrepreneurial behaviour of farmers who adopted sustainable agriculture and their organisational participation

Source	df	Sum of squares	Mean squares	F
Between	2	2424.69	1212.34	237.16**
Within	57	291.38	5.11	
Total	59	2716.06		

\*\* = Significant at 1 per cent level

Table 6(a). Entrepreneurial behaviour and extension participation of farmers who adopted sustainable agriculture

Category	Numbers of farmers	Mean entrepreneurial behaviour index
High	36	54.09
Medium	18	75.84
Low	6	66.73
Total	60	

Table 6(b). One way analysis of variance of entrepreneurial behaviour of farmers who adopted sustainable agriculture and their extension participation

Source	df	Sum of squares	Mean squares	F
Between	2	1966.13	983.06	148.97**
Within	57	376.16	6.60	
Total	59	2342.28		

\*\* = Significant at 1 per cent level

table 6 (b). The F ratio computed was significant at one per cent level. This clearly indicated that there was significant differences in the entrepreneurial behaviour of farmers having high, medium and low extension participation.

The results of the study reported that farmers who adopted sustainable agriculture had high extension participation with high entrepreneurial behaviour index was differed significantly from medium and low extension participation groups. Extension participation encourages farmers to have achievement orientation which in turn likely to result in high entrepreneurial behaviour. The earlier research studies reported by McClelland and Winter (1969), Mehta (1976), and Nandapurkar (1980)

support the present investigation. These studies concluded that extension participation helps to become more effective and achieve better results on their own sphere of activity.

The data of the table 7 indicated the relationship between entrepreneurial behaviour and adoption of sustainable agriculture practices by farmers. The correlation coefficient was significant at one per cent level indicated the positive relationship between entrepreneurial behaviour and sustainable agriculture practices adopted by farmers. Further, this clearly shows that there was close association between entrepreneurial behaviour and adoption of sustainable agriculture practices by farmers.

Table 7. Correlation between sustainable agriculture practices adoption index and entrepreneurial behaviour index

Sl. No.	Category	Mean score	Correlation coefficient (r)
1.	Mean sustainable agriculture practices adoption index	59.36	
2.	Mean entrepreneurial behaviour index	78.61	0.783**

\*\*=Significant at 1 per cent level

The results of the study reported that farmers who adopted more number of sustainable agriculture practices had high entrepreneurial behaviour index. Further, there was positive relationship between adoption of sustainable agriculture practices and entrepreneurial behaviour of farmers.

The earlier research studies related to adoption of recommended agriculture practices conducted by Nandapurkar (1980), Sethy *et al.* (1984), Waghdhar and Wakde (1989), Nasser Ahmed and Kakoty (1993), Patel (1995), Prochezian *et al.* (1998) revealed similar findings.

Hence, entrepreneurial behaviour influence the adoption of sustainable agriculture.

The entrepreneurial behaviour of farmers who adopted sustainable agriculture differ significantly in different age groups, but farmers with high formal education had high entrepreneurial behaviour index compare to low education groups and big farmers had high entrepreneurial behaviour compare to small farmers. Further, farmers who had high organisational participation were also high in their entrepreneurial behaviour compared to medium and low groups and farmers with high extension

participation and adopted sustainable agriculture practices had also high in their entrepreneurial behaviour index compared to medium and low extension participation categories. There was positive relation between standardized sustainable

agriculture practices based on opinion of judges and adoption of sustainable agriculture practices by farmers. Hence, adoption of sustainable agriculture depends on entrepreneurial behaviour of farmers and vice-versa.

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