Int.J.Curr.Microbiol.App.Sci (2018) Special Issue-6: 2464-2472

International Journal of Current Microbiology and Applied Sciences
ISSN: 2319-7692 **Special Issue-6 pp. 2464-2472**
Journal homepage: http://www.ijcmas.com

Original Research Article

Economic Performance of Tissue Culture and Conventional Banana Growers

J. R. Wadkar*, V. B. Kamble, N. D. Deshmukh and S. D. Wangikar

**Corresponding author*

A B S T R A C T

The present study was conducted in Nanded and Parbhani district of Marathwada region of Maharashtra state to know the economic performance of tissue culture and conventional banana growers. Ten villages from each district thus total twenty villages were selected for the study. From each village, six tissue culture banana growers and six conventional banana growers, total of two hundred and forty respondents were selected for the study. Data were collected with the help of specially developed interview schedule. The statistical tools such as frequency, percentage, mean, standard deviation, co-efficient of correlation, multiple regression and 'Z' test for comparison were used for analysis of data. The findings showed that 65 per cent of the tissue culture and 63.33 per cent of the conventional banana growers were found with medium level of economic performance. Independent variables namely education, experience in banana cultivation, land holding, training received, extension contact, mass media exposure, cosmopoliteness, scientific orientation, market orientation, competition orientation, risk orientation, economic motivation, innovation proneness and deferred gratification were positively and significantly related with economic performance of tissue culture banana growers whereas, education, experience in banana cultivation, size of family, land holding, annual income, training received, extension contact, mass media exposure, scientific orientation, market orientation, risk orientation, economic motivation, innovation proneness and deferred gratification established positive and significant relationship with economic performance of conventional banana growers. The multiple regression analysis showed that experience in banana cultivation, annual income, mass media exposure, cosmopoliteness and market orientation were contributed significantly to explain variation in economic performance of tissue culture banana growers and in case of conventional banana growers variables namely land holding, annual income and market orientation contributed significantly for attaining variation in economic performance.

Keywords

Economic performance, Conventional banana growers, Tissue culture banana growers

Introduction

India ranks first in the world in banana production and Maharashtra tops the table locally, banana exports are negligible. India does not export even one per cent of the total production and thus there is vast potential to increase this quantity. Recently agriculture business is moving from primitive to sophistication. Therefore, it requires high degree of specialization, high level of competence, improved technology and high economic returns.

The farmers, as farm entrepreneurs, are expected to bring about maximum profit with available resources irrespective of the economic, social, cultural, physical and

technological environment. The farmers manage the production system to get a return from it.

Economic performance is always concerned with managerial skills and productivity, which implies the effectiveness and efficiency of individuals, so economic performance along with managerial skills plays important role in every sector. Several factor that affect the economic performance such as knowledge of scientific cultivation, planning at different levels, organizing different things, supervision and budgeting, coordinating activities, use of communication skills, decision making, marketing etc. Therefore, considering importance of economic performance present study was undertaken with a comparison between tissue culture and conventional banana growers. Raising the economic performance is the fundamental problem. Therefore, the present study was undertaken to know the profile, relationship of personal, socio-economic, psychological and communicational characteristics with economic performance of tissue culture and conventional banana growers and constraints faced in adoption of banana cultivation technology.

Materials and Methods

The present investigation was conducted in Nanded and Parbhani district of Marathwada region of Maharashtra state. The districts were purposively selected for the study because these districts occupied major area of banana crop in Marathwada region than other districts. From Nanded district Ardhapur and Mudkhed talukas and Parbhani and Purna talukas of Parbhnai district of Marathwada region of Maharashtra state were purposefully selected with highest area under banana crop.

Five villages from each selected taluka having highest area under banana crop were selected, thus a total of 20 villages were selected for the study. A list of banana growers in selected villages was obtained from the talathi / patwari in respective villages and from each village six tissue culture banana growers and six conventional banana growers having minimum three year experience in banana cultivation were selected randomly by lottery method.

From each village, six tissue culture banana growers and six conventional banana growers that means two hundred and forty respondents as a total sample for the study.

Ex-post facto research approach was used for the study. Kerlinger (1964) stated that 'Ex-post-facto' research approach is worthy to apply when independent variables have already acted upon. Data were collected with the help of specially developed interview schedule.

The statistical tools such as frequency, percentage, mean, standard deviation, co-efficient of correlation, multiple regression and 'Z' test for comparison were used for the analysis of data.

Findings

It was revealed that majority of the tissue culture banana growers were educated upto secondary school level (42.50%), had medium level of experience in banana cultivation (80.00%) and belonged to joint family (60.83%). Majority of them were having medium family size (86.66%), land holding (30.84%), annual income (79.17%), extension contact (67.50%), mass media exposure (55.83%), cosmopoliteness (45.00%), scientific orientation (75.83%), market orientation (65.83%), competition orientation (62.50%), risk orientation

(62.50%), economic motivation (57.50%), achievement motivation (56.67%), innovation proneness (62.50%), self-confidence (48.34%), deferred gratification (45.84%) and most of them had not received any training (51.66%).

It was found that majority of the conventional banana growers were educated upto secondary school level (38.34%), having medium level of experience in banana cultivation (58.33%) and belonged to joint family (71.67%). Majority of them were having medium family size (56.67%), land holding (35.83%), annual income (53.33%), extension contact (63.33%), mass media exposure (65.83%), cosmopoliteness (50.00%), scientific orientation (65.83%), market orientation (75.00%), competition orientation (54.17%), risk orientation (55.83%), economic motivation (60.83%), achievement motivation (65.83%), innovation proneness (49.17%), while most of them had not received any training (55.00%), had low level of deferred gratification (50.00%) and (39.17%) had high self-confidence.

Distribution of tissue culture and conventional banana growers according to their economic performance

Table 1 depicts that most (65.00%) of the tissue culture banana growers were with medium level of economic performance, while 18.33 per cent and 16.67 per cent were with low and high level of economic performance, respectively.

It is also clear that 63.33 per cent of the conventional banana growers were with medium level of economic performance, followed by 19.17 per cent were with high level of economic performance and 17.50 per cent were with low level of economic performance. The calculated 'Z' value (03.16) is significant at 0.01 level of probability indicating that the tissue culture banana growers and conventional banana growers were having significant difference in their economic performance.

It could be further concluded that the tissue culture banana growers dominated in getting better economic returns as compared to conventional banana growers.

Relationship of personal, socio-economic and psychological characteristics of tissue culture and conventional banana growers with their economic performance

In case of tissue culture banana growers, data from Table 2 indicates that independent variables namely education, experience in banana cultivation, size of family, land holding, annual income, training received, extension contact, mass media exposure, scientific orientation, market orientation, risk orientation, economic motivation, innovation proneness and deferred gratification were positively and significantly related with their economic performance, while family type, cosmopoliteness, competition orientation, achievement motivation and self-confidence could not establish any relationship.

It is evident from Table 2 that education, family type, size of family, land holding, annual income, training received, extension contact, cosmopoliteness, market orientation, competition orientation, risk orientation, economic motivation, achievement motivation of conventional banana growers established positive and significant relationship with their economic performance, while, experience in banana cultivation, mass media exposure, scientific orientation, innovation proneness, self-confidence and deferred gratification could not establish any relationship.

Table.1 Distribution of tissue culture and conventional banana growers according to their economic performance

Sr. No.	Category	Tissue Culture Banana Growers (n=120)		Conventional Banana Growers (n=120)		'Z' value
		Frequency	Percentage	Frequency	Percentage	
1	Low	22	18.33	21	17.50	03.16**
2	Medium	78	65.00	76	63.33	
3	High	20	16.67	23	19.17	
Total		120	100	120	100	
Mean		225.59		203.91		
SD		51.42		54.62		

** Significant at 0.01 level of probability

Table.2 Relationship of personal, socio-economic and psychological characteristics of tissue culture and conventional banana growers with their economic performance

Sr. No.	Variables	Correlation coefficient (r)	
		Tissue culture	Conventional
1	Education	0.304**	0.225*
2	Experience in banana cultivation	0.305**	0.179
3	Family type	0.094	0.237*
4	Size of family	0.294**	0.240*
5	Land holding	0.360**	0.346**
6	Annual income	0.557**	0.500**
7	Training received	0.288**	0.373**
8	Extension contact	0.269**	0.310**
9	Mass media exposure	0.352**	0.189
10	Cosmopoliteness	0.055	0.283**
11	Scientific orientation	0.305**	0.144
12	Market orientation	0.320**	0.379**
13	Competition orientation	0.069	0.216*
14	Risk orientation	0.266**	0.202*
15	Economic motivation	0.264**	0.235*
16	Achievement motivation	0.011	0.255**
17	Innovation proneness	0.371**	0.117
18	Self confidence	0.081	0.037
19	Deferred gratification	0.245*	0.168

*Significant at 0.05 level of probability **Significant at 0.01 level of probability

Table.3 Multiple regression analysis of personal, socio-economic and psychological characteristics of tissue culture and conventional banana growers with economic performance

Sr. No.	Independent variables	Tissue culture banana growers			Conventional banana growers		
		Regression coefficient	Standard error	Calculated 't' Value	Regression coefficient	Standard error	Calculated 't' Value
1	Education	-0.152	0.968	0.157	-0.742	1.131	0.656
2	Experience in banana cultivation	1.311	0.491	2.666**	0.605	0.607	0.997
3	Family type	1.637	9.023	0.181	15.889	12.748	1.246
4	Size of family	1.086	1.179	0.921	1.756	1.505	1.167
5	Land holding	-0.174	0.595	0.292	2.113	1.158	1.992*
6	Annual income	0.029	0.006	4.668**	0.043	0.011	3.743**
7	Training received	2.402	1.850	1.299	2.344	3.408	0.687
8	Extension contact	-0.415	0.514	0.806	0.309	0.613	0.504
9	Mass media exposure	1.942	0.843	2.303*	2.060	1.878	1.096
10	Cosmopoliteness	8.105	3.314	2.445*	2.767	4.585	0.603
11	Scientific orientation	1.045	0.859	1.216	-0.243	0.963	0.253
12	Market orientation	1.869	0.838	2.229*	2.992	1.149	2.604*
13	Competition orientation	-4.249	3.566	1.191	-1.615	4.546	0.355
14	Risk orientation	0.714	0.827	0.863	0.610	0.856	0.712
15	Economic motivation	0.930	0.716	1.299	-0.088	0.967	0.091
16	Achievement motivation	-0.562	1.133	0.496	0.660	2.047	0.322
17	Innovation proneness	1.097	1.498	0.732	-1.255	2.179	0.576
18	Self confidence	-1.511	3.138	0.481	0.441	2.568	0.171
19	Deferred gratification	1.014	2.076	0.488	0.486	2.714	0.179
		R square= 54.19% F= 06.22 B0= 137.11			R squared= 53.71% F= 04.08 B0= 34.45		

*Significant at 0.05 level of probability **Significant at 0.01 level of probability

Table.4 Constraints faced by the tissue culture banana growers in adoption of improved banana cultivation Practices

Sr. No.	Constraints	Frequency	Percentage
I	***Variety /Suckers***		
1	Difficulty to get tissue culture plants of variety demanded	22	18.33
2	Difficulty to get tissue culture plants on given time	45	37.50
3	Difficulty to get sufficient number of plants	17	14.16
4	High cost of tissue culture plants	65	54.16
5	No expected yield from tissue culture plants	06	05.00
II	***Manures and Fertilizers***		
1	Non-availability of manures and fertilizers at village level	77	64.16
2	Unawareness about recommended dose	32	26.66
3	High cost of fertilizers	68	56.66
4	Difficulty in calculating dose of fertilizer	33	27.50
III	***Irrigation***		
1	Irregular supply of electric power	112	93.33
2	High cost of irrigation on rent basis	25	20.83
3	Unavailability of canal irrigation	20	16.66
4	High cost of drip irrigation set	41	34.16
IV	***Plant protection***		
1	Non-availability of pesticides at village level	11	09.16
2	High cost of pesticides	10	08.33
3	Non-availability of own sprayer/duster	04	03.33
4	Unawareness about preparation of spray solution	03	02.50
V	***Marketing***		
1	Lack of local market at village level	52	43.33
2	Lack of co-operative / APMC market	39	32.50
3	High cost of transportation	41	34.16
4	High labour charges	66	55.00
5	Uncertainty of prices	110	91.66
VI	***Technical guidance***		
1	Insufficient availability of technical guidance	41	34.16
2	Insufficient training programmes	114	95.00
VII	***Crop loan and subsidy***		
1	Lack of information about sources of loan and subsidy	69	57.50
2	Difficulty to get sufficient loan	93	77.50
3	Non-availability of guarantor against loan	18	15.00

Table.5 Constraints faced by the conventional banana growers in adoption of improved banana cultivation Practices

Sr.	Constraints	Frequency	Percentage
I	***Suckers***		
1	Difficulty to get disease and pest free suckers	42	35.00
2	Difficulty to get quality suckers	68	56.66
II	***Manures and fertilizers***		
1	Non availability of manures and fertilizers at village level	80	66.66
2	Unawareness about recommended dose	30	25.00
3	High cost of fertilizers	90	75.00
4	Difficulty in calculation of doses of fertilizer	34	28.33
III	***Irrigation***		
1	Irregular supply of electric power	115	95.83
2	High cost of irrigation on rent base	15	12.50
3	Unavailability of canal irrigation	07	05.83
4	High cost of drip irrigation set	69	57.50
IV	***Plant protection***		
1	Non-availability of pesticides at village level	21	17.50
2	High cost of pesticides	20	16.66
3	Non-availability of own sprayer/duster	07	05.83
4	Unawareness about preparation of spray solution	11	09.16
V	***Marketing***		
1	Lack of local market at village level	67	55.83
2	Lack of cooperative/APMC market	46	38.33
3	High cost of transportation	60	50.00
4	High labour charges	65	54.16
5	Uncertainty of price	111	92.50
VI	***Technical guidance***		
1	Insufficient availability of technical guidance	68	56.66
2	Insufficient training programmes	110	91.66
VII	***Crop loan & subsidy***		
1	Lack of information about sources of loan & subsidy	83	69.16
2	Difficulty to get sufficient loan	95	79.16
3	Non availability of guarantor against loan	20	16.66

Multiple regression analysis of personal, socio-economic and psychological characteristics of tissue culture banana growers with their economic performance

Multiple regression analysis in table 3 shows that the economic performance of tissue culture banana growers was found significantly related with experience in banana cultivation, annual income, mass media exposure, cosmopoliteness and market orientation whereas three variables namely land holding, annual income and market orientation were found significantly related with economic performance of conventional banana growers.

The regression coefficient had shown that one unit change in experience in banana cultivation, annual income, mass media exposure, cosmopoliteness and market orientation would result into 1.311, 0.029, 1.942, 8.105 and 1.869 units change in economic performance of tissue culture

banana growers and one unit change in variable viz., land holding, annual income and market orientation would affect 2.113, 0.043 and 2.992 units change in the economic performance of conventional banana growers.

Perusal of Table 3 indicates that the 'F' value (06.22) was significant at 0.01 level of probability. The 54.19 per cent of the variation in economic performance was explained by the selected nineteen independent variables.

In case of conventional banana growers 'F' value (04.08) was significant at 0.01 level of probability. Nineteen variables mentioned in table explained as much as 53.71 per cent variation in economic performance. The unexplained variation may be due to factors outside the scope of present study.

Constraints faced by the tissue culture and conventional banana growers

The tissue culture banana growers expressed the constraints as in table 4, insufficient training programme (95.00%), irregular supply of electric power (93.33%), uncertainty in price (91.66%), difficulty to get sufficient loan (77.50%), non-availability of manures and fertilizers at village level (64.16%), lack of information about sources of loan and subsidy (57.50%), high cost of fertilizers (56.66%), high labour charges (55.00%) and high cost of tissue culture plants (54.16%) as the most observed hurdles in adoption of improved banana cultivation technology

Leading constraints reported by conventional banana growers as in table 5 were, irregular supply of electric power (95.83%), uncertainty in price (92.50%), insufficient training programmes (91.66%), difficulty to get sufficient loan (79.16%), high cost of fertilizers (75.00%), lack of information about sources of loan and subsidy (69.16%), non-availability of manures and fertilizers at village level (66.66%), difficulty to get quality suckers (56.6%), insufficient availability of technical guidance (56.66%) and lack of local markets (55.83%).

The study revealed that majority of the tissue culture and conventional banana growers were found with medium level of economic performance. Variables namely education, experience in banana cultivation, land holding, training received, extension contact, mass media exposure, cosmopoliteness, scientific orientation, market orientation, competition orientation, risk orientation, economic motivation, innovation proneness and deferred gratification were positively and significantly related with economic performance of tissue culture banana growers whereas, education, experience in banana cultivation, size of family, land holding, annual income, training received, extension contact, mass media exposure, scientific orientation, market orientation, risk orientation, economic motivation, innovation proneness and deferred gratification established positive and significant relationship with economic performance of conventional banana growers.

The multiple regression analysis showed that experience in banana cultivation, annual income, mass media exposure, cosmopoliteness and market orientation were contributed significantly to explain variation in economic performance of tissue culture banana growers and land holding, annual income and market orientation contributed significantly for attaining variation in economic performance of conventional banana growers.

References

Beal, G.M. and Sibley, D.N. 1967. Adoption of Agricultural Technology by the Indians Gautemala, Rural Sociology, Department of Sociology and Anthropology, Ames Iowa State University. Report No. 62:42-80

Belshaw, D. 1974. Improving Management Procedures for Agricultural Development. Paper Presented at International Seminar on Change in Agriculture, Reading, U.K.:17-19

Bora, S.P. and Ray, G.L. (1986). Management attributes of farmers as related to profitability in farming. Decision, 13(2):86-93.

Jadav, N.B. 2005. Managerial Ability of Mango Growers about Scientific Cultivation of Mango Orchard. Thesis, (Ph.D. Agri.) J.A.U., Gujarat: 33-60

Kerlinger, F.N. 1973. Foundation of Behavioural Research, Surjeet Publication, Delhi: 17-18

Patel, H.B. 2005. A Study on Management Efficiency and Economic Performance of Banana Grower in Anand District of Gujarat State. Thesis, (Ph.D. Agri.) A.A.U., Anand: 37-102

Patel, S.R. 2006. A Study on Management Efficiency of Aonla Growers of Anand and Kheda Districts of Gujarat State. Thesis, (Ph.D. Agri.) A.A.U., Anand: 47-134

Singh, S.N. 1974. Achievement Motivation Scales in Pareek, U. and Rao, T.V. Handbook of Psychological and Social Instruments. Samasthi, Baroda, Gujarat.

Vyas, H. U. 1995. Study on management efficiency and economic performance of milk producers in Panchmahals district of Gujarat State. Thesis, (Ph.D. Agri.), G.A.U., S.K. Nagar: 39-181.