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A study on economic performance of farmers in different farming situations in Karnataka

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Abstract
The study was conducted during 2020-21 in three districts (Mandya, Chikkaballapur and Tumakuru) of Karnataka where two Taluks were selected to study the Economic Performance of Farmers in Different Farming Situations in assured, protected and rainfed farming situation farmers, 180 respondents were selected using purposive random sampling method. Data was collected using structured interview schedule through personal interview method. The collected data was tabulated and analyzed using percentages, correlation and regression. Ex-post facto research design was employed for the study. The findings revealed that farmers in protected farming situations had obtained relatively higher mean score (297.93) followed by assured farming situation (243.09) and rainfed farming situation (229.94) respectively.extension agency contact (r=0.412), extension participation (r=0.412), innovativeness (r=0.412), time management (r=0.412), achievement motivation (r=0.371),scientific orientation (r=0.356) and annual income (r=0.334) had positive and highly significant relation with economic performance of farmers in protected farming situation at one per cent level. Fourteen out of twenty independent variables viz., scientific orientation, livestock possession, material possession, extension agency contact, achievement motivation, extension participation, innovativeness, decision making ability, annual income, cosmopoliteness, land holding, time management, mass media exposure and farming commitment had significantly contributed to the economic performance of farmers.The major problems were Farming is not profitable, high usage of labours and increase in the cost of inputs. The economic performance of farmers under assured farming situations is medium. This may be because of the reason that majority of the farmers spends more on luxury things. Spends more by taking loan from money lenders leading to indebtedness. Thus, it is advisable to the farmers to maintain financial records and spend judiciously and to get the loans from government institutions.

Keywords: Economic performance, farming situation, correlation and extent of contribution

Introduction
The natural resources scenario of the country is changing fast both in terms of availability as well as quality. The situation is further aggravated by the looming climate change which is going to alter the paradigm of management of natural resources. (Anonymous, 2017) [2]. India has four per cent of the world water resources and 18 per cent of the world population. Hence, India is falling under water scarcity problem and also improper infrastructure to manage the available resources for the present as well as for the future usage (Srivastava *et al*, 2017) [10]. The future belongs to small farm families taking to precision agriculture involving the use of right input at the right time and in the right way. Source of power for performing farm activities on the farm is mainly from human labour, bullock power and machine power, land, labour and irrigation are conventional resources in agriculture production. Irrigation and fertilizer plays significant role in agricultural production, non-conventional resources, weedicides, insecticides and drip irrigation have helped to increase agril production.

The northeast part of the country witnessed large increase in land degradation. Land degradation in the states of Nagaland, Tripura, and Mizoram shot up by 8.71, 10.47, and 4.34 percent respectively. In fact, Tripura and Nagaland had the second and third highest increase in degradation country-wide. The driving force for the sharp rise in these states was mainly because of a surge in vegetal degradation of forests. Planning above mentioned resources in agriculture will help to increase cultivator's income and rural employment considerably (Anonymous, 2000) [1]. The poor management of agricultural resources coupled with other factors of suicide have lead farmers to take extreme step it's not wise to connect the deluge of suicides directly to any single cause. Risk management in agriculture should address yield, price, credit, income or weather-related uncertainties among others. Improving water availability will facilitate diversification of cropping pattern.

Irrigation presents added problem for those farmers who must invest heavily in seeds and pesticides. Improving agricultural extension addresses to improve the skills of farmers because of technological changes and facilitates appropriate technical know-how for alternative forms of cultivation such as organic farming will be of help. Availability of affordable credit requires revitalization of the rural credit market. With this background, the present study is taken up for analyzing the economic performance of farmers in different farming situations. The economic performance of the farmers is analyzed to find out the factors responsible for more economic efficiency. In general, strategies to increase the income by efficient management of resources can be derived from this study. The developed index will help in assessing the extent of adoption of the resources by farmers in different farming situation. Thus, enabling the future researchers to take up further studies on the particular aspect. The constraints will enable the policy makers to understand the existing gap, while the suggestions and derived strategies would help them in framing holistic policies with proper feedback. Thus, the study will be useful for the planners, administrators, management experts and extension agencies in planning and executing plans for efficient management of resources in different farming situation to make agriculture as a profitable enterprise. Thus, keeping in view the importance of economic performance by farmers in different farming situation mainly assured, protected and rainfed situation the present study was undertaken with the following specific objectives;

1. To analyze the economic performance of farmers in different farming situations.
2. To understand the relationship and extent of contribution between the profile characteristics of farmers with economic performance in different farming situations; and
3. To document the constraints of farmers for efficient management of economic performance of farmers in different farming situations.

II. Methodology

The study was undertaken to analyze the economic performance of farmers in different farming situations in Assured farming situation (Mandya), Protected farming situation (Chikkaballapur) and Rainfed situation (Tumakuru) districts of Karnataka state.In each selected district two taluks were selected based on the different irrigation system practiced. From Mandya district based on the assured irrigation system, Srirangapatna and Mandya were selected. And from Chikkaballapura district based on the borewell irrigation system, Gouribidanur and Gudibande were selected. And From Tumakuru district based on rainfed situation, Koratagere and Chikkanayakanahalli were selected. And from each selected taluks two villages were selected randomly and from each selected villages fifteen farmers were randomly selected. Thus, sixty farmers from each district under three different farming situations constituted the sample size. Thus the total sample constitutes 180 farmers under three farming situations that is assured farming situation (canal), protected farming situation (bore well) and rainfed farming situation (dry land).Personal interview method was followed to collect the data and appropriate statistical tests were used for analyzing the data for interpretation.

III. Results and Discussion

1. Economic performance offarmers in different farming situations

The student "t" test was applied to test the significant difference among the different farming situations ofeconomic performance was depicted in table 1. The test was tuned out to a positive and significant difference among different farming situations viz., assured, protected and rainfed farming situations. The data revealed the mean and standard deviations for economic performance between different farming situations. As it is evident that, farmers in protected farming situations had obtained relatively higher mean score (297.93) followed by assured farming situation (243.09) and rainfed farming situation (229.94) respectively. The findings are in line with the findings of Gosavi (2001) [5] and Kiran Kumar (2015) [6].

The probable reasons might be might be that under protected farming situation, farmers were practicing different cropping systems based on the market demand, and also they were not immediately selling their produce instead they wait for right price by storing it in a scientific way. Further, the farmers sell their produce directly to the consumers thus their economic performance score is high. Under assured situation, the major problem was labour scarcity and majority of the farmers were growing only paddy and sugarcane and the fertility status is going down. On the other hand but in order to increase the production farmers were applying chemical fertilizers. They borrow the loan from money lenders and use it for non-agricultural purpose viz., marriage etc. In case of rainfed farming situation, the farmers along with crops practicing rearing of livestock. The outputs of crops were used as a input for feeding the livestock. Thus, they are managing the available limited judiciously. The money was saved and they plan the investment pattern based on the necessity and urgency. Thus, their economic performance was manageable to sustain their lives.

Table 1: Test of significance in respect of mean economic performance score between different farming situations

Sl. No	Farming situation	Economic performance		't' test
		Mean	SD	
A	Assured (n_1=60)	243.09	106.04	9.05**
	Protected (n_2=60)	297.93	120.00	
B	Protected (n_2=60)	297.93	120.00	10.48**
	Rainfed (n_3=60)	229.94	104.96	
C	Assured (n_1=60)	243.09	106.04	7.35**
	Rainfed (n_3=60)	229.94	104.96	

** Significant at 1 per cent.

2. Relationship of profile characteristics with Economic performance by farmers in different farming situations

Correlation test was applied to know the relationship of profile characteristics of farmers with economic performance

in different farming situations. Table 2 revealed that the profile characteristics, extension participation (r=0.323), mass media exposure (r=0.311), time management (r=0.310), material possession (r=0.309), innovativeness (r=0.307), scientific orientation (r=0.301), farming commitment (r=0.286), annual income (r=0.282), land holding (r=0.281), cosmopoliteness (r=0.271), extension agency contact (r=0.266), achievement motivation (r=0.268), decision making ability (r=0.261) and livestock possession (r=0.256) had positive and significant relationship with economic performance of farmers in assured farming situation at five per cent level. The remaining variables Age, Education, family size, farming experience, risk orientation and deferred gratification had non-significant relationship with economic performance of farmers in assured farming situation.

It is observed from the Table 2that, extension agency contact (r=0.412), extension participation (r=0.412), innovativeness (r=0.412), time management (r=0.412), achievement motivation (r=0.371), scientific orientation (r=0.356) and annual income (r=0.334) had positive and highly significant relation with economic performance of farmers in protected farming situation at one per cent level. Further, family size (r=0.320), material possession (r=0.298), decision making ability (r=0.292), farming commitment (r=0.292), farming experience (r=0.291), livestock possession (r=0.291), mass media exposure (r=0.289), cosmopoliteness (0.286), education (r=0.266) and risk orientation (r=0.261)had positive and significant relationship with economic performance of farmers under protected farming situation at five per cent level. The remaining variables age and deferred gratification had non-significant relationship with economic performance of farmers in protected farming situation.

It is revealed from the table 2that, extension participation (r=0.331), livestock possession (0.319),extension agency contact (r=0.316), scientific orientation (r=0.298), land holding (r=0.296), decision making ability (r=0.292), farming commitment (r=0.292), risk orientation (r=0.289), annual income (r=0.276) and family size (r=0.251) had positive and significant relationship with economic performance of farmers under rainfed situation at five per cent level. The remaining variables age, education, farming experience, material possession, mass media exposure, cosmopolitenes sand deferred gratification had non-significant relationship with economic performance of farmers in rainfed situation.

Table 2: Relationship of profile characteristics with Economic performance of farmers in different farming situations

Sl. No.	Independent variables	Assured (n_1=60)	Protected (n_2=60)	Rainfed (n_3=60)
		Correlation coefficient (r) value		
X_1	Age	0.039^{NS}	0.201^{NS}	0.186^{NS}
X_2	Education	0.198^{NS}	0.266*	0.108^{NS}
X_3	Family size	0.082^{NS}	0.320*	0.251*
X_4	Land holding	0.281*	0.311*	0.296*
X_5	Annual income	0.282*	0.334**	0.276*
X_6	Farming experience	0.091^{NS}	0.291*	0.087^{NS}
X_7	Livestock possession	0.256*	0.291*	0.319*
X_8	Material possession	0.309*	0.298*	0.098^{NS}
X_9	Mass media exposure	0.311*	0.289*	0.092^{NS}
X_{10}	Extension agency contact	0.266*	0.412**	0.316*
X_{11}	Extension participation	0.323*	0.412**	0.331*
X_{12}	Cosmopoliteness	0.271*	0.286*	0.092^{NS}
X_{13}	Risk orientation	0.088^{NS}	0.261*	0.289*
X_{14}	Scientific orientation	0.301*	0.356**	0.298*
X_{15}	Achievement motivation	0.268*	0.371**	0.301*
X_{16}	Innovativeness	0.307*	0.412**	0.296*
X_{17}	Decision making ability	0.261*	0.292*	0.312*
X_{18}	Deferred gratification	0.081^{NS}	0.122^{NS}	0.132^{NS}
X_{19}	Farming commitment	0.286*	0.292*	0.312*
X_{20}	Time management	0.310*	0.412**	0.300*

** Significant at 1% * Significant at 5% NS – Non significant

3. Extent of contribution of profile characteristics with Economic performance by farmers in different farming situations

Multiple regression test was carried out to know the extent of contribution of profile characteristics with economic performance by farmers in different farming situations. The data in Table 3 revealed that the contribution of independent variables to economic performance of farmers in assured farming situation. The results revealed that, fourteen out of twenty independent variables viz., scientific orientation, livestock possession, material possession, extension agency contact, achievement motivation, extension participation, innovativeness, decision making ability, annual income, cosmopoliteness, land holding, time management, mass media exposure and farming commitment had significantly contributed to the economic performance of farmers. A critical view of the results inferred that farmer's economic performance could be increased by 2.611, 2.600, 2.588, 2.561, 2.561, 2.419, 2.418, 2.398, 2.392, 2.318, 2.261, 2.199, 2.189 and2.068units, if one unit increase could be brought about in scientific orientation, livestock possession, material possession, extension agency contact, achievement motivation, extension participation, innovativeness, decision making ability, annual income, cosmopoliteness, land holding, time management, mass media exposure and farming commitment respectively, if other variables kept constant. The calculated R^2 value was 0.721 which means that selected variables had contributed to the tune of 72.10 per cent of variation in economic performance of farmers in assured farming situation.

Further, the data in Table 3indicated, the contribution of independent variables to economic performance of farmers in protected farming situation. The results revealed that, seventeen out of twenty independent variables viz.,

innovativeness, achievement motivation, annual income, time management, extension agency contact, mass media exposure, farming experience, extension participation, land holding, scientific orientation, cosmopoliteness, livestock possession, education, decision making ability, farming commitment, material possession and risk orientation had significantly contributed to the economic performance of farmers. A critical view of the results inferred that farmer's economic performance could be increased by 4.056, 3.166, 3.122, 2.911, 2.812, 2.691, 2.561, 2.481, 2.419, 2.418, 2.399, 2.398, 2.333, 2.318, 2.212, 2.111 and2.098units, if one unit increase could be brought about in innovativeness, achievement motivation, annual income, time management, extension agency contact, mass media exposure, farming experience, extension participation, land holding, scientific orientation, cosmopoliteness, livestock possession, education, decision making ability, farming commitment, material possession and risk orientation respectively, if other variables kept constant. The calculated R^2 value was 0.856 which means that selected variables had contributed to the tune of 85.60 per cent of variation in economic performance of farmers in protected farming situation.

In addition, the data in Table 3revealed that the contribution of independent variable to economic performance of farmers in rainfed farming situation. The results revealed that, thirteen out of twenty independent variables viz., achievement motivation, farming commitment, livestock possession, family size, scientific orientation, risk orientation, annual income, decision making ability, extension agency contact, innovativeness, land holding, extension participation and time management had significantly contributed to the economic performance of farmers. A critical view of the results inferred that farmer's economic performance could be increased by 2.800, 2.612, 2.516, 2.414, 2.411, 2.398, 2.366, 2.333, 2.168, 2.129, 2.098, 2.098 and 2.006 units, if one unit increase could be brought about in achievement motivation, farming commitment, livestock possession, family size, scientific orientation, risk orientation, annual income, decision making ability, extension agency contact, innovativeness, land holding, extension participation and time management respectively, if other variables kept constant. The calculated R^2 value was 0.689 which means that selected variables had contributed to the tune of 68.90 per cent of variation in economic performance of farmers in rainfed farming situation. The findings are in line with the findings of Divya Shree Marneni (2020) [3].

The probable reasons might be that profile characteristics of farmers were the deciding factors of economic performance. Independent variables had synergic effects on one another, helping each other to had a positive relationship with the economic performance of farmers.

Table 3: Extent of contribution of profile characteristics and economic performance of farmers in different farming situations

Sl. No.	Independent variables	Assured (n_1=60)		Protected (n_2=60)		Rainfed (n_3=60)	
		Regression coefficient (Standard error)	t value	Regression coefficient (Standard error)	t value	Regression coefficient (Standard error)	t value
X_1	Age	0.406 (0.688)	1.691^{NS}	0.535 (0.515)	0.960^{NS}	0.506 (0.414)	0.818^{NS}
X_2	Education	0.527 (0.517)	0.980^{NS}	0.115 (0.268)	2.333*	0.165 (0.316)	1.910^{NS}
X_3	Family size	0.418 (0.418)	0.810^{NS}	0.451 (0.368)	0.816^{NS}	0.213 (0.515)	2.414*
X_4	Land holding	0.138 (0.313)	2.261*	0.172 (0.418)	2.419*	0.293 (0.616)	2.098*
X_5	Annual income	0.167 (0.399)	2.392*	0.292 (0.912)	3.122**	0.198 (0.468)	2.366*
X_6	Farming experience	0.584 (0.416)	0.712^{NS}	0.303 (0.777)	2.561*	0.883 (0.811)	0.918^{NS}
X_7	Livestock possession	0.198 (0.516)	2.600*	0.257 (0.618)	2.398*	0.246 (0.618)	2.516*
X_8	Material possession	0.153 (0.398)	2.588*	0.245 (0.517)	2.111*	0.594 (0.416)	0.700^{NS}
X_9	Mass media exposure	0.189 (0.415)	2.189*	0.116 (0.313)	2.691*	0.560 (0.516)	0.920^{NS}
X_{10}	Extension agency contact	0.195 (0.499)	2.561*	0.146 (0.412)	2.812**	0.184 (0.399)	2.168*
X_{11}	Extension participation	0.213 (0.515)	2.419*	0.161 (0.400)	2.481*	0.138 (0.289)	2.098*
X_{12}	Cosmopoliteness	0.299 (0.691)	2.318*	0.172 (0.415)	2.399*	0.745 (0.492)	0.660^{NS}
X_{13}	Risk orientation	0.306 (0.582)	1.900^{NS}	0.339 (0.712)	2.098*	0.242 (0.582)	2.398*
X_{14}	Scientific orientation	0.188 (0.491)	2.611*	0.338 (0.816)	2.418*	0.256 (0.619)	2.411*
X_{15}	Achievement motivation	0.317 (0.812)	2.561*	0.914 (0.616)	3.166**	0.342 (0.891)	2.800*
X_{16}	Innovativeness	0.327 (0.792)	2.418*	0.127 (0.515)	4.056**	0.272 (0.581)	2.129*
X_{17}	Decision making ability	0.283 (0.681)	2.398*	0.178 (0.414)	2.318*	0.308 (0.717)	2.333*
X_{18}	Deferred gratification	0.229 (0.222)	0.968^{NS}	0.242 (0.198)	0.818^{NS}	0.884 (0.366)	0.414^{NS}
X_{19}	Farming commitment	0.298 (0.618)	2.068*	0.189 (0.398)	2.212*	0.064 (0.168)	2.612*
X_{20}	Time management	0.236 (0.518)	2.199*	0.074 (0.216)	2.911**	0.406 (0.816)	2.006*

Assured R^2= 0.721 Protected R^2=0.856 Rain fed R^2= 0.689

** Significant at 1 % level. * Significant at 5 % level. NS – Non significant

4. Constraints expressed by farmers in resource management in different farming situations

4.1 Production constraints expressed by farmers in resource management in different farming situations

The production constraints expressed by farmers in different farming situations were ranked (Table 4). The major problems expressed by farmers in assured farming situation are Farming is not profitable(66.67%, Rank I), high usage of labours (65.00%, Rank II),increase in the cost of inputs (63.33%, Rank III), non-availability of labours on time (61.67%, Rank IV), electricity problem (60.00%, Rank V), non-available ability of agricultural implements suitable for small and marginal farmers (53.33%, Rank VI), incidence of pests (43.33%, Rank VII), incidence of diseases (40.00%, Rank VIII), non-availability of farm equipments/implements on time (35.00%, Rank IX) and rearing of farm animals is not profitable (31.67%, Rank X). On the other hand the major production constraints expressed by farmers in protected farming situation are electricity problem (73.33%, Rank I), increase in the cost of inputs (70.00%, Rank II), high wages of labours (63.33%, Rank III), farming is not profitable (60.00%, Rank IV), non-availability of agricultural

implements suitable for small and marginal farmers (58.33%, Rank V), non-availability of labours on time (56.67%, Rank VI), incidence of pests (51.67%, Rank VII), incidence of diseases (48.33%, Rank VIII), non-availability of farm equipments/implements on time (36.67%, Rank IX) and rearing of farm animals is not profitable (35.00%, Rank X). On the contrary the major production constraints expressed by farmers in rainfed farming situation are increase in the cost of inputs (73.33%, Rank I), High wages of labours (65.00%, Rank II), farming is not profitable (63.33%, Rank III), non-availability of agricultural implements suitable for small and marginal farmers (51.67%, Rank IV), rearing of farm animals is not profitable (48.33%, Rank V), non-availability of labours on time (43.33%, Rank VI), incidence of pests (33.33%, Rank VII), electricity problem (33.33%, Rank VIII), incidence of diseases (30.00%, Rank IX) and non-availability of farm equipments/implements on time (28.33%, Rank X).

The probable reasons for the above trend of results might be that the more dependency of farmers on external inputs rather than judiciously managing the internal low cost inputs, fluctuations in market price, electricity problem, non-availability of labours at right time, high labour cost, vagarious of rainfall, less and fragmented land holding, making majority of farmers mostly young farmers to feel that the farming is not profitable. These findings were in agreement with the findings of Mamathalakshmi (2013).

Table 4: Production constraints expressed by farmers in resource management in different farming situations

Sl. No.	Production Constraints	Assured			Protected			Rain fed		
		No	%	Rank	No	%	Rank	No	%	Rank
1	Increase in the cost of inputs	38	63.33	III	42	70.00	II	44	73.33	I
2	High Wages of Labours	39	65.00	II	38	63.33	III	39	65.00	II
3	Farming is not profitable	40	66.67	I	36	60.00	IV	38	63.33	III
4	Electricity problem	36	60.00	V	44	73.33	I	20	33.33	VIII
5	Non-availability of agricultural implements suitable for small and marginal farmers	32	53.33	VI	35	58.33	V	31	51.67	IV
6	Non-availability of Labours on time	37	61.67	IV	34	56.67	VI	26	43.33	VI
7	Incidence of pests	26	43.33	VII	31	51.67	VII	20	33.33	VII
8	Incidence of diseases	24	40.00	VIII	29	48.33	VIII	18	30.00	IX
9	Rearing of farm animals is not profitable	19	31.67	X	21	35.00	X	29	48.33	V
10	Non-availability of farm equipments/implementson time	21	35.00	IX	22	36.67	IX	17	28.33	X

(*Multiple responses)

5. Institutional constraints expressed by farmers in resource management in different farming situations

The institutional constraints expressed by farmers in different farming situations were ranked (Table 5). The major institutional constraints expressed by farmers in assured farming situation are lack of suitable market for agricultural produce (70.00%, Rank I), difficulty in getting loan to agricultural activities from nationalized bank (63.33%, Rank II), lack of threshing yards (51.67%, Rank III), lack of warehouse facility to farm produce (43.33%, Rank IV), difficulty in getting loan/subsidy to water saving equipments/materials (41.67%, Rank V), lack of cold storage facilities to farm produce (30.00%, Rank VI) and difficulty in getting loan to green house (15.00%, Rank VII).On the other hand the major institutional constraints expressed by farmers in protected farming situation are lack of suitable market for agricultural produce (68.33%, Rank I), difficulty in getting loan to agricultural activities from nationalized bank (65.00%, Rank II), difficulty in getting loan/subsidy to water saving equipments/materials (60.00%, Rank III), lack of cold storage facilities to farm produce (53.33%, Rank IV), lack of warehouse facility to farm produce (51.67%, Rank V), difficulty in getting loan to green house (48.33%, Rank VI) and lack of threshing yards (30.00%, Rank VII).On the contrary the major institutional constraints expressed by farmers in rainfed farming situation are difficulty in getting loan to agricultural activities from nationalized bank (60.00%, Rank I), lack of threshing yards (55.00%, Rank II), lack of suitable market for agricultural produce (53.33%, Rank III), difficulty in getting loan/subsidy to water saving equipments/materials (51.67%, Rank IV), lack of warehouse facility to farm produce (43.33%, Rank V), lack of cold storage facilities to farm produce (25.00%, Rank VI) and difficulty in getting loan to agricultural activities from nationalized bank (11.67%, Rank VII).

The probable reasons might be that the poor economic status of farmers forces to sell their produce to the middlemen at lower price to meet their immediate needs. Non-existence of regulated markets, lack of minimum support price to all the crops. Too much procedure to get loan from nationalized bank force them to go for money lenders and non-availability of common land in villages might be the probable reasons for above trend of results. These findings were in agreement with the findings of Mohanty *et al* (2013).

Table 5: Institutional constraints expressed by farmers in resource management in different farming situations

Sl. No.	Institutional Constraints	Assured			Protected			Rain fed		
		No	%	Rank	No	%	Rank	No	%	Rank
1	Lack of suitable markets for agricultural produce	42	70.00	I	41	68.33	I	32	53.33	III
2	Difficulty in getting loan to agricultural activities from Nationalized bank	38	63.33	II	39	65.00	II	36	60.00	I
3	Difficulty in getting loan / subsidy to water saving equipments / materials	25	41.67	V	36	60.00	III	31	51.67	IV
4	Lack of warehouse facility to farm produce	26	43.33	IV	31	51.67	V	26	43.33	V
5	Lack of threshing yards	31	51.67	III	18	30.00	VII	33	55.00	II
6	Lack of cold storage facilities to farm produce	18	30.00	VI	32	53.33	IV	15	25.00	VI
7	Difficulty in getting loan to green house	9	15.00	VII	29	48.33	VI	7	11.67	VII

(*Multiple responses)

6. Situational constraints expressed by farmers in resource management in different farming situations

The situational constraints expressed by farmers in different farming situations were ranked (Table 6). The major situational constraints expressed by farmers in assured farming situation are erratic rainfall (60.00%, Rank I), decline in water table (56.67%, Rank II), lack of irrigation facility (43.33%, Rank III), fragmentation of land holding (35.00%, Rank IV) and land holdings of farmers is not profitable (31.67%, Rank V). On the other hand the major situational constraints expressed by farmers in protected farming situation are decline in water table (78.33%, Rank I), erratic rainfall (70.00%, Rank II), lack of irrigation facility (66.67%, Rank III), fragmentation of land holding (31.67%, Rank IV) and land holdings of farmers is not profitable (25.00%, Rank V).On the contrary the major situational constraints expressed by farmers inrainfed farming situation are erratic rainfall (85.00 %, Rank I), lack of irrigation facility (75.00%, Rank II), decline in water table (53.33 %, Rank III), fragmentation of land holding (26.67%, Rank IV) and land holdings of farmers is not profitable (20.00 %, Rank V).

The probable reasons might be that in recent days rainfall was serious constraint for all agricultural operations. Uncertainty and unequal distribution of rainfall effects agricultural operation. Due to electricity problem, timely irrigation is not possible and hence expected outcome is not obtained. The afforestation and decline in agroforestry aggravated the situation. The results were in line with findings of Sharma *et al.* (2008), Lakshmi Narayani (2009), Ereneus Marbaniang (2010) and Mamathalakshmi (2013).

Table 6: Situational constraints expressed by farmers in resource management in different farming situations

Sl. No.	Situational Constraints	Assured			Protected			Rain fed		
		No	%	Rank	No	%	Rank	No	%	Rank
1	Erratic rainfall	36	60.00	I	42	70.00	II	51	85.00	I
2	Decline in water table	34	56.67	II	47	78.33	I	32	53.33	III
3	Lack of irrigation facility	26	43.33	III	40	66.67	III	45	75.00	II
4	Fragmentation of land holding	21	35.00	IV	19	31.67	IV	16	26.67	IV
5	Land holdings of farmers is not profitable	19	31.67	V	15	25.00	V	12	20.00	V

(*Multiple responses)

7. Technical constraints expressed by farmers in resource management in different farming situations

The technical constraints expressed by farmers in different farming situations were ranked (Table 7). The major technical constraints expressed by farmers in assured farming situation are non-availability of small farm equipments (71.67%, Rank I), lack of information to farmers on marketing of agricultural produce (68.33%, Rank II), lack of timely technical guidance to farmers (56.67%, Rank III), lack of information among the farmers on improved agriculture/horticulture/animal husbandry practices (53.33%, Rank IV), non-availabilty of technical staff to guide farmers on farming (48.33%, Rank V), lack of information on agriculture in newspaper (30.00%, Rank VI) and lack of information on agriculture in electronic media (26.67%, Rank VII).On the other hand the major technical constraints expressed by farmers in protected farming situation are lack of information to farmers on marketing of agricultural produce (75.00%, Rank I), non-availability of small farm equipments (68.33%, Rank II), lack of timely technical guidance to farmers (60.00%, Rank III), non-availability of technical staff to guide farmers on farming (51.67%, IV), lack of information among the farmers on improved agriculture/horticulture/animal husbandry practices (51.67%, Rank IV), and lack of information on agriculture in electronic media (38.33%, Rank VI) and lack of information on agriculture in newspaper (35.00%, Rank VII).

Table 7: Technical constraints expressed by farmers in resource management in different farming situations

Sl. No.	Technical Constraints	Assured			Protected			Rain fed		
		No	%	Rank	No	%	Rank	No	%	Rank
1	Lack of information to farmers on marketing of agricultural produce	41	68.33	II	45	75.00	I	40	66.67	II
2	Non availability of small farm equipments	43	71.67	I	41	68.33	II	36	60.00	I
3	Lack of timely technical guidance to farmers	34	56.67	III	36	60.00	III	32	53.33	V
4	Lack of information among the farmers on improved agriculture/horticulture/animal husbandry practices	32	53.33	IV	31	51.67	IV	34	56.67	III
5	Non-availability of technical staff to guide farmers on farming	29	48.33	V	31	51.67	IV	33	55.00	IV
6	Lack of information on agriculture in news papers	18	30.00	VI	21	35.00	VII	16	26.67	VI
7	Lack information on agriculture in electronic media	16	26.67	VII	23	38.33	VI	14	23.33	VII

(*Multiple responses)

Conclusion

The economic performance of farmers under assured farming situations is medium. This may be because of the reason that majority of the farmers spends more on luxury things. Spends more by taking loan from money lenders leading to indebtedness. Thus, it is advisable to the farmers to maintain financial records and spend judiciously and to get the loans from government institutions. Under protected farming situations economic performance is high. This may be because of the reason that majority of the famers here spends more judiciously. Invest on income generating activities and curtails unnecessary investment expenditure. The economic performance under rainfed situation is low because of the reason that their more dependency on rainfall. However they judiciously manage limited available resources. They earn low with low investment. This called for lending loan at lower interest rate to take up integrated farming system by the financial institutions.

References

1. Annonymous. The Hindu Survey of Indian Agriculture; c2000.
2. Annonymous. Department of Water Resources, GoK; c2017.
3. Divya Shree Marneni. An analysis of behavioural dimensions and economic performance of paddy growers in Karimnagar district of Telanganaa state, M.Sc. (Agri.) Thesis (Unpub.), Univ. of Agric. Sci., Bangalore; c2020,
4. Gopala HS. Analysis of adoption productivity and economic performance of groundnut growers. M.Sc. (Agri.) Thesis, (Unpub.), Univ. Agric. Sci., Bangalore; c2006.
5. Gosavi Sandeep Suresh. Resource management in agricultural production in Rahuri block of Ahmednagar district, M.Sc. (Agri.) Thesis (un publ.), Mahathma Phule Krishi Vidyapeeth, Rahuri, Ahmednaagar, Maharashtra, India; c2001.
6. Kiran Kumar YK. Agricultural resource management by farmers under IFS approach in Gulbarga and Raichur districts of Karnataka, M.Sc. (Agri.) Thesis, Univ. Agric. Sci., Raichur; c2015.
7. Latha KB. A critical analysis of adoption level, economic performance and marketing channels of coconut growers in central dry zone of Karnataka. M. Sc. (Agri.) Thesis, (Unpub.), Univ. Agric. Sci., Bangalore; c2003.
8. Rahul Pawar. Management efficiency and economic performance of Bt cotton growers in Belagavi district. M.Sc. (Agri.) Thesis, Univ. Agric. Sci. Bangalore; c2015.
9. Shalini DM. A study on adoption and economic performance of hybrid paddy cultivation practices among farmers of Mandya district. M.Sc. (Agri.) Thesis, Univ. Agric. Sci., Bangalore; c2017.
10. Srivastava SK, Chaskar DS, Sidhartha Mitra. Water – Its Conservation, Management and Governance. Government of India Central Water Commission, National Water Academy, Pune; c2017.
11. Sushil Kumar. A study on economic performance and marketing channels of red gram in Kalaburgi District. M.Sc. (Agri.) Thesis, Univ. Agric. Sci., Bangalore; c2016.
12. Vasanth Kumar M. A study on knowledge, adoption and economic performance of coffee growers in Virajpettaluk of Coorg district. M.Sc. (Agri.) Thesis, (Unpub.), Univ. Agric. Sci., Bangalore; c2000.
13. Vinayak Narayan Nayak. A study on knowledge, adoption and economic performance of arecanut growers in North Kanara district of Karnataka. M. Sc. (Agri.) Thesis, Univ. Agric. Sci., Bangalore; c2014.
14. Wadkar Jagdish Ramakant. Management efficiency and economic performance of banana growers- A comparative study. M.Sc. (Ag.) Thesis, Marathwada Agricultural University, Parbhani, India; c2010.