

Impact of Socio-Economic Factor on Floriculture in Kolaghat C. D. Block, Purba Medinipur District

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Abstract: Floriculture in Kolaghat C. D. block is an important field of modern agriculture. Basically the economy of this block is agro-based. Flowers have played a key role all throughout human history. Going beyond invaluable beauty, flowers have commercial value. Floriculture has emerged as a fast growing sector recently in Kolaghat C.D. block because of diversification, employment generation and value addition in this primary sector. Both the sources of data have been employed. The secondary data have been collected from different books, journals, different offices and the primary data have been collected through field investigation. The collected data have been processed and represented by statistical and cartographic techniques viz. chi-square, correlation and regression. High yielding return from a small area is enhancing the quality of life of flower growers of this block area. The growers those have higher caste background and small family structure and high educational status also have larger size of orchards. Therefore, they are able to invest big amount to apply different kind of inputs in order to raise the net value of flower per acre of gross flower area. The case is just opposite in case of small growers. Poor educational status of growers, poor caste background, lack of capital, small size of land holding, big size of family etc. are identified as the biggest hindrance to the successful development of floriculture industry in the study area.

Keywords: Floriculture, Socio-economic factor, Study area, Flower grower

1. INTRODUCTION

Kolaghat C. D. block is highly agrarian area where 82.60% people live in rural area containing 78.30% Hindu population, 21.50% Muslim population and 0.20% other religious population (District Statistical Handbook- Purba Medinipur, 2011). Economy of this block mainly depends on agriculture which has had been main earning source of the people. Floriculture has become highly specialized and intensive form of agriculture in this block. This has a tremendous bearing on social and economic life of this region and has opened a new avenue towards economic prosperity of this region. Flowers being the most important elements of agri-business sector are cultivated by all the people irrespective of caste, class and religion. The cultivation practices and its success are largely governed by socio-economic background of flower growers. Generally farmers with good educational achievement have better exposure to modern agro-techniques as well as to market information which help them to make sound decision regarding various types of flower cultivation at right time. The socio-economic conditions of growers are reflected through their resource position, source of income and pattern of expenditure on socio-economic items. Floriculture is an emerging industry in West Bengal with very high prospects and is a sunrise industry in the state. Hans P. (2012) in his research work titled 'The position of the marginal and small farmers in the value chain of cut flower in alluvial West Bengal, India and scope for an upgrading policy' focused on the value chain analysis of cut flower chain by examining rent, governance, systemic efficiency, small holder problem and upgrading, in alluvial West Bengal, India. Sarker D. and Chakravorty S. (2005) in their work 'Flower Farming and Flower Marketing in West Bengal: A Study of Efficiency and Sustainability' examined the relative efficiency between commercial traditional floriculture and its competing main field crops. Sahu et al. (2011) worked on the growth of floriculture and its impact on socio-economic status of floriculturists in Panskura and Kolaghat blocks of Purba Medinipur. The floriculture is an intensive type of agriculture. The per unit area income of floriculture is much higher than any other branch of agriculture. Here an attempt has been made to discuss the socio-economic condition of flower growers based on both social classes as well as economic classes.

1.1 Objectives of the Study

- i. To study the impact of social factors on floriculture.
- ii. To examine the economic factors influencing the flower cultivation.
- iii. To uncover the problems and suggest policy measures.

1.4 Database and Methodology

Both the sources of data have been used. The secondary data have been collected from different books, journals, different offices and the primary data have been collected through field investigation. The collected data have been processed and represented by statistical and cartographic technique. Simple frequency cross contingency tables which condense a large amount of information in a compact, systematic form have been made for arranging a huge number of diverse data; primary as well as secondary for the completion of the work. Chi-square has been used for showing association between the variables. The inter-relationship between the independent and dependent variable has been computed by correlation technique. The cause and effect relationship has been obtained by means of regression analysis.

1.5 Location of the study area

There are 25 C.D. blocks in Purba Medinipur district, but only three blocks among them are engaged in flower cultivation. With wide cultivation of flowers present only in Kolaghat C.D. block which is located at the extreme upper part of Purba Medinipur district of West Bengal. This area comes under Tamluk subdivision. Kolaghat C.D. block extends between 22°23' north to 22°34' north and 87°43' east to 87°53' east covering a geographical area of 15480.51 hectare (total cultivated area is 11652.92 hectare which means 75.27% of total geographical area is cultivated area and total flower cultivated area is 1777.5 hectare which means 15.25% area of total cultivated area is under flower cultivation). As per District Census Handbook-Purba Medinipur, 2011 Kolaghat C.D. block had a total population of 290124 of which 52% were male and 48% were female. Percentage of literacy is 84.93. The study area is bounded by Paschim Medinipur district in the north, by Howrah district in the east, by Panskura block in the west and by Tamluk and Sahid Matangini blocks in the south and south-east respectively as shown in the figure below. This area is enriched by new alluvial soil of River Hooghly and its tributary Rupnarayan. The block is characterised by hot and humid tropical climate. Average temperature of this block varies from 25.5° C to 38.6° C with average annual rainfall is 1746.6 mm. Rupnarayan and Kansabati rivers are the major suppliers of irrigational water to the floriculture field in this region. The study area is highly agrarian and flower cultivation is one of the sectors of agriculture. Based on area, production and productivity, the important flowers are rose, tuberose, marigold, jasmine and dahlia etc.

2. SOCIAL CHARACTERISTICS OF FLOWER GROWERS

Flowers have been used for many purposes since the dawn of civilization. From birthday to funerals flowers always occupy a significant place in the various celebrations, rituals, folk cultures etc. Social characteristics of flower cultivators like caste structure, family structure and educational status hugely influence the cultivation practices of various flowers and thereby net value of flower per acre of gross flower area. Generally, net value of flower is largely influenced by the social background of the growers. Farmers with better level of education, high caste status and family size have greater tendency to earn huge amount of net value of flower.

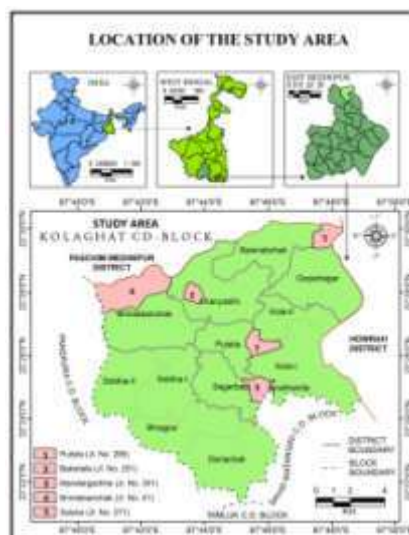


Fig-1: Location of the study area

2.1 Caste Structure

Caste has been the predominant feature of Indian social system which is strongly entrenched especially in the rural areas. However, 56% of the total households belong to Middle Caste Hindu community, of which OBC and SC respondents constitute almost 16% and 12% respectively. The High Caste Hindu population and ST population is about 6% and 8% of total respondents respectively. And 2% respondents are constituted by Muslim population. Thus the floriculture is practised in the study area by all people irrespective of caste and religion and has taken an important place in social life. The detailed picture is presented in the chart 1.

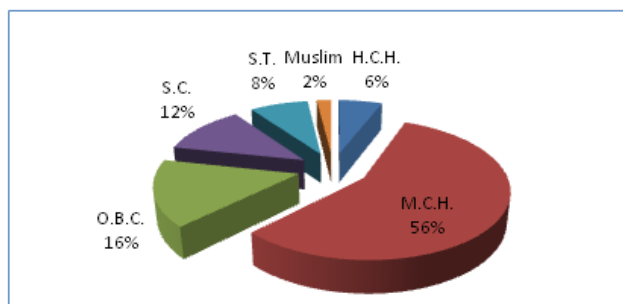


Chart -1: Caste structure of flower farmers

Source: Field survey, 2016-17

Table 1: Association between caste of flower growers and net value of flower per acre of gross flower area

Column Variables	Row Variables	χ^2	Tabulated Value		Sig/ Insig	H0/H1	Degree of Freedom	Sample size (N)
			5%	1%				
Caste of flower growers	Net value of flower per acre of gross flower area	23.64	18.31	23.21	Sig	H1	10	254

Source: Calculated by the researcher from field survey data, 2016-17.

The chi square analysis highlights the significant association between the caste of flower growers and net value of flower per acre of gross flower area. That means null hypothesis “there is no statistical correlation between the caste of flower growers and net value of flower per acre of gross flower area” is rejected and alternative hypothesis is accepted (Table 1).

2.2 Educational Status

Generally, education plays a crucial role in deciding efficiency in any field including floricultural activities. Better the education, better the understanding of cultivation technology and their possible use in the field of floriculture and therefore better performance of educated farmers. The data on educational status of the selected farm family has presented in the table 2. It is clear from the table that the range of net value of flower per acre of gross flower area and educational status are directly proportional to each other. For example, the average educational status for the farmers of lower category of net value of flower per acre of gross flower area is 7th standard whereas it is 8th standard for the farmers of highest category of net value of flower per acre of gross flower area.

Table 2: Educational Status of the Farms

Net value of flower per acre of gross flower area	No. of farms	Illiterate	Primary (1-4)	Junior high (5-8)	Secondary (9-10)	Higher Secondary (11-12)	Graduate	Post Graduate	Average
11.30-4275	40.55 (103)	11.65 (12)	2.91 (03)	37.86 (39)	26.21 (27)	18.45 (19)	2.91 (03)	-	7.54
4275-8527	32.68 (83)	4.82 (04)	9.64 (08)	44.58 (37)	27.71 (23)	3.61 (03)	9.64 (08)	-	7.55
8527-12154	26.77 (68)	-	2.94 (02)	50 (34)	32.35 (22)	7.35 (05)	4.41 (03)	2.94 (02)	8.35
Total	100 (254)	6.30 (16)	5.12 (13)	43.31 (110)	28.35 (72)	10.63 (27)	5.51 (14)	0.79 (02)	

Note: Figures outside parentheses indicate percentage and figures within parentheses indicate absolute number of farms

Source: Field survey 2016-17

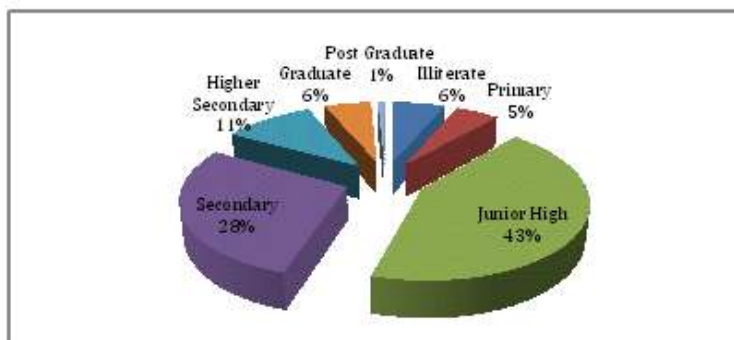


Chart -2: Educational status of flower farmers

Source: Field survey, 2016-17

It is observed from the chart (2) that 6 percent of farmers constitute illiterates. Most of the cultivators (43%) have junior high level education; Twenty eight percent (28%) have secondary level education whereas 11% and 6 % of farmers have higher secondary and graduate level of education respectively. Only one percent farms have post graduate degree. So, it can be concluded that cultivators who have junior high and secondary level of education dominate flower cultivation in the study area.

Table 3: Association between educational of flower farmers and net value of flower per acre of gross flower area

Column Variables	Row Variables	χ^2	Tabulated Value		Sig/ Insig	H0/H1	Degree of Freedom	Sample size (N)
			5%	1%				
Educational status of flower farmers	Net value of flower per acre of gross flower area	36.01	21.03	26.22	Sig	H1	12	254

Source: Calculated by the researcher from field survey data, 2016-17.

The chi square analysis highlights the significant association between the educational status of flower farmers and net value of flower per acre of gross flower area. That means null hypothesis “there is no statistical correlation between the educational status of flower farmers and net value of flower per acre of gross flower area” is rejected and alternative hypothesis is accepted (Table 3).

2.3 Age Profile of the Flower Growers

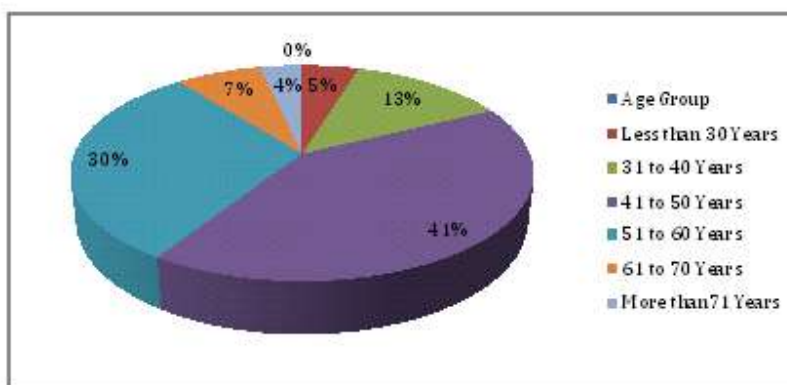


Chart -3: Age profile of flower farmers

Source: Field survey, 2016-17

The age group of the flower growers was between less than 30 years to more than 70 years as provided in the chart (3). It has been observed that most of the growers are in the age group of 41-50 years accounting for 41 percent followed by in the age group of 51-60 years (30 percent); of 31-40 years (13 percent). 7 percent farmers belong in the age group of 61-70 years and 4 percent cultivators are more than 70 years old. So it can be concluded that middle aged growers perform all types of floricultural activities in the study area.

2.4 Family Size

Family is the basic institution of society. Family size refers to the total number of family members living in one dwelling unit. The household survey shows that about 56.3 percent of the family has number between 5-8, whereas 42.13 percent of the sample household has members less than 4 (four). The big size family with more than 9 (nine) members is only 1.57 percent of the total households. Thus it can be guessed that flower farmers with moderate educational status and middle caste Hindu background have minimum to medium size of family in this block area (chart-4).

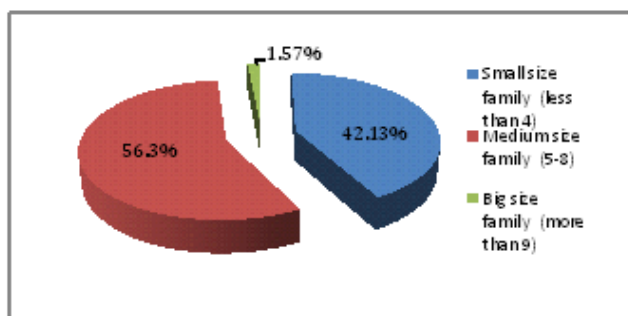


Chart -4: Family size of flower farmers

Source: Field survey, 2016-17

2.5 Percentage of Male Population to Total Population

Table 4: Percentage of male population to total population

Net value of flower per acre of gross flower area	No of farms	Percentage of male population to total population				Total	Average
		33.33-48.88	48.88-64.43	64.43-80			
11.30-4275	40.55 (103)	9.71 (10)	56.31 (58)	33.98 (35)	100	60.43	
4275-8527	32.68 (83)	4.82 (04)	61.45 (51)	33.73 (28)	100	61.15	
8527-12154	26.77 (68)	1.47 (01)	55.88 (38)	42.65 (29)	100	63.06	
Total	100 (254)	5.91 (15)	57.87 (147)	36.22 (92)	100		

Note: Figures outside parentheses indicate percentage and figures within parentheses indicate absolute number of farms; zero (0) indicates no cultivation.

Source: Field survey 2016-17.

It is observed from the above table (4) that there exists a positive relationship between percentage of male population to total population and net value of flower per acre of gross flower area. On the other words, both variables are proportional to each other. As for example, farms with lowest category of net value of flower per acre of gross flower area have of 60.43 whereas for the cultivators with medium net value of flower per acre of gross flower area the average percentage of male population to total population stands as 61.15. On the other hand, farms with large amount of net value of flower per acre of gross flower area have average percentage of male population to total population of 63. So it can be surmised that farms with higher percentage of male population to total population earn huge amount of net value of flower per acre of gross flower area in the study area.

Table 5: Correlation and regression analyses between percentage of male population to total population and net value of flower (Rs) per acre of gross flower area in the study area

Variables		Correlation analysis				Regression analysis			
X Variable	Y Variable	Correlation coefficient (r)	Calculated t value	Sig level (Sig/Insig) * (0.05)/** (0.01)	H0/H1	Slope (β)	Intercept (α)	r ²	N
Percentage of male population to total population	Net value of flower per acre of gross flower area	0.23	3.74	*	H1	76.56	1004.15	0.05	254

Source: Calculated by the researcher from field survey data, 2016-17.

The correlation co-efficient (r) has been computed between percentage of male population to total population (X) and net value of flower per acre of gross flower area (Y) (Table 5). Percentage of male population to total population has been considered as independent variable, because field survey has shown that net value of flower per acre of gross flower area may increase and decrease by this variable and thus act as a causal variable. Net value of flower per acre of gross flower area is positively correlated with percentage of male population to total population, although the relation with percentage of male population to total population is significant at 0.05 level of significance. In this case null hypothesis which is stated as “there is no statistical correlation between percentage of male population to total population and net value of flower per acre of gross flower area ” is rejected and alternative hypothesis is accepted. So both of them are statistically dependent upon each other and are positively correlated.

This indicates that the farms which expand higher percentage of male population to total population earn higher net value of flower per acre of gross flower area as well.

The regression co-efficient (β) is computed between percentages of male population to total population (X) net value of flower per acre of gross flower area (Y). The regression co-efficient (β) is 76.56, where the equation is $Y = 1004.15 + 76.56 X$. This indicates that per unit increase in percentage of male population to total population (X) in this area, increases 76.56 unit of net value of flower per acre of gross flower area (Y). Intercept (α) shows moderate average net value of flower per acre of gross flower area. In this case it is 1004.15, which means net value of flower per acre of gross flower area in an average is Rs 1004.15 and the regression co-efficient shows variation above this constant figure. This means higher amount of net value of flower per acre of gross flower area has been earned in those farms which have incurred higher percentage of male population to total population. The co-efficient of determination (r^2) is 0.05, which means that 5% of the total variation in Y is being explained by X.

3. ECONOMIC CHARACTERISTICS OF FLOWER FARMERS

Apart from social setup of flower growers, the economic structure also has great bearing in the decision making processes regarding floral crop selection, input purchasing, fertilizers, medicines, modern machineries etc. and thereby to raise net value of flower per acre of gross flower area to a large extent. In the present study relationship between net value of flower per acre of gross flower area and economic characteristics like size of landholding, occupational structure and income of cultivators have been taken into consideration.

3.1 Size of Landholding

Land is the source of livelihood for farmers, which determines the socio-economic conditions of farmers in rural India. The particulars of size of land holding of sample farmers are presented in the table 6. The table reveals that there is a positive relationship between size of landholding and net value of flower per acre of gross flower area. Both variables are proportional to each other. As for example, in the lower net value of flower per acre of gross flower area category the farmers have average size of landholdings is 1.01 acre, whereas for the cultivators with medium net value of flower per acre of gross flower area category the average size of landholding stands as 1.39 acre. On the other hand, the farms with largest amount of net value of flower per acre of gross flower area have average size of landholding of 1.69 acre. So it can be concluded that farms those have higher size of landholding also generate huge amount of net value of flower per acre of gross flower area in the study area.

Table 6: Size of Landholding of Flower Cultivators

Net value of flower per acre of gross flower area	No of farms	Size of landholding (in acre)					Average
		Less than 1.25	1.25-2.5	2.5-3.75	3.75-5	Total	
11.30-4275	40.55 (103)	70.87 (73)	27.18 (28)	1.94 (02)	3.75-5 (0)	100	1.01
4275-8527	32.68 (83)	50.60 (42)	39.76 (33)	7.23 (06)	2.41 (02)	100	1.39
8527-12154	26.77 (68)	22.06 (15)	70.59 (48)	7.35 (05)	3.75-5 (0)	100	1.69
Total	100 (254)	51.18 (130)	42.91 (109)	5.12 (13)	0.79 (02)	100	

Note: Figures outside parentheses indicate percentage and figures within parentheses indicate absolute number of farms; zero (0) indicates no cultivation.

Source: Field survey 2016-17.

Table 7: Association between size of land holding of flower farmers and net value of flower per acre of gross flower area

Column Variables	Row Variables	χ^2	Tabulated Value		Sig/ Insig	H0/H1	Degree of Freedom	Sample size (N)
			5%	1%				
Size of land holding of flower farmers	Net value of flower per acre of gross flower area	45.33	12.59	16.81	Sig	H1	6	254

Source: Calculated by the researcher from field survey data, 2016-17.

The chi square analysis highlights the significant association between the size of land holding of flower farmers and net value of flower per acre of gross flower area. That means null hypothesis “there is no statistical correlation between the size of land holding of flower farmers and net value of flower per acre of gross flower area” is rejected and alternative hypothesis is accepted (Table 7).

3.2 Occupational Structure

Floriculture is used to be practiced in combination with agriculture in this area. Due to lucrative return, the growers become attracted to floriculture. Farmers are practicing flower cultivation along with paddy. Growth of floriculture has strengthened the economic base and quality of life of cultivators. And as a result farmers of the study area have taken flower cultivation as a main occupation. Keeping in mind about importance of floriculture, cultivators of this block area make their farming land higher by filling the lowland up to make it suitable for floriculture. The figure (5) displays that 99.21 percent farmers have taken flower cultivation as a main occupation that means maximum income of said percentage of farmers is generated from floriculture whereas 80.31% earn their income from other crop cultivation taken as subsidiary occupation. 11.42% and 8.66% farms have subsidiary income sources like service and business respectively.

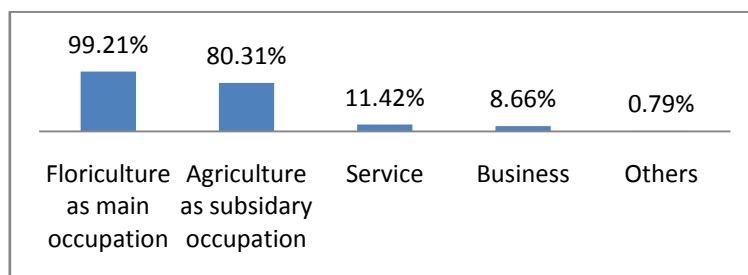


Chart -5: Occupational structure of flower farmers

Source: Field survey, 2016-17

3.3 Monthly Income of Flower Growers

Table 8: Monthly income (Rs) of flower growers

Net value of flower per acre of gross flower area	No. of farms	Monthly income (Rs) of Flower Growers				Average
		4500-18000	18000-31500	31500-45000	Total	
11.30-4275	40.55 (103)	73.79 (76)	26.21 (27)	(0)	100	14789
4275-8527	32.68 (83)	65.06 (54)	32.53 (27)	2.41 (02)	100	16292
8527-12154	26.77 (68)	41.18 (28)	54.41 (37)	4.41 (03)	100	19787
Total	100 (254)	62.20 (158)	35.83 (91)	1.97 (05)	100	

Note: Figures outside parentheses indicate percentage and figures within parentheses indicate absolute number of farms; zero (0) indicates no cultivation.

Source: Field survey 2016-17.

The table 8 displays that there is a positive relationship existing between monthly income and net value of flower per acre of gross flower area. Both variables are positively proportional to each other. As for example, growers with lower amount of net value of flower per acre of gross flower area have average monthly income of 14789 in rupees whereas cultivators whose amount of net value of flower per acre of gross flower area is higher also earn larger

monthly amount i.e. Rs 16292. On the other hand, the growers with maximum amount of net value of flower per acre of gross flower area have average monthly income of Rs 19787. So it can be surmised that growers those have higher monthly income also earn huge amount of net value of flower per acre of gross flower area in the study area.

4. IDENTIFICATION OF PROBLEMS

- i. The poor educational status obstructs the flower growers to avail the advanced technology of flower management in order to get better return from the cultivation. Side by side they are also get exploited by the pesticides sellers and middlemen. The illiteracy coupled with low net value of flower per acre of gross flower area is limiting factor for the growers to adopt newer technologies.
- ii. It has been observed that one of the biggest problems in flower cultivation in this study area is shortage or non-availability of labour. It has been observed that most of the growers have reported there was shortage of labour for several activities of flower cultivation. Shortage or non-availability of labour during pick season of flower poses great problems to the flower growers in this area.
- iii. Most of the flower growers complain that they are not getting proper training regarding to the selection of high yielding plants and agronomic practices. They buy plants without any proper idea regarding best yielding varieties. Similarly, most of the growers have lack knowledge of agronomic practices. Lack of training is another problem constraining the flower growers in this block area.
- iv. The flower growers in this study area do not have opportunities for updating their knowledge on the scientific handling of flowers. Due to lack of storage facility flower growers in this study area preserve their floral products in open place at their home, which leads to decrease the quality of flowers. Absence of storage facility also compels the growers to sell their products at low price in the time of low demand.
- v. There exists a positive relationship between the net value of flower per acre of gross flower area and size of land holding. The study indicates that most of the farms are less than 1.25 acre. The marginal farmers possess no surplus money to avail different kinds of inputs rather they are exploited by the input sellers (while availing inputs) and middlemen (while selling the produce).
- vi. The growers those have higher monthly income also earn huge amount of net value of flower per acre of gross flower area in the study area. The monthly income is between Rs 4500 and 18000 for about 62 percent of the growers. This is one of the biggest obstacles to the floriculture development in this area.

5. POLICY MEASURES

- i. Flower cultivation in this study area is rather traditional. Modern methods, technology which raise the productivity and returns for flower growers are required to be introduced.
- ii. To make flower cultivation a sustainable enterprise, training camp on all issues encompassing right from nursery plantation to flower farm establishment and post-harvested preservation must be organized on regular basis.
- iii. Floral crops are highly sensitive to weather phenomena. Weather aberrations in terms of rise and fall of temperature, humidity etc. is responsible for sudden incidence of pests and diseases in flower farms. To provide instant field guide to flower growers, establishment of field school equipped with resource persons and first aid for treatment of flower plants are very much necessary in the field of floriculture.
- iv. In Kolaghat CD block, traditional flower marketing is not well organized. At present there are two flower markets in the block area where flower trade takes place i.e. Kolaghatphool bazaar near Kolaghat railway station and Dauliaphool bazaar on both sides of 16, Mumbai-Kolkata Highway, which are not enough spacious to deal flower market. In order to avoid grower's exploitation and to ensure the better returns to the domestic growers, the establishment of an exclusive market with required infrastructure facilities to handle the traditional loose flowers is essential, which would help in increasing not only area but also yield of the study area.

- v. Awareness programme is to be organised to popularise the flower cultivation for its comparatively high return than other traditional crops in domestic markets through seminars, demonstrations, flower shows and exhibitions.
- vi. The credit and insurance for small growers are highly required. The credit and insurance must cover all the activities ranging from establishment of nursery plantation to marketing.

6. CONCLUSION

Flowers are cultivated by all the people irrespective of caste, class and religion. Various types of socio-economic factors influence the flower cultivation in this study area. The close perusal reveals that the grower those have higher caste background and small family structure and high educational status also have larger size of orchards. Therefore, they are able to invest big amount to apply different kind of inputs in order to raise the net value of flower per acre of gross flower area. The case is just opposite in case of small growers who are compelled to raise lower production due to low capital resources, illiteracy and ignorance to the scientific floricultural management. This state of affair calls for urgent attention to the policy makers for sustainable floriculture development in the study area.

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