

A Quest into the Lives and Livelihood of Floriculturist: A Case Study on Khirai, East Medinipur, West Bengal.



---Project Details---

Title

A Quest into the Lives and Livelihood of Floriculturist: A Case Study on Khirai, East Medinipur, West Bengal.

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Project Investigators,

Faculties,

Department of Geography,

Hiralal Mazumdar Memorial College For Women

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Chapter- I

Introduction

The valley of flowers of West Bengal is nestled in the upper expanses of Kansabati River (Kansai) near Khiri Railway Station in the Panskura, East Midnapore, West Bengal, India. The lower reaches of Kansai near Dokanda Village is known as Kansai Valley. The Valley of flowers in the Dokanda Valley. It lies between 22⁰22' N and 22⁰38' and 87⁰41' to 87⁰71'E. Different kinds of flowers paint the valley of flowers in pink and yellow in the first week of January. The distance from Howrah to Khirai is 76 km. It takes on the first train for 23 minutes and takes on a slow train for 2 hours. By road, it can travel by car or bike to reach the place which takes around 2.5 to 3 hours.

“Khiri” as much as the name is attractive the beauty of the surrounding is more than your assumption. Along the river Khirai and Kangsabati, the magnificent varieties of flowers are cultivated which look like multi-carpet a combination of orange, yellow and green, and so on. So many different flowers like Marigold, Pot Marigold, Gladiolus, Chrysanthemum, cockscomb, etc. are the important flowers cultivated in this region. Jabar is another place that has similar cultivation near this region. The fertile alluvial soil of both Khirai and Kansabati River in the Panskura Block helps to develop flower cultivation. As you can see only colorful flowers are covered along with the sizes of the river.

Therefore, the region is called the Valley of Flowers. Although flowers are cultivated all over the years, the winter is very significant as the time is very much suitable for blooming a variety of flowers and consequently people are attracted to visit these places.

Flower cultivation is the most significant economic activity in this region for people's livelihood. These flowers are sold in West Bengal and to Delhi, Mumbai, Hyderabad, Kanpur, Bangalore, etc. of India.

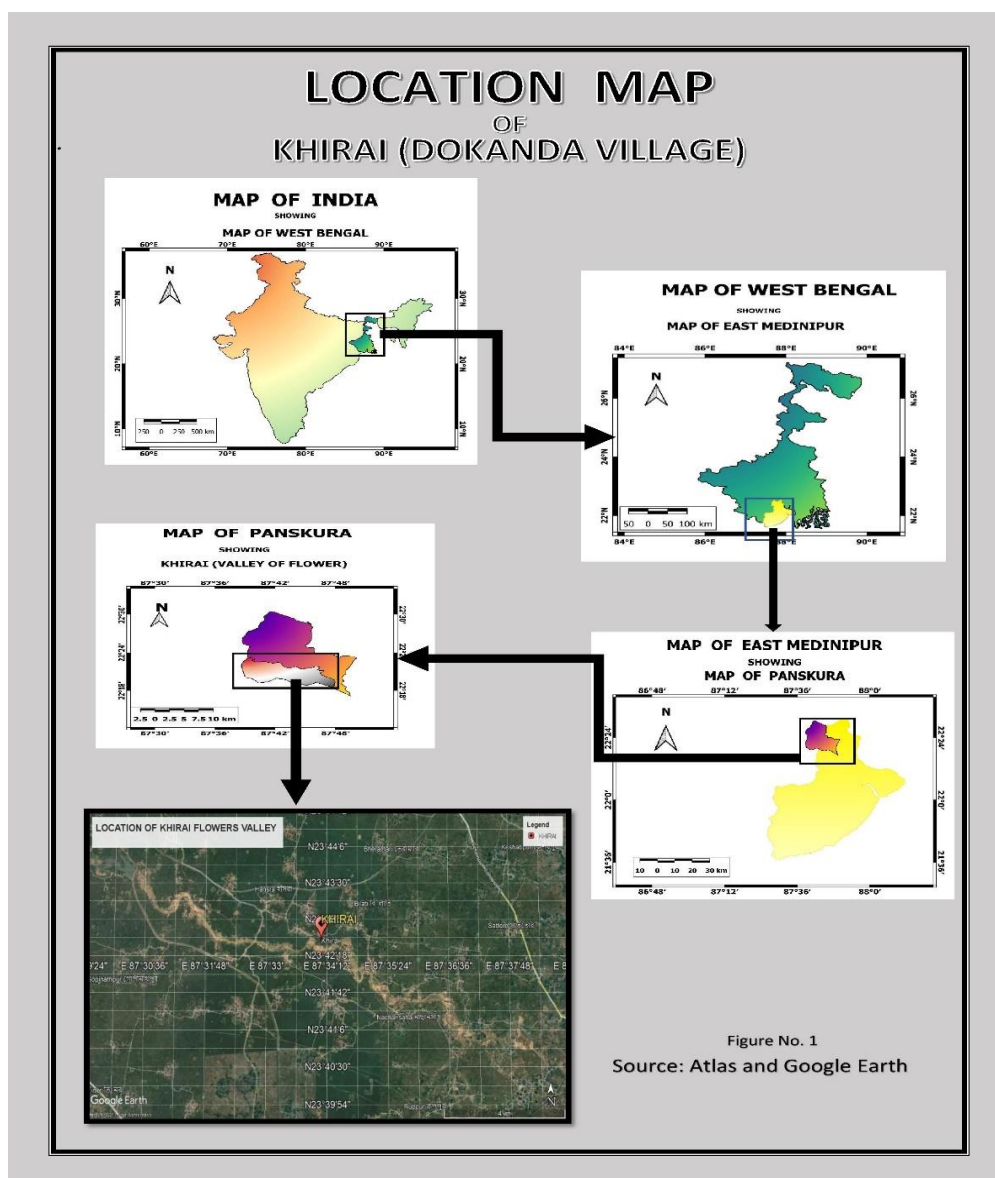


Figure-1

General Information of the Study Area:

Location: Khirai, Purba Medinipur, West Bengal.

1. Country: India
2. State: West Bengal
3. District : Purba Medinipore.
4. Block: Panskura, CD Block.
5. Latitude: 22⁰22' to 22⁰38' N
Longitude – 87⁰41' to 87⁰71' E
6. Nearest Railway Station – Panskura, S.K. Railway – Howrah – Kharagpur, Khiri Station.
7. River – Khirai & Kansai (Kansabati)
8. Soil – Fertile Alluvial Soil tested by P.H. Meter.
9. Distance from Kolkata – 90 Km

10. Distance from Howrah Station – 76 Km.
11. Cultivation of Different types of flowers –
12. Time of Flower Cultivation - November to March
13. Best Time Tourist – December to February
14. Distance from Kolkata – 90 Km
15. Distance from Howrah – 75 Km
16. Temperature – Average Summer 38⁰C
17. Average Winter Temperature – 9⁰C
18. Religion – Hinduism
19. Language – Bengali.

Objectives of the Study:

Main Objectives of the Study:

1. To realize the economical aspect of flower cultivation.
2. To analyze the current organization and management of the floriculture business at Khiri.
3. To analyze the environmental impact of being a recent popular tourist spot in a pandemic situations.
4. To find the solution to the socio-economic problems faced by the floriculturists.

Other Objectives of the Study:

1. To promote the place Khirai as an important Tourist Destination for Nature Lovers and flower lover people.
2. To promote Khirai as an important place of West Bengal for floriculture.
3. To provide different types of information about Khirai and Floriculture.
4. To promote Khirai as a valley of the flower of West Bengal and a place of scenic beauty.
5. To take different information about floriculture of Khiri from farmers, how they faced difficulties for flower cultivation etc.
6. To know different types of problems and take information from the farmers about floriculture.
7. To know and promote Khirai as an important place of floriculture in West Bengal.
8. To promote different aspects of floriculture of that place and highlight different problems of local farmers for the floriculture.
9. To promote the economic prospect of the floriculture of that destination.
10. To know what are the major difficulties promoting floriculture of Khirai and how the problems can be solved.
11. To know different information about tourism prospects of that place and how huge flow of tourist can affect on the floriculture.

Methodology

The proper methodology has been followed in the project. The project was based, basically on, purposive random sample survey. This project is based on different floriculturists of Khirai and different socio-economic data is collected from them.

For this project, a structured questionnaire has been prepared comprising of 29 different types of questions, closed and open-ended, composed of personal information, occupational information, information relating to the product of flowers, socio-economic aspects and problems and prospects of the floriculture, and also the impact of COVID-19 on floriculture of Khirai, which were properly scaled.

The total process of methodology is divided into three phases:

Phase-1: Pre-field activities

Phase-2: Field-based activities

Phase-3: post-field activities

Pre-field Activities: A questionnaire has been prepared to determine pre-field activities, which comprised 29 questions on socio-economic activities and the whole area map was collected for the purpose.

Field-based Activities: This part was the important part of the project. At this stage, a primary data survey was made on the floriculturists based on purposive random sampling with the help of a semi-structured questionnaire comprised of 29 questions on socio-economic aspects of floriculture.

Post-field Activities: At this stage of research, the collected data was compiled, tabulated and the total report on the project has been prepared. The data which were collected on the floriculturists from the field were analyzed and presented with the help of Excel Sheet and Q-GIS Software and Arc GIS software and the final report was prepared.

Chapter-2

PHYSICAL SETTINGS

FACTORS CONTROLLING FLORICULTURE:

Physical Factors: All physical factors which influence on floriculture of Khiri are explained below:

Climate: The climate of the Purba Medinipur district is tropical. The average temperature in the district varies from 25.5°C to 38.6°C. Rainfall occurs unevenly during the monsoon season. The average rainfall is 1,752.6 mm. There are four marked seasons (a) Cold, dry weather from December to February (b) Hot, dry weather from March to May (c) Monsoon period lasts from June to September, and (d) Post monsoon period prevail in October and November. The district receives almost 70 per cent of its annual rainfall between June to September.

Temperature and Relative humidity

The climate follows a hot tropical monsoon weather pattern. The temperature in Khirai is 24 °C, while humidity is 39 %. If we are looking for weather in Khirai during February, be prepared for maximum and minimum temperatures ranging from 18°C to 34 °C and humidity levels of around 39 %. In summer daily heat is often followed by evening rains known as Kalboishakhis or dust-storms (Loo).

Rainfall

Monsoon rains can last from mid-June to late August with rains from the southeast monsoon. The annual rainfall is around 150mm.

Topography

Purba Medinipur district is part of the lower Indo-Gangetic Plain and Eastern coastal plains. Topographically, the district can be divided into two parts – (a) almost entirely flat plains on the west, east, and north, (b) the coastal plains on the south. The vast expanse of land is formed of alluvium and is composed of younger and coastal alluvial. The elevation of the district is 10 meters above the mean sea level. The district has a long coastline of 65.5 km along its southern and southeastern boundaries. Five coastal CD Blocks, namely, Khejuri II, Contai II (Deshapran), Contai I, Ramnagar I, and II, are occasionally affected by cyclones and tornadoes. Tidal floods are quite regular in these five CD Blocks. Normally floods occur in 21 of the 25 CD Blocks in the district. The major rivers are Haldi, Rupnarayan, Rasulpur, [Bagui](#), and [Keleghai](#), flowing in the north to south or south-east direction. River water is an important source of irrigation. The district has a low 899-hectare forest cover, which is 0.02% of its geographical area. As the district area is bounded by water bodies on two sides, it is a formation of fluvial-tidal deposition. Geologically the area is

of recent origin. This region is 5-7 meters above the mean Sea level and the average slope is 0-5 degrees. Major cities and towns include Panskura, Tamluk, Nandakumar, Contai, Egra, Haldia, Mecheda, Mahishadal, Digha, Mandarmani, Khejuri, Ramnagar, Patashpur, Kolaghat, Nandigram

Soil

The soil of the district is alluvial type, as the district under coastal alluvium and its deposition. Soil of this region consists of different layers like sand, silt and clay. The district is situated on flood plains of the rivers Rupnarayan and river Kansai. And therefore, a huge amount of clay is dominating in soil texture.

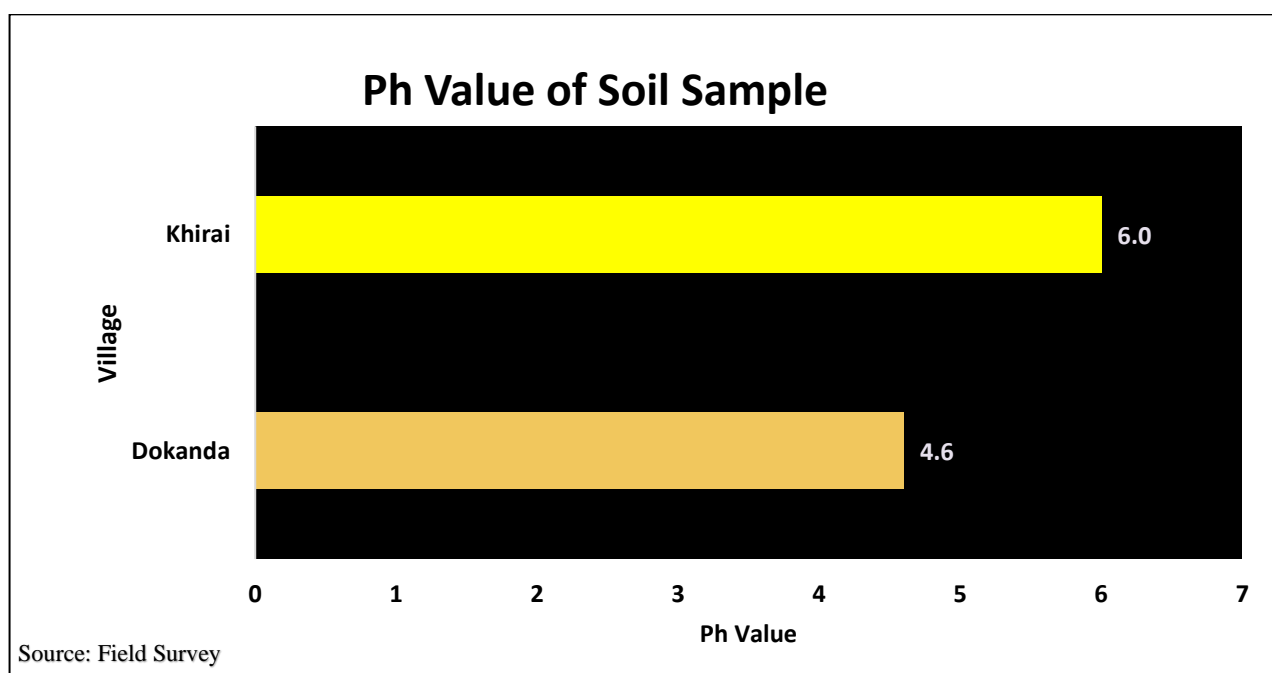


Figure- 2

Inter Cultivation

We also noticed at the time of our survey that they not only cultivate the flowers only in their land but also cultivate various types of vegetables like Cauliflower, pea, potato, brinjal, etc for their use. They cultivate it only in the winter season with their flower cultivations. On the other hand, they cultivate nuts on the opposite side of the rail line duly in summer. We also noticed that they are mainly suffered at the time of the rainy season for their smooth cultivation. Inter Cultivation is a very good support for farmers' economic condition due to low-risk factors.

Population

According to the 2011 census, 98.31% of the population spoke Bengali as their first language. Others in the district speak [Khortha](#) and [Hindi](#), as well as [Santali](#). According to the [2011 census](#), Purba Medinipur district has a [population](#) of 5,095,875 roughly equal to the [United Arab Emirates](#) or the US state of [Colorado](#) This

gives it a ranking of 20th in India (out of a total of [640](#)) The district has a population density of 1,076 inhabitants per square kilometer (2,790/sq mi) Its [population growth rate](#) over the decade 2001-2011 was 15.32%. Scheduled Castes make up 14.6% of the district's population. (Wikipedia) Purba Medinipur has a [sex ratio](#) of 936 [females](#) for every 1000 males

Literacy

According to the 2011 census, the district has a literacy rate of 87.66 up from 80.20% of the 2001 census. As per the 2001 census, this district had a male literacy rate of 89.1% and the female literacy rate was 70.7%. The education index of this district is 0.74 and it is ranked first in literacy in comparison to other districts of [West Bengal](#).

Tourism

The coastal region of Purba Medinipur district is in the face of the river Hoogly. With good coastal, landform, seasonal, rural, and heritage diversity, it offers the potential for tourism in its typical coastlines and rural areas. The famous tourist spots are-

- **Temple of Devi Barghobhima** is an 1150 years old Kali temple and is considered one of the 51 Shakti Peethas. According to Puran, the goals of the left feet of Sati/Parvati fell here when Lord Vishnu cut the sacred body of Goddess Sati into several pieces to make Lord Shiva quiet.
- **Archeological Museum** of Tamluk is a must-see place. It contains artifacts of Tamra (copper) and has preserved a tamralipta with Greek inscriptions. It preserves the historical heritage of Bengal.
- **Rakhit Bati** is another important place to visit in Tamluk. At the beginning of the 19th century, it was famous as a secret center of the then-revolutionary parties *Anusilan Samiti* and *Gupta Samiti*.
- There are many other ancient temples in Tamluk town to visit, i.e., Jagannath Temple, Hari Temple, Mahaprabhu Temple, Ram Jiu Temple, Rajbari Temple, etc.
- **Panskura** It is a municipality upgraded in 2002. It is one of the busiest towns in the East Midnapore district. Panskura is known as the "Valley of Flowers" with large supplies of flowers to other places. Panskura is also known for its green vegetables wholesale market near the [Panskura Junction railway station](#). It is open every day from 10 pm till 7 am the next morning with a regular gathering of lakhs of people. Panskura is one of the busiest railway stations which extends up to Digha or Haldia directly through this station or by bus. The river Kansabati is a good picnic spot and Mahakali (Bhavatarini) temple nearby old Panskura Bazar is a pilgrimage spot. Panskura is also well known for its cultural side. Many cultural schools and institutes are there. Panskura is famous for the recitation institute Chandabani.

Chapter- 3

Major Findings

DEMOGRAPHIC PROFILE OF THE FLORICULTURISTS

Age Group

From the observed responses related to the first variable 'Gender', it has been found that the study area has more concentration to the male contingent compared to their female counterpart as the percentage difference between male and female types of gender is recorded as 6. A total of 23% of the growers belong to the young age group of below 30 years. The percentage of respondents within the age group of 30-50 years is 15% (male).

The first variable Age highlights that about 26% of surveyed people are between 50-60 yrs. About 15 % of the male population are aged between 30-50 years. 23% of the male population are aged below 30 years. It reveals that the study area has comprised a huge number of working-class populations. Women's participation is also high, almost 40 % of surveyed females are between 20- 30 years. 42% female population are below 60 years of age.

The findings indicate the involvement of a high percentage of the younger age group of people in the floriculture business. As young people are more enthusiastic, aspiring, energetic, and adaptive to the new learning environments, it can be assumed that expansion and technology adoption will be high in the years to come. The finding may also indicate the capability floriculture sector to attract the young generation.

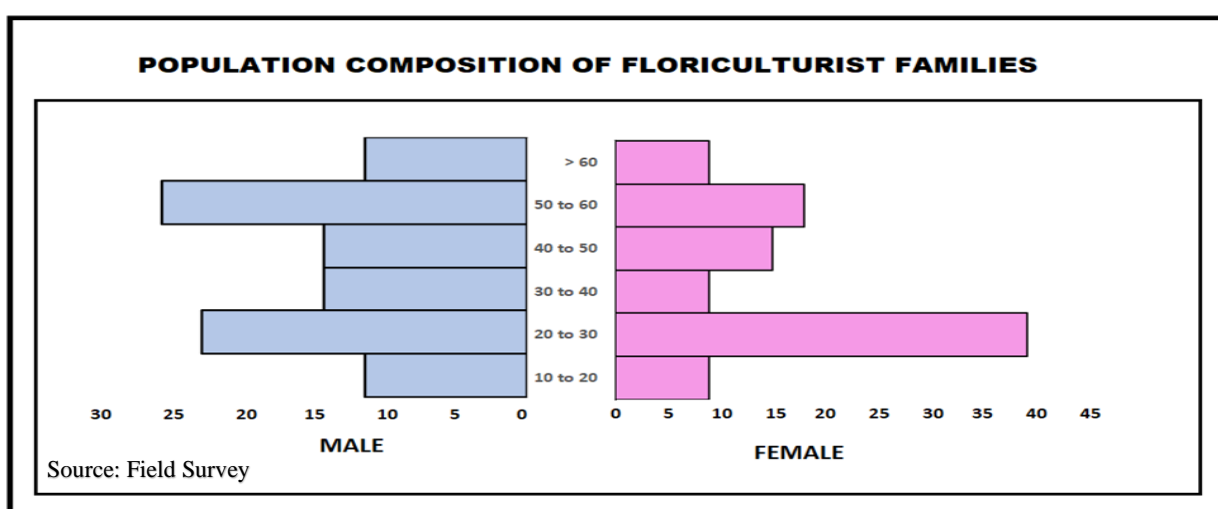


Figure- 3

Caste structure

Analysis of caste/tribe of the growers in this study area revealed that 80 % male and 83% female population belong to General category. 8% male and 12.9% females belong to the SC category and 12% male and 3.23 % female population are under the ST category. This indicates that high involvement of the General category and less involvement of weaker section in the floriculture business.

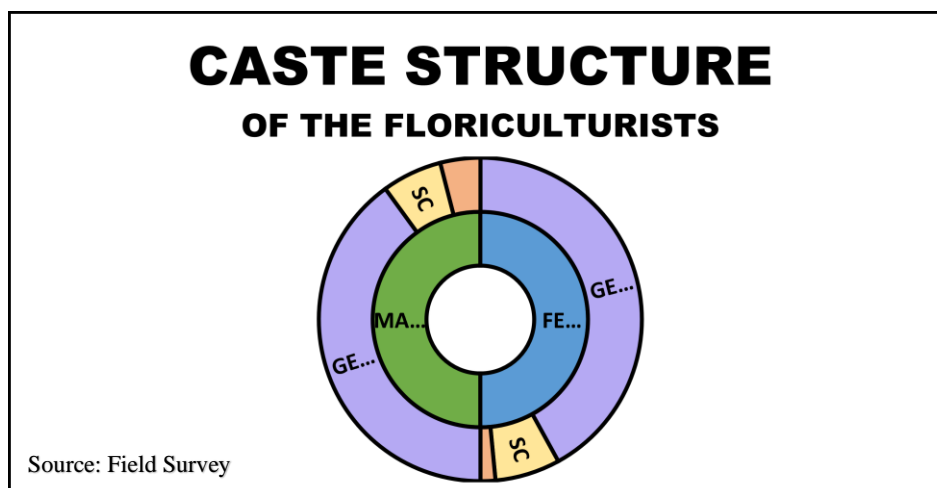


Figure- 4

Male Female Ratio –

The study revealed that ... percent of growers are male and percent respondents are female with a male to female ratio of about 5:6. The involvement of an encouraging percentage of female growers in the floriculture business can be linked with the general perception of floriculture as an enterprise of choice for women. Again the extent of involvement indicates that floriculture can be one of the options for women's employment in the Purba Medinipur District.

The dependency ratio is also high, it is almost 61.54%.

Status of Education

The education level of the maximum percentage (33.30%) of respondents is up to primary level followed by up to middle school (28.73%).

The study reveals that 44.82 % surveyed population is literate. The percentage of respondents up to intermediate education level and graduate is 28.73% and 3.44% percent respectively. Only 4.59 % people are illiterate. It reflects that the education level is not satisfactory.

The dependency ratio is also high, it is almost 61.54%.

Percentage-wise education level of respondents is given in figure no.4

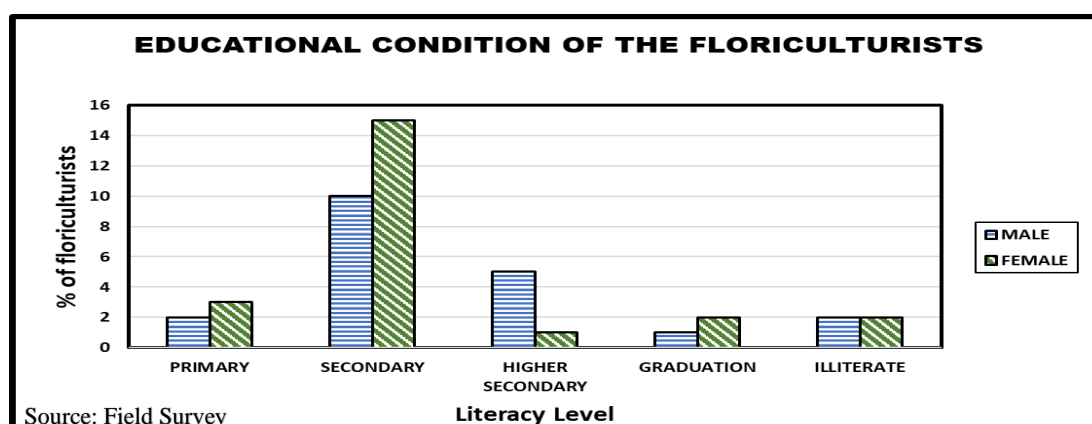


Figure- 5

Socio-economic profile of the floriculturists

Status of land ownership

The percentage of growers having floriculture units on their land is 62.5 percent. Only 37 percent of the growers are doing floriculture on leased land or work in other fields. Land ownership is one of the most important criteria for growers as it entitles them to get the benefit of government or any other development agency-run programs in agriculture or allied sector. Moreover, land ownership is one of the most important criteria to qualify to opt for institutional finance.

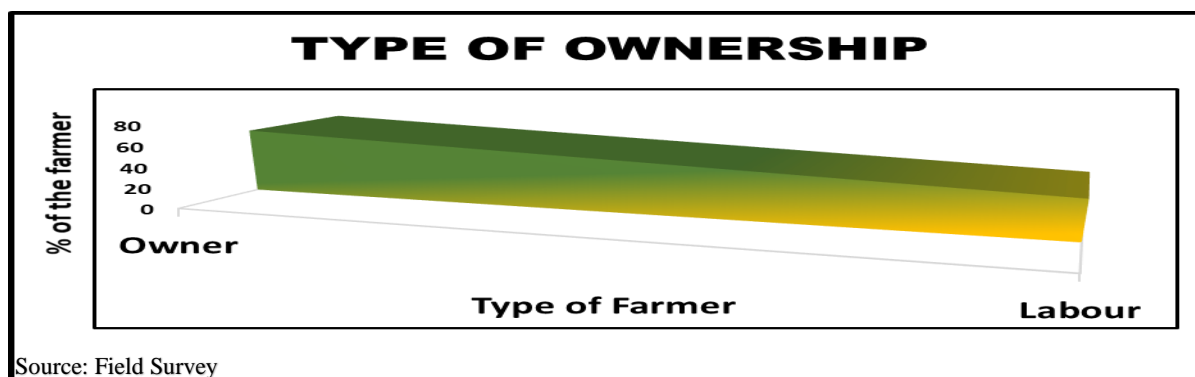


Figure- 6

The economic status of the respondents

The study reveals that 31.25 % of farmers earn up to 5000 Rs from floriculture and 43.75% of farmers earn 10000-15000 Rs from this business.

Involvement of Floriculturists

People from All types of age groups are involved in floriculture. Comparatively younger age group (15-40 years) is the maximum. Most females are engaged in floriculture. 39.4 % of females of 20-30 years are engaged in it. The study reveals that almost 68.75% of farmers fully depend on floriculture and 31.25% of people have taken this for their part-time income. Maximum percentages (62.5%) of the growers have land ownership and about 37% of people work as labor in other filed.

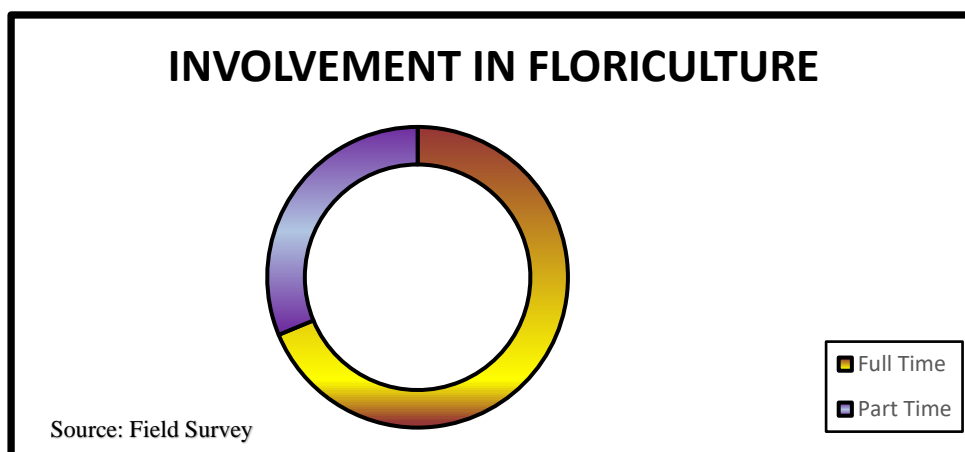


Figure- 7

Engagement in Floriculture

A total of 43.75% of respondent families under the study are engaged for 5-15 years in floriculture, 6.25% of families are engaged for 30-60 years and almost 25% of families are involved for less than 5 years into it.

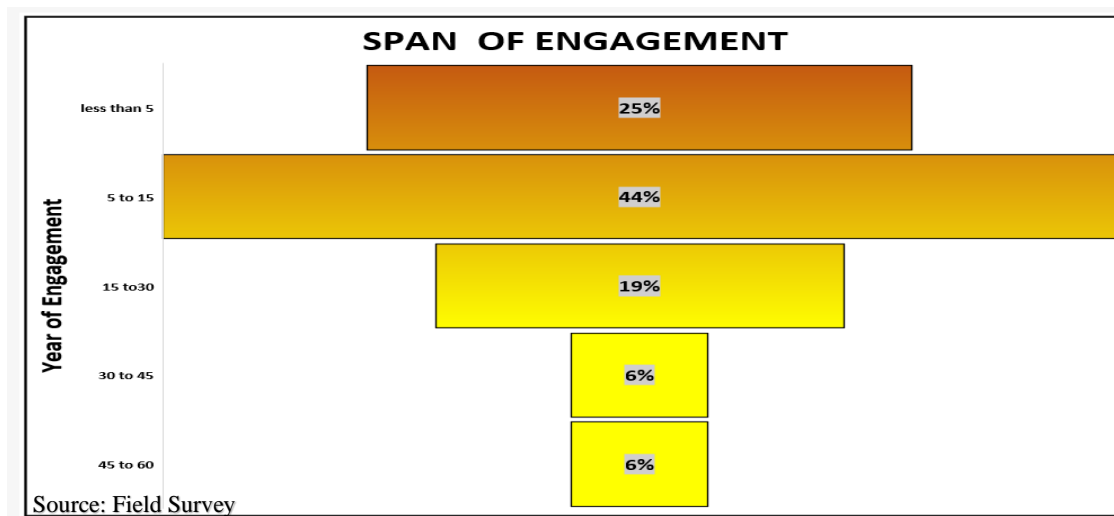


Figure- 8

Types Of Flowers

Many types of flowers have been cultivated in the study area like Rose, Merry gold, Cherry China, Chrysanthemum, Jhupsi, Aster, Korone, Morog flower, Sweet William, etc. Two types of flowers are cultivated according to the season winter and Summer. In the summer season they cultivate mainly yellow marigold and in winter they cultivate Chrysanthemum, Mexican marigold, Aztec marigold, Blood marigold, Murcia, Aster, Chinch, etc. Among them, Chrysanthemum is cultivated by 35-% of the families. Rose and Morog flowers are cultivated by 7.5% and 20% of families respectively.

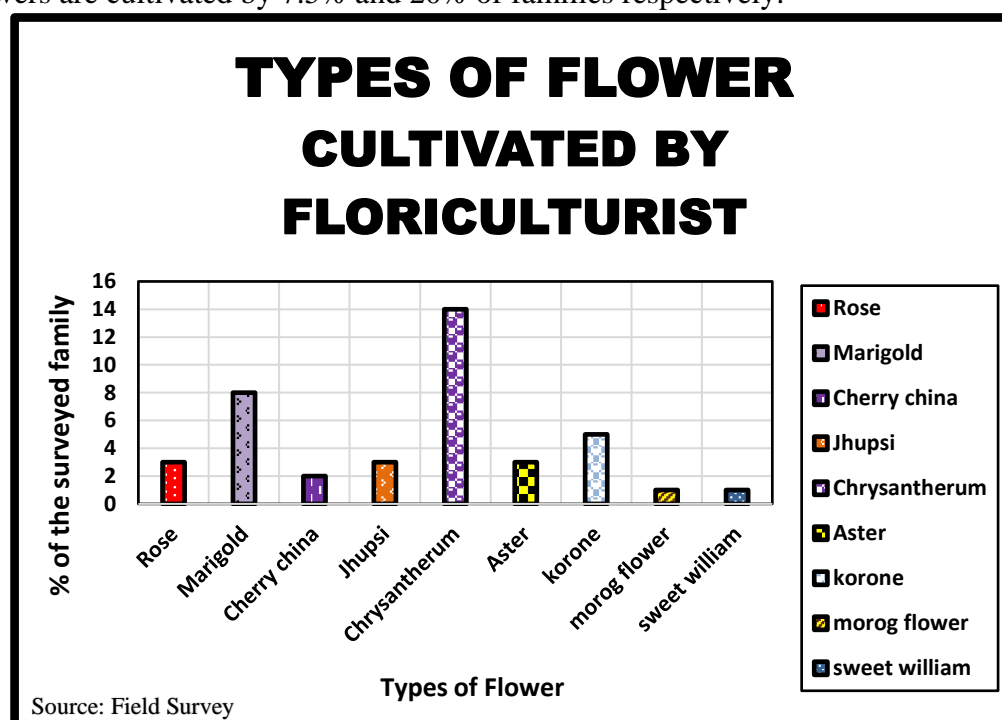


Figure- 9

Income from Floriculture:

Floriculture is extremely seasonal as an occupation, particularly in the monsoon season. So the income level extremely varies over the years. The primary data that we have collected from the study area reveals that around 43% of the floriculturists have their monthly income in the range of Rs. 10,000 to 15,000 and around 31% of the floriculturists have their monthly income below Rs. 5,000. This is explained in Figure No.-?

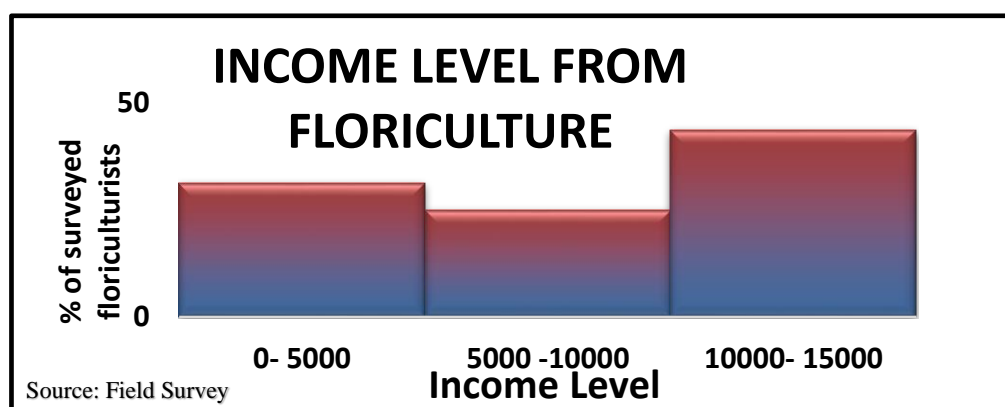


Figure- 10

Growing seasons

Floriculture is highly depending on season, Monsoonal rainfall affects the area a lot. June, November, and January these three months are the growing seasons for Chrysanthemum, Marigold is the only flower that can be cultivated throughout the whole year. Karan flowers are cultivated during August and September. January, March, and August are the nurturing months for Chrysanthemum.

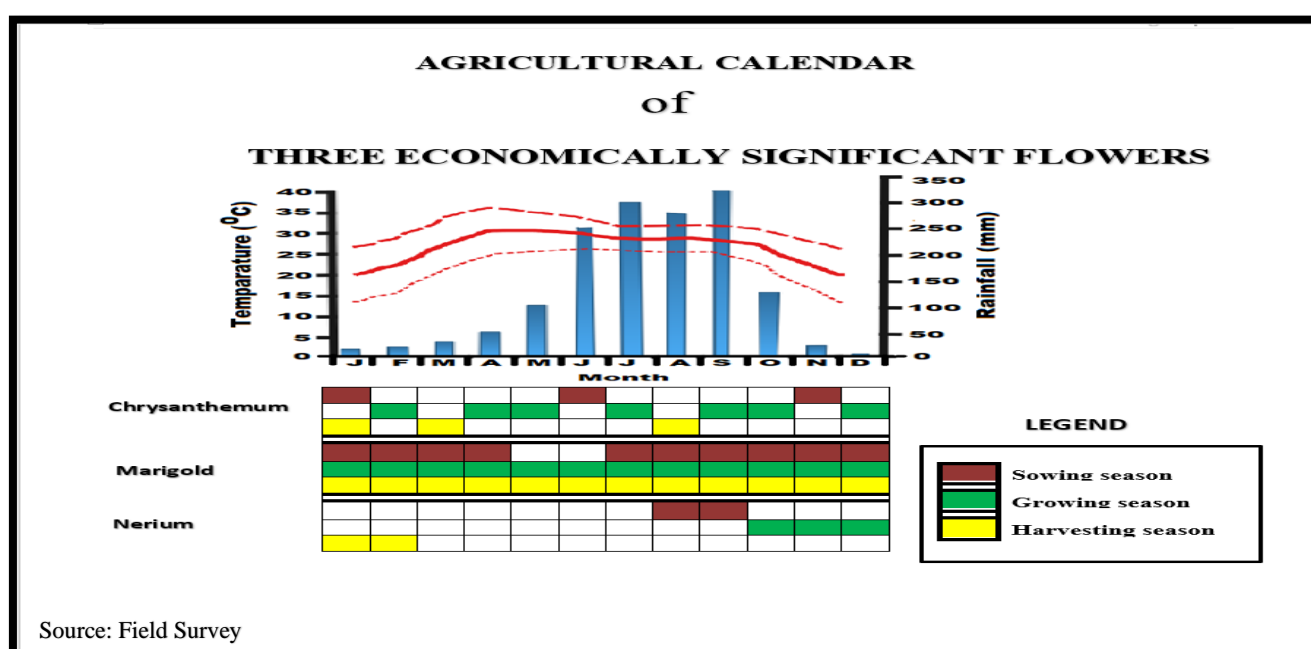


Figure- 11

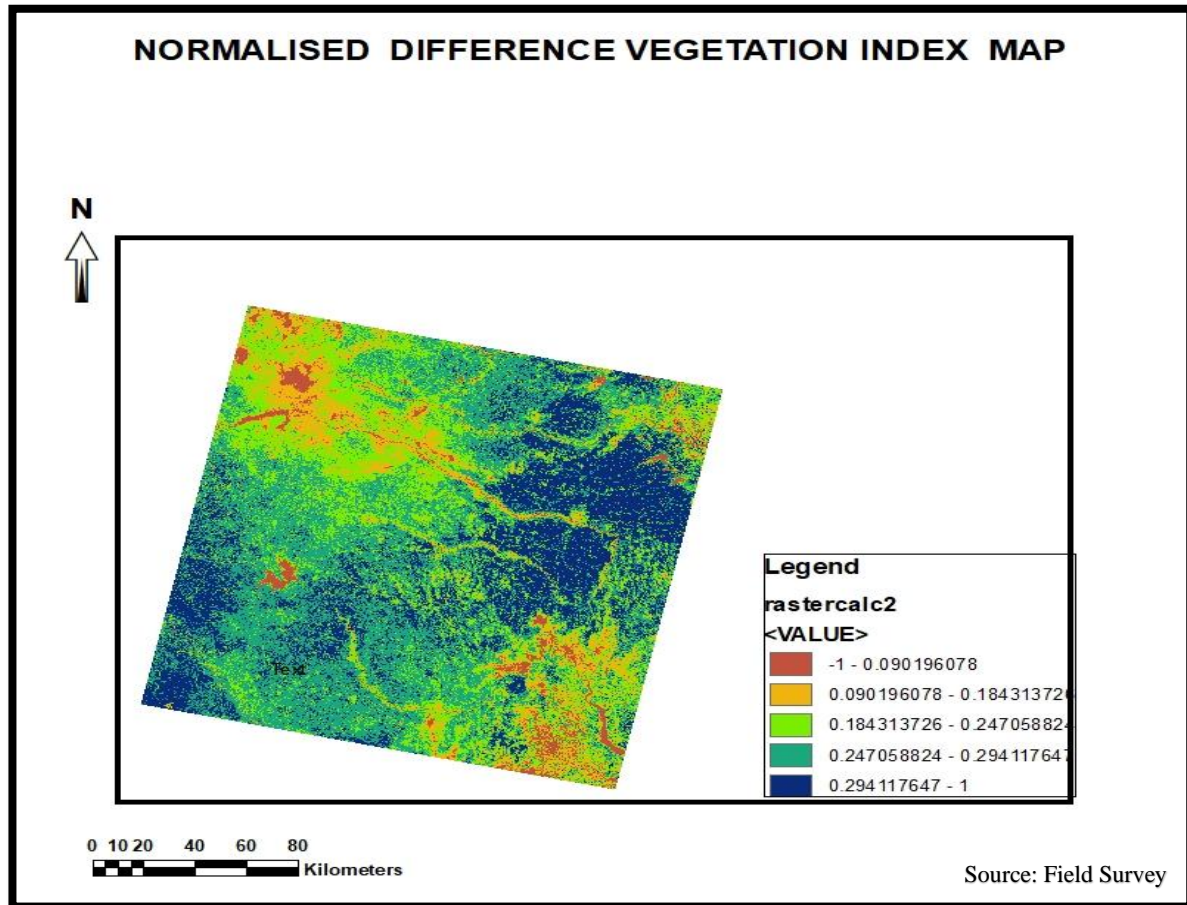


Figure- 12

Figure no. 12 shows the NDVI index of the study area. Here it is found that the range of NDVI value is varying from -1 to 1. The dominant range is from 0.24 to 0.29 which signifies the presence of sparse cultivation. But in some places the floriculture practice is so dense that the NDVI is near about 1.

Seed Purchase

The study reveals that about 43.75% of seeds are produced by the farmers and 56.25% are purchased from the local markets.

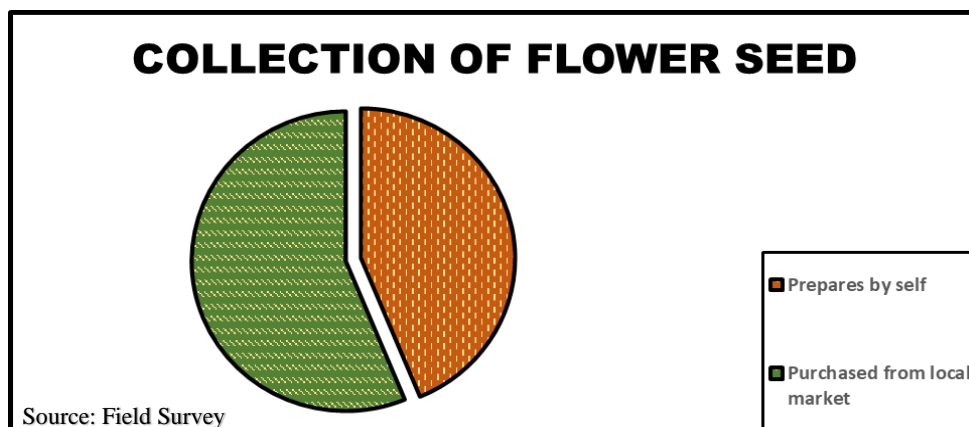


Figure- 14

Marketing of produce and local markets

Marketing of the products is either through a local aggregator or through local market intermediaries. 56.25% of farmers sell their produce in local markets and 43.75 % farmers sell their produce outside.

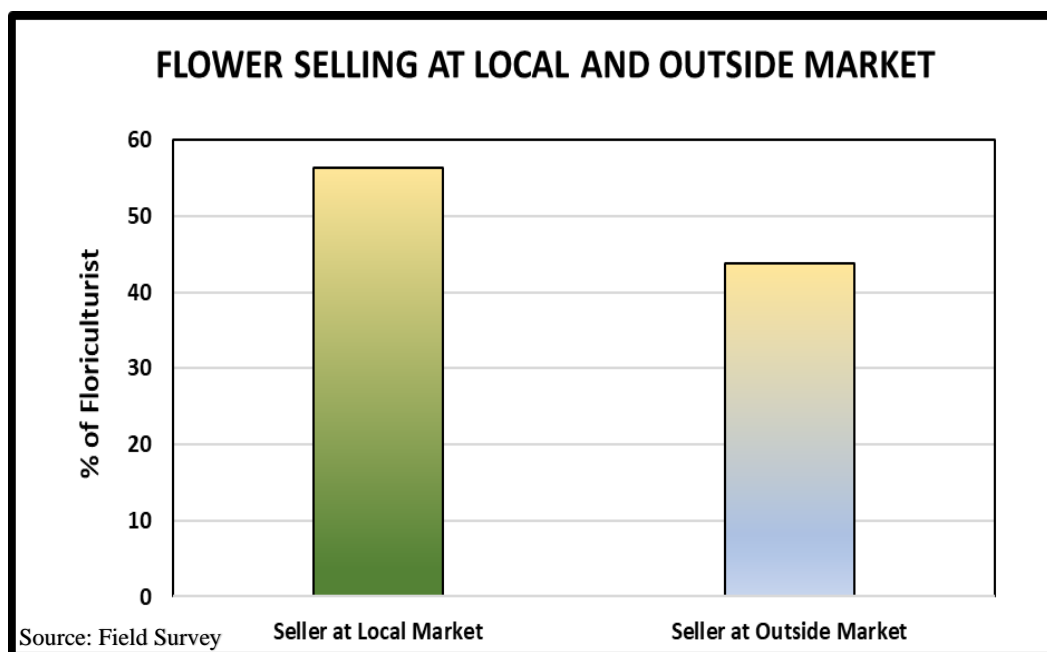


Figure- 15

Demand and Marketing

Khirai, the valley of flower enjoys a wide range of area of market. The demand of the flowers produced from the locality is worldwide. Demand of flower from different regions continues through out the year which increases in winter season.

These flowers have high demand in local as well as outside markets. In West Bengal flowers are sent to different districts for selling, among which demand from the the local markets like Bagnan, Mechgram, Kolaghat, Howrah, Dankuni and Mallickbazar etc. are very high.

Khirai has a very encouraging market in other states of India too. Outside West Bengal flowers are sold to Mangalore, Hyderabad, Delhi, Chennai, Bangalore, Orissa, Pune, Panjab, and Mumbai.

Flowers from Khirai also contributes in the National Income by exporting the flowers outside India. Neighbouring countries of India like Bangladesh , Pakistan purchase flower in every year from here. India also exports flower of Khirai to foreign countries like UK and USA.

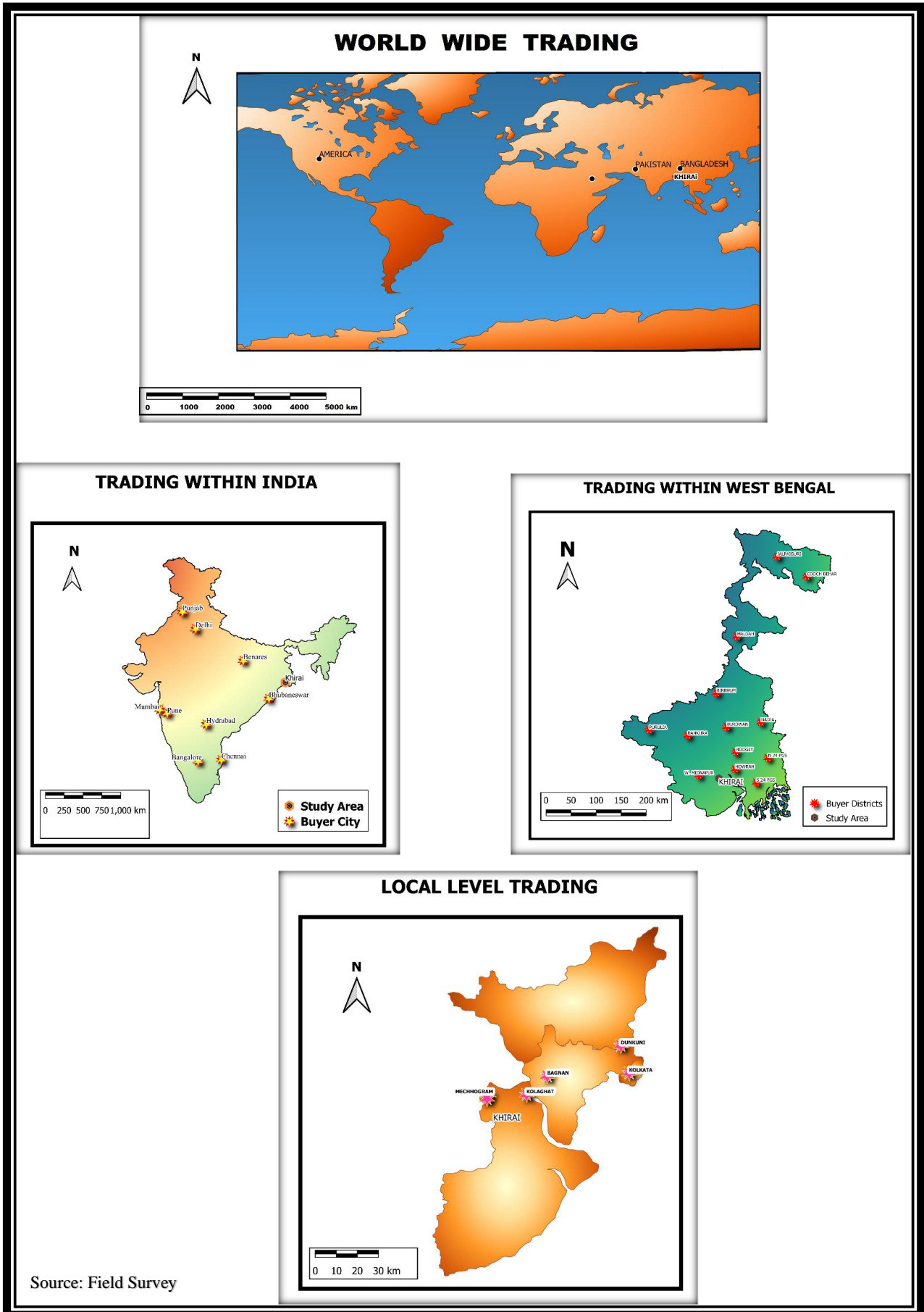


Figure- 15

Important Instruments used at Khiri

1. **AXE** Local Name: Kural

Features

The hand tool is made from old leaf spring steel or old vehicle axle by forging to shape in a single piece. The body of the ax is slightly oval in shape. The cutting edge is made sharp for easy penetration in the wood. An eye is formed by punching and sizing during forging to fix a handle. For operation, the tool head is raised by the handle and struck in the wood.

Specifications

Raw material used	Vehicle axle/leaf spring
Handle Dimension (without handle)	Wood
Length x Width x Thickness (mm)	180-225 x 60-80 x 50-70
Angle between the blade and handle (degree)	80-90
Dimension of handle Diameter (mm)	30-45
Length (mm) Weight (kg)	800-900

2. **DAH**

Features

The dah is a simple manually operated hand tool, which consists of a cutting blade and tang made in single piece by forging. The cross-section of the cutting blade is tapered towards cutting edge, similar to knife. The tang is inserted into the wooden handle and fastened by riveting. For operation, the dah is held from the handle with one hand, raised and struck against the work. The cutting is through impact and shearing action. It is made of high carbon steel, tool steel, manganese steel or alloy steel and forged to shape. The cutting edge is hardened to 400-475 HB.

Specifications

Overall length (mm)	480
Blade length (mm)	360
Blade width (mm)	60 at the handle which gradually reduces to 30 near the handle
Blade thickness (mm)	6.5 tapers to 3.15 at the cutting edge

MEDIUM CHOPPING KNIFE

Local Name: Hathda

Features

The tool is used for agricultural and domestic purposes. The cutting blade is made from old leaf spring steel or mild steel flat and angle sections by forging operation. The cutting edge is drawn

from the back to form a sharp edge. The tool made from the spring steel is hardened and tempered to a suitable hardness. Its tang end is inserted in the handle and secured by a steel ring. It is operated by striking the cutting edge against the material to be cut or chopped.

Specification

<i>Raw materials used</i>	<i>Leaf spring/mild steel</i>
Blade Handle	Bamboo
	Dimension of blade
Length x Width x Thickness (mm)	230-260 x 45-65 x 4-6
Angle between the blade and handle (degrees)	180
Dimension of handle Diameter (mm)	25-35
Length (mm)	140-170
Weight (kg)	0.45-0.65

Other than these instruments they use PRUNING SECATEURS, MULTIPURPOSE CUTTING KNIFE, MULTIPURPOSE CHOPPING KNIFE, Flower Scissors, and Grass Shear etc.

Study reveals that 43.75% farmers are using modern instruments for flower cultivation and 56.25% are still using the older one.

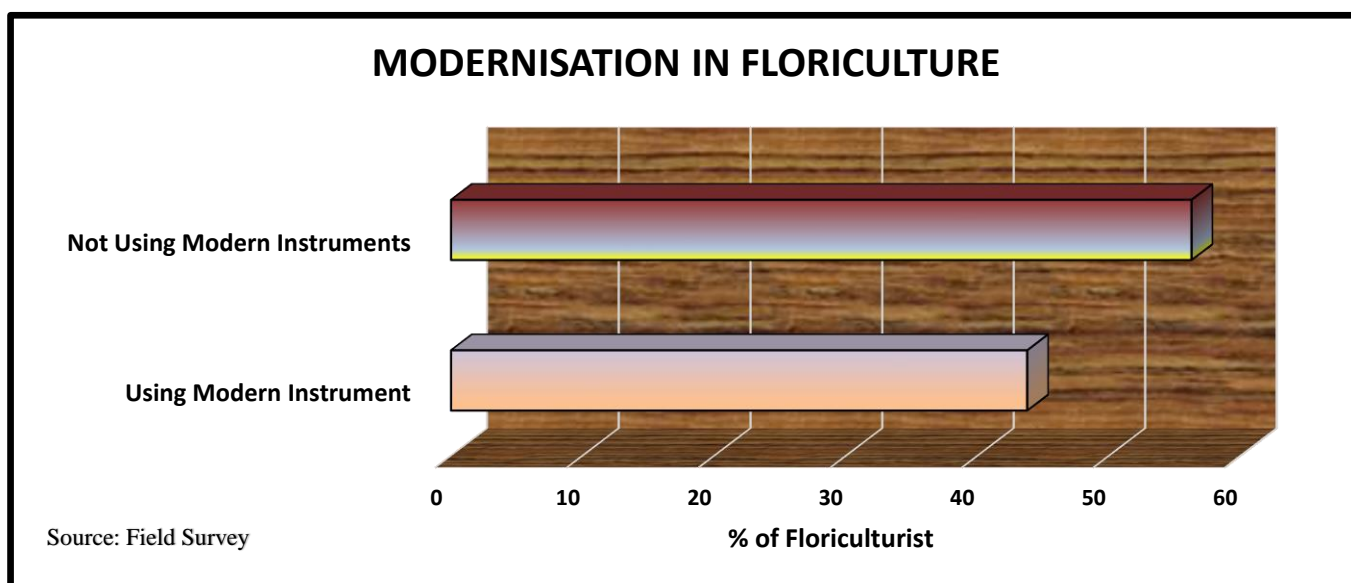


Figure- 16

Chapter- 4

Problem and Prospect

Major Weakness

There are many problems which are being faced by the floriculturist continuously. These are:

1. The flower cultivation is totally seasonal along with the income of the floriculturists. Usually, their income level becomes very low in the other month except in winter season.
2. The quality of flower decreases due to the huge pressure of tourists in the winter season. Road dust floated due to the continuous vehicle movement damage the colour of various types of flowers. Moreover, it becomes a major problem for the floriculturists when tourists practice to destroy flowers.
3. Colour of flowers also become changed due to the high concentration of fog.
4. Floriculturists are not receiving any kind of financial assistance from any Governmental Sector or Non-Governmental organization. They solely depend on their own financing system to continue floriculture.
5. Floriculture of Khirai has a very wide market not only in India, but also the in the World. But The earnings cannot reach the floriculturists. There are a number of middle man who creates the link between the cultivators and purchasers and enjoys the lion's share of income.
6. There is prevalence of variety of diseases and pests affecting floriculture crops of the growers. The disease ranges from viral, bacterial and those pertaining to nutritional deficiency and through effects by a variety of pests. The farmers use both organic and chemical fertilizers. Interestingly 56.25% percent of the respondents are unaware of any diseases affecting their crops. Among the cultivators 44% are suffering from pollen allergy.

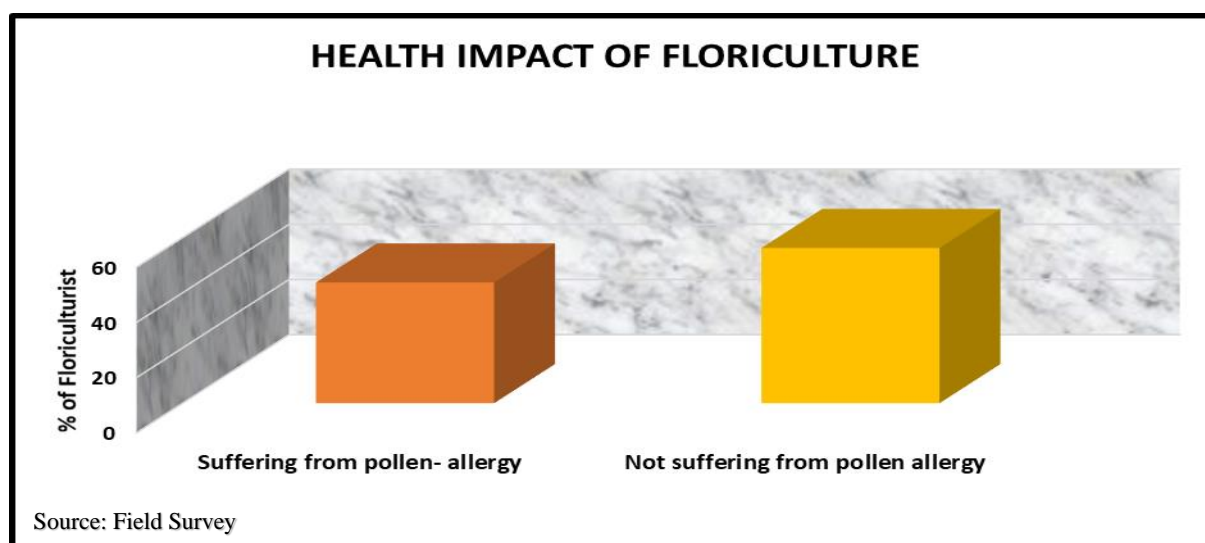


Figure- 17

Major Strength

1. The area is enjoying fully alluvial fertile land which is the primary condition for successful floriculture.
2. The River Kansai is flowing through the area and thus assures enough supply of water for the cultivation.
3. The weather condition of the area is also very favorable for floriculture.
4. Here it has been found that most of the family members are engaged in floriculture. So, the cost for hiring labour from outside is not needed.

Recommendation

After considering the general characteristics, strength and weakness of the study area the followings are to be suggested:

1. A cold storage is highly required to preserve flower properly.
2. Tourist entry in the flower field must be checked particularly in the winter season.
3. A proper car parking zone must be placed away from the flower field.
4. Modern technology can be used more in the time of sowing, growing and harvesting.
5. A training centre is to be established to guide the harvester properly.
6. The business can be flourished more if there is any governmental/ non- governmental funding agency sponsors the business.
7. A green- house may be established particularly for cultivating Chrysanthemum.
8. Reinforcement may be given to the floriculturists to produce some byproducts like colour from the fallen flowers.

Conclusion

Beside the bed of the river Kangsabati, Khirai, The Valley of Flower has the high potentiality to flourish the business of floriculture as well as eco- tourism. The esthetic beauty of the colourful carpet like field attracts so many tourists particularly in the winter season. But the area needs more sustainable development. The area has faced huge amount of loss due to pandemic situation. Floriculturists are also suffering due to the sudden appearance of super cyclone like Amphan, Yash. But the area possess a large amount of scope to be flourished; that is why it can be predicted that if the business receives any Governmental/ Non- Governmental financial assistance Khirai will be one of the model economic village in India .

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APPENDIX

Questionnaire for Project on Floriculture at Khirai

A. BASIC INFORMATION:

1. Name of the floriculturist:

2. Age:

3. Gender:

4. Religion:

5. Caste:

6. Language:

7. Literacy level:

B. INFORMATION OF FAMILY MEMBERS (excluding interviewee):

Name	Age	Gender	Literacy level	Whether Engaged in floriculture (if Yes, how long? / same field or another field?)

C. OCCUPATIONAL INFORMATION:

1. How long are you engaged in floriculture (in years/ months)?.....

2. Do you own this flower field (Y/N)?.....

3. What are the main flowers you cultivate?.....

.....

..

4. Where from you purchase seed (flower specific if possible)?.....

.....

..

.....

..

5. Where do you sell the flowers (flower specific if possible)?.....

.....

.....

6. Do you sell flower in local market (Y/N)?.....

7. In which purpose, the flowers are mainly purchased in local market?
 Decoration in ceremony/ Worshiping/ Others.....

8. What are the customer state of India of your production?.....

.....

9. Do you export out side of India (if yes, mention country)?.....

10. What is the area of the field?.....

11. How much fertilizer do you use in your field (in kg)?.....

12. What is the approximate cost for your production (write in the table below)?

Name of flower						
Seed						
Fertilizer						
Other chemicals						
Electricity						
Labour						
Nurturing						
Cutting						

Packaging						
Transporting						
Others						

13. What is your approximate income from Floriculture?

Name of flower						
Local market						
Inside state						
Inside country						
Foreign						

14. What is the time schedule for floriculture (date and week)?

Name of flower						
Sowing						
Nurturing						
Felling						

15. Do you harvest any other fruit or vegetable along with flower? (Y/N)

16. If yes, mention the name of fruits or vegetables.....

.....

..

17. What is your approximate income from other production?.....

.....

..

18. What is your source of income in off season?.....

.....

19. Do you use any modern instrument (Y/N)?.....

20. Do you get financial help from Govt./ Private Agency/NGO? (Y/N)

21. As becoming the very recent tourist spot, how do you feel regarding your occupation?.....

.....

22. Does Amphan affect your plantation?(if yes, mention your loss).....

.....

23. What is the impact of Covid 19 in this locality?.....

.....

24. Mention the loss compared to another year for Covid 19.....



.....

25. Are you suffering from any disease for a long period?.....

26. Are your family members suffering from any disease?.....

.....

27. What is the age of the senior most member of your family?.....

28. Do you have any future plan to improve your occupation?.....

.....

29. What type of help do you need to flourish your

profession?.....

.....

Signature of the surveyor with date

DATA TABLES

Tables 1: Duration in floriculture activities

YEAR	% OF FLORICULTURISTS
<5	25
5 - 15	43.75
15 - 30	18.75
30 - 45	6.25
45 - 60	6.25

Table 2: Type of Ownership

OWNER	62.5%
LABOUR	37.5%

Table 3: Flower production by Floriculturist

Rose	Marigold	Cherry China	Chrysanthemum	Aster	Korone	Morog flower	Sweet William
7.5%	20%	5%	7.5%	3.5%	12.5%	2.5%	2.5%

Table 4: Production of Seed

PREPARED BY SELF	PURCHASED FROM LOCAL MARKET
43.75%	56.25%

Table 5: Age- Sex Composition of Floriculturists

AGE GROUP	MALE (%)	FEMALE (%)
10 - 20	11.43	9.09
20 - 30	22.86	39.39
30 -40	14.29	9.09
40 - 50	14.29	15.15
50 - 60	25.71	18.18
> 60	11.43	9.09

Table 6: Caste Structure of the Floriculturists

CASTE	MALE	FEMALE
General	80	84
Sc	8	13
St	12	3

Table 7: Literacy Level of the Floriculturist

GENDER	PRIMARY	SECONDARY	H.S	GRADUATE	ILLITERATE
MALE	40%	40%	83%	33%	50%
FEMALE	60%	60%	16%	66%	50%

Table 9: Dependent Population

SENIOR-MOST MEMBERS	AGE UNDER 10
61.54%	38.46%

Table 10: Income Level of Floriculturist

INCOME IN RS	FLORICULTURIST (%)
0 - 5000	31.25%
5000 - 10000	25.00%
10000 - 15000	43.75%

Table 11: Flower Trading

FLOWER SALE	FLORICULTURIST (%)
LOCAL MARKET	56.25%
OUTSIDE	43.75%

Table 12: Involvement in Floriculture

MAIN OCCUPATION	Floriculturist (%)
FULL TIME	68.75%
PART TIME	31.25%

Source: Field Survey

PHOTO GALLERY



The Colorful Valley of Flowers



Proud of Khirai: White Chrysanthemum



Flowers Bud waiting to Bloom



Cultivated Flower



Flower Plucking



Flower Packing



Ready for Export



Garland Making by Local Female



Female Working Participation



**Source of Water for Drinking
and Irrigation**



Pesticide Sprayer



Ph test of soi in lab.



Interview of Horticulturist



Researchers at Khirai

