

A

**PROJECT REPORT**

**ON**

**PLANTATION**

Submitted in practical fulfillment of the requirements for the award of the degree of

**BACHELOR OF TECHNOLOGY**

**In**

**CSE-AI&DS**

**by**

Ch.Sasikala 21JD1A4510

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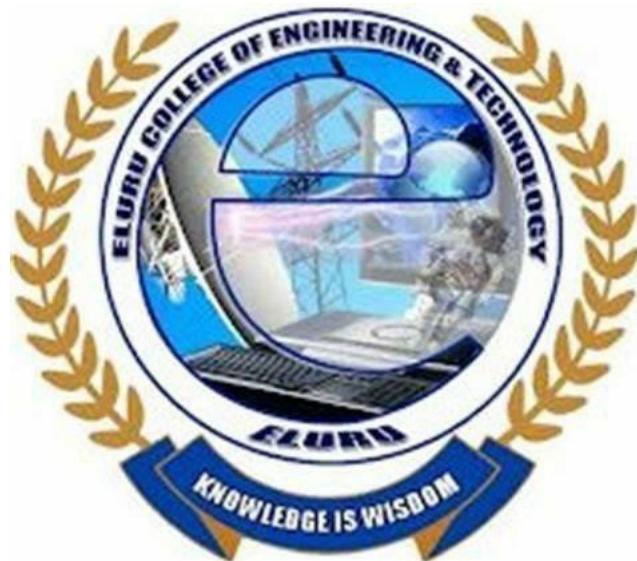
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Under the esteemed guidance of

K.VADDIKASULU MTECH,(PHD)

**PROFESSOR, DEPARTMENT OF CSE-AI&DS**



**DEPARTMENT OF CSE-AI&DS**

**ELURU COLLEGE OF ENGINEERING AND TECHNOLOGY**

DUGGIRALA(V), PEDA VEGI(M), ELURU- 534004 APPROVED BY AICTE-NEW DELHI & AFFILIATED TO JNTUK-KAKINADA

2022-23

**ELURU COLLEGE OF ENGINEERING & TECHNOLOGY**

(Affiliated to JNTUK-KAKINADA, Approved by AICTE-NEW DELHI)

**DEPARTMENT OF CSE-AI&DS**



## CERTIFICATE

This is to certify that the project report entitled "PLANTATION" being submitted in partial fulfilment for the award of the degree be **Bachelor of Technology in department of Computer Science Engineering - Artificial Intelligence and Data Science engineering** to the **Jawaharlal Nehru Technological university, Kakinada** is a record of Bonafide work carried out by Ch.Sasikala(21JD1A4510),D.Hemasri(21JD1A4514),I.Likhitha(21JD1A4521),J.Rohini(21JD1A4523) under my guidance and supervision.

### PROJECT GUIDE HEAD OF THE DEPARTMENT

K. Vaddikasulu MTECH,(PHD) K. Vaddikasulu MTECH,(PHD)

### Professor & HOD Professor & HOD

Department of CSE-AI&DS Department of CSE-AI&DS

EXTERNAL EXAMINER

PROGRAM BOOK

FOR

## COMMUNITY SERVICE PROJECT

Name of the students: Ch.SasiKala

D.HemaSri

I.Likhitha

J.Rohini

Name of the college: Eluru College of Engineering & Technology

Registration numbers: 21JD1A4510

21JD1A4514

21JD1A4521

21JD1A4523

Period of CSP: 2 MONTHS(192 hours)

From: 21/08/2022 To: 16/10/2022

Name & Address of the community / Habitation :

JNTUK University

YEAR

2022-23

## COMMUNITY SERVICE PROJECT REPORT

Submitted in accordance with the requirement for the degree of

**BACHELOR OF TECHNOLOGY**

Name of the College: Eluru College of Engineering and Technology

Department : CSE-AI&DS

Name of the Faculty Guide: K.Vaddikasulu

Duration of the CSP : 192 hours

**From :** 21/08/2022 **To :** 16/10/2022

**Name of the Students :** Ch.SasiKala

D.HemaSri

I.Likhitha

J.Rohini

**Programme of Study :** PLANTATION

**Year of Study :** II Year

**Register Number :** 21JD1A4510

21JD1A4514

21JD1A4521

21JD1A4523

**Date of Submission :**

### **STUDENT'S DECLARATION**

We, Ch.SasiKala, D.Hemasri, I.Likhitha, J.Rohini, a students of Community Service Project, Reg. No.21JD1A4510,21JD1A4514,21JD1A4521,21JD1A4523 of the Department of CSE-AI&DS, Eluru College of Engineering and Technology do hereby declare that I have completed the mandatory community service from 21/08/2022 to 16/10/2022 in Plantation under the Faculty Guideship of K.Vaddikasulu Department of CSE-AI&DS.

**(Signature and Date)**

**Endorsements**

Faculty Guide

K.VADDIKASULU MTECH,(PHD)

Head of the Department

K.VADDIKASULU MTECH,(PHD)

Principal

Dr. P.BALAKRISHNA PRASAD MTECH,PHD

### **Certificate from Official of the Community**

This is to certify that Ch.SasiKala, D.HemaSri, I.Likhitha, J.Rohini Reg No: 21JD1A4510,21JD1A4514,21JD1A4521,21JD1A4523 of Eluru College of Engineering and Technology underwent community service in Plantation from 21/08/2022 to 16/10/2022. The overall performance of the Community Service Volunteer during her community service is found to be \_\_\_\_\_ (Satisfactory/Good).

Authorized Signatory with Date and Seal

## **ACKNOWLEDGEMENT**

In the beginning I want to elucidate that this project would have been a distant dream without the grace of Almighty God who has blessed us with a drop of knowledge from his mighty ocean.

I extend my sincere thanks to **Sri V. RAGHAVENDRA RAO**, Chairman of our college for providing sufficient infrastructure and good environment in the college to complete my course.

I am thankful to our Principal **Dr.P.BALAKRISHNA PRASAD, MTECH,Ph. D**, for permitting and encouraging me in doing this project.

I am very grateful to the head of the CSE-AI&DS Department **Dr.K.VADDIKASULU MTECH,(PHD)** for his valuable guidance, motivation and endless supply of new ideas and technical support for this project.

I am very grateful to my project guide **K.VADDIKASULU M.TECH,(PHD)** Professor for his inspiration, guidance, constant supervision and constructive criticism in successful completion of this project. he provided organization, supported enthusiastic discussions, in depth reviews and valuable references.

**Great acknowledgement is expressed to Coordinator; Teaching whose guidance cannot be**

**ignored in completing this project in time.**

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**5.1- Details of Socio-Economic Survey of the village / habitation**

Attach the questionnaire prepare for the survey

**5.2-** Describe the problem you have identified in the community

**5.3-** Short term and long-term actions plan for possible solutions

for the problem identified and that could be recommended to

the concerned authorities for implementation

**5.4-** Description of the community awareness programs/conducted

w.r.t the problem and their outcomes

**5.5-** Report of the mini project work done in the related subject w.r.t

the habitation/village

**CHAPTER-6** Recommendations and conclusion of the 53-58

mini project

## **CHAPTER-1**

### **EXECUTIVE SUMMARY**

#### **Definition:**

A group of commercial crops of perennial nature, cultivated extensively in tropical and subtropical situations which need employment of labour throughout the year and the produce of which are usually consumed after processing.

## scale

**Definition in traditional sense –** Plantation crops are those which are cultivated on extensive scale like tea, coffee and rubber. Here the term plantation or estate is used synonymously. Plantation crops are those which are used or whose product is used only after processing. These are the crops which are cultivated on an extensive scale in a large continuous area, commercially by an individual or any company and the produce has to be cured before they are put to use. Plantation crops have high value commercially. They have greater economic importance. They play vital role in improving the economy of the country. Introduction Plantation of trees and plants aids in making the environment better. It purifies the air, conserves water, helps in climate control, preserves soil and benefits the overall environment in several other ways. A Plantation is an agricultural estate generally centered on a plantation house, meant for farming that specializes in cash crops, usually mainly planted with a single crop, with perhaps ancillary areas for vegetables.

A plantation is an agricultural estate, generally centered on a plantation house meant for farming that specializes in cash crop usually mainly planted with a single crop, with perhaps ancillary areas for vegetables include cotton, coffee, tea, cocoa, sugarcane, opium, sisal, oilseeds, oil palms fruits, [rubber trees and](#) forest trees. In modern use the term is usually taken to refer only to large-scale estates, but in earlier periods, before about 1800, it was the usual term for a farm of any size in the southern parts of [British North America](#), with, as [Noah Webster](#) noted, "farm" becoming the usual term from about [Maryland](#) northwards. It was used in most British colonies, but very rarely in the United Kingdom itself in this sense.



**Fig-1.1: Planting a tree**

#### **Economic Importance :**

Most of the plantation crops are export oriented.

**Ex:** Cashew nut, beet levine, Are canut and Tea.

Plantation crops earn foreign exchange for the country and they occupy 75% of the total earnings from the export of the agricultural produce.

These crops occupy 2% of the total cultivated area in the country but generate maximum income of 16,000 millions per annum. Plantation crops provide employment to the million of people

**Ex:** In cashew nut plantations,

It is providing employment for > 3 lakh people in processing factories. They support many of the ancillary industries and rural cottage industries.

**Ex:** Coconut coir industries and cashew nut.

Plantation crops help in conserving the soil and ecosystem.

**Ex:** Tea, coffee plantations grown in hilly tracks having slopes obstruct the soil erosion.

**Climate condition for plantation:** It is growing under various agroclimatic conditions. But essentially consider as tropical plant, growing 60N, 260 S latitude. Though it is tropical plant, not tolerate extreme temperature. It is confined to a height of 600 m MSL. At equator, it is cultivated at an elevation of 1000 m MSL. Coconut requires humid, warm climate with an annual temperature of 270C but the average diagonal variation should not exceed 70C. It will not furnish well where the annual mean temperature.

**Soil condition for plantation:** It is adaptable to wide range of soils, light soils to heavy soils. In case of heavy rainfall areas, well drained soils are best. In poor rainfall areas with long dry spells

deep fine soils with good water holding capacity are best. But mostly clay and black cotton soils are subjected to water logging. Mostly, coconut is grown well in sandy soils. They give good crop if assured irrigation is given and manuring even sandy soils give good yields. The laterite soils deep into 1 m without rocks had pan and also alluvial and red sandy loam, silt loams are also best soils if they provided with good drainage conditions. Alkaline and saline soils are not suitable. pH should be 5.2-7.0.

**Land preparation for plantation:** Land must be prepared well. Ploughing must be done deeply and repeatedly in all directions. Remove all the rocks and root positions and level the land. If any slope is existing contour bunding or bunch terracing must be done. If water table is high throughout the year which leads to water logging conditions, raised mounts or beds must be prepared giving irrigation or drainage channels.

**Planting:** Planting must be taken at beginning of south west monsoon. If irrigation facilities are available, planting must be taken even during May month also. Similarly in heavy rainfall area planting need to be taken up at the end of monsoon season. The new planting can be avoided the water logging conditions.

## CHAPTER-2

### OVER VIEW OF COMMUNITY

#### OBJECTIVE:

The main objective of plantations is to reduce pollution in the air and conserve vegetation. Explanation The purpose of plantations is to save the environment which is endangered and to keep alive the beauty of our life Answer The main objective of plantations is to reduce pollution in the air and conserve vegetation. The purpose of plantations is to save the environment which is endangered and to keep alive the beauty of our life Read more on Trees give off oxygen that we need to breathe. Trees reduce the amount of storm water runoff, which reduces erosion and pollution in our waterways and may reduce the effects of flooding. Many species of wildlife depend on trees for habitat. Trees provide food, protection, and homes for many birds and mammals.

The tree provides us with oxygen and makes our life possible on earth. Trees consume the carbon dioxide and provide us with food, shelter, home, money, medicines, and what not. Trees are also the source of rain for us as they attract clouds. Trees help in preventing pollution and keeps the environment fresh. To beautify the areas for scenic beauty. To reduce the surface run-off discharge and checking soil erosion along the embankments. To reduce temperature and increase humidity. To reduce noise pollution to the neighboring household population.



Fig-2.1: Watering and made to fall sunlight on plant

The main objectives of tree plantation are as follows: Reducing the impacts of air pollution Natural noise barrier Arrest of land erosion Providing much needed shade during the day time Prevention of vehicle glare from vehicles coming from opposite direction Enhancement of aesthetic view of the corridors climatic amelioration Trees provide clean air for living beings to breathe and generate energy. The importance of PLA a healthy life free of suffocation and pollution cannot be overstated, particularly in urban areas.

### HISTORY OF PLANTATION

#### Plantations in the Modern Era:

Though some plantation homes remain private residences—most on far smaller properties—many were transformed into historic sites for tourists. But they're often romanticized as beautiful houses set among elegant gardens, disregarding the darker side of their history.

"Most plantation tour narratives focus on the architecture or the furnishings while they fail to mention the presence of enslaved Africans on site," says [Dr. Linda Enoh](#), a content strategist with a doctorate in tourism studies. "Many narratives go a step further by acknowledging their presence but refer to them as 'servants,' which contributes to the romanticized imaginary of the South." But times are changing, and some plantations are putting in the effort to confront that dark history in a manner that is both respectful and educational. "What plantations have to do is to interpret the entire history of the people who lived on the property, whether they were Black or white, enslaved or free slaves or slaveholders," says [Dr. Edda L Fields-Black](#) an associate professor of history at Carnegie Mellon University. "The story is common to all of those groups, and big parts of that story are very painful for the enslaved people who were forced to live and to work there."



**Fig2.2: Olden days corn plantation**

**Plantation and Colonialism:**

Over 2500 years ago, Indian farmers had discovered and begun farming many spices and sugarcane. It was in India, between the sixth and fourth centuries BC, that the Persians, followed by the Greeks, discovered the famous “reeds that produce honey without bees” being grown. These were locally called pronounced as saccharum On their return journey, the Macedonian soldiers carried the “honey bearing reeds,” thus spreading sugar and sugarcane agriculture. People in India had also invented, by about 500 BC, the process to produce sugar crystals. In the local language, these crystals were called khanda which is the source of the word candy.

Prior to 18th century, cultivation of sugar cane was largely confined to India. A few merchants began to trade in sugar – a luxury and an expensive spice in Europe until the 18th century. Sugar became widely popular in 18th-century Europe, then graduated to becoming a human necessity in the 19th century all over the world. This evolution of taste and demand for sugar as an essential food ingredient unleashed major economic and social changes. Sugarcane does not grow in cold, frost-prone climate; therefore, tropical and semitropical colonies were sought. Sugarcane plantations, just like cotton farms, became a major driver of large and forced human migrations in 19th century and early 20th century – of people from Africa and from India, both in millions – influencing the ethnic mix, political conflicts and cultural evolution of various Caribbean, South American, Indian Ocean and Pacific island nations. The history and past accomplishments of Indian agriculture thus influenced, in part, colonialism, first slavery and then slavery-like indentured labor practices in the new world, Caribbean wars and the world history in 18th and 19th centuries.

**Indian Agriculture since 1947:**

Cotton flower in India. This is a cash crop in central India. In the years since its independence, India has made immense progress towards food security. Indian population has tripled, but food-grain production more than quadrupled: there has thus been substantial increase in available food-grain per capita.

Prior to the mid-1960s India relied on imports and food aid to meet domestic requirements. However, two years of severe drought in 1965 and 1966 convinced India to reform its agricultural policy, and that India could not rely on foreign aid and foreign imports for food security. India adopted significant policy reforms focused on the goal of foodgrain self-sufficiency. This ushered in India’s Green Revolution. It began with the decision to adopt superior yielding, disease resistant wheat varieties in combination with better farming knowledge to improve productivity. The Indian state of Punjab led India’s green revolution and earned itself the distinction of being the country’s bread basket. The initial increase in production was centered on the irrigated areas of the Indian states of Punjab, Haryana and western Uttar Pradesh. With both the farmers and the government officials focusing on farm productivity and knowledge transfer, India’s total foodgrain production soared.

A hectare of Indian wheat farms that produced an average of 0.8 tones in 1948, produced 4.7 tones of wheat in 1975 from the same land. Such rapid growths in farm productivity enabled India to become self-sufficient by the 1970s.



**Fig-2.3:Status of plantation crops in India**

**Important plantation crops:**

- Oil yielding crops: Coconut, oil palm, palmyrah
- Masticatory: Areca nut, betelvine
- Beverage crop: Tea, coffee, cacao
- Nut crops: Cashew nut

**Area and distribution:** Plantation crops have limited geographical distribution and in the world it is largely grown between 200N and 200 S of equator.

**Area and production of Plantation crops in India 2010-2011:**

STATE/UT'S	TOTAL	
	A(000ha)	P(000t)
<b>ANDAMAN AND NICOBAR</b>	25.6	62.0
<b>ANDHRA PRADESH</b>	304.2	769.8
<b>ASSAM</b>	88.8	163.0
<b>CHHATTISGARH</b>	33.0	17.0
<b>GOA</b>	82.5	116.8
<b>GUJARAT</b>	16.0	108.0
<b>KARNATAKA</b>	730.5	17770
<b>KERALA</b>	968.2	41765
<b>LAKSHADWEEP</b>	2.7	40.0
<b>MAHARASHTRA</b>	198.2	321.4

**Important Research Stations on Plantation and Beverage Crops:**

**Coconut:** Central Plantation Crop Research Institute , Kasargode, Kerala

**Areca Nut:** CPCRI, Regional Research Station, Vittal , Karnataka Cocoa - CPCRI, Regional Research Station, Vittal , Karnataka

**Rubber:** Rubber Research Institute of India, Kottayam, Kerala

**Cashew:** Directorate of Cashew Research, Puttur, Karnataka

**Oil Palm:** National Research Centre, Eluru, Pedavegi, Andhra Pradesh

**Palmyrah:** Srivaliputtur, Tamil Nadu

**Tea:** Tea Research Institute, United Planters Association of South India (UPASI), Valparai, Tamil Nadu

**Coffee:** Central Coffee Research Institute, Balehonnur, Karnataka

**Fig-2.4:Europe Country's Plantation**

Forest plantations are not new in concept and practice for Malaysia. However, interest in forest plantations lacked the required impetus in the distant past. It has vacillated quite a bit, influenced on one side from fear of impending timber deficits in the future and poor results from planting trials. Up until the 1970s,A brief history of forest plantation trials can be found elsewhere (Appanah and Weinland 1993, Wyatt-Smith 1963).

**METHODOLOGY:**

The approach that Matt Kilby has been mastering looks at preparation as one of the keys to mastering tree planting and the high survival rates, as well as biological planting methods used. At the community garden we didn't have the chance to get much preparation done, like deep ripping on contour with a Yeomans Keyline Plow 12 months before planting. Instead we had to look and really concentrating on the soil and what we could do to improve it and what biological methods could we look at Below I have listed the steps that Southern Beaches Community Garden adapted from Matt' s methodology to produce these successful results:

**Step 1:** Compost was sourced from a local perma culturist and added to the tree hole that was dug 3x the size of the tree's pot that was going in the hole - wide and deep to allow good root penetration and development.

**Step 2:** We then added Tree Starter. Tree Starter uses a three-pronged support system for soil biology. Firstly, it supplies a wide range of food sources for soil life including humates, kelp and compost. Secondly, it retains moisture and provides a homebase for beneficial organisms through the inclusion of zeolite and rock minerals. Finally, highly paramagnetic materials are included into the formula to stimulate microbial proliferation.

**Step 3:** We flood-irrigated the tubes and fruit trees to remove all the hot air from the roots. In the water we added Tree Tonic. During transplanting trees often suffer from transplant shock. This is due to root damage and a change of environment during the transplanting process. Tree Tonic lessens the impact of transplant shock by providing essential nutrients and to reverse the negative effects of transplanting and helps the plant to recover and increase growth rates. One thing I must say is that these plants started their life the conventional chemical way, so this biological treat must have seemed like paradise to them.

**Step 4:** We added something which I think is very special. Tree specific mycorrhiza fungi. Mycorrhizas are fungi that live in a beneficial relationship with most tree roots. Mycorrhiza increase the tree roots access to water and nutrients and therefore increases tree growth, especially in poor soil conditions which are often found in tree planting areas.



**Fig-2.5:Watering a plant with out help of man**

**Step 5:** Back to the hole preparation and the finishing off or landscaping the earth around the tree. A bull horn swale, a technique that Matt always uses, places the tree in a dish below ground level with small swales to focus the water into the tree. This is another of the keys to this methodology, giving the tree every chance it can to thrive rather than just survive.

**Step 6:** We used recycled paper Eco Mulch Mats, specially designed for this type of work, and the thing for our gardeners was that the Eco Mulch Mats would last for 12 - 18 months and is the equivalent to 100mm of mulch. Also, they are organic certified and contain organic fertilizer. The mats deliver sustained nutrient release including essential trace elements as the mat naturally biodegrades. We also placed 300mm deep of mulch around the outside of the tree guard in around the tree.

**Step 7:** Our Garden members all laughed at me when we got to step seven: pink tree guards. That right folks, pink. Now I have been working and trialing these tree guards for some time now, and I'm a believer. Green leaves absorb light from the red fraction to drive photosynthesis. Research has demonstrated that the colour pink reflects and focuses the red fraction, concentrating this photosynthetic energy to enhance plant growth. The guards at our community garden location have also provided wind protection against strong saltladen wind, which can cause severe dehydration of young trees and can result in high losses and salt burn. The Plant Pink Tree Guards have given our food forest ideal protection from strong winds in this early stage of growth and also creating an environment of increased humidity and sun protection. The guards have also stopped predation from hares, rabbits and wallabies.

**Step 8:** 10-20 liters of water per tree with Tree Tonic And then we left it to Gaia to look after...So, three months on and the tube stock have bounded out of the ground. Some have a vertical growth of more than half a meter with good lateral growth. In the past 12 months I have been wins hands down Matt is an open source and would be more than happy to share this information with you. See his planting trees in some extreme climates around Australia and still this method website for more details or print outs of the methodology. As for the community garden. We are in maintenance mode and have just planted more support species and ground covers like sweet potato and pinto peanut.

## **Fig-2.6:Ratoon Cropping**

### **CHAPTER-3**

#### **COMMUNITY SERVICE PART**

##### **Highway Plantation:**

- Highway planting of trees should consider many factors safety being paramount.
- Trees where ripened fruits fall, thorny or spiny trees, trees with shallow root system and brittle wood trees may be avoided in highway landscaping.
- As these trees will take the carbon dioxide ( $\text{CO}_2$ ) that is released by the vehicles that are travelled through roads and release oxygen and reduce the pollution.
- Road side tree planting has many co-benefits beyond dust control: productive asset, reduced crop damage, reduced soil erosion, improved visibility, wind break, shade, carbon sequestration, beautification.



**Fig-3.1:Plants at road side**

In planning road side tree planting one has to consider ownership of road reserve, plans of future road widening, economic value of tree species, shape of tree barrier, root development, road vision, road safety, access to water.

**Plantation at Industrial surroundings:**

- As industries consist of large amount area at its surroundings, there we can plant trees.
- These will reduce some of the noise pollution and air pollution at the surroundings of it.
- We have to plant which grow tall and large so they reduce pollution, and gives attraction of industries also.
- The chief objectives of landscaping industrial areas are to reduce pollution caused by hazardous gases, noise, to improve microclimate and aesthetic values.
- Desirable characteristics of trees for an industrial landscape is broad leaved tree with rough surface, pubescence, large number of stomata and efficient in tapping dust and other particles.
- Trees suitable for landscaping industrial areas must be tolerant to SO<sub>2</sub>, Fluoride and fly ash, smoke.

**Plantation at Institutions:**

- The main aim of planting trees at educational and other institutions is to create a barrier against noise, dust, screen some areas and to provide shade for recreational activities and for outdoor educational activities.
- Huge evergreen trees with large canopies along with some small flowering trees would be an ideal scheme for tree planting.
- A thickly planted belt of silver oak, Polyalthia, longifolia for peripheral planting is considered ideal.



**Fig-3.2:Plants at College**

**Plantation at Empty Fields:**

- Now a days the fields of cultivating farms are sold to the merchants and they are cashing the land by making those lands as home ventures and villas.
- As these ventures flats are just bought by the people wouldn't construct them as these spaces are empty until they construct home.
- So, we can plant trees in those empty spaces which can offer food for the wild life organisms.
- The vegetation in empty areas would be to reduce pollution and balance the temperature.
- In our surroundings also, we can plant trees which reduces the noise levels as trees acts as buffer against sound.
- These plantation of trees gives shelter for birds and many more creatures.
- Mixed cropping is also one solution as we can plant more trees in the fields and get more benefit as they grow.

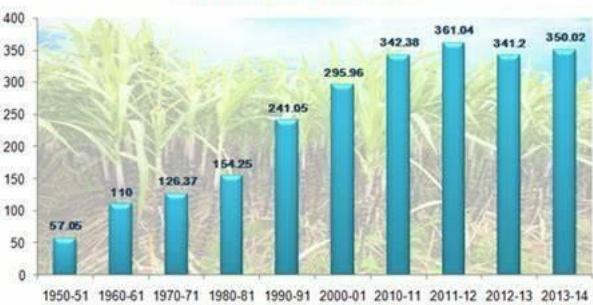


**Fig-3.3: Plants at Empty Spaces**

**Bar graph representation:**

**Sugarcane Production in India**

Data: million tonnes



**Fig-3.4: Bar graph representation of 5 major crops in Kerala**

**Pie chart representation:**

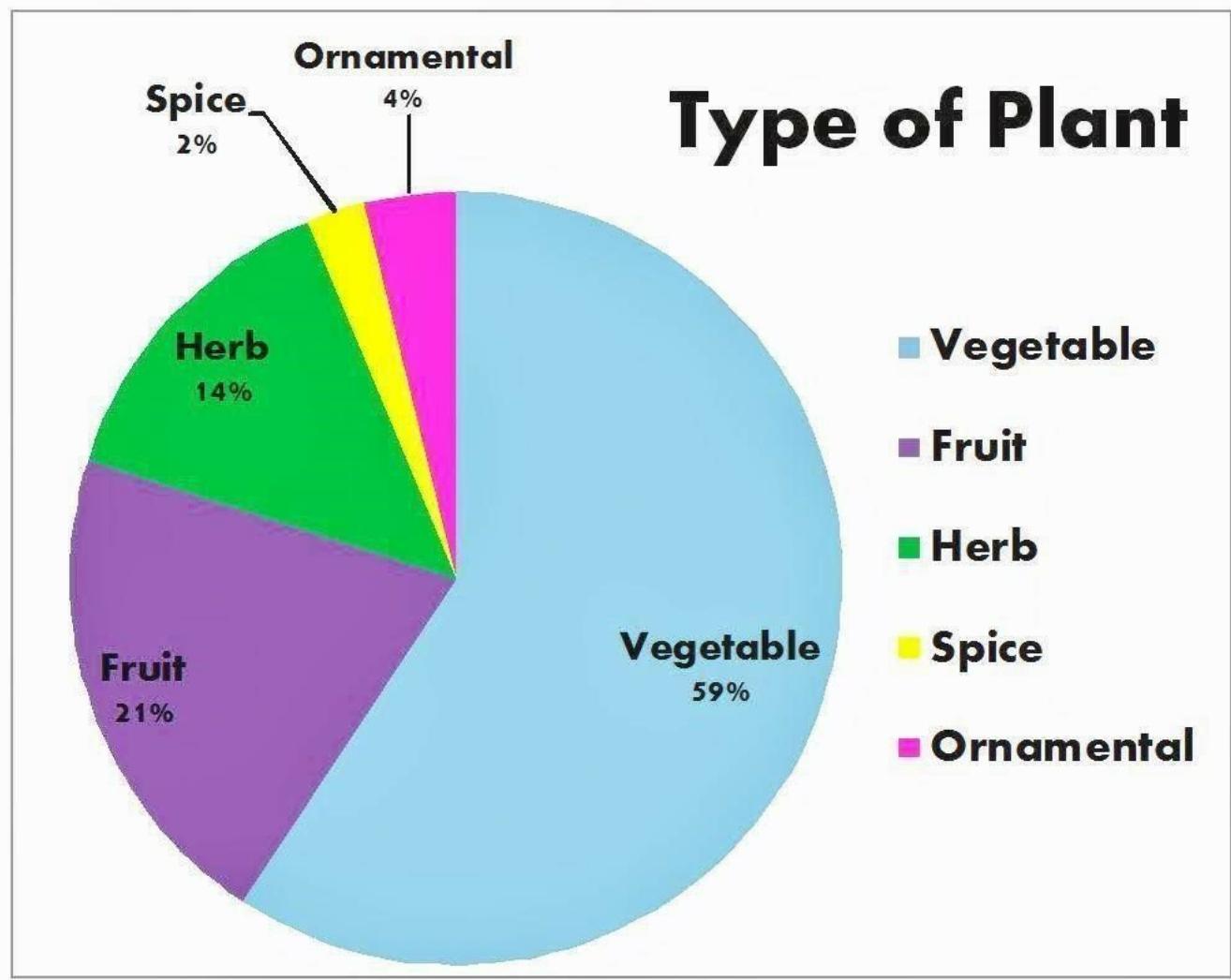


Fig-3.5:Pie chart about cultivation

#### CHAPTER-4

##### Week Wise Activity Log Book

##### ACTIVITY LOG FOR THE FIRST WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge	Time duration	Signature
Day – 1 21-08-22	We selected a topic plantation we decided to do this in our locality Eluru	We went to that place		11am to 7pm	
Day – 2 22-08-22	We visited some fields to gather some information about plants	We gained some knowledge about plants		8am to 4pm	
Day – 3 23-08-22	We captured and noticed each and every thing about plants	We gained some information		12pm to 8pm	
Day – 4 24-08-22	Usage of bore well (drip irrigation/normal irrigation)	We learned how to reduce the shortage of water		9am to 5pm	
Day – 5 25-08-22	Usage of high fertilizers and pesticides	We learned about how plants are effected due to fertilizers and pesticides		10am to 4pm	
Day – 6 26-08-22	We asked some questions to the nursery owner	To clear our doubts		9am to 5pm	
Day -7	We asked about the growth of plants and the diseases during the growth	We gathered some information		9am to 4pm	

**WEEKLY REPORT**

WEEK-1(21/08/2022 to 27/08/2022)

**Objective of the Activity Done:** Collected the total information of community service project**Detailed Report:**

- In this week project guide made a team of 4 members to do community service project in Eluru.
- We selected a topic “PLANTATION”.
- Here we visited some of the fields to gather information about plantation.
- In this week our team collectively went to the fields to outlook the condition and situation of the particular plant.
- What we found in the area are:

1. In that area most of the workers are using bore wells water to cultivate the crop.
2. Also most of the farmers using high amount of fertilizers and pesticides for better production.

Nowadays usage of fertilizers and pesticides had became very common and there is no organic farming

**Time Duration:** 53 hours spent in this week**ACTIVITY LOG FOR THE SECOND WEEK**

<b>Day &amp; Date</b>	<b>Brief description of the daily activity</b>	<b>Learning Outcome</b>	<b>Person</b>
			<b>Time</b> <b>In-duration Charge</b>
			<b>Signature</b>
Day – 1 28-08-22	Introduction of plantation	Plantation: A group of commercial crops of perennial nature, cultivated extensively in tropical and subtropical situations which need employment of labour throughout the year and the produces of which are usually consumed after processing.	9am to 5pm
Day - 2 29-08-22	Types of soil for plantation	Sandy soil  Loamy soil  Red soil  Clay soil  Silty soil	11am to 7pm
Day – 3 30-08-22	Soil preparation	In agriculture ploughing,  levelling and manuring are the three steps of soil preparation ploughing  includes loosening and digging of soil	10am to 6pm
Day – 4 01-09-22	Importance of plantation	They provide us oxygen, filter carbon dioxide, prevent soil erosion, maintain the ecological balance and they provide food and cleans the air	10am to 5pm
Day-5 02-09-22	Features of plantation	It is primarily carried out for commercial purpose.  Plantation grow a variety of crops.	12am to 8pm
Day-6 03-09-22	Integrated Pest and Disease management	Emerging pests and pathogens and increasing pesticide resistance continue to pose significant challenges to horticulture.	9am to 5pm

**A signal crop is grown over a large area.****It is capital intensive and done with migrant labour.**

**Day-7 Characteristics of plantation** **All produce is used as raw material in industries such as tea coffee rubber sugarcane banana etc.**

8am to 4pm

**Plantation has an interface of agriculture and industry both.**

**Objective of the Activity Done:****Detailed Report:**

- On first day we just entered the nursery and we observed all the different types of plants in nursery very clearly and the workers explained us about cultivation process briefly.
- In this week we all made a group and understood what is plantation.
- How is the plant cultivation is being done.
- How to use resources efficiently.
- Which type of soil is used for which type of plants.
- How to use pesticides and fertilizers.
- Characteristics of Plantation.

**Time Duration:** 55 hours spent in this week**ACTIVITYLOG FOR THE THIRD WEEK**

<b>Day &amp; Date</b>	<b>Brief description of the daily activity</b>	<b>Learning Outcome</b>	<b>Time duration</b>	<b>Person In-Charge Signature</b>
Day – 1 10-09-22	we continued surveying the remaining workers	We gained better knowledge Compared to first week	9am to 5pm	
Day – 1 10-09-22	We learned about cultivation of the plants based on the type of land	Land suitable plants will be cultivated	9am to 5pm	
Day – 1 10-09-22	We asked them about time taken by a growing of a plant	We learned about slowest growing plant is permanent plant and fastest growing crops seasonal crop	9am to 5pm	
Day – 2 11-09-22	We asked them about required labour to planting	Its based on the amount of land	11am to 7pm	
Day – 2 11-09-22	We asked them about in how much period of time we can give water to plant after planting	We learned we can give water after completion of planting but with less amount	11am to 7pm	
Day – 2 11-09-22	Advantages of multiple plants	Learned about it increases the harvest and soil fertility	11am to 7pm	

**WEEKLY REPORT**

WEEK-3(10/09/2022 to 11/09/2022 )

**Objective of the Activity Done:****Detailed Report:**

In this week we continued surveying the remaining farmers.

When compared to first 2 weeks we had lot of experience with field workers while conducting survey they are as follows:

- The farmers cultivate the crops based on the type of the land.
- We learned about time taken by the crop to grow also we learned about the fastest growing crop and slowest growing crop.
- We learned about which fertilizers are used for particular problem.
- By the usage of needed fertilizers we can reduce the problem.
- We learned about multiple cropping and profits earned by the farmers based on multiple cropping.

**Multiple cropping:**

Cultivating two or more crops at the same time in the same field when multiple crops are grown simultaneously that is known as inter cropping.

It increases the harvest export and foreign exchange. It uses in maintaining and improving the soil fertility.

We also completed the survey. We have taken the survey of 10 members in the village.

**Time Duration:** 16 hours spent in this week.**ACTIVITYLOG FOR THE FORTH WEEK**

<b>Day &amp; Date</b>	<b>Brief description of the daily activity</b>	<b>Learning Outcome</b>	<b>Time duration</b>	<b>Person InCharge Signature</b>
Day – 1 17-09-22	We continued our survey. We asked them about time taken for growth of plant.	We learned about slowest plant is permanent and fast growing crops are seasonal crops.	12PM-8PM	

Day - 2 We asked them about required labour to planting

It is based on the amount of land.

18-09-  
22**WEEKLY REPORT****WEEK – 4 (17/09/2022 to 18/09/2022)****Objectives of the Activity done:** Community awareness campaigns conducted.**Detailed Report:**

In this fourth week, we continued our survey to gain better information about plantation.

We compared to first 2 weeks. We had a lot of experiences with field workers.

They are as follows:

- We learned about time taken by the crop to grow. Also, we learned about the fastest growing crop and slowest growing crop.
- We learned about the workers needs to do plantation.

**Time Duration:** 16 hours spent in this week.**ACTIVITY LOG FOR THE FIFTH WEEK**

<b>Day &amp;</b>	<b>Brief description of the daily activity</b>	<b>Learning Outcome</b>	<b>Person InCharge</b>
<b>Date</b>			<b>Time duration</b>
Day - 1 24-09- 22	We asked them about in how much period of time we can give water to plant after planting.	We learned that we can give water after planting but with less amount.	12PM to 8PM
Day - 2 25-09- 22	Advantages of multiple plants	We learned about harvest and soil fertility	9am to 4pm

**WEEKLY REPORT****WEEK -5(24/09/2022to 25/09/2022)****Objectives of the work done:** Visited Nursery**Detailed Report:**

In this week also we continued our survey. We gained a lot of information about plantation.

Cultivating two or more crops at the same time in the same field when multiple crops are grown simultaneously that is known as inter cropping.

It increases the harvest export and foreign exchange. It uses in maintaining and improving the soil fertility.

**Time Duration:** 16 hours spent in this week**ACTIVITY LOG FOR THE SIXTH WEEK**

<b>Day &amp;</b>	<b>Brief description of the daily activity</b>	<b>Learning Outcome</b>	<b>Person InCharge</b>
<b>Date</b>			<b>Time duration</b>
Day - 1 01-10- 22	We visited a nursery which is in our locality and gained some knowledge about plantation	Plantation is recognized as one of the most environmental friendly	12PM-8PM
Day - 2 11-09- 22	The nursery manager gave us 2 days of time period. We asked them about which type of plants they imported.	They imported some flower plants, vegetable plants and some gardening plants.	9AM to 5PM

**WEEKLY REPORT****WEEK – 6 (01/10/2022 to 02/10/2022)****Objectives of the Activity done :-** Documentary**Detailed Report :-**

In third week, we visited a Nursery which is in our locality and we gained some knowledge about plantation and also we observed different types of plants.

The nursery manager gave a 2 days of time period to gain knowledge about plants

As per our observation we have noted some points which is useful for plantation.

- Planting is recognized as one of the most environmental friendly activity.
- When you plant a tree, you are not only planting a plant but also hoping for the best environment

We asked team about which type of plants they mostly import, they are importing flower plants, vegetable plants and some of the gardening plants.

We learned about hybrid plantation

#### **Hybrid plants:**

Hybrid plant is the result of cross pollinating to different plant varieties and growing the seed the mix produces. The plant that grows from that seed combination is called a hybrid.

**Time Duration:** 16 hours spent this week

#### **ACTIVITY LOG FOR THE SEVENTH WEEK**

<b>Day</b>	<b>Person</b>		
<b>Date</b>	<b>&amp; Brief description of the daily activity</b>	<b>Learning Outcome</b>	<b>Time duration InCharge</b>
			<b>Signature</b>
Day-1 08-10-22	Survey in LBH school at Eluru	Giving awareness program about plantation	3PM-6PM
Day-2 09-10-22	Short term and long term action plans	We learned about short term and long term actions	10AM-5PM

#### **WEEKLY REPORT**

WEEK – 7 (08/10/2022 to 09/10/2022)

#### **Objectives of the Activity Done :- Documentary**

#### **Detailed Report :-**

In this fourth week, we have conducted totally 6 campaigns in nearby schools.

During survey, we realised firstly to aware the children. so, we conducted an awareness campaign.

We gave awareness program to 9 th class students.

The speech is given by us about Plantation.

After knowing about the student's knowledge regarding the plantation. We make a proper note. We lecture them importance of plantation and uses of plants is...

Tree plantation is the process of transferring of seedlings from one place to another for different purposes. Furthermore, there are various reasons behind tree plantation but the most important are forestry, land reclamation and land scaping. Each process of tree plantation is important and unique in its own way

- As per the CSP, we planned to do short-term action plans.
- As per the CSP, we planned to do long-term action plans.

**Time Duration:** 10 hours spent in this week

#### **ACTIVITY LOG FOR THE EIGHTH WEEK**

<b>Day</b>	<b>Person</b>		
<b>Date</b>	<b>&amp; Brief description of the daily activity</b>	<b>Learning Outcome</b>	<b>Time duration InCharge</b>
			<b>Signature</b>
Day-1 16-10-22	All the work done in 192 hours converted into videos and photos and uploaded to social media	Awareness through social media	10AM-6PM

#### **WEEKLY REPORT**

WEEK-8(16/10/2022 to 16/10/2022)

#### **Objectives of the Activity Done :- Documentary**

#### **Detailed Report :-**

We documented all the work done in these 5 weeks in the form for

- Talk-videos
- Photos
- Interviews

With the support of documentation of videos, photos, interview, we spread awareness through social media platform like,

- Face book
- what's up
- Twitter
- Instagram
- You tube

As we conclude that plantation has shown resilience to various economic crises in the last decade. Plantation is a short duration of crop assuring quick return on investment.

By planting trees we have a lot of advantages and it's necessary for our daily life. It is our responsibility to plant trees.

**Time Duration:** 8 hours spent in this week

## CHAPTER-5

### OUTCOMES DESCRIPTION

#### 5.1- Plantation Questionaries

##### 1. Which of the following state is the largest producer of tea in India?

- A. Karnataka
- B. Assam
- C. West Bengal
- D. Tamil Nadu

**Ans: B**

##### 2. Which of the following plantation crop produces in India are produced in excess of its demand?

- A. Tea
- B. Foodgrains
- C. Petroleum
- D. Rubber

**Ans: A**

##### 3. The Barak Valley of Assam is famous for the cultivation of which crop?

- A. Oil palm
- B. Tea
- C. Sugarcane
- D. Coffee

**Ans: C**

##### 4. Which of the following Indian State is the largest producer of rubber?

- A. Tamil Nadu
- B. Andhra Pradesh
- C. Karnataka
- D. Kerala

**Ans: D**

##### 5. The Green Gold revolution is related to the \_\_\_\_\_.

- A. Coffee
- B. Gold
- C. Bamboo
- D. Tea

**Ans: C**

#### 5.2- Describe the problems you have identified in the community

Climatic hazards:

The climatic requirements of crops like rubber, cocoa and oil palm, which need constantly high temperatures, high relative humidity and very heavy rainfall, are unfortunately, those least suited to human activities. The heat and high humidity sap human energy and reduce the amount of work people can do. Local winds like the harmattan, hurricanes and typhoons can cause great damage to plantation crops, and in sub-tropical areas excessive rainfall or an extended drought can also reduce output or damage trees. In marginal sub-tropical areas frost is a major hazard. Coffee production in Brazil has frequently suffered from the effects of an unexpected frequency. The tropics with their hot, humid conditions encourage the growth of insects and bacteria and also the spread of diseases. Consequently plantations may suffer from uncontrollable outbreaks of plant diseases, e.g., coffee blights, or the depredations by insect pests such as the boll weevil of the cotton plantations. At the same time the labour force is also prone to virus diseases such as fevers which reduce productivity. In some areas malaria has not yet been completely eradicated.

#### Difficulties of clearing and maintenance:

The hot, wet, tropical climates encourage the growth of a wide variety of vegetation. In rain forests, for instance, there is a multiplicity of species; tall trees, palms, undergrowth ferns and various kinds of herbaceous, epiphytic and parasitic plants. A dense vegetative cover is difficult to clear to make way for plantations and a sound communication network. It is even more expensive to prevent forest shrubs and trees encroaching on such clearings.

Land:

It is an established fact that land is the world's most valuable resource and public scrutiny of land is becoming more intense with each passing year. With increasing population the competition on

land for agriculture development is ever increasing.

#### Labour and mechanization:

Labour supply is another issue of great concern. In Malaysia the agricultural sector is experiencing a shortage of labour because of the rural to urban migration of youth to work in factories. Although the labour requirement in forest plantations is less than in agriculture it still has to compete for labour in an expanding Malaysian economy where the working conditions in other industries are usually more conducive.

A natural tendency is for the plantation sector to engage foreign workers. The foreign labour recruitment process had never been efficient. The weaknesses have been attributed to inconsistent government policy on foreign workers' employment coupled with lack of dedication of the foreign workers resulting in extremely high turnover of manpower. One option to alleviate the labour shortage is increased mechanization. Machines developed in countries like Finland and Canada for example are environmentally friendly and highly flexible in their operation in forest plantations.

#### **5.3-Short-term and long-term action plan for possible solutions for the problems identified and that could be recommended to the concerned authorities for implementation.**

##### **Short-term measures:**

- Use of water efficient technology in irrigation such as Drip irrigation and Sprinkler irrigation
- Use of HYV seeds to increase productivity
- Use of biotechnology in GM crops such as BT-cotton and BT-brinjal.
- Soil health card can be used as deterministic factor in fertilizer decision It will improve the Quality of the soil.
- Avoid soil erosion through various methods like – control binding and terracing which will Help in agriculture failure

##### **Long-term measures:**

- Comprehensive National seed policy is need of hour which can envisage the HYV
- Reform in APMC act is required to prevent the leakages and enhance transparency and accountability
- proper market should be available for farmers It can be increased through mega food parks
- Huge investment as well as use of modern scientific approach is required in irrigation. Only 46% of sowed area is irrigated land. India needs to enhance tube well, tank irrigation and canal irrigation system. Huge canals need to rebuild (Solar plates above canals reduces evaporation losses) PMSKY gave 50000 Cr to increase India's irrigation potential to fulfill "more crop per drop".



#### **5.4-Description of the Community awareness programs/conducted with respect to the problems and their outcomes.**

##### **Avoid Improper Watering:**

There is a high percentage of newly planted trees that die from overwatering than not enough water. In clay soils, especially, drainage can suffocate the tree's roots. Improper watering can drown your young tree or cause it to dry out in the hottest part of the summer. The rule of thumb for watering trees is slow, deep, and infrequent. In Denton, Tarrant, and Dallas county water trees approximately 5 to 10 gallons per caliper inch 3 times per week depending on the soil. Water more often during the summer and dry spells, and keep in mind your soil type when watering. Clay soil needs longer watering intervals because it absorbs water poorly, while sandy soil needs shorter intervals more often. Don't forget to water your tree during dry spells in the winter; even though your tree is dormant, it still requires water to survive. The soil should be moist, not saturated.

##### **Avoid Planting Too Deep:**

Whether a tree is balled and burlap (B&B) or containerized, there is almost always excess soil on top of the tree root ball that needs to be removed. Once the dirt is removed and the true ball height has been determined, measure it so the planting hole can be dug to the right height.

Planting too deep is a common reason for tree decline. One study found that more than 90 percent of professionally planted trees were planted too deep. We see this happening everyday Burying

the tree's root collar, either by planting it too deep or by volcano mulching, can cause reduced growth, less oxygen, defoliation, leaf yellowing, girdling roots, branch dieback, and even tree death. Although the tree may seem fine at first, these symptoms can take years to appear. If your tree's flare is covered it's buried too deep. Typically, you will plant the tree with the root flare approximately 2" higher than the ground around the tree. Keep the tree's root flare exposed and keep mulch away from the base of the tree approximately 3". This will help reduce the risk of disease, fungus, decay, insects and ultimate death of the tree.

##### 5.5- Report of the mini-project work done in the related subject with respect to the habitation/village.



### DR. P.P. RAO MEMORIAL LITTLE BUDS CONVENT

Near Ganganamma Temple, Western Street, Eluru-534001

Appreciation letter for performed skills in our organization

This is Certifying that Ch. Sasikala, Hemasri, I. Likhitha, J. Rohini from Eluru College of engineering and technology. They conducted an awareness camp in LBC high school about plantation and motivated the students to plant the trees and to protect the environment.

Head master

LBC School

G. Selvamagan,  
HEAD MASTER

Dr.P.P.Rao Memorial

LITTLE BUDS HIGH SCHOOL  
Western Street, ELURU-1

Batch Number:11  
21JD1A4510  
21JD1A4514  
21JD1A4521  
21JD1A4523

##### Definition :

A group of commercial crops of perennial nature, cultivated extensively in tropical situations which need employment of labour throughout the year and the produce of which are usually consumed after process

##### Vegetative propagation:

Asexual or vegetative reproduction is based on the ability of plants to regenerate tissues and parts. In many plants vegetative propagation is a completely natural process; in others it is an artificial one. Vegetative propagation has many advantages. These include the unchanged perpetuation of naturally cross-pollinated or heterozygous plants and the possibility of propagating seedless progeny. This means that a superior plant may be reproduced endlessly without variation. In addition, vegetative propagation may be easier and faster than seed propagation, because seed dormancy problems are eliminated and the juvenile nonflowering stages seed-propagated plants is eliminated or reduced. However, vegetative propagation can result exact genetic clones to one another, making them identically susceptible to diseases.



Fig5.1:Onion propagation

#### Apomixis:

Apomixis, the development of asexual seed (seed not formed via the normal sexual process), is a form of vegetative propagation for some horticultural plants including Kentucky bluegrass, mango, and citrus. Virus-free progeny can be produced in oranges from a seed that is formed from the nucellus, a maternal tissue.

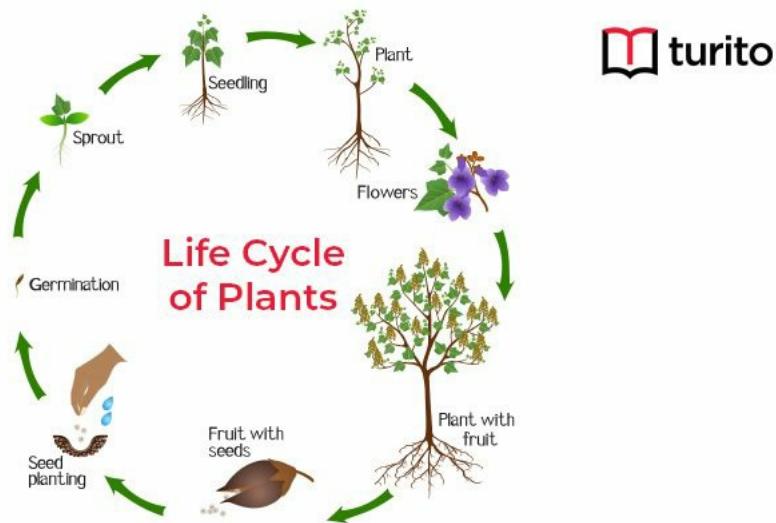


Fig5.2: cyclic process of plants

#### **Layering and cutting:**

Propagation can be accomplished by methods in which plants are induced to regenerate missing parts, usually adventitious roots or shoots. When the regenerated part is still attached to the plant the process is called layerage, or layering, when the regenerating portion is detached from the plant the process is called cottage, or cutting.



**Fig5.3: Layering and Cutting**

#### Soil propagation

The most common method of propagation for self-pollinated plants is by [seed](#). In self-pollinated plants, the sperm nuclei in [pollen](#) produced by a [flower](#) fertilize egg cells of a flower on the same plant. Propagation by seed is also used widely for many cross-pollinated plants (those whose pollen is carried from one plant to another). The ability of stems to regenerate missing parts is variable; consequently plants may be easy or difficult to root.

The physiological ability of cuttings to form roots is due to an interaction of many factors. These include transportable substances in the plant itself: plant hormones (such as [auxin](#)), carbohydrates, nitrogenous substances, vitamins, and substances not yet identified. Environmental factors such as light, temperature, humidity, and oxygen are



**Fig5.4: seed propagation**

#### Breeding:

The isolation and production of superior types known as [cultivars](#) are the very keystones of horticulture. [Plant breeding](#), the systematic improvement of plants through the application of genetic principles, has placed improvement of horticultural plants on a scientific basis. The raw material of improvement is found in the great variation that exists between [cultivated plants](#) and related wild species. The incorporation of these changes into cultivars adapted to specific geographical areas requires a knowledge of the theoretical basis of heredity and art and the skill to discover, perpetuate, and combine these small but fundamental differences in plant material.



Fig 5.5: Plants testing in laboratory

The goal of the plant breeder is to create superior [crop varieties](#). The cultivated variety, or [cultivar](#), can be defined as a group of crop plants having similar but distinguishable characteristics. The term cultivar has various meanings, however, depending on the mode of reproduction of the crop. With reference to asexually [propagated crops](#), the term cultivar means any particular clone considered of sufficient value to be graced with a name. With reference to sexually propagated crops, the concept of cultivar depends on the method of [pollination](#). The cultivar in self-pollinated crops is basically a particular homozygous genotype, a pure line. In cross-pollinated crops the cultivar is not necessarily typified by any one plant but sometimes by a particular plant population, which at any one time is composed of genetically distinguishable individual.

#### **Environmental control:**

Control of the natural [environment](#) is a major part of all forms of [cultivation](#), whatever its scale. The basic processes involved in this task have already been described in a preceding section on the principles of [gardening](#), and these also apply to horticulture. The scale, intensiveness, and economic risk in commercial gardening and [nurseries](#), however, often require approaches markedly different from those of the small home garden; and some of these are described here.

The intensive cultivation practiced in horticulture relies on extensive control of the environment for all phases of plant life. The most basic environmental control is achieved by location and site: sunny or shady sites, [proximity to](#) bodies of water, altitude, and latitude.

#### **Structures:**

Various structures are used for temperature control. Cold frames, used to start plants before the normal [growing season](#), are low enclosed beds covered with a removable sash of glass or plastic. Radiant energy passes through the transparent top and warms the [soil](#) directly. Heat, however, as long-wave radiation, is prevented from leaving the glass or plastic cover at night. Thus heat that builds up in the cold frame during the day aids in warming the soil, which releases its heat gradually at night to warm the plants. When supplemental heat is provided, the structures are called [hotbeds](#). At first, supplemental heat was supplied by [respiration](#) through the decomposition of manure or other organic matter. Today, heat is provided by electric cables, steam, or hot-water pipes buried in the soil.

#### **[Greenhouse](#):**

[Greenhouses](#) are large hotbeds, and in most cases the source of heat is steam. While they were formerly made of glass, plastic films are now extensively used. Modern [greenhouse ranges](#) usually have automatic temperature control. Summer temperatures can be regulated by shading or evaporative "fan-and-pad" cooling devices. Air-conditioning units are usually too expensive except for scientific work. Greenhouses with precise environmental controls are known as [phytotrons](#) and can be used for plants with specific growing requirements or for scientific experiments and environmental modeling. Other environmental factors are controlled through automatic watering, regulation of light and shade, addition of [carbon dioxide](#), and the regulation of fertility.

Shade houses are usually walk-in structures with shading provided by lath or screening. Summer [propagation](#) is often located in shade houses to reduce excessive water loss by [transpiration](#).

Fig5.6: Plants cultivation at green houses

#### **Temperature control:**

A number of temperature-control techniques are used in the field, including application of hot caps, cloches, plastic tunnels, and mulches of various types. Hot caps are cones of [translucent paper](#) or plastic that are placed over the tops of plants in the spring. These act as miniature greenhouses. In the past small glass sash called cloches were placed over rows to help keep them warm. Polyethylene tunnels supported by wire hoops that span the plants are now used for the same purpose. As spring advances the tunnels are slashed to prevent excessive heat buildup. In some cases the plastic tunnels are constructed so that they can be opened and closed when necessary.



**Fig-5.7:Temperature checking for a plant**

#### **Frost control:**

Frost is one of the high-risk elements for commercial growers, and the problem is accentuated by the fact that growers are striving to produce early-season crops. The precautions are consequently far more elaborate and costly than those of the domestic [garden](#). Frost is especially damaging to [perennial fruit](#) crops in the spring because [flower](#) parts are sensitive to freezing injury and to tender transplants. The two weather conditions that produce freezing temperatures are rapid radiational cooling at night and introduction of a cold [air mass with](#) temperatures below freezing. [Radiation frost occurs](#) when the weather is clear and calm; air-mass freezes occur when it is overcast and windy. Frost-control methods involve either reduction of radiational heat loss or conservation or addition of heat. Radiational heat loss may be reduced by hot caps, cold frames, or mulches. Heat may also be added from the air. Wind machines that stir up the air, for example, provide heat when temperature [inversions trap](#) cold air under a layer of warm air. These have been used extensively in citrus groves. Heat may be added directly by using heaters, usually fueled with oil. Sprinkler [irrigation can](#) also be used for frost control.

#### **Light control:**

[Light has](#) a tremendous effect on plant growth. It provides energy for [photosynthesis](#), the process by which plants, with the aid of the pigment [chlorophyll](#), synthesize carbon [compounds](#) from water and carbon dioxide. Light also influences a great number of physiological reactions in plants. At energy values lower than those required for photosynthesis, light affects such processes as dormancy, flowering, tuberization, and seed-stalk development. In many cases these processes are affected by the length of day; the recurrent cycle of light is known as the [photoperiod](#).

The control of light in horticultural practices involves increasing energy values for photosynthesis and controlling day length. Light is controlled in part by site and location. In the tropics day length approaches 12 hours throughout the year, whereas in polar regions it varies from zero to 24 hours. Light is also partly controlled by plant distribution and [density](#).

Supplemental illumination in greenhouses increases photosynthesis. The cost of power to supply the artificial light, however, makes this impractical for all but crops of the highest value. Fluorescent lights are the most efficient for photosynthesis; special lights, rich in the wave lengths required, are also available.

#### **Soil management:**

The principles involved here are again similar to those of home [gardening](#). But the financial [considerations of](#) horticulture naturally require a more scientific approach to soil care. To be successful, the grower must ensure the economic use of every square yard of ground, especially because the cost of sound horticultural land is among the highest of any in agriculture. [Crop rotation is](#) planned to ensure that the soil is not depleted of essential chemicals by repeated use of one type of plant in the same plot. Soil analysis is employed so that any such depletion can be rectified promptly.

[Fertilizers are](#) applied in a precise routine and, of course, in a variety beyond the reach or needs of the ordinary gardener. They are frequently applied through leaves or stems in the form of chemical sprays.



## **Fig 5.8 : Soil preparation**

### **Benefits Of Plantation In India:**

#### **Cleaner air across the country:**

The more trees there are, the cleaner the air will be. This is due to the oxygen levels provided by trees that are then provided to other living things, helping us breathe better and cleaner air. It is also down to the fact that trees have the ability to absorb pollutant gases and odours, such as ammonia, nitrogen oxides, ozone and sulphur dioxide. They can also filter particulates from the air using their bark and leaves. Trees are pretty smart, aren't they?

#### **Cleaner water and natural filtration:**

Trees and forests can provide natural filtration, resulting in cleaner water. This is due to vegetation intercepting rain water, slowing it down and stopping it from eroding the soil on the ground.

Eroded soils drag pollutants into nearby water and negatively impacting aquatic life. But as the rain water is slowed down, the soil can gradually absorb a more manageable amount, helping it to recharge groundwater and hydrate surrounding trees, all while protecting lakes and rivers!



**Fig-5.9: Clean water and natural filtration**

#### **Carbon sequestration:**

Planting trees can help to slow down the process of heat trapping of carbon dioxide in our atmosphere, resulting in a rising climate and contributing to global warming. Did you know that a tree can absorb almost 22 kilograms of carbon dioxide each year?! That's a huge amount being sequestered over time.

#### **Controlled temperatures:**

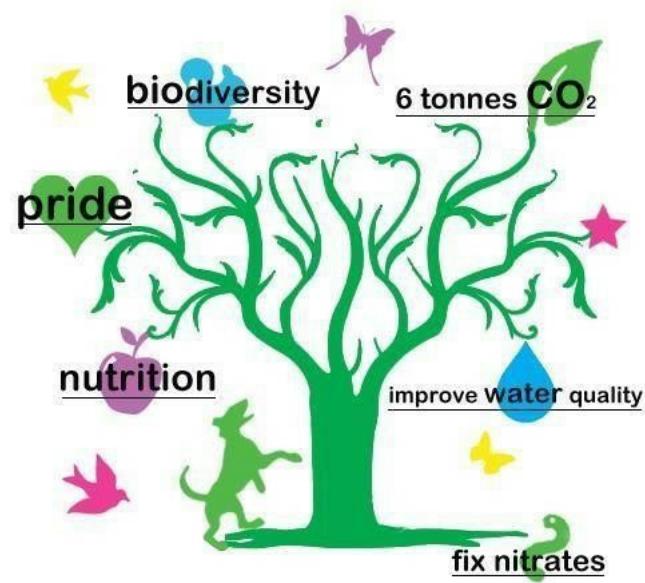
Trees are essentially nature's wind breakers, providing protection and shade during hot weather and dazzling sunshine. Depending on the number of trees, this could help protect a few people or even an entire town! Large towns and cities are always going to be warmer than surrounding areas. Having lots of trees can help to protect against this effect, keeping the temperature lower and saving on the cost of artificial cooling such as air conditioning.



**Fig-5.10: Growth of a plant**

#### **New habitat for Wild Life:**

Wild animals use trees for shelter, building their nests, sourcing and storing food, mating and hibernating. Deforestation occurring around the world, these creatures are becoming endangered. By planting more trees, we are giving them safe, natural environments to thrive. But it's not just animals to consider! There are many natural flora and fauna that are protected by trees in the wild too! These points only begin to scrape the surface of why plantation is such a positive when considering ways to make a difference to Planet Earth.



**Fig-5.11: Benefits of plantation**

## CHAPTER-6

### RECOMMENDATIONS AND CONCLUSIONS OF THE MINI PROJECT

#### Conclusion

Plants: Conclusion As biologists have learned more about the physiology of plants the biochemical reactions involved in their growth, maintenance, and reproduction, and in their genetic composition, it has proved necessary to rename the science of botany.

The skills of plant scientists are needed now as never before. Unless food production increases rapidly, the predicted rise in the world population means there could be serious shortages by the middle of the 21st century. Plant scientists will need to develop new crop varieties that yield more, make more economical use of water, and are more nutritious than those being grown today. They will have to employ traditional breeding techniques and genetic modification—not least to minimize dependence on costly agricultural chemicals. Plant scientists also have another task, to identify, classify, and record the plant species that are growing in areas threatened by agricultural, forestry, or urban expansion. Without this knowledge it will be impossible to assess the extent of biodiversity and the risks to it. Among the previously unknown plants, there may be some that have the potential to become important sources of food, fiber, or drugs. There is no shortage of urgent tasks facing plant scientists. Perhaps, having read this book, you would like to become one of them and contribute to the important and exciting discoveries that will certainly emerge in year.

#### PHOTOS AND VIDEO LINKS

<http://photos.app.goo.gl/1LAfmUDVtGJbdvNKA>

<http://photos.app.goo.gl/WXJ48udREbEagJbq6KA> <http://photos.app.goo.gl/EWtry45YFDijj87YH89A>

Student Self-Evaluation for the Community Service Project

**Student Name:** Ch.SasiKala, D.HemaSri, I.Likhitha, J.Rohini

**Registration No's:** 21JD1A4510, 21JD1A4514, 21JD1A4521, 21JD1A4523

**Period of CSP:** From 21/08/2022 to 16/10/2022

**Date of Evaluation:**

**Please rate your performance in the following areas:**

**Rating Scale: Letter grade of CGPA calculation to be provided**

1 Oral communication	1 2 3 4 5
2 Written communication	1 2 3 4 5
3 Proactiveness	1 2 3 4 5
4 Interaction ability with community	1 2 3 4 5
5 Positive Attitude	1 2 3 4 5
6 Self-confidence	1 2 3 4 5
7 Ability to learn	1 2 3 4 5
8 Work Plan and organization	1 2 3 4 5
9 Professionalism	1 2 3 4 5
10 Creativity	1 2 3 4 5
11 Quality of work done	1 2 3 4 5
12 Time Management	1 2 3 4 5
13 Understanding the Community	1 2 3 4 5
14 Achievement of Desired Outcomes	1 2 3 4 5
<b>15 OVERALL PERFORMANCE</b>	<b>1 2 3 4 5</b>

**Date: Signature of the Student**

**Evaluation by the Person in-charge in the Community / Habitation**

**Student Name: Ch.SasiKala, D.HemaSri, I.Likhitha, J.Rohini**

**Registration No:21JD1A4510,21JD1A4514,21JD1A4521,21JD1A4523**

**Period of CSP: From:21/08/2022 to 16/10/2022**

**Date of Evaluation:**

Please rate the student's performance in the following areas:

Please note that your evaluation shall be done independent of the Student's self-evaluation

Rating Scale: 1 is lowest and 5 is highest rank

1 Oral communication 1 2 3 4 5

2 Written communication 1 2 3 4 5

3 Proactiveness 1 2 3 4 5

4 Interaction ability with community 1 2 3 4 5

5 Positive Attitude 1 2 3 4 5

6 Self-confidence 1 2 3 4 5

7 Ability to learn 1 2 3 4 5

8 Work Plan and organization 1 2 3 4 5

9 Professionalism 1 2 3 4 5

10 Creativity 1 2 3 4 5

11 Quality of work done 1 2 3 4 5

12 Time Management 1 2 3 4 5

13 Understanding the Community 1 2 3 4 5

14 Achievement of Desired Outcomes 1 2 3 4 5

**15 OVERALL PERFORMANCE 1 2 3 4 5**

**PHOTOS FOR SURVEY**







#### INTERNAL ASSESSMENT STATEMENT

**Name Of the Students:** Ch.SasiKala, D.HemaSri, I.Likhitha, J.Rohini

**Programme of Study:** Community Service Project

**Year of Study:** II Year

**Group:** Plantation

**Reg No's:** 21JD1A4510,21JD1A4514,21JD1A4521,21JD1A4523

**Name of the College:** Eluru College of Engineering and Technology

Sl.No	Evaluation Criterion	Maximum	Marks Awarded
		Marks	
1.	Activity Log	20	
2.	Community Service Project Implementation	30	

3.	Mini Project Work	25
4.	Oral Presentation	25
	GRAND TOTAL	100

Date: **Signature of the Faculty Guide**

Certified by

Date: **Signature of the Head of the Department/Principal**

Seal: