



**MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION,  
MUMBAI**

**GOVERNMENT POLYTECHNIC KARAD**

**THIRD YEAR DIPLOMA COMPUTER ENGINEERING (I-SCHEME)**

**PART [A]**

**MICRO-PROJECT PROPOSAL**

**“Comparative Study and Analysis of Organic and Inorganic Farming”**

**UNDER THE SUBJECT**

**ENVIRONMENTAL STUDIES (22447)**

**SUBMITTED BY**

Sr.no	Roll No	Enrollment No	Name of Team Member
1.	2246	2100100047	Govind Batesing Vasave
2.	2249	2100100050	Manaswi Promod Bidkar
3.	2250	2100100052	Sakshi Sanjay Nande

**UNDER THE GUIDANCE**

**Smt. K.K.GAIKAWAD**

**(DEPARTMENT OF COMPUTER ENGINEERING) 2023-24**



**MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION,  
MUMBAI.**

**Certificate of completion**

**Of Micro-project Assessment at the end of Semester**

This is to certify that,

Sr.no	Roll No	Enrollment No	Name of Team Member
1.	2246	2100100047	Govind Batesing Vasave
2.	2249	2100100050	Manaswi Promod Bidkar
3.	2250	2100100052	Sakshi Sanjay Nande

Has successfully completed “**Comparative Study and Analysis of Organic and Inorganic Farming**” Micro-project of the Fifth semester Diploma in Computer Engineering of subject Environmental Studies (22447) from Government Polytechnic Karad. Institute with Institute code (0010).

**Prof. K .K. Gaikwad**  
(Project Guide)

**Prof. S. B. Patil**  
(Head of the department.)

**Dr. R. K. Patil**  
(Head of Institute)

Seal of the  
institute

## ACKNOWLEDGEMENT

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We take this opportunity to thank all those who have directly and indirectly inspired, directed and assisted us towards successfully completion of this project report.

We express our sincere thanks to Dr R. K. Patil Principal of Government Polytechnic, Karad and the Head of Department Prof. Patil S.B, for having us allowed to submit this report as a part of our academic learning.

We express our sincere thanks to Prof. K .K. Gaikwad Lecturer in Computer Engineering, Govt. Polytechnic, Karad for encouragement throughout the project report and guideline in designing and working out this project. We are also grateful to team of project.

Place: Government polytechnic Karad

Date:

**Yours Sincerely,**

2246-Govind Batesing Vasave

2249-Manaswi Promod Bidkar.

2250-Sakshi Sanjay Nande.

## ○ RATIONALE:

In this Micro-Project we are going to visit Organic farms and Inorganic farms. We will make conversation with farmer about their moto behind choosing the specific farming type , advantage and disadvantage of both farmers approach in terms of environmental impact ,sustainability ,soil health and human health. We will take the samples of soil from the both farmers, and check the pH of the both soils and checks the impact of Inorganic Farming on the soil and human. At last we will spread awareness about the Organic Farming through arranging sessions in the villages and distributing pamphlets.

## ○ AIM AND BENEFITS:

### ◎ AIM:

- 1)To avoid the use of chemicals such as pesticides, and synthetic fertilizers.
- 2)To stop the Inorganic farming in order to protect the soil from harmful chemicals.

### ◎ BENEFITS:

- 1)**Soil Heath:** Organic farming methods improve soil structure, fertility, and microbial diversity.
- 2)**Environmental Sustainability:** Organic farming reduces chemical usage, preserving soil quality and preventing water and air pollution.
- 3)**Environmental Awareness:** Exploring the causes of soil pollution caused due to Inorganic farming.

## ○ COURSE OUTCOMES:

- CO a- Develop public awareness about environment.
- CO c- Conserve Ecosystem and Biodiversity.
- CO d- Apply techniques to reduce environmental pollution.
- CO e-Manage social issues and Environmental Ethics as lifelong learning.

## ○ LITERATURE REVIEW:

- 1) We referred book, Book Name is Conventional and organic farming, by Victor M. Shorrocks.
- 2) We referred following link:
  - i) <https://senzagro.com/blogs/organic-vs-inorganic-farming/>
  - ii) <https://rodaleinstitute.org/why-organic/organic-basics/organic-vs-conventional/>

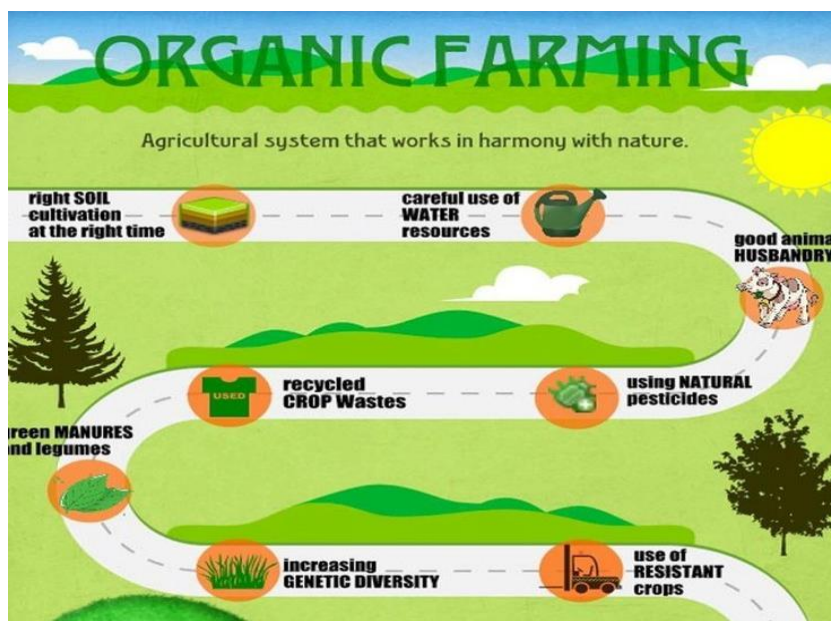
## ○ ACTUAL PROPOSED METHODOLOGY:

- 1) Discussion about given topic.
- 2) Selection of good leader and distribution of responsibilities.
- 3) Collection of information using different resources.
- 4) Analysis of given information.
- 5) Presentation of given report.
- 6) Completion and submission of given tasks.

## ○ ACTUAL RESOURCES REQUIRED:

Sr.no	Name of Resources	Specification	Quantity
1.	Computer system	Laptop i5 Processor 11 <sup>th</sup> Generation	1
2.	Ms Word	Microsoft Word 2021 MSO 64 bit	-
3.	Internet	4G, Wi-Fi	-
4.	Book	Conventional and organic farming, by Victor M. Shorrocks.	1

## ○ OUTPUT OF MICROPROJECT:



**Pamphlet for Awareness**

- **What is Organic Farming and Inorganic Farming?**

Organic farming is a method of agriculture that avoids the use of synthetic fertilizers, pesticides, and genetically modified organisms. Instead of natural processes like crop rotation, composting, and biological pest control, to maintain soil fertility and control pests. Organic farmers mostly promote biodiversity and minimize environmental impact.

Inorganic farming is an agriculture production method which involves the use of manmade products such as pesticides, herbicides, antibiotics, hormones and other chemical which are used to increase the rate of growth of crops.

- **Organic Farming:**

Organic farming can be defined as an agricultural process that uses biological fertilisers and pest control acquired from animal or plant waste. Organic farming was actually initiated as an answer to the environmental sufferings caused by the use of chemical pesticides and synthetic fertilisers.

➤ **Advantages:**

**Economical:** In organic farming, no expensive fertilisers, pesticides, or HYV seeds are required for the plantation of crops. Therefore, there is no extra expense.

**Good return on Investment:** With the usage of cheaper and local inputs, a farmer can make a good return on investment.

**High demand:** There is a huge demand for organic products in India and across the globe, which generates more income through export.

**Nutritional:** As compared to chemical and fertiliser-utilised products, organic products are more nutritional, tasty, and good for health.

**Environment-friendly:** The farming of organic products is free of chemicals and fertilisers, so it does not harm the environment.

➤ **Organic Farming can be implemented by using following ways:**

**Organic Fertilizer:**

Making fertilizer is one of the most important aspects of farming organically. This process includes using the optimal nutrients to enhance the growth of your crops. Organic farming methods like composting, mulching, and using bio-fertilizers will help promote healthy crop growth, as well as soil richness. Vermicomposting is another excellent method of introducing important nutrients into the soil naturally.

## **Pest control:**

Organic pesticides are derived from naturally occurring sources. These include living organisms such as the bacteria *Bacillus thuringiensis*, which is used to control caterpillar pests, or plant derivatives such as neem oil. Mineral-based inorganic pesticides such as sulfur and copper are also allowed.

## **Crop Rotation:**

Organic farming relies on good, natural soil health so crop rotation is a big part of the process. Rotating crops in your field keeps the soil balanced so certain nutrients don't get depleted, since various crops require different nutrients and leave other ones behind. Crop rotation is important to reduce pressure from insects, weeds, while supplementing nutrients in the soil. These trap crops that are planted between the main crop will also keep the soil rich and help avoid erosion. For more information on crop rotation, visit The Ontario Ministry of Agriculture, Food & Rural Affairs.

## **Our Visit to “Arun Kachare’s Organic Farm”**

**Name:** Mr. Arun Kachare.

**Location:** Wagheri Karad  
415105 Satara  
Maharashtra - India



- **Dashparni Ark:**

- **Required materials for Dashparni Ark:**

1. Neem, Sitafal, Jamun, Papaya leaves, Ramphal, Karvand, Yerend, Nirguna, Gudhal, Kranj leaves 2 kg.
2. Cow dung 3-4 kg
3. Cow urine 2-3 litres.
4. Water 200 litres.



**- Preparation method:**

**Step 1:**

Take 200 litres of water in a tank and then put 2 kg leaves of ten types of plants in the equal amount. After this, add 5 litres cow urine and 5 kg cow dung to the submerged leaves and mix this mixture well.

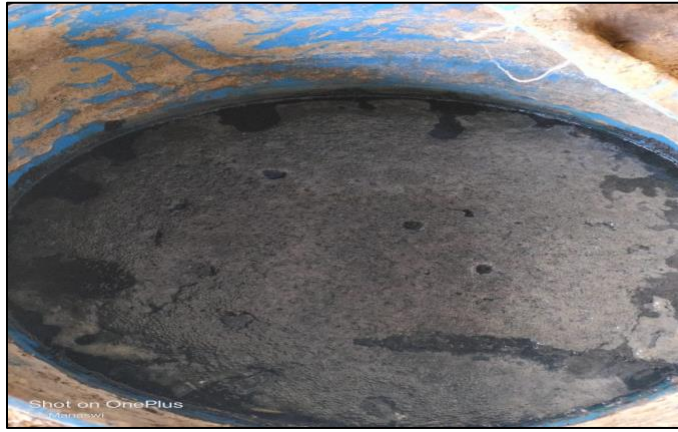
**Step 2:**

Leave the prepared mixture for 5 days. Put 5-7 litres water in the mixture on 6th day and mix all the ingredients in the tank well.

**Step 3:**

Leave this mixture for 1 month. When the time is over, filter out this mixture and use it.





- **Preparation time:**

1 month

Storage:

4 month.



- **Use:**

Spray-system –

Insecticide can be applied as a foliar-spray.

- **- Pay attention:**

1. Mix 125 ml insecticides with 10 litres water.

2. Use 2.5 litres of pesticide with 200 litres of water for one hectare.

- **Vermicompost :**



Vermicompost is known to be the world's best fertilizer. Vermicomposting is a method of preparing enriched compost with the use of earthworms. It is one of the easiest methods to recycle agricultural wastes and to produce quality compost. Earthworms consume biomass and excrete it in digested form called worm casts. Worm casts are popularly called as Black gold. The casts are rich in nutrients, growth promoting substances, beneficial soil micro flora and having properties of inhibiting pathogenic microbes. Vermicompost is stable, fine granular organic manure, which enriches soil quality by improving its physicochemical and biological properties. It is highly useful in raising seedling sand for crop production. Vermicompost is becoming popular as a major component of organic farming system. Using Vermicompost can fulfil the requirements for organically grown products.

### **Vermicomposting materials:**

Decomposable organic wastes such as animal excreta, kitchen waste, farm residues and forest litter are commonly used as composting materials. In general, animal dung mostly cow dung and dried chopped crop residues are the key raw materials Red earthworm (*Eisenia foetida*) is preferred species of earthworms because of its high multiplication rate and thereby converts the organic matter into vermicompost within 45-50 days. Since it is a surface feeder it converts organic materials into vermicompost from top.

### **Process of vermicompost preparation:**

- Vermicomposting unit should be in a cool, moist and shady site
- Cow dung and chopped dried leafy materials are mixed in the proportion of 3: 1 and are kept for partial

decomposition for 15 – 20 days.

- A layer of 15-20cm of chopped dried leaves/grasses should be kept as bedding material at the bottom of the bed.

- Beds of partially decomposed material of size 6x2x2 feet should be made.
- Each bed should contain 1.5-2.0q of raw material and the number of beds can be increased as per raw material availability and requirement.
- Red earthworm (1500-2000) should be released on the upper layer of bed.
- Water should be sprinkled with can immediately after the release of worms
- Beds should be kept moist by sprinkling of water (daily) and by covering with gunny bags/polythene.
- Bed should be turned once after 30 days for maintaining aeration and for proper decomposition.
- Compost gets ready in 45-50 days. The finished product is 3/4th of the raw materials used.



## **Benefits of organic farming on environment:**

1. **Soil Health Improvement:** Organic farming practices prioritize the use of organic matter and cover crops, enhancing soil structure, water retention, and overall soil health.
2. **Reduced Soil Erosion:** Organic farming methods, such as crop rotation and mulching, help prevent soil erosion, maintaining the integrity of topsoil and reducing the risk of sedimentation in water bodies.
3. **Biodiversity Conservation:** Organic farming tends to promote biodiversity by avoiding synthetic pesticides and fostering natural ecosystems, which can support a variety of plant and animal species.
4. **Lower Greenhouse Gas Emissions:** Organic farming often involves fewer synthetic inputs, resulting in lower energy consumption and reduced greenhouse gas emissions compared to conventional farming.
5. **Water Conservation:** Organic farming methods, such as using cover crops and organic mulches, help conserve water by reducing evaporation and improving water retention in the soil.
6. **Pollution Reduction:** Avoidance of synthetic pesticides and fertilizers in organic farming minimizes the risk of water and air pollution, contributing to cleaner ecosystems.
7. **Promotion of Natural Pest Control:** Organic farming encourages the use of natural predators, beneficial insects, and other biological methods for pest control, reducing the need for chemical pesticides.
8. **No Genetically Modified Organisms (GMOs):** Organic farming standards typically prohibit the use of genetically modified organisms, helping maintain natural biodiversity and preventing potential environmental risks associated with GMOs.
9. **Enhanced Carbon Sequestration:** Organic farming practices, such as the use of cover crops and organic amendments, can enhance carbon sequestration in the soil, mitigating climate change.
10. **Support for Sustainable Agriculture:** Organic farming principles align with sustainable agriculture, emphasizing long-term environmental stewardship, conservation of resources, and resilience to environmental challenges.

- **Inorganic Farming:**

Inorganic farming is an agriculture production method which involves the use of manmade products such as pesticides, herbicides, antibiotics, hormones and other chemical which are used to increase the rate of growth of crops. Inorganic farming, also known as conventional or industrial farming, involves the use of synthetic pesticides and herbicides to control pests and weeds, as well as synthetic fertilizers to enhance plant growth. Here are some of the disadvantages of inorganic farming.

➤ **Disadvantages:**

1. **Environmental damage:** Inorganic farming can cause environmental damage, such as soil erosion, water pollution, and loss of biodiversity. The use of synthetic pesticides and fertilizers can harm wildlife and beneficial insects, such as pollinators, which can disrupt the ecosystem.
2. **Soil degradation:** Inorganic farming practices can degrade soil quality over time, reducing the soil's ability to retain water and nutrients. This can lead to decreased crop yields and increased erosion.
3. **Health risks:** The use of synthetic pesticides and herbicides can pose health risks to farmers and consumers, as they may contain toxic chemicals that can cause cancer, birth defects, and other health problems.
4. **Resistance:** The overuse of synthetic pesticides and herbicides can lead to the development of resistance in pests and weeds, making them harder to control over time. This can result in increased use of these chemicals, further exacerbating the environmental and health risks.
5. **Cost:** Inorganic farming can be more expensive than organic farming due to the costs of purchasing synthetic fertilizers and pesticides. Additionally, inorganic farming practices may require more intensive labor and machinery, further increasing costs.





## The impact on different environment factors by inorganic farming and organic farming

- **Impact on soil:**

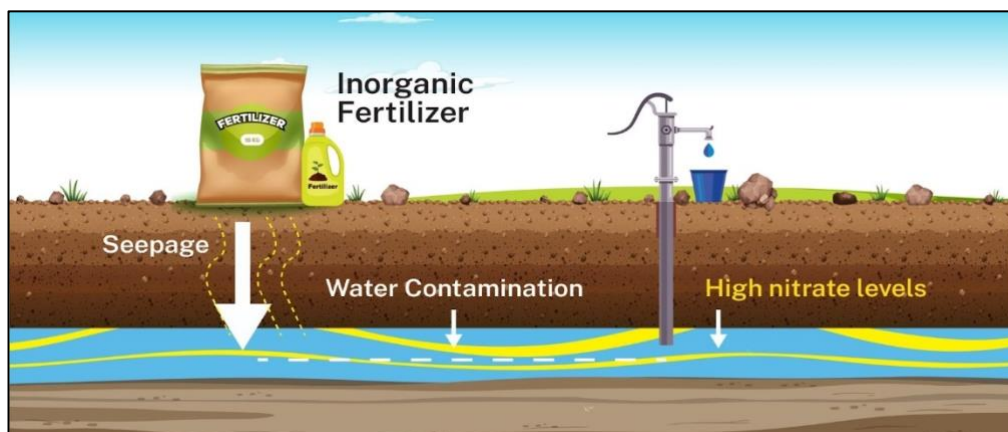
Over-reliance on inorganic fertilizers can disrupt the natural balance of nutrients in the soil, leading to nutrient imbalances and reduced soil quality. This can result in the loss of soil organic matter, decreased soil fertility, and increased susceptibility to erosion.



Organic fertilizers, on the other hand, contribute to improving soil health over the long term. They contain organic matter that helps enhance soil structure, water retention, and nutrient availability. Organic fertilizers also support beneficial soil microorganisms, fostering a healthier and more sustainable soil ecosystem.

- **Impact on Groundwater:**

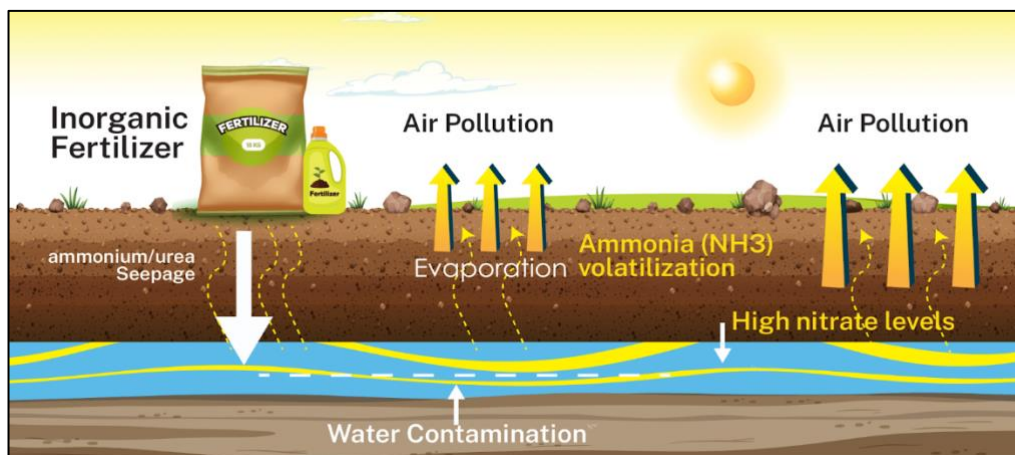
The use of fertilizers can pose risks to groundwater quality, especially in cases where excess nutrients leach into water sources. Inorganic fertilizers, due to their solubility, have a higher potential for leaching into groundwater compared to organic fertilizers. Nitrogen, in the form of nitrates, is of particular concern as it can contaminate drinking water supplies. High nitrate levels in water can be harmful to human health, especially for infants and pregnant women.



Organic fertilizers, being slower to release nutrients, reduce the risk of nutrient leaching. They allow for a more controlled and gradual nutrient release, minimizing the potential impact on groundwater quality. Moreover, organic fertilizers improve the water-holding capacity of soils, reducing the likelihood of runoff and leaching.

- **Impact on Atmosphere:**

Fertilizer use can also have implications for the atmosphere, primarily through the release of nitrogen-based gases. Inorganic fertilizers, particularly those containing ammonium or urea, can contribute to the emission of nitrous oxide ( $\text{N}_2\text{O}$ ), a potent greenhouse gas that contributes to climate change. Additionally, excessive nitrogen application can lead to ammonia ( $\text{NH}_3$ ) volatilization, resulting in air pollution and respiratory health issues.



Organic fertilizers, being derived from natural sources, release nutrients slowly and in a more controlled manner. This reduces the risk of nitrogen loss to the atmosphere, minimizing greenhouse gas emissions and air pollution associated with fertilizer use. The Environmental Impact of Fertilizer Production Fertilizer production industries play a significant role in meeting the global demand for fertilizers. However, their operations can have adverse effects on the climate and environment. The production of inorganic fertilizers, such as through the Haber-Bosch process, often involves the combustion of fossil fuels at high temperatures. This process releases substantial amounts of carbon dioxide ( $\text{CO}_2$ ) into the atmosphere, contributing to greenhouse gas emissions and climate change.



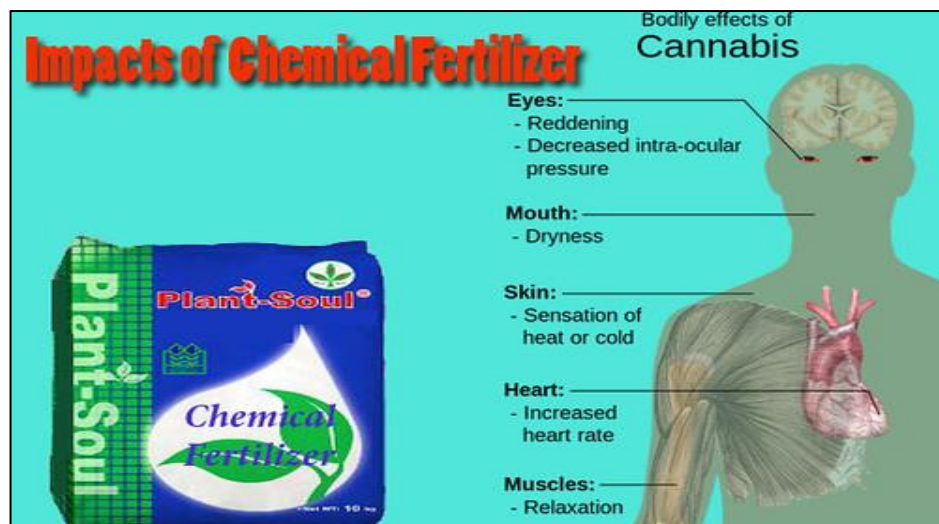
- **Impact on Human Health:**

**Pesticide Exposure:** Inorganic farming often involves the use of synthetic pesticides, and individuals involved in the application may face direct exposure, potentially impacting their health.

**Residue in Food:** Residues of synthetic chemicals from pesticides and fertilizers may remain on fruits, vegetables, and grains, leading to potential ingestion by consumers.

**Long-term Health Effects:** Some studies suggest a possible link between long-term exposure to certain pesticides used in conventional farming and health issues, including neurological disorders and certain cancers.

**Nutrient Quality:** Intensive farming practices may affect the nutrient content of crops, potentially leading to lower nutritional quality in comparison to organically grown produce.



However organic farming provides,

**Nutrient-Rich Foods:** Organic farming practices, such as crop rotation and organic fertilization, contribute to soil health and often result in nutrient-rich crops that can have positive effects on human health.

**Improved Water Quality:** By reducing the use of synthetic chemicals, organic farming helps prevent water pollution, contributing to better water quality for both agricultural activities and human consumption.

- Furthermore, the extraction and processing of raw materials for fertilizers can result in habitat destruction, deforestation, and biodiversity loss. It is imperative for these industries to adopt cleaner and more sustainable production methods, such as utilizing renewable energy sources and implementing carbon capture and storage technologies, to mitigate their environmental impact and contribute to global efforts in addressing climate change.



## ○ SKILL DEVELOPED/ LEARNING OUT OF THIS MICRO-PROJECT

**After completing this micro-project following skills are developed:**

- 1)Research Skills
- 2)Critical Thinking
- 3)Environmental Awareness
- 5)Interdisciplinary Learning
- 6)Empathy and Ethics
- 7)Collaboration
- 8)Creativity

**After Implementing this micro-project, we have learnt:**

- 1)The exact meaning of organic and inorganic farming.
- 2)The effects of inorganic farming on environment.
- 3)Necessity of using organic farming method.

## ○ CONCLUSION OF MICROPROJECT:

Choosing to embrace organic farming while avoiding inorganic methods signifies a commitment to sustainable, environmentally friendly agriculture. This decision prioritizes soil health, reduces chemical exposure, and supports biodiversity. By opting for organic farming, we contribute to a healthier ecosystem, mitigate the impact of synthetic inputs, and provide consumers with food that aligns with natural processes. This shift represents a positive step towards a more sustainable and resilient agricultural future.

By avoiding inorganic farming, we contribute to long-term ecological balance, preserve biodiversity, and safeguard the health of both consumers and the planet.

## ○ References:

- 1) Conventional and organic farming, by Victor M. Shorrocks.
- 2) We referred following link:

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