

School of Agriculture and Allied Sciences

Krishi Parasar

Volume 5, Issue I, August, 2025

Crop Residue Management



Foreword



It is a great pleasure learn that the 5th volume, issue 1 of e-magazine 'Krishi Parasar' will be published at the juncture when a new batch of students are entering in the School of Agriculture and Allied Alliance Sciences. The e-magazine is the mirror of intangible activities like perception of students, vision of the faculty members and the school community on research, outreach activities and the translation of knowledge in the field of sustainability and security. The focal theme of this issue is on 'Crop Residue Management' a step towards the integration of 'Circular Economy' with 'Sustainability'.

The crop residues and other residues of the agricultural sector are not the waste, but their scientific management can be utilized without loading the mother earth, which has affine carrying capacity. The scientific management of agri-wastes can be emerged as the wealth, if these are processed properly for having a valuable product. Normally, the agricultural wastes are biomasses and they are utilized in many areas and one of the major applications is as fuel. However, the practice of open burning continues to be a significant challenge, contributing to air pollution, loss of soil nutrients, and adverse health impacts. It is imperative that we shift our perspective—from residue as waste to residue as wealth.

Students are our future stewards of agriculture, we urge them to explore and promote eco-friendly alternatives such as composting, in-situ decomposition, mulching, and the use of residue-based bio-energy. Innovations like the Happy Seeder, Super Straw Management System, Clean Fuel Production and microbial decomposition methods are examples of how science can offer practical solutions to real-world problems.

At our university, we are committed to research, education, and outreach activities that supports sustainable residue management practices. We recommend and encourage the agricultural community to adopt these technologies and collaborate actively with scientists, extension workers, and policymakers to create a cleaner, greener, and more productive agricultural system in fulfilling the United Nation's Sustainable Development Goals (SDGs) commitment.

Let us hope that this issue will inspire you all to think critically and act responsibly. Together, we can ensure that our fields remain fertile, our air breathable, and our practices sustainable for generations to come.

Dr. Biswajit Ghosh

Vice Chancellor
The Neotia University

Dean's Message



It gives me immense pleasure to present this special issue of the magazine, dedicated to the highly pertinent theme of Crop Residue Management. As agriculture advances to meet the demands of a growing population and changing climate, the sustainable management of crop residues has emerged as a critical component of modern farming practices.

Presently, India produces about 600+ million tons of crop residues and one-third of it is not being used or surplus. In many parts of the country, especially in intensive farming zones, the issue of residue burning has become a pressing environmental and public health concern. This practice not only depletes soil fertility but also contributes to air pollution, greenhouse gas emissions, and deterioration of overall ecosystem health. Therefore, finding innovative, practical, and scalable solutions for managing crop residues is the need of the hour.

This special issue brings together valuable insights, research findings, field experiences, and technological interventions that shed light on alternative uses of crop residues – from conservation agriculture and in-situ management to bioenergy, composting, and industrial applications. The collective knowledge shared herein aims to inspire students, researchers, policymakers, and farmers alike to adopt sustainable approaches that benefit both agriculture and the environment.

I commend the editorial team, contributors, and all stakeholders for their commitment to highlighting this important subject. Let us continue to work collaboratively toward resilient, climate-smart agriculture where sustainability and productivity go hand in hand.

Prof. (Dr.) Sushil Kumar Kothari

Dean

School of Agriculture and Allied Sciences

The Neotia University

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Prof. (Dr.) Sushil Kumar Kothari

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Dr. Sruba Saha

Editor and Co-ordinator, Krishi Parasar

Assistant Professor, Department of Genetics and Plant Breeding
School of Agriculture and Allied Sciences, The Neotia University

It is with immense pride and heartfelt satisfaction that we present to you **Krishi Parasar** (Volume 5, Issue 1), the biennial e-magazine of the School of Agriculture and Allied Sciences, which serves as a vibrant mirror reflecting the academic, scientific, and creative pursuits of our school community. Over the years, Krishi Parasar has evolved into a platform that not only showcases the achievements and innovations of our students and faculty but also serves as a space for sharing knowledge, perspectives, and solutions to pressing challenges in agriculture.

The present issue is dedicated to a topic of both national and global significance—Crop Residue Management. This theme has been carefully selected considering the growing concerns over environmental sustainability, soil health, and the alarming issue of stubble burning, which poses serious ecological and health hazards. The articles, case studies, interviews, and student contributions featured in this edition aim to shed light on the scientific, policy-level, and grassroots dimensions of managing crop residues. Through this, we aspire to encourage informed discussions and inspire actionable solutions within the academic community and beyond.

We believe that the voices of young minds, when combined with the wisdom of experienced scholars and practitioners, can ignite innovative thinking. This

edition is a testament to such synergy. From scientific articles to creative expressions, this volume reflects our commitment to academic excellence, environmental responsibility, and community engagement.

As the Co-ordinator and Editor, I extend my sincere gratitude to all the contributors, faculty mentors, editorial team members, and supporting staff whose collective efforts have made this issue possible. Special thanks are due to our Dean and Vice Chancellor for their continued encouragement and vision, which motivates us to raise the bar with every edition.

We invite you to explore this issue and immerse yourself in the diverse and insightful content it offers. May your reading be both enriching and thought-provoking, and may it inspire further discourse and action in the field of sustainable agriculture.

Happy Reading!

Editorial Board



Dr. Subhadip Pal

Editor, Krishi Parasar

Assistant Professor, Department of Agricultural Economics and Statistics,
SAAS, The Neotia University

‘Krishi Parasar’ is an e-magazine that mirrors the School of Agriculture and Allied Sciences (SAAS) at The Neotia University. It reflects the literary, educational, and other activities taking place in the school and showcases the extracurricular enthusiasm and academic ventures of the students. The magazine is received with great enthusiasm by the student community and plays a vital role in preparing them for their intellectual growth. The current issue (Volume 5, Issue I) focuses on the Role of Crop Residue Management in Sustaining Food Production and features valuable contributions from both faculty and students. We sincerely thank all contributors for their thoughtful submissions and unwavering enthusiasm and encourage our readers to continue supporting Krishi Parasar as a platform that celebrates academic excellence, field innovations, and student creativity in agriculture.

India’s agricultural sector is the backbone of its economy, providing livelihoods to over half of the population. However, with the rise of mechanization and intensive farming, managing agricultural waste, especially crop residue, has become a significant challenge. Every year, India produces around 500 million tonnes of crop residue, much of which is either left unused or burned in open fields, leading to severe environmental, health, and economic consequences. In northern states like Punjab, Haryana, and Uttar Pradesh, the burning of crop residues is mainly due to the tight sowing window between harvesting paddy and sowing wheat. Combine harvesters leave large amounts of straw on the fields, and due to a lack of time, labor, and affordable alternatives, farmers often resort to burning it.

This practice has serious implications:

- It contributes to 17% of India’s PM pollution levels.
- It leads to 44,000–98,000 premature deaths annually due to PM exposure.

- It reduces soil fertility, kills beneficial microbes, and causes long-term damage to farm ecosystems.
- The estimated economic loss is US \$30–35 billion annually due to health impacts and reduced productivity.

India is facing a persistent air pollution crisis. Cities like Delhi often record AQI levels categorized as “severe plus” from October to January. In 2025, PM_{2.5} levels in Ludhiana averaged 53 µg/m³, far above the national safe limit of 40 µg/m³. The combined effect of industrial emissions, vehicle exhaust, and stubble burning turns the Indo-Gangetic plain into a gas chamber during these months.

Recognizing the severity of the issue, the Government of India launched the Crop Residue Management Scheme in 2018. Over ₹3,300 crore has been disbursed, mainly to Punjab, Haryana, and Uttar Pradesh, to subsidize machinery like the Happy Seeder, Super Seeder, Rotavator, Straw Baler, and Mulcher. Punjab’s 2025-26 action plan further allocates ₹500 crore for 4,367 new machines, bio-decomposer application across 2.5 lakh acres, and expanded off-field residue handling.

Crop residue management is not only an environmental necessity but also a socioeconomic opportunity. When managed sustainably, crop residue becomes a resource—fuel for bioenergy, mulch for conservation agriculture, and compost for organic enrichment. As India faces the dual challenges of environmental degradation and rural distress, addressing stubble burning can lead to cleaner air, healthier soil, and empowered farming communities.

Editorial Board



Dr. Sarita Kumari Pandey

Editor, *Krishi Parasar*

Head, Assistant Professor, Department of Genetics and Plant Breeding,
SAAS, The Neotia University

It gives me great pleasure to present **Krishi Parasar**, Vol. 5, Issue 1, the official magazine of the School of Agriculture and Allied Sciences, The Neotia University. This issue focuses on a subject of increasing national and global significance— “Role of Crop Residue Management in Sustaining Food Production”.

In the context of modern agriculture, the improper disposal of crop residues, especially through open field burning, has led to critical environmental issues. Globally, sustainable residue management is recognized as a pivotal step in climate-smart agriculture. In India, one of the world's leading agricultural nations, this challenge is particularly acute. The nation generates an estimated 500 to 550 million tonnes of crop residue annually. Of this, a surplus of approximately 140 million tonnes remains, and an estimated 92 million tonnes are burned in open fields each year. This practice releases a harmful cocktail of greenhouse gases, including carbon dioxide, methane, and nitrous oxide, as well as significant volumes of particulate matter, contributing to severe air pollution, regional smog, and the deterioration of soil health. The burning of a single tonne of rice straw, for instance, leads to a complete loss of its organic carbon and a substantial loss of essential nutrients, including an estimated 5.5 kg of nitrogen, 2.3 kg of phosphorus, and 25 kg of potassium.

The Neotia University stands committed to advancing sustainable agricultural practices that address these broader ecological concerns. As an institute dedicated to agricultural education and innovation, we believe that scientific management of crop residues offers a powerful solution. Techniques such as mulching, which conserves soil moisture and reduces erosion, composting to create nutrient-rich soil amendments, and biochar production for carbon sequestration

can significantly enhance soil fertility, conserve resources, and mitigate climate change. Retaining residues on the soil can boost nitrogen uptake by as much as 29% and improve water retention, building a foundation for resilient and regenerative farming systems.

This issue aligns with the vision of the School of Agriculture and Allied Sciences to empower students and researchers with the knowledge and tools to promote these systems. It brings together valuable contributions that not only highlight practical solutions and recent research but also encourage dialogue around sustainable practices for India and the world at large.

I sincerely thank my Co-Editors for their efforts in shaping this magazine into a scientifically rich and reader-friendly resource. I also extend my heartfelt gratitude to our faculty and student contributors for their precise articles, thought-provoking ideas, vivid photographs, creative artwork, and innovative perspectives.

We hope this issue of *Krishi Parasar* serves as an informative and inspiring contribution to the scientific community and all those working towards a greener and more sustainable future in agriculture.

Editorial Board



Dr. Abhishek Ghosh

Editor, *Krishi Parasar*

Assistant Professor, Department of Agricultural Extension and Communication,
SAAS, The Neotia University

As we curate this edition of **Krishi Parasar**, let's turn our collective attention to a critical, often overlooked, aspect of our agricultural landscape: agricultural waste. From the vast quantities of crop residues left in fields to the byproducts of food processing, this "waste" is currently a significant burden, contributing to environmental pollution and economic inefficiency across our nation. Yet, for us, it represents an enormous, untapped resource—a vital key to unlocking a truly circular and sustainable agricultural future.

For our students at The Neotia University, this is a vibrant field ripe for innovation, offering exciting career pathways and research opportunities. Imagine dedicating your studies to transforming biomass into advanced biofuels, developing cutting-edge bioplastics from crop residues, or designing efficient systems that convert farm waste into nutrient-rich soil amendments like biochar. These aren't just theoretical concepts; they are urgent, real-world problems demanding your creative solutions, scientific rigor, and entrepreneurial spirit. Your projects and dissertations in this area can directly contribute to a greener, more prosperous agricultural sector. For our faculty, this area offers profound opportunities for groundbreaking research, interdisciplinary collaboration within and beyond our School, and direct impact on policy and farming practices. Your expertise in areas like waste-to-value technologies, nutrient cycling, sustainable engineering, and rural development is absolutely essential to unlock this potential.

Our collective challenge, as the agricultural community of The Neotia University, is to shift our mindset: to see agricultural waste not as an end-of-pipe problem, but as the beginning of new value chains and sustainable industries. Let's collaborate—through research, innovation, and education—to transform this overlooked resource into a cornerstone of sustainable agriculture, benefiting both our environment and our economy. The future of farming, and indeed our planet, depends on our ability to embrace this challenge as our next great opportunity.

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Debaditya Mondal (1st year)

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Tanushree Nasipuri (3rd year)

Sougata Pal (2nd year)

Abhirup Chatterjee (2nd year)

Priyanka Dey (1st year)

Aranish Pariari (1st year)

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Agri Vision

First report of flowering in apple planted in Sarisha, Diamond Harbour Road, South 24 Parganas West Bengal

Prof. Sushil Kumar Kothari

Dean, School of Agriculture and Allied Sciences, The Neotia University



Apple (Botanical Name - *Malus domestica*; Family – Rosaceae) is a commercial high value horticulture crop of India and is grown primarily in high altitude temperate climate of Jammu & Kashmir, Himachal Pradesh and Uttarakhand. As part of instructional

farm of School of Agriculture & Allied Sciences, The Neotia University development, apple grafted plants Var. HRMN – 99 were planted on 2nd April 2024. In June 2025, the plants attained a height of about 2.21 m and first flowering was noticed (Figure 1). HRMN-

99 is a low-chilling apple plant variety that can grow successfully with Mango and Pomegranate in the lower Himachal Pradesh, which is only 700 meters above sea level and where temperature is as high as 40 to 45°C during summers. This apple variety is registered by Protection of Plant Variety and Farmer Right Authority Ministry of Agriculture, Government of India under registration No. Reg/2014/1282 and National Innovation Foundation, Govt. of India's referred letter No. DSD / 2020/128155 dated 07.09.2020.

This is first report of flowering in apple in West Bengal represents a promising development, suggesting that with appropriate varieties and management, apple cultivation might expand into new regions, contributing to horticultural diversification, rural income, and scientific advancement. The significance of the findings is given below.



Figure 1: Flowering of grafted apple plant Var. HRMN-99 one year after planting in the Instructional Farm of School of Agriculture and Allied Sciences, The Neotia University, Sarisha, South 24 Parganas, West Bengal.

Agro-climatic Significance

- **Non-traditional area:** West Bengal is not a traditional apple-growing state (compared to Himachal Pradesh, J&K, or Uttarakhand). Apple's flowering in Bengal suggests that apple cultivation may be possible outside of its typical temperate climate zones.

- **Climate adaptability:** This indicates adaptation of new low-chill or tropical apple germplasm or changes in local microclimate (perhaps cooler winters).
- **Impact of climate change:** It may also reflect ongoing shifts due to global climate change, affecting local flowering behaviour.

Horticultural Significance

- **Potential for diversification:** The ability to grow apples in West Bengal could allow farmers to diversify into high-value fruit crops.
- **Breeding and selection:** This first report can encourage further breeding programs to develop varieties suitable for lower chilling zones.
- **Technological innovation:** Success might involve the use of dwarf rootstocks, high-density planting, or protected cultivation techniques.

Economic Significance

- **New income avenues for farmers:** If successful, apple cultivation can open up profitable markets for West Bengal farmers.
- **Reduced transport costs:** Local production can reduce dependency on apples imported from northern states or abroad.
- **Agro-tourism potential:** Apple orchards could also become attractions, boosting tourism.

Scientific Significance

- **Data point for research:** This first report provides valuable data for research on:
 - chilling hour requirements,
 - flowering physiology,
 - suitability of West Bengal's environment,
 - phenological observations.
- **Publication potential:** Such reports often lead to publications in journals, which contribute to national and international research databases.

Policy Implications

- It may influence government policies related to:
 - subsidies for non-traditional fruit cultivation,
 - research funding,
 - extension services for farmer training.

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Agri vision

Crop residue burning: impacts and alternatives

Aranish Pariari

B.Sc. (Hons.) Agriculture, 1st Year



Abstract

In India crop residue burning is a very common practice among the farmers especially in the Northern states like Punjab, Haryana and Uttar Pradesh. Burning of crop residues have significant effect on environment. It degrades the air quality which leads to several health issues such as respiratory illness like Asthma as well as heart problems, stroke and even lung cancer. Burning of crop residues also affects the soil health.

The organic matter present in soil, which are essential for plant growth, are destroyed. The excessive heat caused by the burning, kills several beneficial microorganisms. This causes reduction of soil fertility. Instead of burning crop residues, these can be used in various purposes like livestock feed, making compost manure and even in industries like paper making.

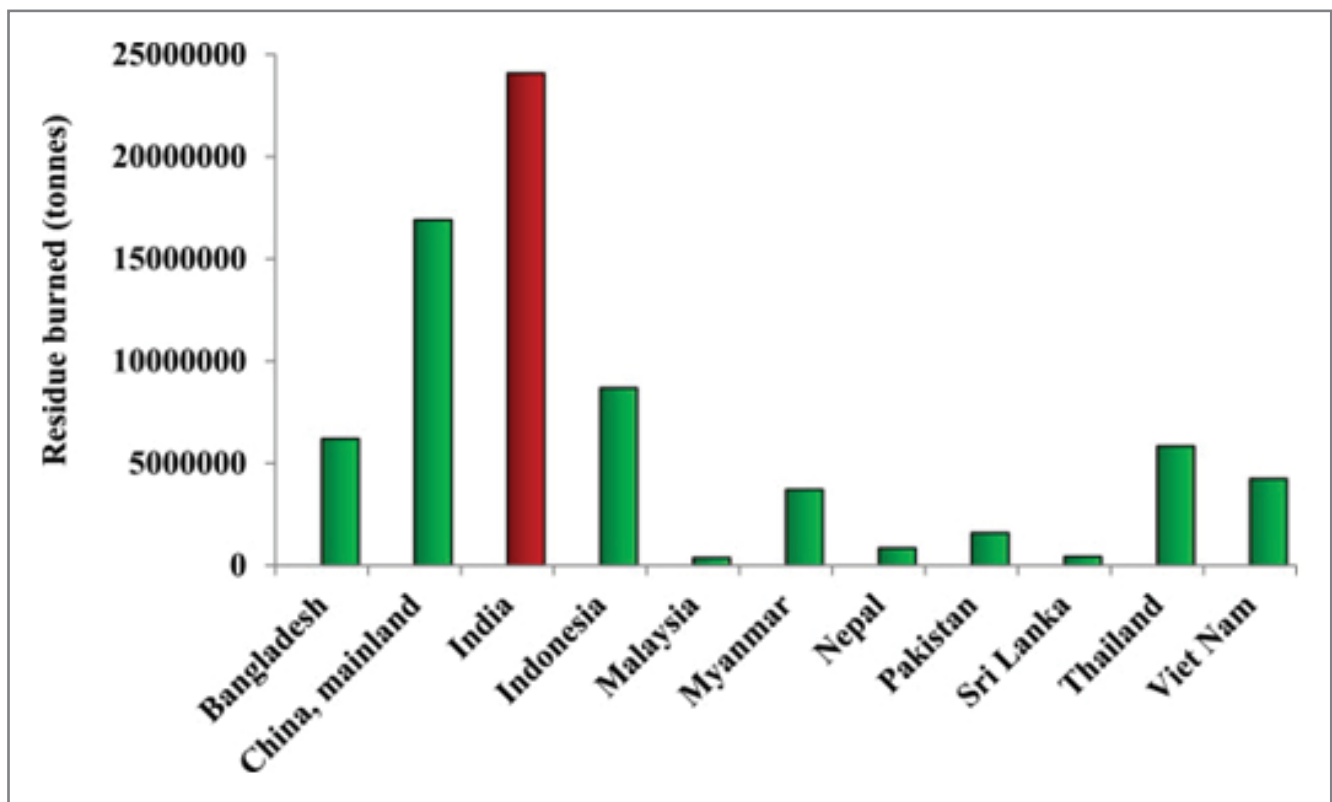
Key words

Crop Residue, Environment, Air Quality, Soil Health, Organic Matter

Introduction

Crop Residue are the plant materials such as stalks, leaves and roots left behind on the field after the crop is harvested. In India at about 500 million metric tonnes (MT) of crop residues are produced every year and among them 100 million metric tonnes (MT) of residues are burned annually. Mainly residues of rice,

wheat and sugarcane are burned as these are less valuable to the farmers and removing these from the field is a very laborious work to them. The practice of burning crop residues is more common among the farmers of some North Indian states like Punjab, Haryana and Uttar Pradesh. India is the larger emitter of carbon from the burning of Crop residues. At about 13% of the total emission of the world occurs in India. This also severely affects the environment. Crop Residue burning in Punjab and Haryana is considered as one of the prime causes for the air pollution in Delhi.



Environmental Effects

Several pollutants like Carbon dioxide (CO₂), Nitrogen dioxide (NO₂) and Sulphur dioxide (SO₂) are released for the crop residues burning. It causes severe air pollution. Various Green House gases like CO₂ and methane are also released during burning which are too much harmful to the environment. Burning also destroys the organic matters present in the soil which are too much essential for the plant growth. For the loss of huge amount of organic matters fertility of the soil is significantly decreased. This affects largely the production in next years. Soil needs many years to recover the lost matters due to burning. A significant number of microorganisms living in the soil which are too much helpful to the plants, also dies for the excessive heat caused by the burning of crop residues.

This leads to the Biodiversity loss. Water pollution is also caused for the burning. The ashes and remaining portions after burning are often mixed with water in several water bodies which causes water pollution.

Health impacts

Particulate matters which are released from burning can cause severe respiratory illness, especially to the persons who are vulnerable. Air pollution caused by the burning is dangerous for the heart patients. It degrades the condition and function of our heart. Burning can also increase risk of autoimmune diseases and microbial disease spread. Long time exposure to polluted air can affect cognitive function especially in case of children.

Economic Impacts:

For burning lot of essential nutrients are lost from the soil. For that soil fertility is decreased. It affects the crop production. Farmers have to purchase more fertilizers to compensate the lost nutrients. In such a way, burning causes economic loss of the farmer. Also the health problems raised for air pollution associated to burning can lead to higher healthcare expenses to the common people of the society.

Alternatives to Crop Residue Burning:

The most simple and useful alternative to crop residue burning is using crop residue as livestock feed. It can be used as food of animal in big farms and dairies. Another way is following mulching practices. Residues can be spread on the top of the soil. This will help to retain soil moisture and enhance soil organic matter. Other than these, residues can be used as raw materials for the production of paper, cardboard etc. In southern state of Tamil Nadu, sugarcane residues are used in paper mills. It also reduces reliance on wood of trees for paper production. It is the best example of successful alternative to crop residue burning.

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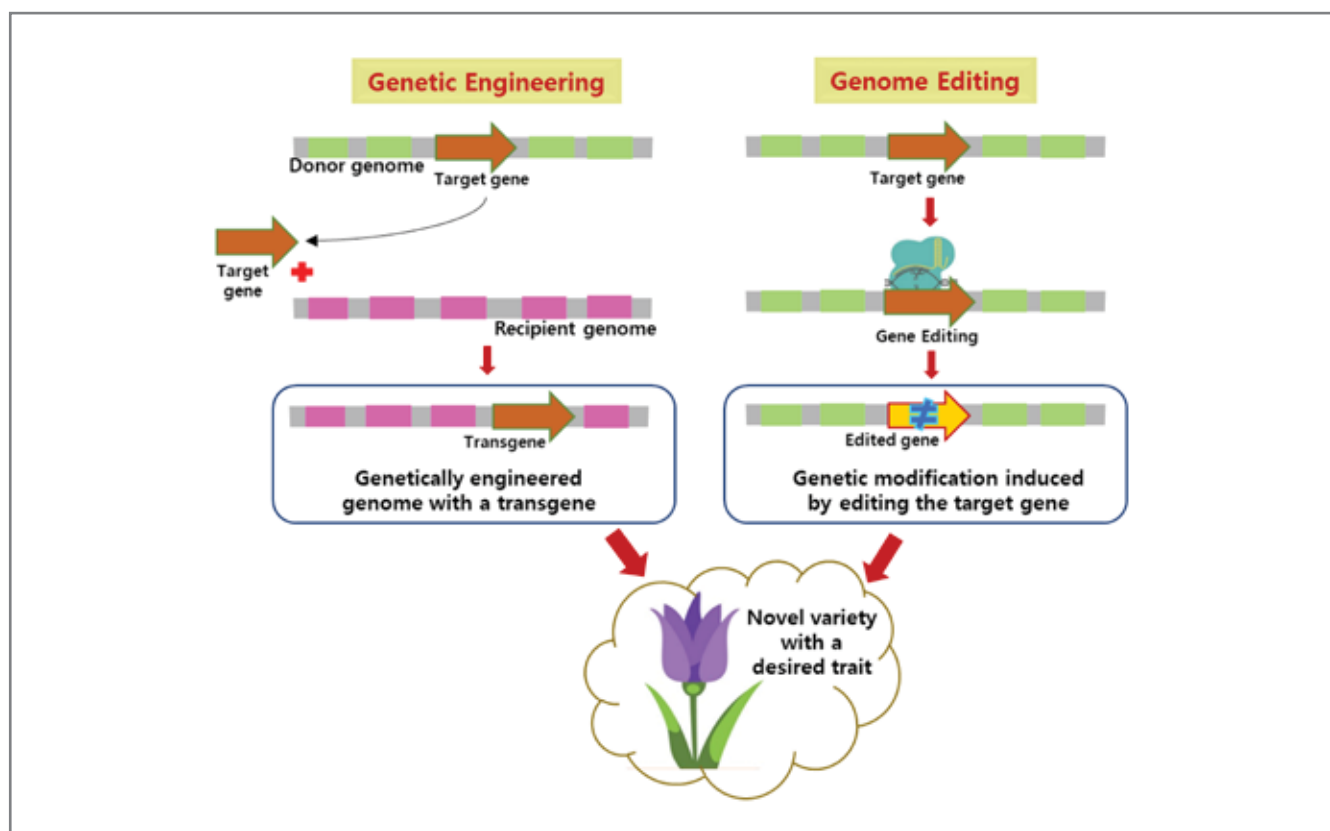


Agri vision

Tracing the scent: genetic and biochemical basis of floral fragrance in floricultural crops

Debdatta Ghosh

B.Sc. (Hons.) Agriculture, 1st Year



Abstract

Floral fragrance plays a significant characteristic in floriculture. Floral fragrance influences how flowers are attractive commercially and how they communicate with pollinators. The fragrance is derived from volatile organic compounds (VOCs) composed of terpenoids, phenylpropanoids, and fatty acid derivatives. The VOCs are produced and emitted through intricate biochemical

mechanisms and gene networks. Transcription factors such as MYB and genes such as ODORANT1 are important in the process. This paper describes the production of floral scent compounds, the genetic regulation of their production, and the environmental influence on fragrance. Understanding them enhances flower crop fragrance by breeding, molecular markers, or gene editing such as CRISPR. The application of molecular biology in horticulture helps to preserve and enhance this valuable characteristic.

Keywords

Floral odor, fragrance biosynthesis, VOCs, MYB genes, ODORANT1, flower crops, fragrance breeding

Introduction

Fragrance is an important characteristic in floriculture crops such as rose, jasmine, tuberose, and chrysanthemum. Earlier varieties were highly fragrant. But today's breeding minimized odor while prioritizing color, shelf life, and yield. Nowadays, customers demand scented flowers once more, particularly for perfumes and rituals. Therefore, knowledge of the science of fragrance is extremely crucial.

Biochemical basis of floral fragrance

Flower fragrance is derived from a blend of volatile organic compounds (VOCs). The VOCs evaporate and we perceive them as smell. The major VOC classes are:

- Terpenoids (such as linalool, geraniol), synthesized using isoprene units
- Phenylpropanoids and benzenoids (such as eugenol, methyl benzoate), synthesized using phenylalanine
- Fatty acid derivatives (such as jasmonates and green leaf volatiles), synthesized using lipids

Enzymes such as linalool synthase, phenylacetaldehyde synthase, and methyltransferase assist in the production of these VOCs.

Genetic regulation of floral scent

Production of floral VOCs is regulated by regulatory genes and by enzyme genes. Key highlights:

- Structural genes give rise to enzymes such as terpene synthases, methyltransferases, and cytochrome P450s.
- Regulatory genes comprise transcription factors belonging to the MYB family (such as ODORANT1 in petunia), bHLH, and WRKY families.

For instance, in petunia, inhibition of ODORANT1 significantly reduces scent. Such genes are present in rose and jasmine but are less well characterized.

Environmental and developmental influence

Flower scent varies with:

- Time of day (some flowers have scent during day or night)
- Flower age (most fragrance at peak bloom)
- Temperature and humidity (more temperature usually equals more fragrance)
- Light (influences scent gene activity)

All this aids in cultivating and storing flowers.

Breeding and biotechnological strategies

Breeding for perfume is difficult because:

- Numerous genes regulate scent (polygenic)
- There are compromises with flower lifespan or yield
- It is difficult to quantify scent precisely.

Contemporary approaches include:

- Employing molecular markers associated with fragrance characters
- Employing CRISPR/Cas9 to enhance or introduce fragrance genes
- Metabolic engineering to impart fragrance to fragranceless flowers

For instance, introducing linalool synthase gene into fragranceless petunias.

Conclusion

Floral fragrance relies on biochemistry, genetics, and the environment. We have a lot of information about petunia and rose fragrance genes, but Indian flowers require more research. Applying molecular biology to floriculture will facilitate the production of scented flowers that farmers and consumers prefer.

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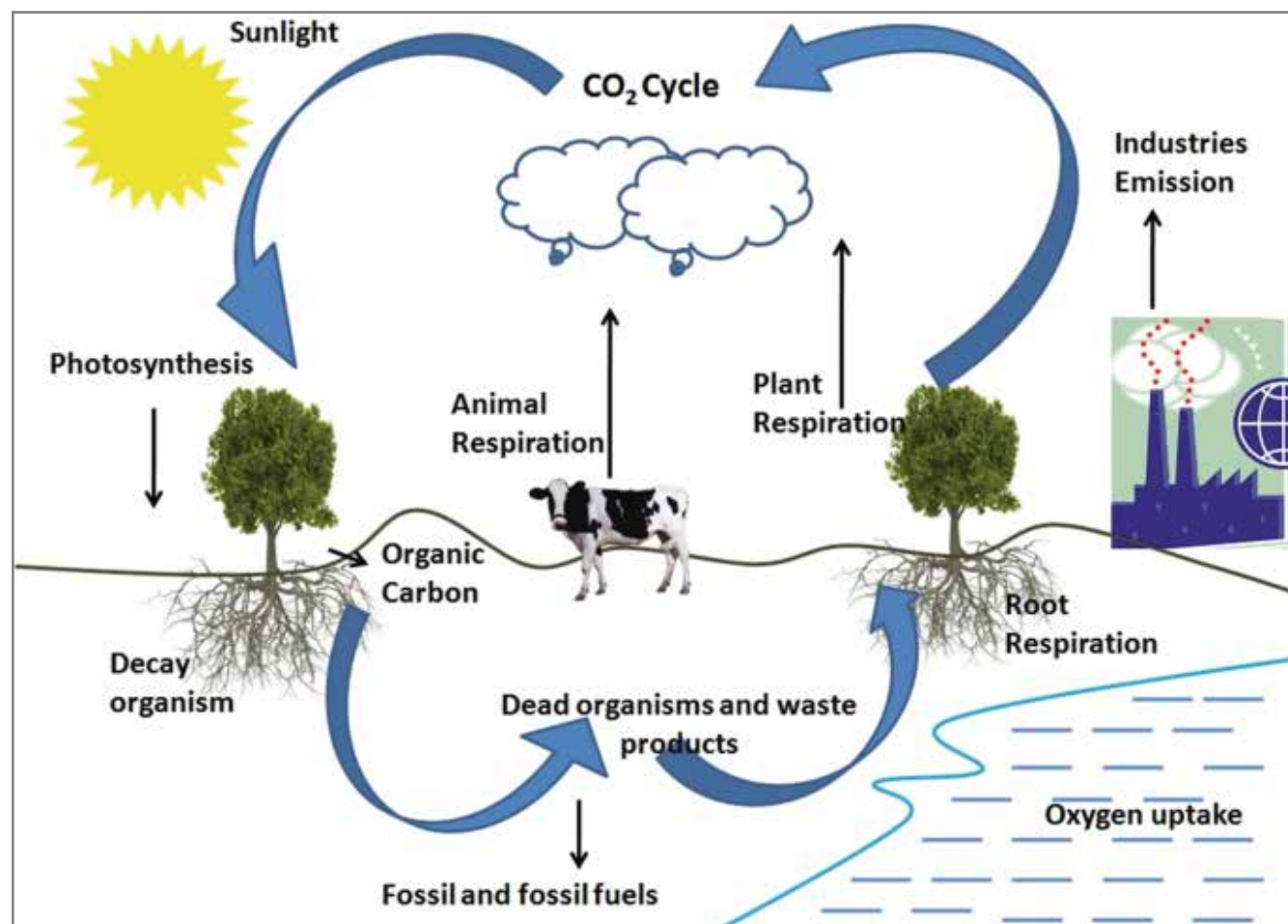
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Agri vision

Carbon dynamics in soil in relation to climate change

Ms. Shreyasi Mandal

B.Sc. (Hons.) Agriculture, 2nd Year



Soil: nature's hidden carbon bank

When we talk about climate change, we often focus solely on atmospheric carbon. However, many of us don't realise that a massive amount of carbon is actually stored right beneath our feet, in the soil. That's why we called it soil carbon. In fact, soils hold

more carbon than all the world's vegetation and the atmosphere combined, making them one of nature's most powerful carbon reservoirs. Soil carbon is not static. It enters the soil through plant roots, fallen leaves and decaying organic matter. Microorganisms in the soil break down this material, converting it into stable organic compounds such as humus or releasing it back into the atmosphere as carbon dioxide (CO_2).

This constant movement of carbon through input, transformation and release is known as soil carbon dynamics.

Key factors influencing soil carbon dynamics

- 1. Temperature:** Rising temperatures increase microbial activity, which accelerates the decomposition of organic matter and releases more CO₂ into the atmosphere.
- 2. Soil Type and Texture:** Clay soils (fine-textured) are better at protecting organic carbon. Because clay particles bind tightly with organic matter, forming stable aggregates that protect carbon from microbial decomposition. Sandy soils (coarse-textured) have large pores and less surface area for carbon binding, making them less effective at storing carbon.
- 3. Vegetation Cover:** More vegetation leads to higher root biomass and turnover, which increases carbon input into the soil. Root turnover is the continuous process of dying and renewal of roots that contributes significantly to soil carbon storage.
- 4. Root Exudates:** Living roots release sugars and amino acids into the soil, feeding microbes. These microbes convert root exudates into stable organic matter that can persist in soil for years there by enhancing soil carbon storage. Additionally, dying roots decompose and

contribute to soil organic matter, some of which becomes humus.

Carbon Release Mechanisms

- **Decomposition:** Soil microorganisms (e.g., bacteria and fungi) break down organic material using enzymes. During this process, carbon is used as an energy source and released as CO₂ through microbial respiration.
- **Land Use Change and Soil Disturbance:** Human activities such as deforestation, urbanization and tillage disrupt soil structure, exposing stored carbon and releasing it into the atmosphere.
- **Drought and Flooding:** During drought, the dry soils crack and microbial activity declines, reducing carbon input and increasing carbon loss through erosion. On the other hand during floods, the topsoil containing rich in organic carbon, is washed away, degrading soil fertility and nutrient content.

Feedback Loops in Climate-Soil Carbon Interactions

It is a natural cycle where the outcome of a process loops back to influence the system itself. These loops can be positive, where the effect intensifies the original change and negative, where it reduces or balances the impact.

- The positive feedback loop- amplifies climate change.

Permafrost Thaw: Permafrost is ground (including soil, gravel and organic matter) that remains frozen for at least two consecutive years and melts due to rise in temperature and releases carbon dioxide which accelerates global warming. This phenomenon is called as permafrost thawing. It takes place in Northern hemisphere (Russia, Canada, Alaska, Greenland). This phenomenon leads to warmer climate and longer growing seasons. It has negative effects too- permafrost holds 1500 billion tons of carbon dioxide, double the amount currently in the atmosphere. It is a bomb that can speed up climate change which is hard to reverse.

- Negative Feedback Loops – Mitigate Climate Change

Wetland Restoration: It is the process of bringing degraded wetlands back to their functioning state. Wetlands such as marshes, swamps are recreated into waterlogged conditions that slow down decomposition of plant material. In these saturated soils, the lack of oxygen prevents microbes from breaking down organic matter quickly allowing carbon to accumulate. By restoring wetlands, it helps in slowing down global warming and stabilizing the climate system

Soil Carbon Monitoring and Modelling

Monitoring involves measuring soil organic carbon levels across different landscapes. Modelling uses monitoring data to predict future carbon trends under various climate and land-use scenarios. These tools guide sustainable practices like cover cropping, reduced tillage, and reforestation to enhance soil carbon sequestration.

Organic Waste Management and Composting

These are effective methods for increasing soil carbon sequestration while reducing the need for landfills that hold municipal and industrial solid wastes. Instead of depositing organic waste, composting transforms it into

stable carbon rich organic matter through a controlled breakdown process. When added to soil, compost improves soil structure, nutrient availability and water holding capacity. It also enhances microbial activity and nutrient cycling which promotes carbon sequestration. Composting also supports land restoration preserves soil organic matter. During composting, organic solid waste undergoes microbial decomposition. Microorganism breakdown proteins and fats releases ammonia, hydrogen sulphide and organic acids. As composting progress, microbes degrade more refractory carbon compounds like cellulose and lignin. Enzymes like cellulase (for cellulose) protease (for proteins) and phosphatase (for organic phosphates) play key role in this breakdown. This stable carbon remains deposited in the soil enhancing soil health and supporting sustainable land management.

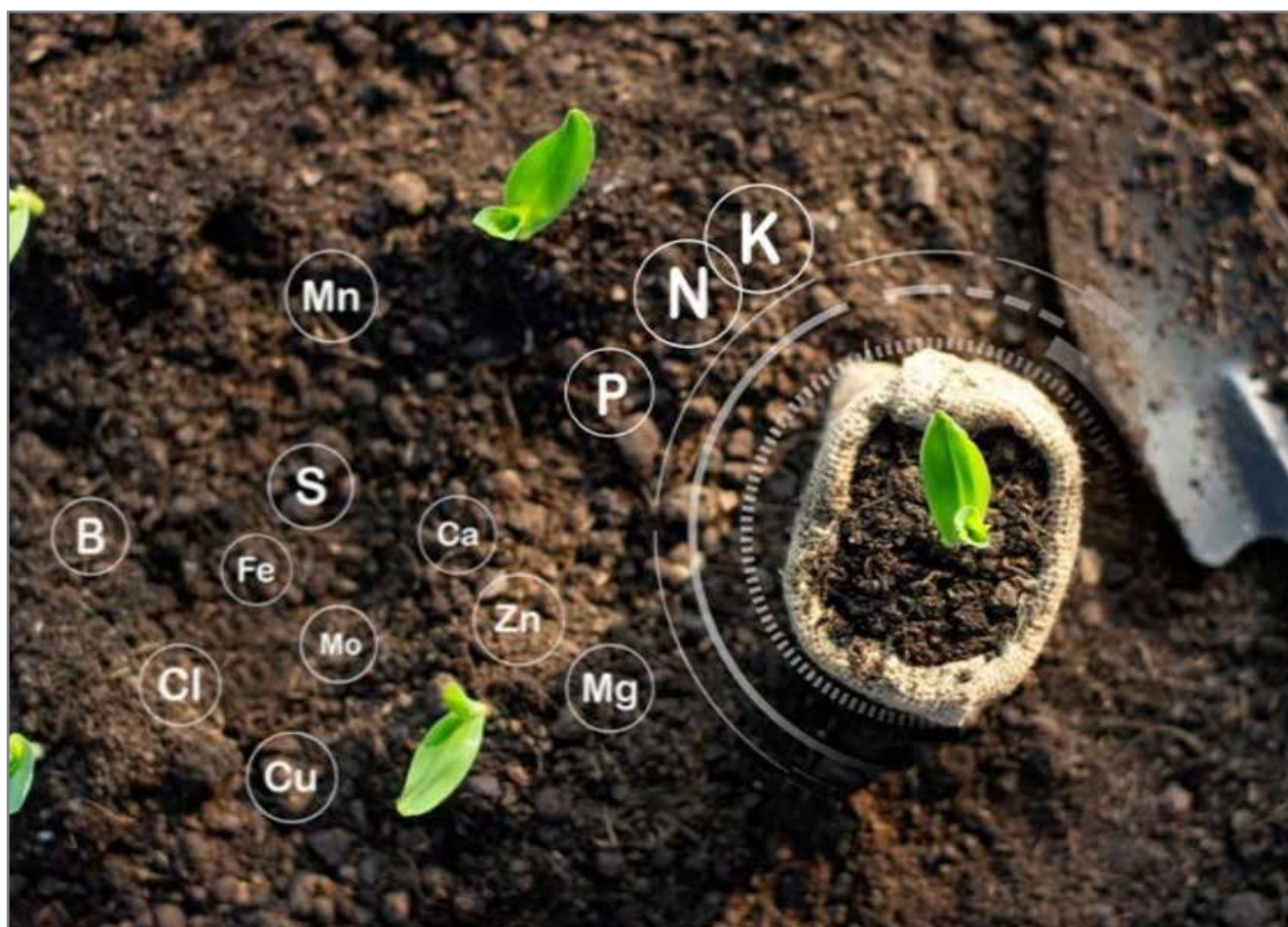
Mitigation Strategies for Enhancing Soil Carbon

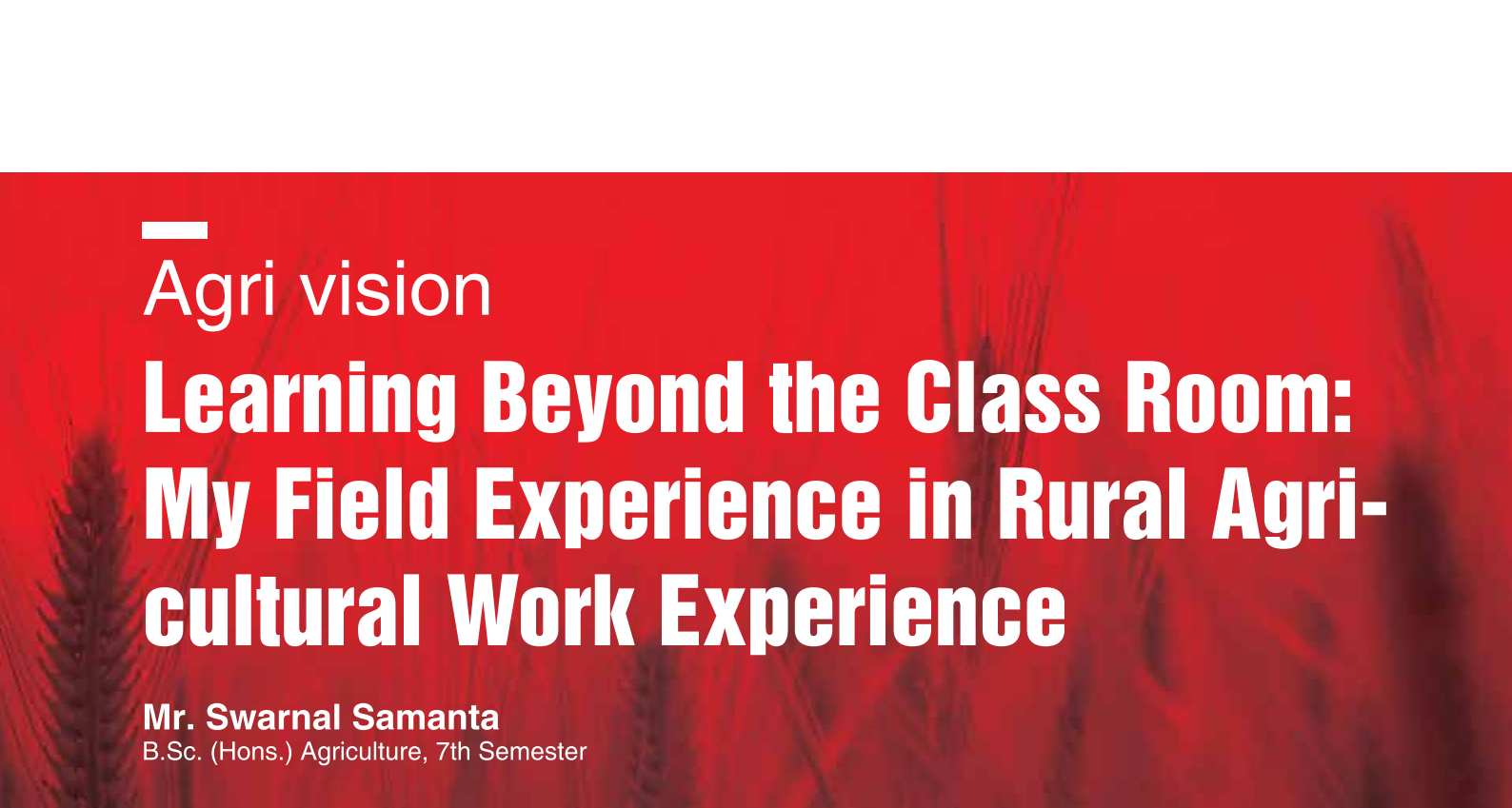
- **Biochar Application:** Biochar is a carbon-rich material produced by burning organic matter (e.g., crop residues, wood chips, coconut shells) in low-oxygen conditions. In regions like Andhra Pradesh and parts of Africa, farmers apply biochar to improve soil fertility and carbon retention.

- **No-Tillage or Reduced Tillage:** Minimizes soil disturbance, helping to preserve stored carbon. In Punjab and Haryana, zero-tillage wheat cultivation after rice harvest is gaining popularity, reducing CO₂ emissions from ploughing.
- **Cover Cropping:** Involves planting species like clover, rye, or legumes to protect soil, fix nitrogen, and enhance organic matter. In the USA, winter rye is widely used to build soil carbon and improve soil health.

Conclusion

By harnessing the potential of soil carbon, we can drive a positive ripple effect across ecosystems. Enhanced soil carbon sequestration supports biodiversity, strengthens ecosystem services, and contributes to a more climate-resilient planet.





—
Agri vision

Learning Beyond the Class Room: My Field Experience in Rural Agri- cultural Work Experience

Mr. Swarnal Samanta

B.Sc. (Hons.) Agriculture, 7th Semester

For an agricultural student, nothing compares to stepping into actual farm fields. During my recent Rural Agricultural Work Experience, I was able to work alongside farmers; interact with rural households; and perform field-based interventions that actually helped my theoretical knowledge to be applied in practice. One of the most insightful aspects of interaction with the host farmers was meeting with them face to face. Each discussion fostered another layer of understanding. From transplanting rice seedlings to diagnosing diseases in fruits and vegetables, conversations offered insight into daily practical problems confronted by farmers, problems that would require answers beyond the textbook.

For instance, in one visit, a farmer expressed concern about the stunted growth of seedlings after the application of urea as a basal dose. We pondered the possible reasons and how some slight changes in the timing of fertilizer application could avoid such situations. In some other instance, the farmer's cucumber field was being destroyed by the red pumpkin beetle. The fact that he was utilizing pesticides like Monocrotophos epitomized how farmers depend on methods at their disposal. Yet, we discussed alternatives that are safer and more sustainable options, combining what we learned in class with field realities.

Sample collection from diseased plants was a key task. A sample taken from a grapefruit was diagnosed with fruit rot while others produced classic mosaic virus symptoms on vegetables. I learned to identify these through physical symptoms such as mottled leaves, deformed fruits, or rotting tissues- a hands-on plant pathology lesson that enhanced my diagnostic skills. I also worked in planning for livestock and fruit and vegetable interventions. As I was collecting data on feed from a family into livestock rearing, I realized that with very limited access to quality feed, animal health and farmer income are forthwith affected. It made me think about the affordability of solutions and the value of local knowledge in intervention development.

Apart from farm work, we would get together with the faculty and discuss our observations and update field diaries so that each day ended with reflection and feedback. These review sessions helped sharpen my record keeping skills and taught me the importance of systematic and rigorous documentation of field research.

The field experience spanned beyond agriculture into empathy, patience, and tuning into the pulse of rural India. Every farmer's story, challenge, and approach became a live case study, and I came back with more knowledge, confidence, curiosity, and clarity in my path as an agriculture professional.



Soil sample collection



Transplanting rice



Preparing land using power tiller



Interacting with the farmers

Scientific Articles

Nano urea revolution by IFFCO: boon or bubble?

Pragata Mukherjee and Rupsa Kumar

B.Sc. (Hons.) Agriculture, 1st Year



Abstract

Nano urea is one of the newest and most talked about inventions in Indian agriculture. It is a liquid fertilizer made by IFFCO (Indian Farmers Fertiliser Cooperative Limited). It was introduced as a better and smarter option compared to normal urea, which farmers use in large amounts every year. Nano urea is said to be more effective, cheaper, and better for the environment. It comes in a small 500 ml bottle and claims to do the same job as a 45 kg bag of regular urea. The idea is that plants will absorb nano urea more easily through their leaves, so less fertilizer is wasted.

This article tries to find out if nano urea is really a good change for Indian farmers or if it is being praised too much without proper proof. Many farmers are excited about using it, but some scientists and experts are not fully sure yet. In this article, I have discussed what nano urea is, how it works, what are its benefits, and also some problems or doubts people have about it. I have also talked about real examples where farmers used it and what they experienced. My aim is to look at both sides and see if this is truly a revolution or just a short-term trend.

Keywords

Nano urea, IFFCO, nitrogen use, Indian farming, fertilizer alternative, environment-friendly farming, crop yield, farmer opinion, new technology in agriculture.

Introduction

Fertilizers are very important in farming. In India, farmers have been using urea for many years to grow more crops. But using too much urea is not always good. It can damage the soil, pollute the water, and also harm the environment. Still, farmers use it in big amounts because they need to produce more food, and urea is also cheap due to government subsidies.

To solve this problem, IFFCO introduced a new product called nano urea. It is a liquid fertilizer that contains very tiny nitrogen particles. These particles are so small that they are measured in nanometres. IFFCO says that this fertilizer works better than normal urea and is more environment-friendly. They also say it is cheaper and easier to use.

But the question is, does it really work as promised? Can a small bottle really replace a big bag of urea? Is it safe and useful for all types of crops and soils? In this article, I will try to answer these questions.

How Nano Urea Works

Nano urea is sprayed on the leaves of the plant. The small nitrogen particles enter through the stomata (tiny holes on leaves) and are absorbed quickly. Because it goes directly to the plant tissue, it is said to be more efficient than spreading urea on the soil.

According to IFFCO, one 500 ml bottle of nano urea is enough for one acre of land and can replace one full bag (45 kg) of regular urea. They say it helps the plant grow better, gives more yield, and reduces the need for more chemical fertilizers.

Advantages of Nano Urea

1. **Better for the Environment:** Traditional urea, when used too much, causes pollution in water and air. Nano urea can help reduce this because it is used in small amounts and gets absorbed easily.
2. **Cheaper for Farmers:** Nano urea is less expensive and easier to carry. It is lightweight, so farmers don't need trucks to transport it. A small bottle costs around ₹240 only.
3. **Reduces Fertilizer Waste:** Normal urea gets wasted in the soil due to leaching and evaporation. Nano urea reaches the plant directly, so very little is lost.
4. **Good for Government Too:** The government spends a lot of money on urea subsidies. If farmers switch to nano urea, it may reduce the need for subsidies and help save money.



Problems and Doubts

Even though nano urea sounds very promising, not everyone agrees that it works as perfectly as claimed.

- Some scientists say that nano urea cannot give enough nitrogen to crops like wheat and rice, which need more nutrients. It may help a little, but cannot fully replace normal urea.
- Many farmers don't know how to use it properly. If they spray too much or too little, it may harm the plant or give no result.
- There are not enough independent research studies. Most reports come from IFFCO, the company that made it, so we don't know if the data is fully neutral.
- In some cases, farmers reported that crop yields remained the same or even decreased, especially when nano urea was used without any other fertilizer.

Case Study from Bihar

In Bihar, the government gave free nano urea bottles to farmers in some areas to test the results. Farmers who used it on paddy and maize said it was easy to use and cheaper. But some of them also said they didn't see much change in crop growth. Experts from Rajendra Prasad University said that nano urea should be used with other nutrients and not alone. They suggested using it as a supplement, not a full replacement.

Conclusion

Nano urea is a very exciting and modern idea for Indian agriculture. It has the potential to reduce environmental damage and help farmers save money. But at the same time, we must be careful and not believe all claims without testing. Nano urea works best when used in the right way and with proper knowledge. It may not be a magic solution for every farmer or every crop.

So, is it a boon or a bubble? Right now, it is somewhere in between. It is not a total failure, but it is not a complete replacement for regular urea either. More research, more field trials, and better farmer training are needed to find out its real value.

Nano urea may not be a miracle, but it is definitely a step forward in making farming smarter and more sustainable. The future will tell us whether this small bottle can really make a big difference in Indian agriculture.

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Scientific Articles

Bird-friendly farming: how agricultural lands can become bird havens

Swagato Ghosh

B.Sc. (Hons.) Agriculture, 1st Year



Abstract

Modern agriculture has significantly contributed to biodiversity loss, particularly affecting farmland bird populations worldwide. This article explores the concept of **bird-friendly farming**, an ecological approach that integrates avian conservation into agricultural landscapes without compromising productivity. Birds provide essential ecosystem services—such as pest control, pollination, and seed dispersal—that enhance soil health and crop resilience. Drawing from global case studies, including owl-nest initiatives in India

and bird-friendly coffee certifications in Latin America, the article highlights how specific farming practices—like agroforestry, reduced pesticide use, and habitat preservation—support avian biodiversity. The ecological and economic benefits of these practices are backed by peer-reviewed research and real-world outcomes. Bird-friendly farming emerges as a sustainable model for balancing agricultural output with environmental stewardship in the face of climate change and habitat degradation.

Keywords

Bird-friendly farming, farmland birds, agroecology, sustainable agriculture.

Introduction

At first, farms and forests appear to be opposites. One is cultivated, while the other is wild. However, as the lines between conservation and farming blur, bird-friendly farming is emerging as a new approach. This concept aims to address an urgent question: Can agriculture support both people and the planet?

The answer can be found in the wings of the birds.

The Crisis in Our Fields

- Modern farming has drastically increased food production, but at a significant ecological cost. In the relentless pursuit of higher yields, natural vegetation is removed, single-crop farming dominates, and pesticides are widely used. Birds, once common in farming areas, are disappearing.
- A groundbreaking study by Donald et al. (2001) published in the Proceedings of the Royal Society B found that European farmland bird populations declined by more than 50% from the 1980s to today due to intensified agricultural practices. This trend is now spreading globally; in India, for example, Indian rollers, skylarks, and lapwings are vanishing from formerly familiar habitats.
- These losses matter. Birds are not just beautiful; they play essential roles in agricultural systems.

Why Birds Matter in Agriculture

- **Birds perform vital ecosystem functions:**
- **Insect Regulation:** Research published in Ecology Letters (Kremen & Miles, 2012) shows that insect-eating birds, such as drongos and bee-eaters, help control caterpillars, beetles, and grasshoppers. In Kenya, maize fields accessible to birds have significantly lower pest densities and higher yields than caged-off fields.
- **Rodent Control:** Barn owls (*Tyto alba*) are common in India and can eat up to 3,000 rodents each year. Farmers in Gujarat who install nest boxes observe a 30-40% reduction in crop loss due to rodents, according to data from the Bombay Natural History Society (BNHS).
- **Pollination & Seed Dispersal:** Sunbirds and flowerpeckers aid in the pollination of fruits like papaya, guava, and bananas. Fruits-eating birds

such as hornbills and bulbuls help disperse seeds, boosting biodiversity in agroforestry areas.

- **Early Warning System:** Declines in bird populations often indicate larger ecological issues. Birds serve as excellent indicators of habitat health and pesticide impact. Bird-friendly agriculture combines conservation with farming. Unlike traditional conservation methods that separate nature from agriculture, this approach reimagines farmland as potential habitats. It focuses on creating farms with complexity to support birds throughout their life cycles—roosting, feeding, and breeding.



Key practices include

1. Habitat Heterogeneity

- Mixed farms with fruits, trees, and cover crops provide food and shelter for a wider variety of birds. Hedgerows and native shrubs along field edges act as corridors for birds.

2. Agroforestry Systems

- Agroforestry, or planting crops among trees, creates a paradise for birds. Trees offer nesting places for cavity nesters and hunting spots. Agroforestry patches in Kerala can host up to 80% more bird species than single-crop fields.

3. Water Management

- Ponds, canals, and wetlands attract waterbirds like egrets, herons, and moorhens. Birds help control pests such as snails and insects, while also adding beauty and ecological benefits.

4. Reducing Pesticides

- Chemicals disrupt the insect populations that birds rely on and can poison the birds themselves. RSPB research shows that pesticide-free field borders greatly improve skylark breeding success in UK wheat farms.

5. Nest Box Programs

- BNHS and forest departments in India have launched nest box projects for owls and treepies. These boxes are easy to install and help control pests without chemicals.

Case Studies: How It's Working

- **India – Owl Farming in Gujarat**

- Farmers in Gujarat's Saurashtra region are using artificial nest boxes for barn owls. These nocturnal hunters help keep rodent populations under control, making them valuable allies in paddy and groundnut farming. A BNHS survey revealed a 30-40% decrease in rodenticide use on farms employing this model.

- **UK – RSPB's Skylark Plots and Agri-Environment Schemes**

- Farmers working with the Royal Society for the Protection of Birds (RSPB) create unplanted "skylark plots" within large wheat fields. Skylarks can nest here without disturbance from machinery. Observations show a 20% improvement in nesting success in these fields.

- **Latin America – Bird-Friendly Coffee Certification**

- The Smithsonian Migratory Bird Center developed a certification for coffee farms that maintain indigenous canopy trees and limit chemical use. These farms have recorded over 150 bird species, many being North American migratory birds. Certified farms typically earn 15-20% more, balancing ecology with economy.

Conclusion

Bird-friendly farming is not about going back to pre-industrial methods — it's about working with nature, not against it. In the long run, biodiversity-based farming is more resilient to climate change, pest outbreaks, and market volatility. As farmers sow seeds into the soil, perhaps they're also sowing hope into the sky — inviting the birds to return, and with them, the songs of a more balanced, sustainable world.

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Scientific Articles

Brewing Change: The Role of Women in Tea Production and Their Path to Empowerment

Aditi Das and Md Noor Alam

B.Sc. (Hons.) Agriculture, 1st Year



Abstract

Tea is not just a beverage but a global industry that supports millions of livelihoods, especially in developing countries like India, Sri Lanka, Kenya, and China. Women are the backbone of this industry, performing more than half of the labor required for tea cultivation, plucking, processing, and packaging. Despite their significant contributions, they often remain invisible in decision-making roles and are underpaid and overworked. This article explores the multifaceted roles women play in tea production and how their active participation is slowly paving the way for economic and social empowerment. It analyzes

the challenges women face, such as wage inequality, lack of land rights, poor working conditions, and limited access to education and health services. The article also highlights various government initiatives, NGO programs, and fair-trade policies aimed at uplifting female workers in the tea industry. Real-life case studies and grassroots movements are also presented to underline the transformative power of collective action and gender-focused interventions. Finally, the paper advocates for gender-inclusive policies and sustainable practices that recognize, reward, and empower women in tea production. With proper support and recognition, women in the tea sector can emerge as leaders, entrepreneurs, and agents of change.

Keywords

Women, Tea Production, Empowerment, Agriculture, Pluckers, Plantation Workers, Gender Equality.

Introduction

Tea is one of the most consumed beverages globally and a significant contributor to the economies of many developing countries. In regions where tea cultivation thrives, such as Assam, Darjeeling, Nilgiris, and other parts of South and Southeast Asia, the industry's success relies heavily on the labor of women. Despite this, their roles are undervalued, and their voices are often unheard. Recognizing and supporting the role of women in tea production is not only essential for the industry's sustainability but also a powerful tool for women's empowerment.

1. Women as the Backbone of Tea Production

- **Roles and Responsibilities** Women are primarily engaged in plucking tea leaves—a labor-intensive task requiring precision, speed, and endurance. They also assist in weeding, pruning, planting, and sometimes factory-level operations such as sorting and packaging.
- **Economic Contribution** Though often seen as informal workers, women make up to 60-70% of the labor force in tea plantations. Their contribution directly impacts tea quality and yield, which in turn affects market value and export earnings.

2. Challenges Faced by Women in the Tea Industry

- **Wage Disparity and Job Insecurity** Women often receive lower wages than men for the same work and lack formal contracts. Seasonal employment adds to their financial vulnerability.
- **Poor Working and Living Conditions** Long working hours, lack of sanitation, inadequate housing, and limited access to clean drinking water are common challenges for women on tea estates.
- **Health and Education** Limited access to maternal health care, nutritional deficiencies, and a lack of educational opportunities for both women and their children further compound the cycle of poverty.
- **Social and Gender Inequality** Patriarchal norms often restrict women from leadership roles or decision-making processes within plantation communities and households.

3. Women Empowerment through of the Tea Production

- **Economic Empowerment** Fair wages, micro-financing, and skill development programs are enabling women to contribute financially to their families and gain independence.
- **Education and Training** NGOs and local governments are initiating adult literacy programs and vocational training to help women diversify their income sources.
- **Health and Well-being** Awareness programs on hygiene, reproductive health, and nutrition are slowly improving the well-being of female tea workers.
- **Leadership and Participation** Some women are taking up supervisory roles and participating in union activities, showing a gradual shift in power dynamics within plantations.

4. Case Studies and Success Stories

- **SEWA in Assam** The Self-Employed Women's Association (SEWA) has trained hundreds of women in Assam to form cooperatives, produce organic tea, and market their products independently.
- **Makaibari Tea Estate, Darjeeling** This estate is known for empowering its female workers through education, profit-sharing, and healthcare programs, setting a model for others to follow.
- **Women-led Tea Cooperatives in Kenya** In parts of Kenya, women-led cooperatives are demonstrating the success of inclusive models where women control both production and profits.

5. Policy Support and Global Movements

- **Government Schemes** Indian schemes like the Plantation Labour Act and Mahila Kisan Sashaktikaran Pariyojana aim to safeguard women's rights and promote skill development.
- **Fair Trade and Certification Bodies** Certifications such as Rainforest Alliance and Fair Trade encourage ethical labor practices and ensure that women receive fair treatment and wages.

- **NGO Interventions**

Organizations like CARE, UNICEF, and Oxfam are actively working to empower women in tea-growing regions through health, education, and financial inclusion initiatives.

6. The Way Forward

To create lasting change, tea companies, governments, and civil society must: Enforce equal pay and legal protections. Encourage women's participation in decision-making. Promote education, healthcare, and housing for workers. Support women-led enterprises and cooperatives.

By empowering women, the tea industry not only fosters social justice but also enhances productivity, quality, and sustainability.

Agricultural workforce

Women make essential contributions to agriculture and rural economic activities in all developing countries, and comprise around 43% of the agricultural labour force.

Here's the share of employed women working in agriculture in the regions we work

- Kenya: 60% (2020).
- Malawi: 43% (2020).
- Rwanda: 71% (2020).
- China: 22% (2020).
- India: 54% (2020).
- Indonesia: 26% (2020).



Women working in tea

As in many agricultural industries, tea relies on a female workforce. Many women who work in tea are pluckers, a labor-intensive job. In Assam, India, we know that around 365,000 women work in the estate sector alone. Here's the proportion of tea workers who are women. Across some of the regions that we operate in:

- Malawi: 30%.
- Assam, India: >50%.
- Indonesia: 30%.
- Sri Lanka: >50%.



Acknowledgement

This article is inspired by the hardworking women of tea plantations worldwide, whose resilience and dedication often go unrecognized. Sincere thanks to the organizations and researchers who continue to document and support the cause of women's empowerment in agriculture, especially within the tea sector. The insights from various NGOs, government programs, and academic resources were instrumental in shaping this work.

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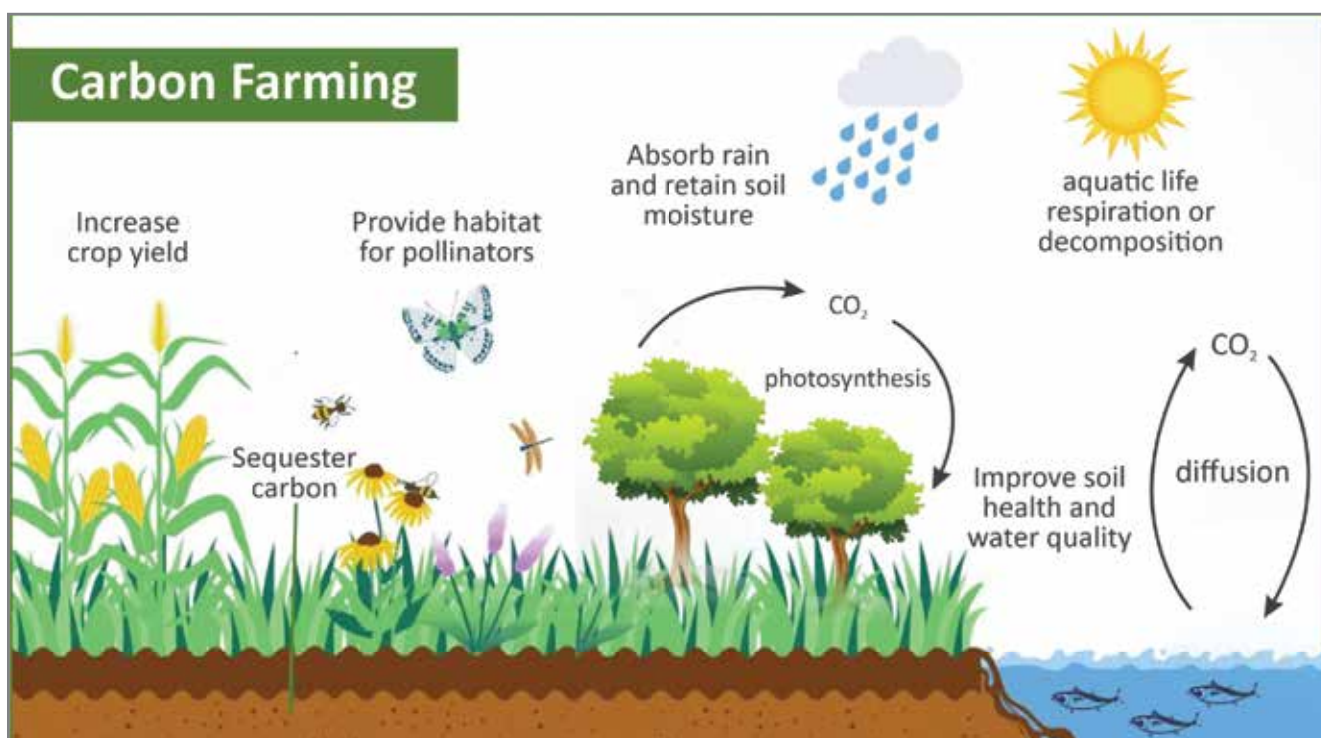
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Scientific Articles

Carbon farming

Manab Sharma

B.Sc. (Hons.) Agriculture, 1st Year



Introduction

Carbon, present in all living organisms and numerous minerals, serves as a cornerstone of life on earth, exerting significant influence over diverse processes such as photosynthesis and respiration; farming involves caring for the land, growing crops, and raising animals for food

What is Carbon Farming?

Carbon farming represents a strategic approach aimed at maximizing carbon sequestration and employing agricultural practices designed to enhance the absorption of carbon dioxide (CO_2) from the atmosphere while facilitating its retention in both plant biomass and soil organic matter. This process requires careful planning, monitoring, and adaptation to local conditions to maximize its effectiveness in mitigating climate change.

What is the Significance of Carbon Farming?

Climate Change Mitigation:

Carbon farming is pivotal in the fight against climate change by sequestering carbon in soil and curbing greenhouse gas emissions.

Soil Health Enhancement:

By nurturing healthy soil, carbon farming bolsters water retention, diminishes erosion, and boosts nutrient availability, resulting in amplified crop yields and agricultural productivity.

Converting organic waste into compost, which can be used as a soil amendment to improve soil structure, fertility, and carbon content.

Biodiversity Enrichment:

Carbon farming fosters biodiversity by fostering intricate ecosystems in agricultural settings, attracting beneficial insects and pollinators that fortify crop health and lessen dependence on pesticides.

Economic Opportunities:

Implementation of carbon farming practices opens avenues for farmers to tap into carbon credit markets, alongside potentially augmented yields from enriched soil, thus diversifying income streams and bolstering financial resilience.

Principles

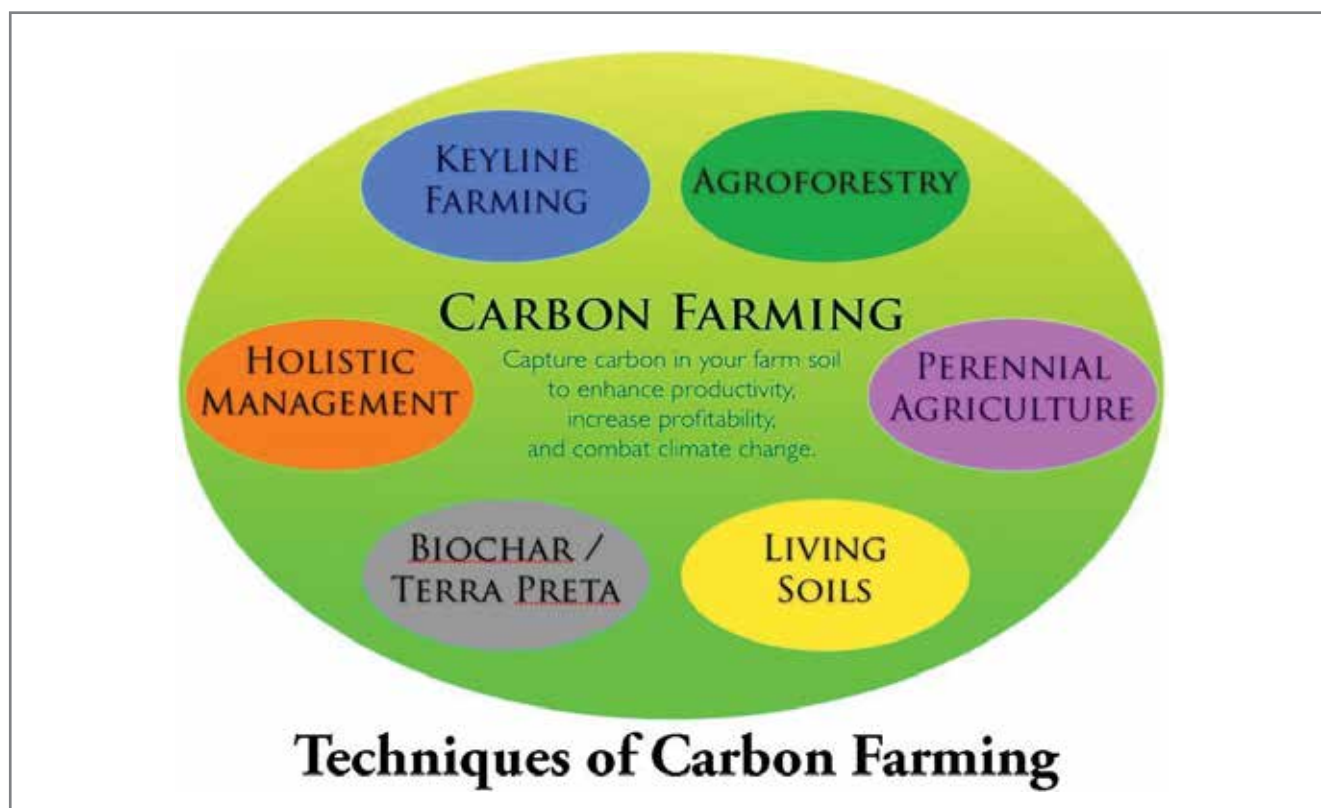
- 1. Soil Carbon Sequestration:** Practices like no-till or reduced-till farming, cover cropping, and organic amendments enhance soil's carbon storage capacity.
- 2. Biodiversity:** Planting diverse crops, incorporating agroforestry, and maintaining ecological corridors promote ecosystem services.
- 3. Minimal Disturbance:** Reduced tillage, no-till, or regenerative agriculture minimize soil disturbance, preserving soil organic matter.
- 4. Integration:** Combining livestock grazing with tree and crop production enhances carbon sequestration.

Methods

- 1. Agroforestry:** Integrating trees into agricultural landscapes sequesters carbon, provides shade, and enhances biodiversity.
- 2. Cover Cropping:** Planting cover crops between cash crops reduces erosion, adds organic matter, and supports beneficial insects.
- 3. Regenerative Agriculture:** Practices like no-till, mulching, and incorporating organic amendments enhance soil health and carbon sequestration.
- 4. Livestock Grazing Management:** Rotational grazing, incorporating trees, and using regenerative practices optimize carbon sequestration.
- 5. Renewable Energy Production:** Renewable energy facilities such as wind or solar, generate carbon offsets by displacing fossil fuel-based electricity production sources within the power grid.
- 6. Rotational Grazing:** It entails periodically relocating livestock to new pastures, this practice allows previously grazed areas to rejuvenate, minimising erosion and fostering robust regrowth.

The carbon offsets derived from a certified third-party project generates the carbon credit, which is owned by the entity that develops the project.

The flourishing vegetation, in return, absorbs carbon dioxide from the atmosphere and sequesters it in the soil through photosynthesis



What Are the Opportunities in India?

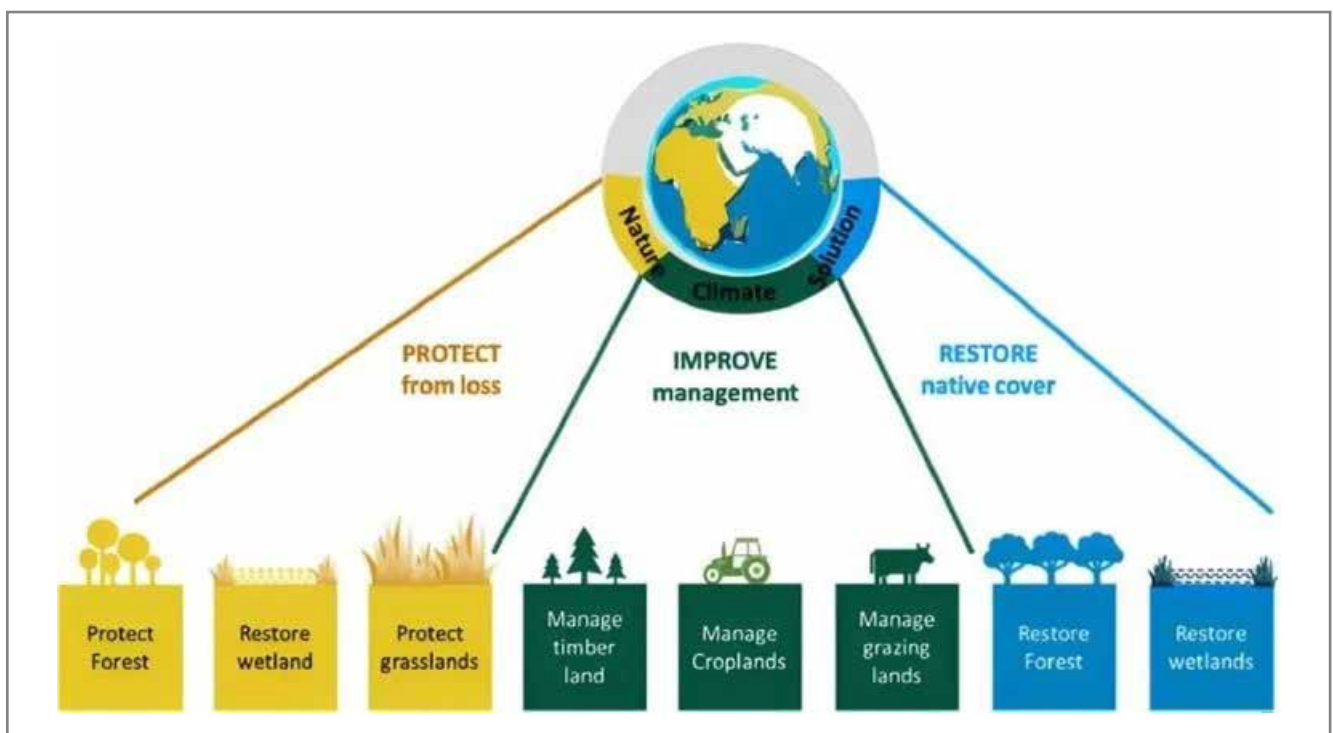
- **Viability of Organic Farming:** Grassroots initiatives and pioneering agrarian research in India are demonstrating the viability of organic farming to sequester carbon. Carbon Farming. In this regard, agro-ecological practices in India could yield significant economic benefits, with the potential to generate \$63 billion in value from approximately 170 million hectares of arable land.
- **Suitability Across Geographic Regions:** Regions with extensive agricultural land, such as the Indo-Gangetic plains and the Deccan Plateau, are well suited to adopt carbon farming whereas the mountainous terrain of the Himalayan region is less suited. Coastal areas are prone to salinization and have limited access to resources, thus limiting the adoption of traditional farming practices.
- **Enhancing Food Security:** Carbon credit systems can incentivize farmers by providing additional income through environmental services.
- **Agricultural soils can absorb 3-8 billion tonnes of CO₂-equivalent every year over 20-30 years.** This can bridge the gap between feasible emissions reductions and the indispensable stabilization of the climate.

Thus, carbon farming could also be a sustainable strategy to mitigate climate change and enhance food security in India

How Can India Promote Carbon Farming More Effectively?

India can encourage carbon farming more effectively through a variety of strategies, including:

- **Legal Framework for Carbon Farming:**
Establish comprehensive carbon farming legislation to promote carbon sinks on agricultural lands, addressing climate crises and improving agricultural sustainability.
- **Direct Incentives for Farmers:**
Provide direct incentives, such as tools and credit support, to encourage adoption of climate-friendly practices in the agriculture and forestry sectors.
- **Utilizing Carbon Credits and Banks:**
Reward farmers with globally tradable carbon credits and establish carbon banks to incentivize carbon sequestration efforts and promote sustainable land management.
- **Collective Engagement:**
Foster cohesive policies, public-private partnerships, precise quantification methods, and supportive financing mechanisms for scalable carbon farming implementation.
- **Unlocking Soil Potential:**
Recognize soil's potential as a potent carbon sink and harness it to meet Net Zero goals and drive decarbonization.



Conclusion

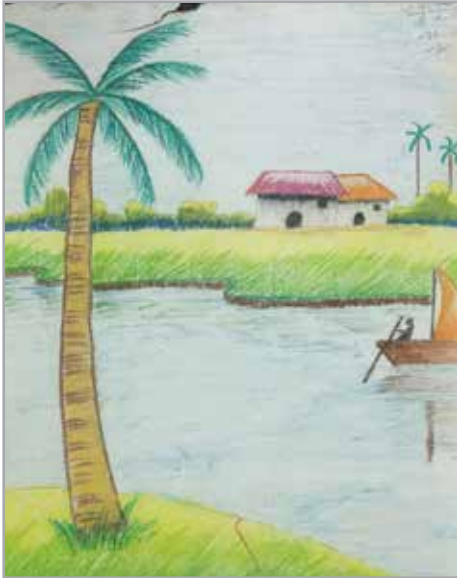
Scaling Carbon farming in India would require concerted efforts to address challenges of limited awareness, inadequate policy support, technological barriers, and an enabling adoption environment. Promoting carbon farming is in India's interests to mitigate climate change while improving soil health, enhancing biodiversity, and creating economic opportunities for its adopters.

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Animation / Drawing Division



Sumana Mondal

B.Sc. (Hons.) Agriculture, 1st year



Anketa Panda

B.Sc. (Hons.) Agriculture, 1st year



Ushashi Sinha

B.Sc. (Hons.) Agriculture, 1st year



Debashree Manna

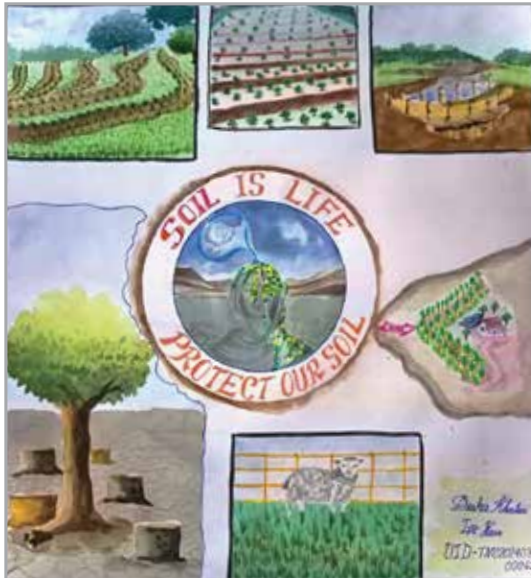
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Swastika Bera

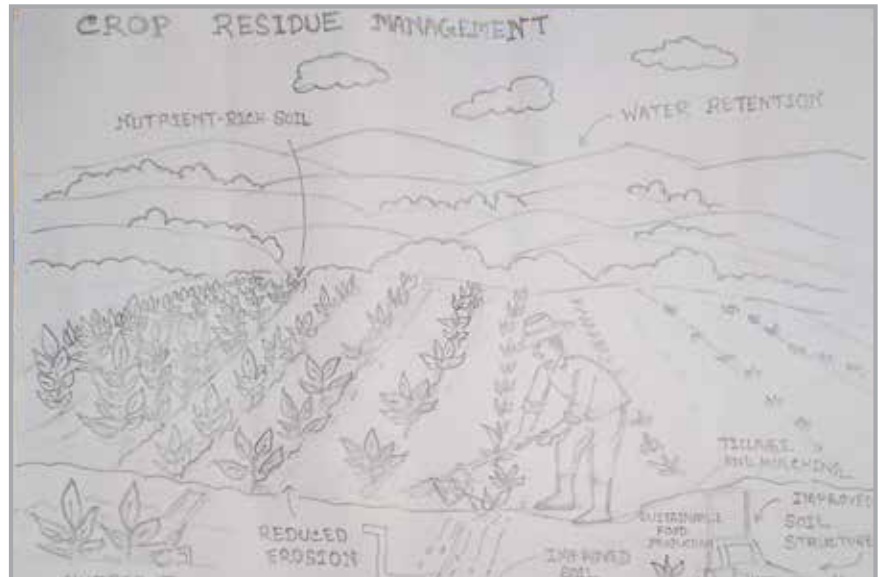
B.Sc. (Hons.) Agriculture, 1st year

Animation / Drawing Division



Disha Khatua

B.Sc. (Hons.) Agriculture, 1st year



Ratul Sen

B.Sc. (Hons.) Agriculture, 1st year



Disha Khatua

B.Sc. (Hons.) Agriculture, 1st year



Muskan Ali

B.Sc. (Hons.) Agriculture, 1st year

Students Corner

ধানের স্বপ্ন

ধান ক্ষেত, তুমি কি সযত্নে লালিত
ইলেকট্রিক পোস্ট এর ছোঁয়ায়,
আমন ধানের স্যাঁতস্যাতে গন্ধে,
নবানের সেই ক্লান্ত হাওয়ায়।

নিষ্ঠুর কুয়াশা, যখন আর ফিরে আসে না
ঝামোর তখন তাপে পুড়ে যায়,
ভোমরা তখন হাজার অছিলায়।

চাষীরা তখন মুখ গুঁজে কাজ করে,
তারা গান ধরে না, উদাস মাঝি দেব মতো।
তারা গান গাইনী, যেনো কতো বছর।

কীটনাশকের ভয়ে কতো শতাব্দী,
থ্রিপস, মাজরা পোকা স্পর্শ করে নী।
হাজার বর্ষাও ধুয়ে দিতে পারে নী
সেই কীটনাশক,
এখনও তারা লেগে আছে তোমার শরীরে।

এখনও মাথা তুলে দেখো তুমি
সেই সরু সরু ইলেকট্রিক তার,
আকাশ কে ছুঁয়ে উড়ে যাচ্ছে,
কতো নাম না জানা বিহঙ্গ।
শুধু তুমিই যেনো বদ্ধ, এই চলন্ত চরাচরে
কেউ যেন বেঁধেছে এক মূলুকের ক্লান্তি
তোমার অঙ্গে, তোমার অগোচরে।

তুমি তো স্বপ্ন দেখেছিলে,
চেয়েছিলে ইলেকট্রিক পোস্ট ভারসাম্য হারিয়ে
পরে যাক তোমার বুক।
রোজ রাতে যেমন তুমি আঁধারের তলানিতে থাকো,
তেমনি থাকুক সারা শহর।

Kriti Ghosh
B.Sc. (Hons) Agriculture, 1st year

Students Corner

উদ্ধৃত

একদিন সত্যিই শেষ হয়ে যায় ওই সোনার সংসার
আগামী হয়তো তলিয়ে যায় হেমন্তেরই শ্রাপিত শিশিরে,
নাছোড়বান্দা কাস্তের ঘায়ে অবাধে চলে উৎপাটনের উৎসব
শেষমেশ গর্ভপাতেই শ্রান্ত হয় উচ্ছ্বাসের ঢেউ ওই নিঃস্ব তিমিরে।

দিগন্তের ক্যানভাসে সংজ্ঞা হারায় সুদূর এক সবুজ অতীত
“দিন পালটায়, রং বদলায়” - পুনরাবৃত্তিতেই বার্ষিক্য ছোঁয় কি
গ্রীষ্ম, কিইবা শীত,
কোনো সাঁঝে দীন দরিদ্ররা ঘরে ফিরলে খাঁ খাঁ করে তেপান্তর
বন্ধু, ওই বাঁজা জমিতে পা রাখলে বুঝবে জীর্ণ আর রিক্তের
অন্তর।

কজির জোরে মন্ডর ছন্দে যখন লুটিয়ে পড়ে নিশ্চয়তা
ঘাপটি মেরে আলগা ধুলোয় মিশে যায় বিগত খানেক প্রতিশ্রুতি,
ওপারের আসন্ন সূর্যদয়ে যখন অস্পৃশ্য এপারের গোধূলি
কুয়াশাচ্ছন্ন শোকসভায় ঝাঁঝের গানে নেমে আসে অতীতের
বিস্মৃতি।

~স্বাগত ঘোষ

Swagato Ghosh
B.Sc. (Hons) Agriculture, 1st year

Photography and Image Gallery

Swaraj Mahato

B.Sc. (Hons.) Agriculture, 1st Year









Field Activities



Annu Prasad
B.Sc. (Hons.) Agriculture, 1st year



Annu Prasad
B.Sc. (Hons.) Agriculture, 1st year



Anushree Mondal
B.Sc. (Hons.) Agriculture, 3rd Year



Aranish Pariari
B.Sc. (Hons.) Agriculture, 1st year

Field Activities



Aranish Pariari
B.Sc. (Hons.) Agriculture, 1st year



Aranya Halder
B.Sc. (Hons.) Agriculture, 3rd Year



Arnab Kumar
B.Sc. (Hons.) Agriculture, 1st year



Debdatta Ghosh
B.Sc. (Hons.) Agriculture, 1st year



Atashi Paul
 B.Sc. (Hons.) Agriculture, 3rd year



Debdatta Ghosh
 B.Sc. (Hons.) Agriculture, 1st year



Shayanendra Bera
 B.Sc. (Hons.) Agriculture, 3rd Year



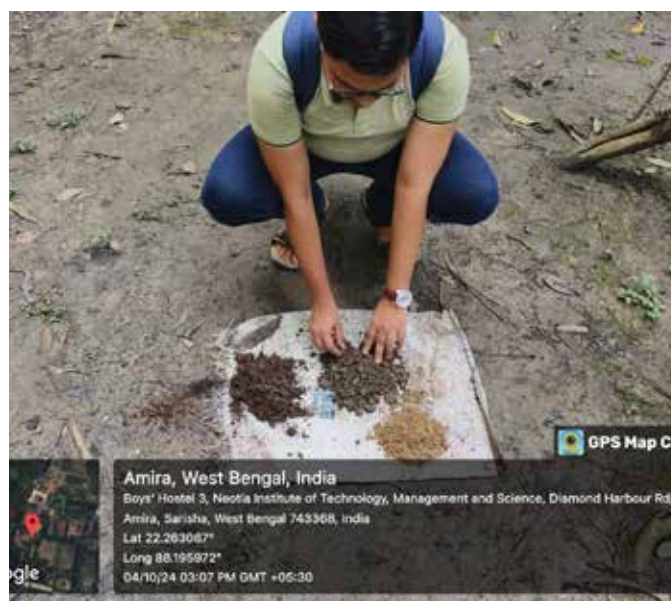
Tanmay Das
 B.Sc. (Hons.) Agriculture, 1st year



Suman Das
 B.Sc. (Hons.) Agriculture, 1st year



Atashi Paul
 B.Sc. (Hons.) Agriculture, 3rd Year



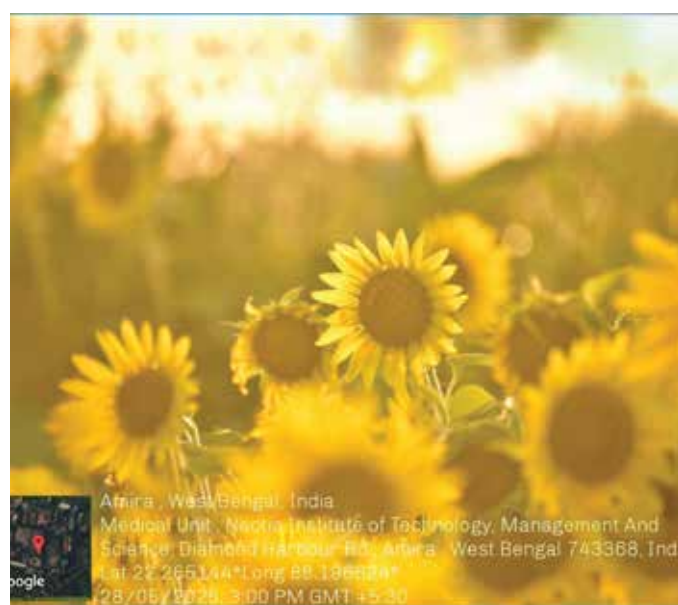
Debdatta Ghosh
 B.Sc. (Hons.) Agriculture, 1st year



Debdatta Ghosh
 B.Sc. (Hons.) Agriculture, 1st year



Debdatta Ghosh
 B.Sc. (Hons.) Agriculture, 1st year



Debdatta Ghosh
 B.Sc. (Hons.) Agriculture, 1st year



Suman Das
B.Sc. (Hons.) Agriculture, 1st year



Surya Sekhar Singharai
B.Sc. (Hons.) Agriculture, 1st year



Debdatta Ghosh
B.Sc. (Hons.) Agriculture, 1st year



Debdatta Ghosh
B.Sc. (Hons.) Agriculture, 1st year

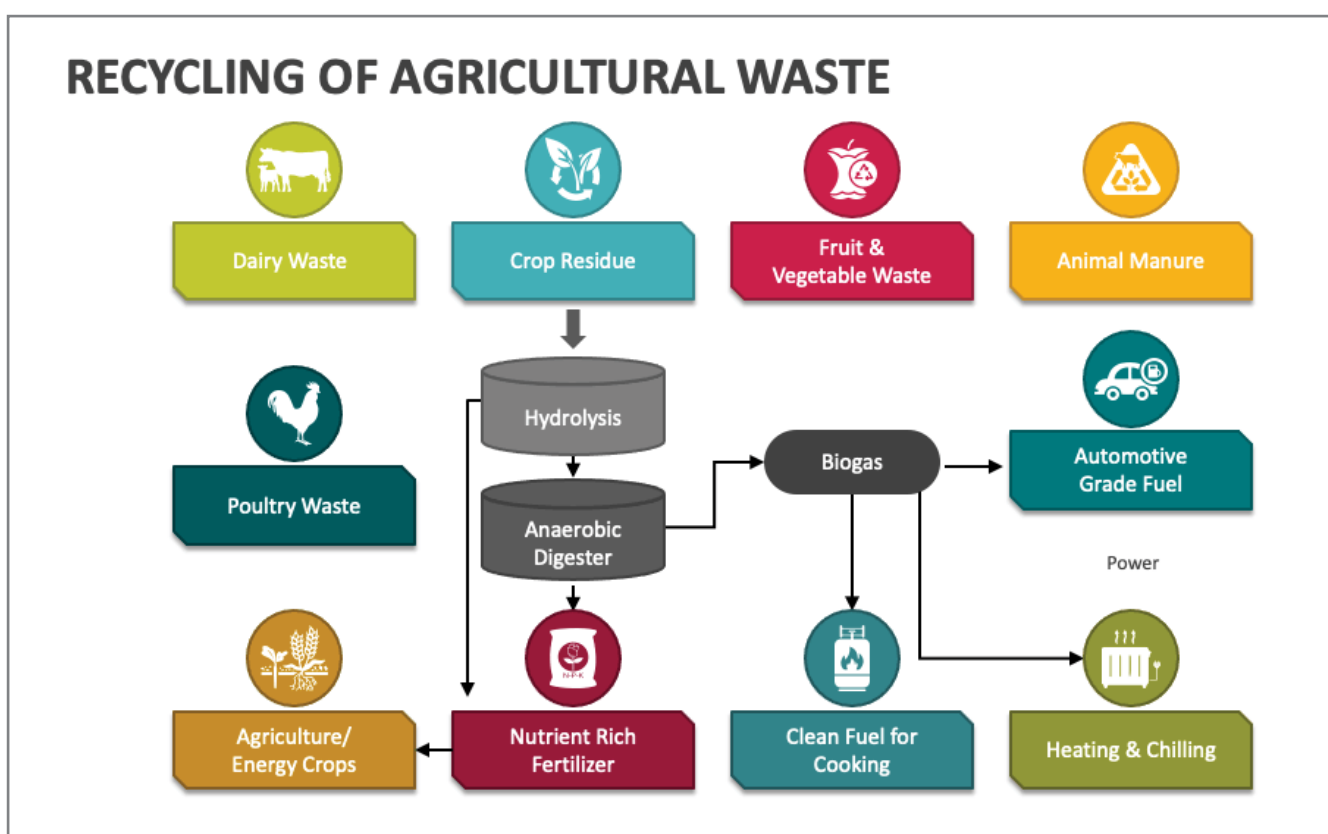


Debdatta Ghosh
B.Sc. (Hons.) Agriculture, 1st year

Events and Activities

1. Experiential Learning Program

Experiential Learning Programme (ELP) on Agri-Waste Management



This Experiential Learning Programme (ELP) on Agri-Waste Management was organized to impart practical knowledge and hands-on experience to students on converting agricultural waste into valuable products such as NADEP compost, vermicompost, biochar, and briquettes. The programme aimed to promote sustainable farming practices, efficient waste management, and income generation through eco-friendly technologies. The students also conducted an economic analysis of their respective projects and prepared a Detailed Project Report (DPR) based on their hands-on experience and relevant assumptions.

Objectives

- To educate participants on sustainable methods for managing agri-waste.
- To demonstrate the preparation and benefits of NADEP, vermi compost, biochar and briquette.
- To encourage entrepreneurial thinking in organic waste recycling.

Programme Details

Duration: One semester

Agriwaste Management (EL AGR 810)

Participants: 32 students, 8th semester, B.Sc. (Ag) Hons.

Concerned Faculties: Dr. Shilpi Bera and Dr Parvez Mallick

Activities Conducted

A. NADEP Composting

- Layering of organic farm waste, cow dung slurry, and soil was carried out by the students. Emphasis was placed on microbial decomposition, moisture control, and aeration.
- Discussed advantages: cost-effective, aerobic, and suitable for small farms.

B. Vermi Composting

- Created vermi beds using cow dung and chopped crop residues.
- Hands-on activity involved feeding, maintaining moisture, and harvesting compost.
- Highlighted the nutrient richness and soil fertility enhancement properties.

C. Biochar Production

- Demonstrated pyrolysis using gasifier to convert crop residues (like rice husk, rice straw, mustard siliqua residue and stover, jute sticks and fallen dried leaves) into biochar.
- Explained its use as a soil amendment to improve water retention and microbial activity.
- Safety and environmental aspects of controlled burning were emphasized.

D. Briquette Making

- Agricultural waste such as sawdust, paddy straw, paddy husk was processed mixed with cow-dung.
- Students used a manual/low-cost briquetting press to form fuel briquettes.
- Discussed briquettes as a renewable energy source and alternative to firewood/coal.

Conclusion

The Experiential Learning Programme on Agri-Waste Management was a successful initiative in promoting sustainable and eco-friendly farming practices. The integration of theory and hands-on training ensured that students left with actionable knowledge and confidence to adopt or promote these methods.

Such programmes are vital for encouraging green entrepreneurship and reducing the carbon footprint of agriculture.



NADEP compost pit



Layering and filling up NADEP compost pit



Production of NADEP compost

Agriwaste Management (EL AGR 810)



Spreading of crop residue to prepare vermicompost



Mixing of cow-dung with crop residue for vermicomposting



Visit of respected Vice-chancellor, TNU and Dean, SAAS, TNU to Biochar production unit



Agriwaste Management (EL AGR 810)



Straining and packaging of prepared biochar



Briquettes prepared by students with sawdust and cow-dung



Manual briquetting machine



Preparing briquettes using manual briquetting machine

1. Experiential Learning Program

Commercial Beekeeping (EL-ENTO 805)



Business ideas

1. Production and Marketing of Quality Honey, Bee Wax and Pollen
2. Production and Marketing of Queen Bees
3. Production, Extraction, Storage and Marketing of Royal Jelly
4. Production and Marketing of Propolis and Bee Venom

Under the Experiential Learning Programme, 32 students of the 8th Semester, B.Sc. (Hons) Agriculture 2021 batch were engaged in the Commercial

Beekeeping module (EL-ENTO 805). Students were allotted to 4 different business ideas based on their choice. They have gained an in hand experience on various aspects of apiculture, like knowledge on honey bee species, castes of bees, beekeeping appliances and seasonal management. The students also learnt quality honey production and its processing for safe storage and marketing, queen bee rearing for commercial production, extraction and purification of bee wax, propolis, pollen, royal jelly and bee venom and their marketing. Moreover, they learnt how to prepare a bankable DPR (Detailed Project Report) which shall help them in the long run if they want to start their own business in future.

Commercial Beekeeping



1. Experiential Learning Program

Commercial Poultry Production



Introduction

Broiler farming is popular among poultry enterprises because it generates quick returns, and these producers have made money by rearing the broilers. Although, broiler farming is profitable, several risk factors and challenges are associated with this sub-sector. However, with the help of proper biosecurity, vaccination, and medication as well scientific management practices, we could reduce the risk and challenges in broiler farming.

Materials and Method

A total of 32 students were chosen for Poultry Production Technology module, and all of them accomplished their assignments and turned into detail project report on the commercial broiler and layer production. Before bringing the broiler day old chicks at poultry unit, students were cleaned the poultry shed, feeders and waterers. Subsequently, applied the white lime on walls and sanitized the poultry unit and surrounding areas. Before arrival the day old chicks, brooder house was prepared a week prior. Brooder (heat source) was also started in brooder house 24 hour before arrival the chicks and regulate the 39.5°C temperature during 1st week and subsequently, 2.5°C temperature reduced

every week. In the commercial broiler production ELP program, students were brought 200 a day old chicks in two batches, each batch had 100 DoC broiler chicks from registered local hatchery and kept up to 42 days at Poultry Unit, Livestock Instructional Unit, The Neotia University, Sarisha, Kolkata. The broiler commercial feed (Starter & Finisher) were brought from local market prior to bringing the chicks.

Results Outcomes

The average feed intake per bird was recorded 2.90 kg and 3.10 kg and 290.50 kg for 1st batch and 310 kg 2nd batch. The initial average live body weight of day old chicks was recorded (47.15 and 46.26 g/bird) and final average live body weight gain recorded (2112.52 & 2596.98 g/bird) for 1st and 2nd batch, respectively. The overall mean of the final live body weight was recorded as 2354.75 g/bird for both batches. The average mortality rate of broiler production recorded at poultry unit as 8 and 13 percent in 1st and 2nd batch respectively. The mortality rate is permissible upto only 5 percent. The birds were vaccinated by Ranikhet Disease vaccine (F1 strain) at 5 days via oral and IBD (Gumboro) vaccine at 14 days. By booster dose of Ranikhet vaccine (LaSota) was vaccinated at 21 days to take care precaution from paralysis. The cumulative

Commercial Poultry Production

input cost was 37293.00 for 200 bird's production and total cumulative output cost Rs. 40439.00 from 200 birds. The net return was Rs. 3145.00. The average B:C was reported 1.09. Therefore, broiler production during ELP program was profitable. The batch 2 birds

were gain higher body weight as compared to batch 1. However, due to market price fluctuation we could not get good prices. Otherwise, we could generate more revenue from 2nd batch.



1. Experiential Learning Program

Experiential Learning Program - Food Processing (EL-HORT 809) 2025



Key aspects

1. To provide hands-on practical experience through direct participation in actual food processing operations, from raw material handling to finished product packaging.
2. To give exposure to modern food processing and preservation technologies and the equipment used in food processing plants, gaining familiarity with industrial-scale operations.
3. To make aware of the quality control and Food Safety protocols such as HACCP, GMPs, quality assurance procedures, and hygiene practices, ensuring the production of safe and high-quality food products.

Objectives

1. To equip students with the practical skills necessary for various roles in the food processing industry,

including processing techniques, equipment operation, product development, and quality testing.

2. To enable students to understand the entire enterprise management cycle, from business plan development and market analysis to production planning, resource organization, sales, and financial analysis.
3. Through the successful completion of project report preparation on the business models, the program aims to build students' confidence in their abilities to manage and execute food processing operations independently.

Activities Performed

A total of 32 students chose Food Processing module, completed their activities, and submitted detailed project reports on the production of several food products.

Food Processing

1. Production of milk-based products (Paneer).



Fig 1. Boiling of milk



Fig 2. Straining of whey



Fig 3. Packaging of paneer

2. Production of fruit-based products (Orange Jam)



Fig 4. Washing/peeling

3. Production of vegetable-based products (Tomato ketchup) industrial-scale operations.



Fig 5. Cooking



Fig 7. Washing & cutting



Fig 6. Filling



Fig 8. Mixing & Cooking

Food Processing



Fig 9. Cooling & grinding

4. Production of baked products (Coconut cookies)



Fig 10. Weighing



Fig 11. Dough preparation



Fig 12. Baked cookies

5. Production of baked products (Muffins)



Fig 13. Weighing & mixing



Fig 14. Baking



Fig 15. Baked muffins

Outcomes

1. Enhanced practical proficiency and product development skills in diverse food processing techniques, including baking (cookies, muffins), fruit preservation (jam, ketchup), and dairy processing (paneer). This includes gaining hands-on experience in equipment operation, sanitation protocols, and quality checks for each product type.
2. Comprehensive understanding of food business planning and feasibility through the DPR preparation by understanding the essential components of establishing a food processing unit. This includes market analysis, raw material sourcing, production planning, equipment selection, financial projections (costing, profitability), regulatory compliance, and marketing strategies.

1. Experiential Learning Program

Organic Production Technology (ELP)



Business Ideas

1. Growing organic Ipomea vegetable
2. Growing organic Malaar spinach
3. Growing organic Amaranthus
4. Growing organic baby corn
5. Growing organic Okra

Total number of students- 32

Key aspects

Experiential learning is one of the components of student READY programme of ICAR 5th Dean's Committee report with business curriculum-related endeavour. It aims at developing a cadre of skilled professionals who can create their own enterprises. Therefore, the course design of experiential learning is aimed at competence development through knowledge in all aspects of enterprise management so that the agriculture graduates can have complete understanding of field problems, project development and execution of their enterprise.

Objectives

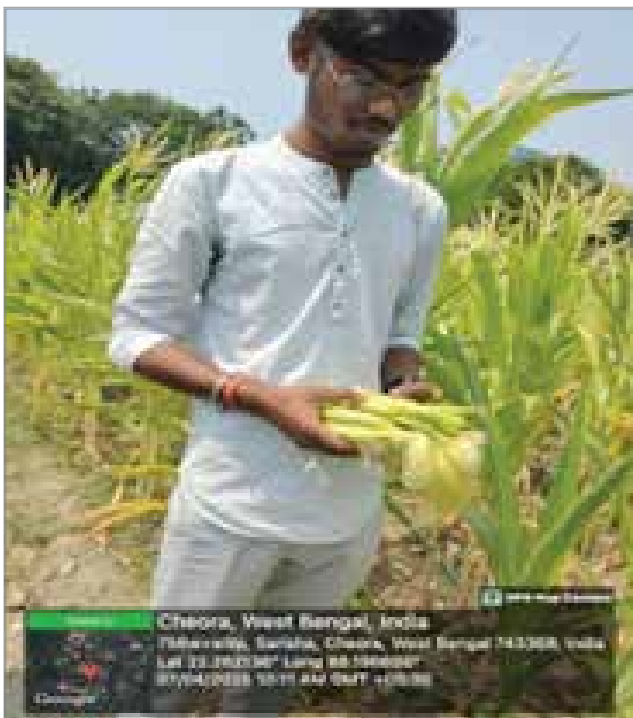
The main objectives of **Experiential Learning Programme (ELP) in agriculture** are to strengthen practical agricultural competencies, nurture agri-entrepreneurial skills and create avenues for self-employment in the farming sector. ELPs aim to prepare students to efficiently manage agricultural enterprises, develop effective agri-marketing strategies, and actively contribute to the commercialization and value addition of agricultural produce.

As part of the **Experiential Learning Programme (ELP)** in the 8th semester of the **B.Sc. Agriculture** course, students are offered **twelve specialized modules**, each carrying **(0+10) practical credits**. Every student is required to select **two modules**, thereby completing a total of **(0+20) practical credits**.

Activities

Students opt organic production technology have grown Ipomea vegetable, Malaar spinach, Amaranthus, Okra and baby corn in the field organically and sold the vegetables at the university campus. At the end of the course each student has submitted Detailed Project Report (DPR) on any one business idea.

Organic Production Technology



Organic Production Technology



Organic Production Technology





Overall impact

The students have grown the vegetables organically from sowing to harvesting and marketing of vegetables. This programme enables the students to develop skills regarding production, marketing and decision making. The students will be able to start their own business on the production and marketing of organic vegetables.



1. Experiential Learning Program

Seed Production & Technology (EL-AGP 802)



Business Ideas

1. Certified Seed Production of Rice Variety Sreya
2. Certified Seed Production of Rice Variety IET-4786
3. Certified Seed Production of Black Gram
4. Certified Seed Production of Green Gram

Under the Experiential Learning Programme, 32 students of the 8th Semester, B.Sc. (Hons) in Agriculture were engaged in the Seed Production & Technology module (EL-AGP 802). The students were grouped and allotted with 4 different business models as per their choice. The students have learned the basic process of seed production technology and to prepare a bankable detailed project report for setting up a business. They have planted two varieties of rice, green gram and black gram as per recommendation for different seed production. The students have done the land preparation, nursery bed preparation, nursery bed management, fertilizer application as per recommended dose for seed production. The total work has been done in the University Campus. At the

end of the project they have submitted the detailed project report (DPR) on the above mentioned business ideas which they worked.



Fig 1: Maintenance for Green Gram Seed Production

Seed Production & Technology



Fig 2: Identification of Off-type in Rice Seed Production



Fig 3: Harvesting of Green Gram Seed



Fig 4: Harvesting of Green Gram Seed



Fig 5: Rouging in Rice Seed Production



Fig 6: Rouging in Rice Seed Production

2. Outreach Activities

Training program on women empowerment through post-harvest operations and value-addition of horticultural produce conducted at saas, the neotia university on 4th april, 2025



Fig. 1 Welcoming of the farmers by our respected Dean, Prof. Sushil Kumar Kothari, SAAS

Report:

A training cum demonstration program entitled “Women empowerment through post-harvest operations and value-addition of horticultural produce” was organized on 4th April 2025 at the Food Science and Technology Laboratory, School of Agriculture and Allied Sciences, The Neotia University for providing awareness on food processing and post-harvest value additions

of horticultural produce to the farmers (especially Women) to fetch more income. The training program began at around 11:00 AM, when our respected Dean, Prof. Sushil Kumar Kothari, warmly welcomed the farmers, introduced the faculty members briefly, and interacted with them regarding the main objective of conducting this type of training program. Soon after, Dr. Boris Huiрем started the training session on the topic “Preparation of different tomato-based products”. He

explained the different problems faced by the tomato farmers during the peak season and the solution to the issues through processing and value addition such as the preparation of ketchup, sauce, dried tomato pickle, and tomato powder, etc. After completing the lecture session, live demos for such product preparations (tomato ketchup) were shown by Dr. Boris Huirem along with the 4th-year students to the farmers.

Further, a lecture and live demo session on the topic “Preparation of Orange Squash” was also conducted, led by Dr. Shuvadeep Halder, where he explained the basic requirements and steps for the preparation of orange squash to the farmers.

Farmers were very thankful, and valuable feedbacks were received after the demonstration program. The organizers also thanked the farmers who participated in the event, and the program ended at around 2:30 PM.



Fig. 4 Tomato ketchup preparation



Fig. 2 Lecture on preparation of tomato products



Fig. 5 Orange squash preparation



Fig.3 Lecture on preparation of orange squash



Jhinga, West Bengal, India

Scholastic Building 2 (sb2), Scholastic Building 2, Neotia Institute Of Management, Technology And Science, Diamond Harbour Rd, Jhinga, West Bengal 743368, India

Lat 22.261248° Long 88.197064°

04/04/2025 02:20 PM GMT +05:30

Google

Fig. 6 Group photo with the participants

Hands on training on - Women Empowerment through Post-Harvest Operations and Value Addition of Horticultural Produce :			
Date:- 04/04/2025			
Sr.	Name	Village	Contact Numbers
1.	Sunanda Das	Jobrali	7547997688
2.	Rita Das	Jobrali	7501352840
3.	Rina Das	Jobrali	3001066567
4.	Mitali Das	Jobrali	9733908279
5.	Sipra Das	Jobrali	9002811837
6.	Niva Das	Jobrali	3001174745
7.	Pampa Kalapaha	Jobrali	7679428665
8.	Manashi Mandal	Jobrali	7076136111
9.	Malati Mondal	Jobrali	3001812169
10.	Mangalpurkait	Jobrali	8944088174
11.	Kanaklata Mondal	Abdulpur	8248419770
12.	Kabita Halder	Abdulpur	3115337065
13.	Sunswati Moyra	Kampur	8944907166
			Signature
			Sunanda Das
			Rita Das
			- সীতা দাস
			- Mitali Das
			Sipra Das
			Niva Das
			Pampa Kalapaha
			Manashi Mandal
			মালতি মন্ডল
			মঙ্গলপুরকাই
			কনকলতা মন্ডল
			Kabita Halder
			সুনস্বতি ময়রা

Table 1. List of participants

3. Seminar

6th World DNA Day

6th World DNA Day Celebration Theme: DNA - The Wonder Molecule

The School of Agriculture & Allied Sciences, The Neotia University commemorated the World DNA Day on 24th, April, 2025 (Thursday). The event is celebrated for consecutive six years with utmost enthusiasm and diligence. This year the event is celebrated on the eve of the World DNA Day in the Sarisha campus of the University for accommodating a magnificent mega seminar on climate Smart Agriculture. The day began with a pure and serene chorus song of Rabindranath Tagore presented by the B.Sc Agriculture students succeeded by a tranquil plant watering ceremony to ensure a green and sustainable future for the coming generations on earth.

The welcome speech was delivered by Prof. Biswajit Ghosh, Vice Chancellor, The Neotia University. His brief lecture was highly informative, covered the diverse aspect of discovery of DNA, its application in agriculture and the importance of trans-disciplinary research as an integral part of efficient management of agricultural problems. He also advised the students to imbibe the essence of the programme with utmost concentration.

The message of the school was delivered by Prof. Sushil Kumar Kothari, Dean, School of Agriculture & Allied Sciences featuring the contribution of nucleic acid (DNA and RNA) in transmission of heredity from ancient period along with its essential role in agricultural research and crop improvement. He also emphasized the importance of application of the knowledge of classroom to meaningful solution of the ground level problem experienced by farmers on daily basis owing to significant modification of climatic components.

The Director, Research & Development, The Neotia University very efficiently focused on the theme of the Celebration and introduced the concept of variation and language of DNA covering the molecules regarded as energy currency to nitrogenous base formation, emergence and evolution of life from microbial form to complex eukaryotic organization.

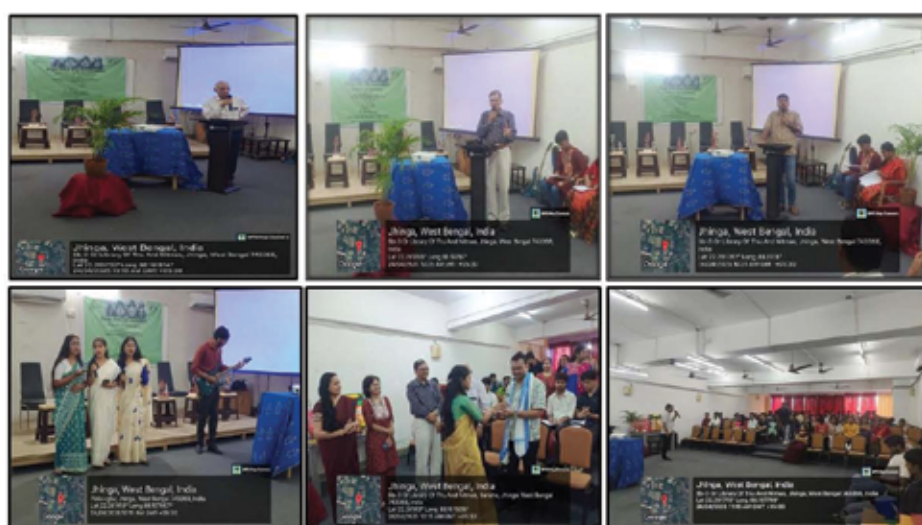


Fig 1: Moments of the inaugural session along with post inauguration Key note address by Dr. Ashutosh Sawarkar

Dr. Bidisha Mondal, HoD, BCP-School of Agriculture & Allied Sciences, The Neotia University, Sarisha, West Bengal

World DNA Day

The notable message of the Vice President, Mr. Suhas Mukherjee, The Neotia University appreciated the students for their excellent presentations and encouraged them to portray the drama “Genetics & Society” in larger platform. Mr. Suhas Mukherjee fostered all the students and advised them to maintain discipline in campus and encouraged the student for higher studies and research.

The magnificent lecture of eminent Dr. Ashutosh Sawarkar highlighted recent developments in new avenues of application of DNA technologies. The lecture entitled “DNA TO DINNER PLATE– How Genetics shaped the food we eat” covered the discovery of DNA, the scientists related to the integration of DNA with heredity, DNA extraction techniques, DNA visualization, molecular techniques such as TILLING, gene editing, CRISPR/Cas9 technologies and their application in developing climate resilient crops for future generation. The guest of Honour presented the alarming note on the dwindling crop genetic resources of earth and intimated the students on urgent need for characterization of the unconventional plant resources. His marvellous presentation covering 120 slides also covered ancient human ancestry, human genetics covering the Neanderthal and Denisovan lineage of modern humans, description of our first ancestor. The forensic genetics, home DNA kit, DNA art, DNA in crime detection, face recognition, designer DNA were most interesting components of the lecture. He also highlighted the space genetics, the integration of shearing resistant DNA during space colonization. His deliberation also covered modular genetics, food production on planet Mars, Choice based variety development using DNA-chip. His Excellency also highlighted the importance of higher studies in emerging subjects Genetics & Plant Breeding, Biochemistry & Crop Physiology, Agricultural Biotechnology to aid the world population in mitigation of global hunger, climate changes and development of inter-planetary habitation. The deliberation was vast yet interesting to hold the attention of the audience till end.



Fig 2: The first prize winner, dignitaries, Second prize winners, third prize winners, cultural program in second session, the DNA recitation

The invited lecture was succeeded by diverse student deliberations and presentations with intermittent cultural programme covering dance, song and recitation. The student presentations were fabulous and very informative. The poster and model presentation by the agriculture students were judged by the scholastic panel of respected faculty members from the school along with the invited speaker. The session was moderated by Dr. Bidisha Mondal. Dr. Bidisha Mondal, HoD, BCP-School of Agriculture & Allied Sciences, The Neotia University, Sarisha, West Bengal

World DNA Day

with judges Dr. Ashutosh Sawarkar, Dr. Tanuj Kumar Mandal, Dr. Pragun Paul. The name of three winners was announced at the end of the function succeeded by the prize distribution ceremony.



Fig 3: The poster and model display by the students and critical evaluation by the panel of judges

Table 1: Student Presentations covering conventional & modern Genetics

Molecular Techniques for Biodiversity Conservation : An Indian Case Study (Arnab & Pragata)	Rosalind Franklin – The untold story of DNA discovery (Ratul)
Norman Borlaug: Father of the Green Revolution (Aniketa)	My Dream Genetics Experiment: creating light emitting trees (Aranish)
Epigenesis Beyond the DNA code (Noor & Shrectama)	Dr. Lalji Singh (Jit)
Bt crops Production In India (Sovandev & Suman)	Application of CRISPR in Genetic conservation (Debdatta)
Dr. MS Swaminathan (Dip & Gourav)	Low cost model of "Tryptophan Operon" (Aditi & Swagato)



Fig 4: Banner and hall decoration

The celebration ended with a meticulous vote of thanks offered by Dr. Bidisha Mondal on behalf of the School of Agriculture and Allied Sciences. The convener thanked the honourable Vice Chancellor, the Director, R&D Committee, The Head Campus Administration, Head Agronomy, Dr. Pragun Pal and Mr. Kaushik Mandal. t She heartily Dr. Bidisha Mondal, HoD, BCP-School of Agriculture & Allied Sciences, The Nootia University, Sarisha, West Bengal

World DNA Day

thanked Dean, SAAS for providing valuable advice and mentorship and acknowledged the effort and assistance of all the student committee members for successful organization of the pre and post event formalities. She sincerely thanked the management of The Neotia University for sanctioning the budget.

The World DNA Day celebration was a great success for the school. The school wishes to celebrate this day in future with equivalent zeal and devotedness. The department is indebted to the university management for approval of such student-centric events where the students could display both their subjective knowledge, co-curricular and extra-curricular abilities in front of a vast audience and gathers confidence and get introduced to the value of dedication and responsibilities.



Figure 5: Valedictory session and vote of thanks

3. Seminar

National seminar on “climate-smart agriculture: a sustainable approach for resilient production systems and livelihood security” (NSCSA 2025)



The National Seminar on “Climate-Smart Agriculture: A Sustainable Approach for Resilient Production Systems and Livelihood Security” (NSCSA 2025) was held with great enthusiasm and participation from researchers, academicians, policymakers, and students across the country. Organized by The School of Agriculture and Allied Sciences (SAAS), The Neotia University (TNU) and Crop and Weed Science Society (CWSS), Kalyani, on 25-26th April, 2025 at TNU campus. The National Seminar received 500+ registration including both physical and virtual mode.

The seminar was inaugurated in the presence of **Dr. Biswajit Ghosh** (Vice Chancellor, TNU), **Prof. Sushil Kumar Kothari** (Dean, SAAS, TNU), **Dr. Trilochan Mohapatra** (Former Secretary, DARE, Ministry of Agriculture and Farmers' Welfare Director General, Indian Council of Agricultural Research (ICAR), New Delhi), **Dr. Malavika Dadlani** (Former Joint Director of Research, ICAR-Indian Agricultural Research Institute), **Dr. Asit Kumar Basu** (General Secretary, CWSS), **Dr. Sukanta Dasgupta** (Dean, Agricultural Science, JIS University), **Dr. Indrani Dana** (Joint Director of Agriculture (Rice Development), Rice Research Institute, Chinsurah, Govt. of WB), Prof. Benukar Biswas, Professor (Agronomy) & Officer-in-

Charge, AICRP-Agroforestry, BCKV, Dr. Malay Kumar Bhowmick, Agronomist (AICRP on Rice), West Bengal Higher Agricultural Service (Research), Rice Research Station (Government of West Bengal) Chinsurah, **Dr. Soumitra Das**, Director, Asia Pacific, Zinc Nutrient Initiative, **Dr. Sankar Kr. Acharya**, Professor, Dept. of Agricultural Extension and Dean, PG Studies, BCKV, **Dr. Abhijit Ghosal** and **Dr. Trisha Manna** (Organizing Secretaries of NSCSA-2025) and other distinguished guests from the industry. We are deeply delighted and privileged to honor Dr. Trilochan Mohapatra, with the Lifetime Achievement Award during the inauguration of the National Seminar. The Book of Abstract was officially published in the inauguration. The keynote address by Dr. Mohapatra on the topic of “Food and Business Security under Climate Change” and by Dr. Dadlani on the topic of “Climate Resilient Agriculture by Adopting an Agroecological Approach” highlighted topics such as carbon farming, water-efficient technologies, climate-resilient crop varieties, agroforestry models, and digital innovations like AI and GIS in precision agriculture.

For the next one and half days the technical sessions were divided into six themes: 1. Recent advances in crop improvement & research gaps, 2. Current Status of soil fertility, crop nutrition, agronomic practices, and water management, 3. Technological Advancement & modern tools for farming, 4. Modern Innovations in relation to sustainable crop protection, 5. Financial incentives & schemes for farmers and 6. Innovative Horticultural Technologies. Total of 27 eminent speakers (both online and offline) discussed these 6 themes and addressed strategies for scaling climate-smart agriculture (CSA) technologies to marginal and smallholder farmers. It was emphasized that creating environments through supportive policies, financial incentives, and participatory approaches is essential for wider adoption. Parallely for each theme, there were oral and poster presentations by the UG and

NSCSA Report

PG students, Ph. D research scholars, and faculties across the country in hybrid mode. Best oral and best poster presenters from each theme were facilitated by certificates and mementos in the valedictory session. The vote of thanks was delivered by Dr. Abhijit Ghosal (Organizing Secretary, from CWSS). Prof. Sushil Kumar Kothari, Dean, SAAS, TNU declared the seminar closed with a grand succession.

Important recommendations for planners, policy makers, scientists, researchers, faculty members and others:

1. Essentiality of a multidisciplinary approach for building a climate-resilient agricultural sector.
2. Benefit of suitable cultivars, importance of micronutrients, use of bioethanol and regenerative silage to mitigate biotic and abiotic stress.

3. Precision farming, use of digital tools, and other technological interventions to optimize resource use and enhance adaptability to extreme weather events.
4. Use of artificial intelligence and sensors enabling real-time data collection and soil analysis, crop health analysis and real-time decision making.
5. Govt. schemes and policies especially on climate-smart agriculture, land reforms, institutional credits, minimum support price, remunerative marketing for doubling farmer's income, and for comprehensive planning for the farmers.

Acid-tolerant species like cashews, tamarind, and pineapple with soil restoration techniques such as biochar, composting, use of nitrogen-fixing legumes for soil fertility, and better water restoration.



NSCSA Report



3. Seminar

Training Program on Nursery & Cultivation, PHM & Processing, Value Addition & Marketing of Medicinal Plants in West Bengal



The seminar on “Training Program on Nursery & Cultivation, PHM & Processing, Value Addition & Marketing of Medicinal Plants in West Bengal” was organized by **The Neotia University** on **January 19, 2025** with the aim of enhancing the knowledge and skills of local farmers, entrepreneurs, and enthusiasts in the field of medicinal plants. The event was designed to address key aspects of medicinal plant cultivation, post-harvest management (PHM), processing, value addition and marketing.

The seminar began with an official welcome to the guests and dignitaries, followed by the lighting of the ceremonial lamp, symbolizing the beginning of the event.

Welcome Address and Inaugural Session

The inaugural address was delivered by Prof. Sushil K Kothari, the Hon’ble Dean of the School of Agriculture & Allied Sciences, The Neotia University. He emphasized the importance of medicinal plants in both local and global markets, stressing their potential in improving the livelihood of farmers in this particular area as well as the practical problems for adopting this cultivation by local farmer. He spoke about the university’s commitment to training farmers and entrepreneurs in various aspects of agricultural practices, including the cultivation of medicinal plants.

Guest Talks

The first guest talk was delivered by **Prof. Asis Mazumder**, Nodal Coordinator, RCFC-ER, NMPB, JU. He spoke about the significance of research and development in the medicinal plants sector, particularly in terms of improving crop yields, disease resistance, and quality of medicinal herbs. His insights into the regulatory frameworks and the role of institutions like the NMPB (National Medicinal Plants Board) were invaluable.

Following Prof. Mazumder's talk, **Dr. Soumyajit Biswas**, the Regional Director of RCFC-ER, NMPB, JU, addressed the attendees. Dr. Biswas provided a detailed discussion on prospect of this cultivation in our locality as well as through out West Bengal.

The next session commenced with a guest talk by **Prof. Anupam Pariari**, Former Head of the Department of Plantation, Spices, Medicinal & Aromatic Crops, BCKV. Prof. Pariari shared his extensive experience in medicinal plant cultivation, including the importance of selecting the right species for specific agro-climatic zones and the latest trends in cultivation practices for medicinal plants.

The next talk, **Mr. Tusar Kanti Das**, WBFS (Retd.) and Technical Consultant at RCFC-ER, NMPB, JU, delivered a guest talk Mr. Das shared valuable insights on the marketing strategies for medicinal plants, including the importance of branding, certification and linking with national and international markets. He emphasised on some important crops specially suitable for south 24 Pgs.

Finally, **Mr. Shantanu Chakraborty** delivered Technical Consultant at RCFC-ER, NMPB, JU. Mr. Chakraborty's presentation focused on innovative techniques for processing medicinal plants, highlighting the role of drying, extraction and packaging in enhancing the commercial value of these plants.

Closing Session

The program concluded with lunch distribution, providing an opportunity for informal interactions among attendees as well as a group photography session with the farmers, marking the end of an informative and interactive training session.

Outcome of the Seminar

The seminar proved to be a great success in imparting crucial knowledge on the nursery and cultivation of medicinal plants, post-harvest management, processing, value addition and marketing strategies. The diverse expertise of the speakers, coupled with the active participation of local farmers, students and agricultural enthusiasts, made this seminar a valuable learning experience for all involved.

The Neotia University's initiative to organize such training programs is commendable and it is expected that the knowledge shared during this seminar will help improve the livelihoods of farmers and create new opportunities in the medicinal plant sector in West Bengal.

The event was a step forward in achieving sustainable growth in the agricultural sector, particularly in the domain of medicinal plants, which holds great promise for the region's economy and the well-being of its people.



3. Seminar

Young Farmers Camp & Agrilympics (YFCA) – Eastern Region

Organized by: Institute for Motivating Self Employment (IMSE) & School of Agriculture and Allied Sciences, The Neotia University

Venue: The Neotia University Campus

Dates: 29th – 30th May, 2025

Chairpersons: Dr. Ujjaini Halim (IMSE) & Honourable Dean, SAAS, TNU



Day 1: 29th May 2025

1. Opening Ceremony (10:00 – 10:30 AM)

The event commenced with a March Past and Torch Lighting ceremony organized by Mr. Gopal Bhandari & Mr. Arup Mondal. The National Flag was hoisted by the Chief Guest in the presence of dignitaries: Vice Chancellor, Registrar, Dean, Suhas Sir, Dr. Ujjaini Halim, and IMSE Team. The National Anthem was sung by all participants. A group photo session was arranged and coordinated by Ms. Deblina Paul and Mr. Krishna Velani.

2. Registration (10:30 – 11:00 AM)

Managed at SB III seminar room by Mr. Arabinda Mukherjee, Mr. Panna Lal Pal, Ms. Rashmi Roy, and Ms. Rima Samadder. Desk support by Mr. Sumir Mandal and Mr. Ankur Adhikary under the supervision of Dr. Shankha Koley.

3. Inaugural Session (11:00 AM – 01:00 PM)

Began with the YFCA theme song and welcome address by SAAS and IMSE representatives. Opening

Young Farmers Camp & Agrilympics (YFCA) – Eastern Region

speech by the Deligates, followed by remarks from distinguished resource speakers: Esteemed guests, including Professor Biswajit Ghosh, Vice Chancellor of The Neotia University; Dr. Ujjaini Halim, Executive Director of IMSE; Mr. Suhas Mukherjee, Vice President of The Neotia University; Professor Sushil Kumar Kothari, Dean of the School of Agriculture and Allied Sciences; and distinguished faculty members Dr. Agniswar Jha Chakraborty, Dr. Subhadip Pal, and Dr. Shankha Koley, along with Mrs. Swati Bhattacharyya, Senior Editor at Anandabazar Patrika; Professor Debashis Sarkar of Agricultural College, Sriniketan, Visva Bharati; and Mrs. Piu Mondal, ADA, DH-II block, emphasized the crucial role of youth engagement in agriculture and the necessity of collaborative efforts to safeguard sustainable food systems, preserve forgotten foods, and protect biodiversity. Delegates from Andhra Pradesh discussed how small-scale fishing farmers face challenges due to marketing issues and how slowly they grow well. Another delegates Mrs. Swati Bhattacharyya, Senior Editor at Anandabazar Patrika discussed about gender equality among farming community for upliftment of women in agriculture. Mrs. Piu Mondal, ADA, DH-II block presented how local farmers develop by adopting new crops like cherry tomatoes and yellow watermelons. During the sessions farmers participants interacted with experts on water logging issues, water pollution, and shortage of cold storage during peak seasons.

Programme anchoring was done by Dr. Madhurima Banik, Dr. Saumi Goswami, Mr. Ayan Mukherjee, Mr. Suman Kalyan Mondal, and Mr. Supratik Chakraborty. Program announcement was made by Ms. Rima Samadder, IMSE.

4. Lunch Break (01:00 – 02:00 PM)

Lunch was served at the New Boys Hostel Canteen.

5. Parallel Workshops (02:00 – 03:30 PM)

Group 1: Healthy Soil, Healthy Harvest – Dr. Sourav Mullick & Dr. Moni Shankar Bera at SB III Seminar Room & Soil Lab. The participants from 4 different states comprising of 16 farmers had a vivid discussion on soil health. The participants were able to: Identify Key Soil Health Issues: Recognize major factors affecting soil health, such as soil biota, organic matter, nutrient status, acidity, salinity, and soil structure. Understand the Importance of Soil Testing: Appreciate the role of soil testing labs in analyzing soil samples and guiding nutrient management decisions for farmers. Recognize the Benefits of Soil Health Management: Understand how improved soil health leads to increased organic

matter, diverse soil organisms, reduced compaction, and enhanced water and nutrient holding capacity, thereby supporting sustainable agriculture and better crop yields. Acknowledge Environmental and Human Health Connections: Gain awareness of how healthy soils contribute to improved water quality, climate change mitigation, and overall ecosystem and human health. This discussion strengthened participants' understanding of soil's vital role in agriculture and the environment and encourage the adoption of best practices for soil management for sustainable agriculture.

Group 2: Sustainable Harvest – Dr. Tanuj Kumar Mondal & Dr. Pijush Das at the Farm Lab. Discussed on the need for natural farming, steps of natural farming, production and use of panchagavya, beejamrita, Jeevamrita and indigenous micro organisms (IMOs). Also discussed on weed management, insect pests and disease management in natural farming.

Group 3: Raising Healthy Livestock – Dr. Shalu Kumar at Animal Husbandry Lab. During the workshop on healthy livestock raising, Dr. Shalu Kumar provides farmers with practical knowledge about scientific dairy farming, including the measures that dairy farmers should take for pregnant animals and the daily routines of dairy farms. Additionally, Azolla production, chicken production, feed formulation, and urea ammonization treatment for roughages with low nutritional value, disease prevention and vaccination schedule of dairy animals and poultry. Dr. Shalu Kumar also suggested to the farmers that if they started broiler farming, they could generate income within a short period.

6. Plenary Discussion (03:30 – 05:00 PM)

Topic: FPC Growth Strategies – Market Access & Case Studies by Panel: Prof. Debashis Sarkar, Dr. Abhishek Ghosh, Mr. Ankur Adhikary and Dr. Shraddha Bhattacharjee at SB III Seminar Room. On the first day of the Young Farmers Camp & Agrilympics (YFCA) held on 29th May 2025 at The Neotia University, a plenary discussion was conducted from 3:30 PM to 5:00 PM at the SB III Seminar Room on the topic “FPC Growth Strategies – Market Access & Case Studies.” The session featured a distinguished panel consisting of Prof. Debashis Sarkar, Dr. Abhishek Ghosh, Mr. Ankur Adhikary, and Dr. Shraddha Bhattacharjee. The panelists collectively addressed the current challenges and opportunities for Farmer Producer Companies (FPCs), focusing on enhancing market access, strengthening institutional frameworks, and exploring successful business models through real-life case

Young Farmers Camp & Agrilympics (YFCA) – Eastern Region

studies. Prof. Debashis Sarkar emphasized the need for robust capacity building within FPCs to ensure inclusive participation and long-term sustainability. Dr. Abhishek Ghosh illustrated impactful case studies demonstrating how collective marketing and linkage with organized retail can significantly enhance farmer income. Mr. Ankur Adhikary provided practical inputs on leveraging logistics, branding, and digital tools to improve the competitiveness of FPOs in both local and external markets. Dr. Shraddha Bhattacharjee shed light on government policies and schemes that support the growth of FPCs, advising farmers to maximize benefits through proper organizational structuring and awareness. The session was enriched with active participation from farmer representatives and FPO leaders across four eastern states—West Bengal, Odisha, Jharkhand, and Andhra Pradesh. These representatives shared grassroots-level experiences, challenges related to pricing, infrastructure, governance, and success stories, thereby fostering mutual learning. The interaction highlighted a common need for improved storage facilities, streamlined logistics, and easier access to financial and institutional support. As an outcome, the participants proposed the formation of a regional knowledge-sharing network of FPOs, to be facilitated by IMSE and The Neotia University. The discussion concluded with a consensus on the importance of continued workshops and capacity-building programs, particularly in business planning, market strategy, and digital adoption for sustainable FPC development.

7. Press Release (05:30 PM)

Managed and presented by Dr. Ujjaini Halim and Dr. Sarthak Bhattacharya.

8. Cultural Evening (06:30 – 08:30 PM)

Performances by student participants and residents.

Coordinated by Dr. Shankha Koley, Dr. Madhurima Banik, Dr. Saumi Goswami, student volunteers, and IMSE Team.

Day 2: 30th May 2025

1. Morning Procession (08:30 - 09:30 AM)

Led by Dr. Shankha Koley and student volunteers.

2. Sports Registration (10:00 - 10:30 AM)

Desk managed by Mr. Sumir Mandal, Mr. Ankur Adhikary & IMSE Team.

3. Games and Sports Events (10:30 AM - 01:00 PM)

Fruit & Vegetable Sorting – Coordinated by IMSE, Dr. Riman Saha Chowdhury & Mr. Sumir Mondal.

Sack Race with Plant Collection – Same team as above.

Puzzle Solving – Conducted by IMSE, Dr. Abhishek Ghosh, Mr. Ankur Adhikary.

Supervised by Dr. Agniswar Jha Chakraborty, Dr. Shankha Koley, and Dr. Abhishek Ghosh.

4. Lunch Break (01:00 - 02:00 PM)

Location: New Boys Hostel Canteen

5. Plenary Discussion (02:00 - 03:30 PM)

Topic: Climate Resilient Agriculture Models: Lessons from the Field

Speakers

Dr. Debolina Sarkar

In this session, Dr. Debolina Sarkar led a brief but impactful discussion on recent climatic calamities and their implications for agriculture and allied sectors. The focus was on climate-induced disasters such as floods, heatwaves, cold waves, and cyclones, and their effects on specific communities and production systems. Key areas highlighted included: **Fisheries** in the coastal zones of **Odisha and West Bengal**, where fishing communities are facing major disruptions due to altered breeding cycles, reduced fishing days, and significant decline in both the quantity and diversity of fish catch. **Sericulture** in **Dumka, Jharkhand**, where climatic variability is impacting silkworm rearing and cocoon production. **Coffee cultivation** in the **Araku Valley, Andhra Pradesh**, which is increasingly vulnerable to erratic weather patterns affecting flowering and yield. Digital government tools such as **Meghdoot** and **Kisan Suvidha** were introduced as essential platforms for disseminating real-time weather forecasts and agricultural advisories. Additionally, agro-meteorological services, including the **Agromet Advisory Services (AAS)**, **Crop Weather Calendars**, and **biweekly bulletins** provided by **Krishi Vigyan Kendras (KVKs)**, the **Indian Meteorological Department (IMD)**, and various **state agricultural universities**, were discussed as critical resources to enhance climate resilience.

Mr. Arjilli Dasu, shared concerning insights from Southern India, noting drastic changes in the fisheries sector. Altered breeding patterns and nearly halved

Young Farmers Camp & Agrilympics (YFCA) – Eastern Region

fishing periods have placed immense stress on local livelihoods. Similarly, Mr. Srikanta Sahoo, presented parallel challenges in the Sundarbans coastal belt, citing mangrove deforestation, biodiversity loss, and severe disruptions to bheri aquaculture due to erratic and untimely rainfall distribution. This session emphasized the urgent need for adaptive strategies, localized interventions, and increased awareness among stakeholders to mitigate the adverse impacts of climate change on agriculture and allied livelihoods.

6. Closing Ceremony (03:30 – 05:00 PM)

Awards & Certificates were distributed by dignitaries and IMSE representatives.

MoU signing event between The Neotia University and IMSE collaborative works in the areas of research and development, capacity building for students, internship and placement.

Closing Remarks by Dean of SAAS and Dr. Ujjaini Halim.

Vote of Thanks by Dr. Agniswar Jha Chakraborty and Mr. Arabinda Mukherjee.

Closing Theme Song played by IMSE.



Resolutions & Highlights

Strong collaboration between academia and field-based experts noted. Participants showed enthusiasm in all academic and physical activities. Emphasis laid on sustainable agriculture, soil health, and climate resilience. Proposal for expanding the YFCA model to other regions was supported by stakeholders.

Some Glimpse of the Event



Young Farmers Camp & Agrilympics (YFCA) – Eastern Region



4. Study Tour

Visit to Ramkrishna Asram Krishi Vigyan Kendra (RAKVK), Nimpith



This exposure visit pertains to course CCGPB 649, Crop Improvement II (Rabi crops). A total 95 students of 6th semester accompanied by Dr. Sruba Saha visited the above-mentioned institute on 25th February, 2025. The tour started in two buses from the TNU campus in morning (9.30 am) and we reached the Nimpith RAKVK campus around 11.30 am.

Objective

The visit to Nimpith RAKVK on 25th February, 2025, aimed to provide our 6th Semester B.Sc. (Hons.) Agriculture students with practical exposure to various aspects of crop Improvement II (Rabi Crops). The visit

included insightful demonstrations and presentations by Dr. Syamsundar Laxman (Senior Plant Breeder) Dr. Somnath Smaddar (Subject Matter Specialist, Agronomy), Dr. Aritra Sarkar (Subject Matter Specialist, Horticulture), and Mr. Tapash Sahana (Technical Assistance)

Activities and Demonstrations

AICRP Plot of Sunflower: The visit included an informative tour of the All India Coordinated Research Project (AICRP) plot dedicated to sunflower cultivation.

Dr. Laxman elucidated the ongoing research activities and advancements in sunflower cultivation, highlighting the significance of AICRP in contributing to agricultural research and development.

Seed Processing Unit: Dr. Laxman conducted a detailed demonstration of the seed processing unit, providing students with hands-on experience in the processing techniques essential for maintaining seed quality. The session covered key aspects such as cleaning, grading, and packaging, emphasizing the importance of quality control in seed production.

Educational Insights: During the visit, students were enlightened about the mandate of AICRP activities and the broader activities of KVK. The speakers emphasized the pivotal role of AICRP in coordinating research efforts across the country to address challenges in agriculture. Additionally, students gained insights into the diverse activities of KVK, which encompass agricultural extension services, training programs, and technology dissemination.

The visit to Ramkrishna Asram Krishi Vigyan Kendra (RAKVK), Nimpith proved to be a valuable and enriching experience for our students. The combination of theoretical knowledge and practical demonstrations provided a holistic understanding of crop improvement and plant breeding. We express our gratitude to Dr. Syamsundar Laxman Dr. Somnath Smaddar, Dr. Aritra Sarkar and Mr. Tapash Sahana for their informative sessions and to KVK for facilitating this educational excursion. Such experiences play a pivotal role in shaping the knowledge and perspectives of our future agricultural professionals.

After the completion of the visit, we started at around 3.00 PM and reached back to TNU campus at 5.00pm.

Some glimpses of the visit are given below.



5. Students Achivement

Congratulations

Heartfelt congratulations to Ms. Trishita Bera for securing the 1st position in B.Sc. (Hons.) in Agriculture for the year 2025. The entire SAAS family is immensely proud of her and extends warm wishes on this remarkable achievement.



Winners of First Prize in Poster Presentation at NSCSA 2025.



Winners of First Prize in Poster Presentation at NSCSA 2025.

LEGEND- BUILDING

A. ADMINISTRATIVE BLOCK

1. ADMINISTRATIVE BUILDING (G + V)

B. ACADEMICS BLOCK

2. SCHOLASTIC BUILDING - 1 (G + III)
3. SCHOLASTIC BUILDING - 2 (G + II)
4. SCHOLASTIC BUILDING - 3 (G + III)
5. SCHOLASTIC BUILDING - 4 (G + III)
6. SCHOLASTIC BUILDING - 5 (G + III)
7. WORKSHOP BUILDING
8. NEW WORKSHOP BUILDING
9. NEW PHARMACY BUILDING (G + III)
10. PHARMACY BUILDING (G + III)
11. SHIP IN CAMPUS (G + III)

C. AGRICULTURE & FISHERY SCIENCE BLOCK

12. POLY HOUSE & NET HOUSE
13. FISHERY SCIENCE PROJECT AREA - 1
14. AGRICULTURE PROJECT AREA - 1
15. FISHERY SCIENCE PROJECT AREA - 2
16. AGRICULTURE PROJECT AREA - 2
17. FISHERY SCIENCE PROJECT AREA - 3
18. AGRICULTURE PROJECT AREA - 3
19. FISHERY SCIENCE PROJECT AREA - 4
20. AGRICULTURE PROJECT AREA - 4
21. AGRICULTURE PROJECT AREA - 5
22. FISHERY SCIENCE PROJECT AREA - 5
23. FISHERY SCIENCE PROJECT AREA - 6
24. AGRICULTURE PROJECT AREA - 6
25. MUSHROOM UNIT
26. FIELD LAB
27. STORE HOUSE
28. SERICULTURE UNIT
29. THRESHING FLOOR
30. BIO GAS PLANT
31. CATTLE SHED
32. VERMI COMPOST PIT
33. BIO FERTILIZER PLANT

D. RESIDENTIAL BLOCK

34. BOY'S HOSTEL - 1 & 2 (G + III)
35. BOY'S HOSTEL - 1 & 2 (G + III)
36. BOY'S HOSTEL - 1 & 2 (G + III)
37. OLD STAFF QUARTERS (G + III)
38. NEW STAFF QUARTERS (G + III)
39. NEW STAFF QUARTERS (G + III)
40. DIRECTOR'S RESIDENCE (G + I)
41. OLD STAFF QUARTERS (G + III)
42. GIRL'S HOSTEL - 3 (G + II)

E. UTILITY & SERVICES BLOCK

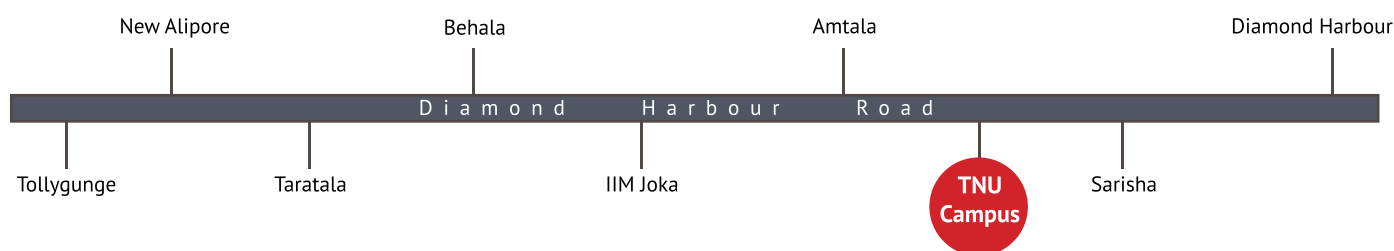
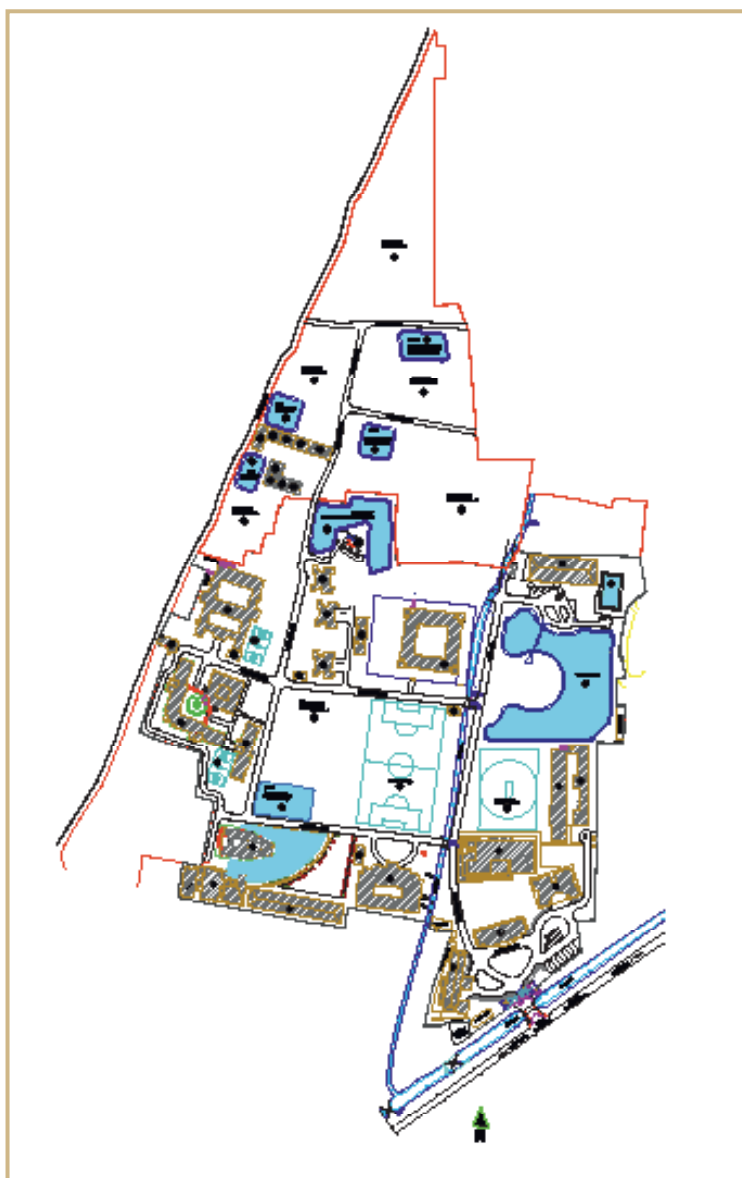
43. ELECTRICAL ROOM
44. PUMP ROOM

F. RECREATIONAL BLOCK

45. FOOTBALL GROUND
46. CRICKET GROUND
47. SWIMMING POOL
48. MULTI PURPOSE HALL
49. BASKETBALL COURT (3 NOS.)

G. HEALTH BLOCK

50. MEDICAL UNIT



AmbujaNeotia

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Campus: Sarisha, Diamond Harbour Road, 24 Parganas (S), West Bengal - 743 368

Head Office: Vishwakarma, 86C Topsia Road (S), Kolkata - 700 046

Campus: +91 70444 46888 / **Head Office:** +91 70444 46999 | **Email:** contact@tnu.in

