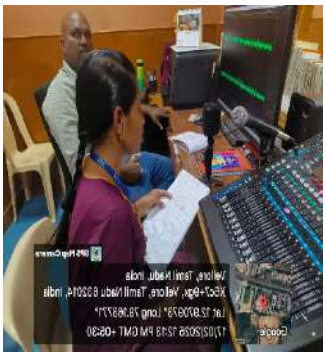
Innovative Teaching Methods

1. Motivating and empowering students' skill in writing a radio script and delivering a radio talk at VIT Community Radio

2. Motivating and guiding the students to write popular articles in Tamil and English and get it published.

Writing a radio script and delivering a radio talk at VIT Community Radio				
S.NO	**NAME OF THE STUDENT**	**REGISTRATION NUMBER**	**TOPIC RECORDED**	**PHOTO**
1	YOGAVARSHINI E	24BAG0002	Makkasola padaipuzhukal	
2	S DHARSHINI	24BAG0004	dheasiya samaiyal ennai yeyakam	
3	LATIKA S	24BAG0006	Maravagai ennai vithhu thittam	

4	SHRIPIRIYAMVADHAM	24BAG0008	Velan valarchi thitangal	
5	RUPASRI T	24BAG0010	Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)	
6	YADHAVI H	24BAG0012	karumpu	
7	SHRIGOWTHAM	24BAG0014	புழுக்கள் - விவசாயியின் மறக்கமுடியாத நண்பர்கள்" அல்லது "பட்டுப் புழு வளர்ப்பு: இயற்கையோடு இணைந்த ஒரு பசுமை வருமானம்"	

8	DHUSHARA D	24BAG0016	kalaignar anaithu kirama orunkinaitha velanmai thitam	
9	JAYYANTH KAARTHIK P	24BAG0018	ORGANIC FAERMING VS INORGANIC FARMING	
10	Hari prasad	24BAG0020	QUIT	

GROUP 2 GOVIND SURESH

S.NO	NAME OF THE STUDENT	REGISTRATION NUMBER	TOPIC RECORDED	PHOTO
1	GOVIND SURESH	24BAG0022	Organic pest management	
2	SAJITHA G V	24BAG0026	Biocontrol agent: Trichoderma vidride	
3	VARSHINI V	24BAG0028	Desiya Samayal ennai iyakkam	
4	GAURI PM	24BAG0032	Enam	

5	PUNITHAVATHI V	24BAG0036	Methods of cultivation of millets and their agricultural practices	
6	SANJAY KUMAR A	24BAG0038	Peanut leaf spot disease	
7	KRITHIKA S	24BAG0040	:Pradhan Mantri Micro Irrigation Scheme	
8	A K NIVASRI	24BAG0042	Coconut leaf blight disease	
9	POOJA CR	24BAG0044	Enam	

10	SARANYA R	24BAG0046	Tennai marankalukku uramitum muraikal	

GROUP 3 VARUNIKHA

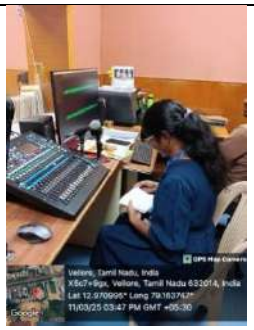
Group - 3

S.No	Registration Number	Name	Topic	Photo
1	24BAG0048	Sowjanya G	Uzhavanin Nanban manpuzhu	
2	24BAG0052	D Keerthana	Kerala ver vadal noyi	
3	24BAG0054	Yokesh	Ulundu vithaikum murai	

4	24BAG0056	Roshini S	Nilakadalai Poojai	
5	24BAG0058	Varunikha M	Mannuyir Kathu Manuyir Kaapom	
6	24BAG0064	Dharshan Rajangam	Meen unavin avasiyam mattrum payankal	
7	24BAG0066	Kavin	Varuthal Noyi	
8	24BAG0068	Hemashree	Maaniyathil Minmotar pumpsetgal vazhangum thittam	
9	24BAG0062	Prathana	Serudaaniyengulde mahatavatum	

GROUP 4 HARIVARSHINI

S.NO	NAME OF THE STUDENT	REGISTRATION NUMBER	TOPIC RECORDED	PHOTO
1	M.SAKETH	24BAG0070	Integrated Weed Management	
2	JEEVAROSHINI.S	24BAG0072	Ennai Vithu Iyakam	
3	VAISHALI.SP	24BAG0074	Uses of gypsym to groundnut	

4	SHALINI.U	24BAG0076	Coconut Fertilizer	
5	KAILASH.L	24BAG0078	Kalnadai Paramarippu	
6	B.S.HARI PAVAN	24BAG0082	Liquid Biofertilizers	
7	PREETHI.J	24BAG0084	State agricultural developmental plan	
8	U.MOULEESHWARAN	24BAG0086	Rice Bloom	

9	MONISHA.S.S	24BAG0088	Coconut fertilizer management	
10	M.HARI VARSHINI	24BAG0090	Rice Bloom	

GROUP 5 ANDREA BLESSY

S.NO	NAME	REGISTRATION NUMBER	TOPIC	PHOTO
1	V.K.RAKSHITA	24BAG0092	Vigna Radiata	
2	JAYAVARTHAN V P	24BAG0094	Coconut leaf blight disease	
3	MURALIDHARAN P	24BAG0096	Sugarcane cultivation	

S.NO	NAME	REGISTRATION NUMBER	TOPIC	PHOTO
4	SUBASHREE M	24BAG0098	Coconut leaf blight disease	
5	ANDREA BLESSY S	24BAG0100	Coconut tree cultivation	
6	KOVARTHAN T D	24BAG0102	Little millet cultivation	
7	SAIPRATAB THANGARAJU	24BAG0104	Food and nutrition security program (FNS)	
8	INIYA M	24BAG0106	Joint operation plan for seeds and planting materials	

S.NO	NAME	REGISTRATION NUMBER	TOPIC	PHOTO
9	DEVIPRIYA R	24BAG0108	Agricultural yield competition	
10	ARUNIMA SUDHEER	24BAG0110	E-NAM	

GROUP 6 – SHARMA

S.NO	NAME OF THE STUDENT	REGISTRATION NUMBER	TOPIC RECORDED	PHOTO
1	RAMYA	24BAG0112	SMSP SCHEME	
2	AMRUTHA VINODAN	24BAG0114	CHIEF MINISTER'S MANNUYIR KATHU MANNUYIR KAPPOM	
3	THARIKA	24BAG0116	PAYIR VILAICHAL POTTI	
4	ADHILA FARHATH	24BAG0118	E-NAM	
5	ANEENA	24BAG0120	LEAF SPOTS IN GROUNDNUT	
6	DHARSHINI	24BAG0122	SEED PRODUCTION AND ITS VARIETIES	

7	PRIYADHARSHINI	24BAG0124	GREEN MANURE	
8	JOHAN JOHN	24BAG0128	PREPARATION OF VERMICOMPOST	
9	MADESH	24BAG0130	BEST METHODS TO GET HIGH YIELD IN GROUNDNUT	
10	ANOOJ KUMAR	24BAG0132	ORGANIC AGRICULTURE VS INORGANIC AGRICULTURE	
11	AKSHAYA	24BAG0134	BENEFITS OF MAIZE	
13	VISHNU DATTA BAPAT	24BAG0138	SUSTAINABLE AGRICULTURE	
14	BHAVYA SHREE	24BAG0140	AYURVEDIC METHODS TO GET MORE YIELD MAIZE	

15	SHARMA	24BAG0141	NUTRITIOUS VALUE OF GREEN GRAM	

2. Motivating and guiding the students to write popular articles in Tamil and English and get it published.

Popular Articles - Publication Details					
S. No	**Name**	**Reg. No**	**Title**	**Magazine Name**	**Publication Date**
1	**Yogavasantham K** [1], Paul Mansingh J [2*]	22BAG0001	Green Revolution 2.0	AgriGate	28 Dec 2024
2	A P SriVidhya, **Lakshmi Priya K**, J Paul Mansingh*	21BAG0059	Sowing innovation, reaping transformation: Empowering Farmers through social media networks	AgriGate	28 Jan 2025
3	**K LakshmiPriya**[1], J Paul Mansingh[2*]	21BAG0059	Carbon Credits: The Key to Sustainable Agriculture	AgriGate	28 Jan 2025
4	**K LakshmiPriya**, A P SriVidhya, J Paul Mansingh*	21BAG0059	பொறியியல் பட்டதாரியின் இயற்கை விவசாயப் பயணம்	Kaalnadai Velanmai	03 Feb 2025
5	**M Hari Varshini**[1], J Paul Mansingh[2*], A P SriVidhya[3]	24BAG0090	Interlinking of rivers: Boon or Bane for agriculture?	Innovative Agriculture	28 Feb 2025
6	**K LakshmiPriya**[1], J Paul Mansingh[2*]	21BAG0059	Precision Nutrition: How Smart Fertilizers leads to Sustainable Agriculture	The Agriculture Magazine	10 March 2025
7	**B Shivani Gomathy**, A P SriVidhya, J Paul Mansingh*	22BAG0056	Agriculture without Deforestation - How Agriculture draws a Parallelism with Deforestation?	Agri Magazine	26 April 2025
8	**Manu Krishnan, T**., A P SriVidhya, J Paul Mansingh*	22BAG0055	Electroculture - Untapped Potential Or Just A Curiosity?	Agriculture Bulletin	28 April 2025
9	**Srinidhi Prasad,** A P SriVidhya, J Paul Mansingh*	22BAG0008	Bouncing forward: Geomapping drives rubber industry growth	New Era Agriculture Magazine	6 May 2025
10	**Vaishali SP**[1], J Paul Mansingh[2*], A P SriVidhya[3]	24BAG0074	Significance of Wetlands in Protecting The Mother Earth	AgriGate	16 May 2025
11	A P SriVidhya, J Paul Mansingh*	23PHD0479	Digital Agriculture Mission: Transforming Indian Agriculture through Technology	The Agriculture Magazine	20 May 2025
12	**Dharshini K**[1], J Paul Mansingh[2*], R Divyasri[3]	24BAG0122	The last keystone species to be extinct	AgriGate	16 May 2025

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GREEN REVOLUTION 2.0

Article ID: AG-VO4-I12-11

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Introduction

"Food is medicine; Medicine is food." Is this statement becoming a lie? It will soon be a nanny's tale if the current agricultural scenario continues to be the same. Food is the first and foremost secure need of humanity, but due to the adverse use of chemical inputs it is becoming a threat for humanity. According to WHO, "pesticides are potentially toxic to humans and can have both acute and chronic health effects depending on the quantity and ways in which a person is exposed". In a country like India, where indiscriminate use of pesticides is done by most of the farmers, this statement is alarming! "More and more pesticides are being sprayed worldwide with deadly consequences for humans and nature," a report finds.

Unsurprisingly a research states that globally 150 million tons of nitrogen is applied to crops every year and only 35 percent of this is used by crops, meaning 75 million tonnes of Nitrogen runs into water bodies and natural environment (Ritchie, 2021). Almost two-thirds of the applied nitrogen acts as environmental pollutant. India accounts for about one-fifth of the nitrogen and phosphorus pollution. This is not just the case of Nitrogen, sadly the same scenario takes place with almost every agrochemical that's used. Fertilizers are pollutive in nature not only when they are used but also in their manufacturing method. The second largest used fertilizer ammonia takes lot of energy to make of which comes from burning fossil fuels like coal, ,methane etc. Ammonia manufacturing alone contributes about 1 to 2 percent of the worldwide carbon dioxide emission and the list doesn't end with Ammonia alone. So now a

AgriGate- An International Multidisciplinary e-Magazine

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SOWING INNOVATION, REAPING TRANSFORMATION: EMPOWERING FARMERS THROUGH SOCIAL MEDIA NETWORKS

Article ID: AG-VO5-I01-79

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Introduction

Social media has emerged as a transformative tool in the agricultural sector, revolutionizing how farmers access, share, and implement information. The advent of social media has transformed the way farmers access and share information about new agricultural technologies. With increasing internet penetration and smartphone usage, platforms like Facebook, WhatsApp, YouTube, and Instagram have become instrumental in bridging the information gap between agricultural researchers, extension workers, and farmers. This article explores the multifaceted role of social media in technology transfer, its impact on farmers, and the challenges associated with its adoption.

The Role of Social Media in Technology Transfer

Social media has democratized access to information, enabling farmers to connect with experts, researchers, and other farmers worldwide. This has facilitated knowledge and technology transfer, helping farmers improve their productivity, efficiency, and profitability.

1. Information Dissemination

Social media platforms provide real-time updates on agricultural practices, weather forecasts, pest control measures, and market trends. For instance, WhatsApp groups facilitate peer-to-peer knowledge exchange among farmers, while YouTube channels run by agricultural experts demonstrate innovative farming techniques.

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CARBON CREDITS: THE KEY TO SUSTAINABLE AGRICULTURE

Article ID: AG-VO5-I01-75

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Introduction

As the world transitions to a low-carbon economy, agriculture becomes crucial in this shift. While farming contributes significantly to greenhouse gas emissions, it also has the potential to become a substantial carbon sink. Although they release CO_2 during decomposition, proper soil-carbon capture and farming practices can reduce CO_2. With businesses increasingly seeking to purchase carbon credits from farmers, it's clear that carbon farming is poised to become the future of agriculture. However, many farmers remain unclear about agricultural carbon credits. This knowledge gap highlights the need for greater awareness and understanding of innovative approaches to sustainable farming.

What is carbon credit?

Carbon credits for farmers are part of a market-based approach to promote the reduction of greenhouse gas emissions. One carbon credit represents the right to emit one metric ton of CO_2 or the equivalent amount of another greenhouse gas (GHG). Carbon credit can be generated through various activities, such as:

- Implementing energy-efficient technologies, reducing waste, or transitioning to renewable energy sources.
- Preventing deforestation or promoting reforestation.

Farmers can earn these credits by implementing sustainable agricultural practices that sequester SOC (soil organic carbon) in the soil, reduce emissions, or both.

பொறியியல் பட்டதாரியின் இயற்கை விவசாயப் பயணம்

கே. லஷ்மி பிரியா, இளங்கலை மாணவி, **அ. ப. ஸ்ரீ வித்யா,** ஆராய்ச்சி மாணவி,
முனைவர். ஜெ. பால் மான்சிங், பேராசிரியர்,
வேலூர் தொழில்நுட்பப் பல்கலைக்கழகம், வேலூர்

திருவண்ணாமலை மாவட்டத்தைச் சேர்ந்த கீழ்ப்பென்னாத்தூர் வட்டாரத்தில், கோணலூர் கிராமத்தில், இருப்பதற்கும் மேற்பட்ட உறுப்பினர்களுடன் துரிஞ்சல் எனும் சமூக குழு அமைப்பை உருவாக்கி நீர் மேலாண்மை விவசாயம் சார்ந்த சேவைகளைச் செய்து வரும்.

பொறியியல் பட்டதாரியான வெற்றி தமிழ்ச்செல்வன், இயற்கை விவசாயம் செய்து அதிக இலாபம் எடுத்து அசத்தி வருகிறார். கால்நடை வேளாண்மை வாசகர்களுக்காகத் தன் அனுபவங்களைப் பகிர்ந்துக்கொள்கிறார் இதோ!

எனது சமூகப் பணிகளில் அனைவராலும் அங்கிகரிக்கப்பட்ட ஒன்று தான் நந்தன் கால்வாய் சீரமைப்பு மற்றும் தென்பெண்ணை பாலாறு நதிநீர் இணைப்பு. தென்பெண்ணை ஆற்றிலிருந்து துரிஞ்சல் ஆறு மற்றும் நந்தன் கால்வாய் ஆகியவற்றுக்கு நீர் வருகிறது. எங்களின் தொடர் முயற்சியால் நீர் வரத்து வழியில் உள்ள சீமை கருவேல மரங்களை அகற்றி, ஏரி கால்வாய்கள் அமைத்து நீர்ப் பாசனத்திற்கு வழிவகுத்தோம். இதனால், இப்போது 15 - 16 கிலோ மீட்டர் வரை நீர் பாய்ந்து விவசாயிகளுக்கும் கிராம மக்களுக்கும் நன்மை அளிக்கிறது. மேலும் மழைநீர்ச் சேகரிப்பிலும் முக்கிய பங்கு வகிக்கிறது.

நான் 2010ல் பொறியியல் படிப்பு முடித்து விட்டு கல்ஃப் நாட்டில் வேலை பார்த்து வந்தேன். அப்போது என் அப்பா சிறுநீரகச் செயலிழப்பால் காலமானார். அவர் இயற்கை விவசாயம் மீது மிகுந்த ஆர்வம் கொண்டவர். சிறியதாக உரக்கடை வைத்து விற்பனை செய்து வந்தார். தனக்குத் தெரிந்த இயற்கை விவசாயம் மற்றும் இரசாயன உரங்களையும் பயன்படுத்தி வந்தார்.

இரசாயன உரங்களைப் பயன்படுத்தி பயிரிடப்படும் உணவுகளால்தான் பெரும்பாலான உடல்நலப் பிரச்சினைகள் ஏற்படுகின்றன என்பதை உணர்ந்த நான், இனி நஞ்சில்லா உணவை விளைவித்து என் வீட்டிற்கும் சமூகத்திற்கும் கொடுக்க வேண்டும் என்று முடிவு செய்தேன்.

என் அப்பா 10 ஏக்கர் நிலத்தில் விவசாயம் செய்து வந்தார். இரசாயன உரங்கள் பயன்படுத்தியதால், வளமான நிலம் களர் நிலமாக மாறியதை உயிரூட்ட முடிவு செய்தேன். இயற்கை வழி விவசாய முறைகளைக் கற்றுக்கொள்ள தொடங்கினேன். நிலம் முழுவதும் நஞ்சில்லாமல் மாற மூன்று ஆண்டுகள் எடுத்துக்கொண்டது. அதில் 2 ஏக்கரில் வீட்டுத் தேவைக்காகப் பாரம்பரிய நெல் வகைகளான தங்க சம்பா, தூய மல்லி, மாப்பிள்ளை சம்பா, சிறுதானிய பயிர்கள், உளுந்து, துவரை, மற்றும் காய்கறிகள்,

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INTERLINKING OF RIVERS: BOON OR BANE FOR AGRICULTURE?

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INTRODUCTION

India's proposed river interlinking project aims to connect rivers and transfer water from areas with excess to those facing shortages. Supporters believe this will boost agriculture by expanding irrigation and reducing droughts. However, critics worry about the environmental and social costs. This article explores the potential benefits and risks of the project for Indian agriculture, considering existing research on the ILR Project.

The concept of interlinking rivers was started by Sir Arthur Cotton in 1919 to connect the major Indian rivers. As Indian agriculture relies on monsoon rainfall, flooding and drought also occur in some regions of India. So, the project's main aim is to transfer surplus water from water-rich river basins to water-deficient areas, which will help promote agricultural productivity nationwide.

AGRICULTURAL GAINS

Irrigated Land Growth:

The Interlinking of Rivers (ILR) project transfers water to drought-prone areas by constructing storage dams and canals. These dams and canals continuously irrigate the land due to water flow throughout the year, increasing the irrigated land area and the productivity of agricultural commodities.

Reduction in Rainfall Dependence:

Connecting rivers can significantly decrease farmers' reliance on unpredictable rainfall. By moving surplus water from areas with abundant rainfall to drier regions, this project can provide a more stable water supply throughout the year, making agriculture less dependent on seasonal rains.

Increase in Productivity:

As a result of the ILR project, most regions became water-rich, and farmers used to grow multiple crops annually, which increased cropping intensity and overall agricultural production. This also increased employment opportunities in the agricultural sector.

Migration of Drought:

It aims to mitigate drought impacts by transferring water to drought-prone areas, ensuring water availability for agriculture during dry periods, and reducing farmers' risks from unreliable monsoons.

Flood Control:

The interlinking project may reduce crop damage from floods by redirecting excess water from flood-prone areas to water-scarce regions.

AGRICULTURAL RISKS

Environmental Consequences:

The ILR project poses significant environmental risks, including disruptions to the aquatic ecosystem, fish population, and riverbank vegetation. The continuous flow of water will decrease the groundwater level.

Inter-state Disputes:

When several states share water from the same river, a big project changes how that water flows; it could cause trouble. The river itself might be affected – its natural flow and even the

Precision Nutrition: How Smart Fertilizers Leads to Sustainable Agriculture

Lakshmi Priya K. and J. Paul Mansingh

Introduction

Food security is a major concern for developing countries, with stagnant crop productivity threatening to undermine food production despite advances in technology. Nutrient management is crucial, but conventional fertilizers suffer from low use efficiency due to losses from leaching, denitrification, and other pathways. New technologies, such as smart fertilizers, offer a solution that includes slow and controlled-release fertilizers, nano fertilizers, and bioformulation fertilizers. Smart fertilizers provide a better option for farmers to increase crop yields with low input costs while preserving the natural environment, enhancing nutrient use efficiency, and improving crop yields sustainably.

What are Smart fertilizers?

Innovative fertilizer is any single or composed (sub) nanomaterial, multi-component, and/or bioformulation containing one or more nutrients that, through physical, chemical, and/or biological processes, can adapt the timing of nutrient release to the plant nutrient demand, enhancing agronomic yields and reducing the environmental impact at sustainable costs compared to conventional fertilizers.

List of Smart fertilizers

Nano fertilizers: Nanofertilizers, or smart fertilizers, enhance nutrient use efficiency while minimizing environmental harm compared to traditional mineral fertilizers. These formulations involve nanoscale materials (1-100 nm). They can be produced through biological methods, such as "green synthesis," using plants, microorganisms, and other natural sources, offering better control over toxicity and reduced waste (Source: www.iffco.in). Nanofertilizers can be classified into three main categories:

- ✓ **Nanoscale fertilizers:** Produced through physical, chemical or biochemical size reduction, offer improved nutrient efficacy, enable adequate crop nutrition with smaller application quantities, and include formulations derived from traditional fertilizers like urea, ammonium salts, and peat.
- ✓ **Nanoscale additives:** Supplementary materials are incorporated into bulk products to serve secondary purposes. They offer enhanced benefits, such as improved water retention capacity compared to traditional fertilizers, and provide additional features, like plant pest resistance and antimicrobial properties.

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Agriculture without Deforestation: How Agriculture draws a Parallelism with Deforestation?

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The current world population is a booming 8 billion. It is imperative that each and every one of that 8 billion is nutritionally secure and secures a safe future for life on earth. The pressure is on to propel enough food to satiate the demands of the population. But at what cost? In 2020 about 4.2 million hectares of humid tropical primary forest was gone from the face off earth, which is nearly the size of the Netherlands. According to the researchers from the Sustainability Consortium and the World Resources Institute, the credit for this depletion goes to food production and the other half to commodity crops. In the recent years, commodity crop production has fuelled up rates of forest loss to record levels. There are several pivotal points and factors that steer its way to forest loss. Shifting agriculture is primarily one of them, practiced within forests in Africa ,central and South America by indigenous and subsistence farmers. Commodity crops have an even more profound influence as they are grown commercially and on an industrial scale and often traded internationally.

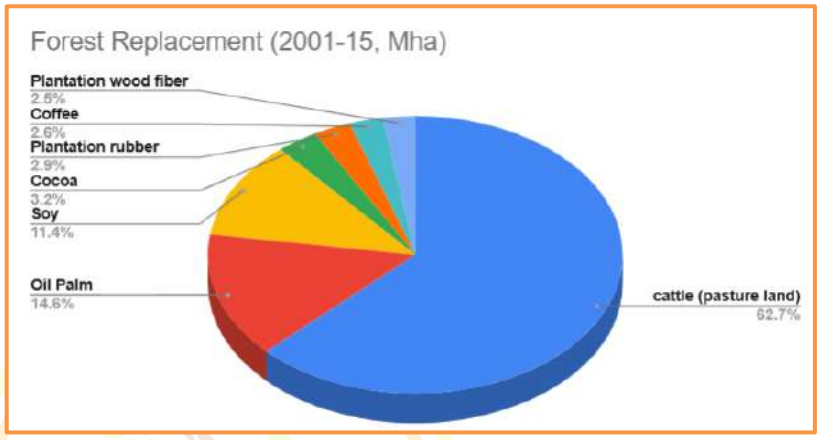

Figure 1. Forest replacement in terms of commodity produce
Source: World Resource institute, 2024

Out of the plethora of activities the humans have imprinted on earth, the most dominating is agriculture. Farming is the most dominating form of land use and management as of today. It is changing the trends and lifestyles. One of the driving forces is the ever growing demand for food. To provide food for the population, expanding the agricultural area makes sense. Due to the current crisis this might seem logical. But in the long run this will have a profound effect on the Earth. Around 3 quarters of the earth's land is under some form of human use. The amount of agricultural goods being exported and traded all over the globe has also grown and have replaced forests (Figure 1). Although the yields have increased due to intense agriculture, the forest land has limited resource and availability.

How to produce food without cutting down forests?

To balance the need for food and to prevent depletion of forest resources the focus has to be diverted into holistic and sustainable land use approaches, especially the current fields and land. Changing the diet to an overall healthy animal protein and plant intake , minimising food wastage are some solutions. Nitrogen, phosphorous, and water can be utilized more efficiently. This will result in reduced pressure on land. Use soilless methods of cultivation

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Electroculture - Untapped Potential or Just a Curiosity?

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Introduction

Electroculture is a method used in agriculture that employs electricity to boost crop growth and induce resistance to pests and diseases. Various experiments have been conducted in the name of electroculture since the 19th century, yet it is still considered an uncharted territory of research in the agriculture field. Electroculture has not been conventionalized yet to use it for everyday agricultural practices followed by the common farmers of India. But its potential is very high and could help in changing the face of agriculture in India, if it is conventionalized.

Advantages of Electroculture

The applications in electroculture are vast and still an untapped area in agriculture. At present, only a few hi-tech farmers or farmers with indispensable capital are trying out electroculture in their farms along with researchers to find innovative ways to "electrify" agriculture. Some of the well-known applications of electroculture are:

- Increasing crop yield and improving plant health (less pest infestation and disease incidence)
- Nutrient ions contain a charge that can be manipulated or enhanced using a direct electricity supply to the soil.
- Reduced irrigation needs
- It helps in reducing the dependency of farmers on chemical fertilizers and pesticides, ensuring environment-friendly and sustainable farming practices
- Due to the continuous movement of micro and macro-organisms under the influence of

NEW ERA AGRICULTURE MAGAZINE

BOUNCING FORWARD: GEOMAPPING DRIVES RUBBER INDUSTRY GROWTH

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Introduction

Rubber is one of the crucial products in the Indian as well as the global market. It is an elastic substance consisting of a polymer called isoprene and hydrocarbon. Rubber is majorly found as solids in a milky fluid called latex. It can be either obtained naturally from rubber tree or synthetically extracted from natural gas or petroleum. It is one of the key materials used in the automobile and apparel industries. India is the 3rd largest producer and 4th largest consumer of natural rubber. Also, India is the 5th largest consumer of natural and synthetic rubber combined. Kerela is one of the top rubber producing states in India accounting for about 90% of India's total natural rubber output. 16% of total rubber production comes from North Eastern states like Assam and Tripura (Figure 1). Though rubber contributes only a fraction to agriculture's Gross domestic product it is of vital importance. Meanwhile Geo-mapping was introduced in Kerela by the Rubber Board to initially focus on 10 key Rubber growing districts and later to be expanded in states like Tamil Nadu and Karnataka. This was introduced to eliminate the export of rubber illegally through deforestation and to help farmers fetch better price for their produce in the International markets aligning with the European Union Deforestation Regulation (EUDR) compliance.

Geo-Mapping: Significance and requirement

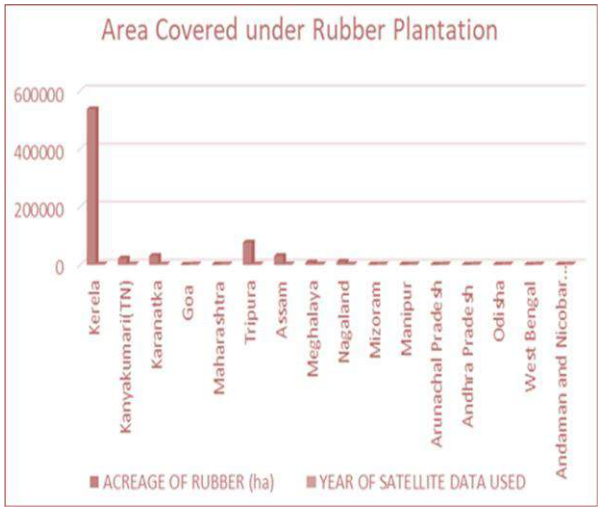

Figure 1. Area covered under Rubber Plantations

Data Source: Balan et al .2020, Figure Source: Author's Compilation

Geo mapping is an advanced software technology which creates maps using geographic data to map a particular area or

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SIGNIFICANCE OF WETLANDS IN PROTECTING THE MOTHER EARTH

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Introduction

A “Wetland" is a semi-aquatic ecosystem that is either permanently or seasonally wet. It is a common term for all kinds of wet habitats. It is a unique ecosystem where the saturated land creates oxygen-deprived conditions. These "transition zones" bridge the terrestrial and aquatic environments, supporting specialized plants known as hydrophytes. They serve as biodiversity hotspots, recycle nutrients, and support complex food webs. Most wetlands are located inland (marshes, swamps, bogs) and coastal wetlands (salt marshes, mangroves). Wetlands demonstrate remarkable adaptability and are found worldwide, except in Antarctica. Each wetland's unique characteristics are shaped by its climate, hydrology, and geology, highlighting its crucial role in maintaining ecological health and supporting life.

Definition of wetlands by the Ramsar Convention

The Ramsar Convention on Wetlands of International Importance is an international treaty that aims to conserve and sustainably use Ramsar sites (wetlands). The Convention was signed on February 2, 1971. It is named after the city of Ramsar in Iran and is also known as the Convention on Wetlands. Its core principle emphasizes the "wise use" of these vital ecosystems, promoting actions at both local and national levels to safeguard their ecological character. The Ramsar Convention defines wetlands broadly, stating that “Wetlands include any area where water covers the soil or is present at or near the surface of the ground, including marsh, pond, peatland, or any other watery environment. This can be natural or man-made, still or moving

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THE LAST KEYSTONE SPECIES TO BE EXTINCT

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Introduction

The "Keystone species" concept functions as a widespread tool within conservation initiatives. Scientists together with conservationists apply the concept through multiple different approaches. A shared definition is not what creates difficulties with applying the concept in conservation. The actual issue stems from utilizing the concept toward select species when it has wider applicability potential with different species.

Robert paine (1966) introduced the concept of keystone species through his substantial research into food web interactions within rocky intertidal ecosystems. Their ecosystems experience significant alterations even though they are rare within their environments. All of us imagine that wildlife extinction will take place in distant areas. But in reality the scenario is different. The actions that occur in natural environments consistently extend beyond their original location. All living beings including humans need their mutual connection with other species to exist on Earth. Society views environmental impacts from humans as a single destructive and extreme interaction between these two parties. Many species worldwide face danger from human-caused events which include deforestation alongside war activities and resource extraction and industrial operations that lead to species displacement. Human survival depends on various natural species which include fungal types in soils and rare pollinators together with an array of additional species that most people are unaware of. The knowledge

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