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07-08 March, 2025

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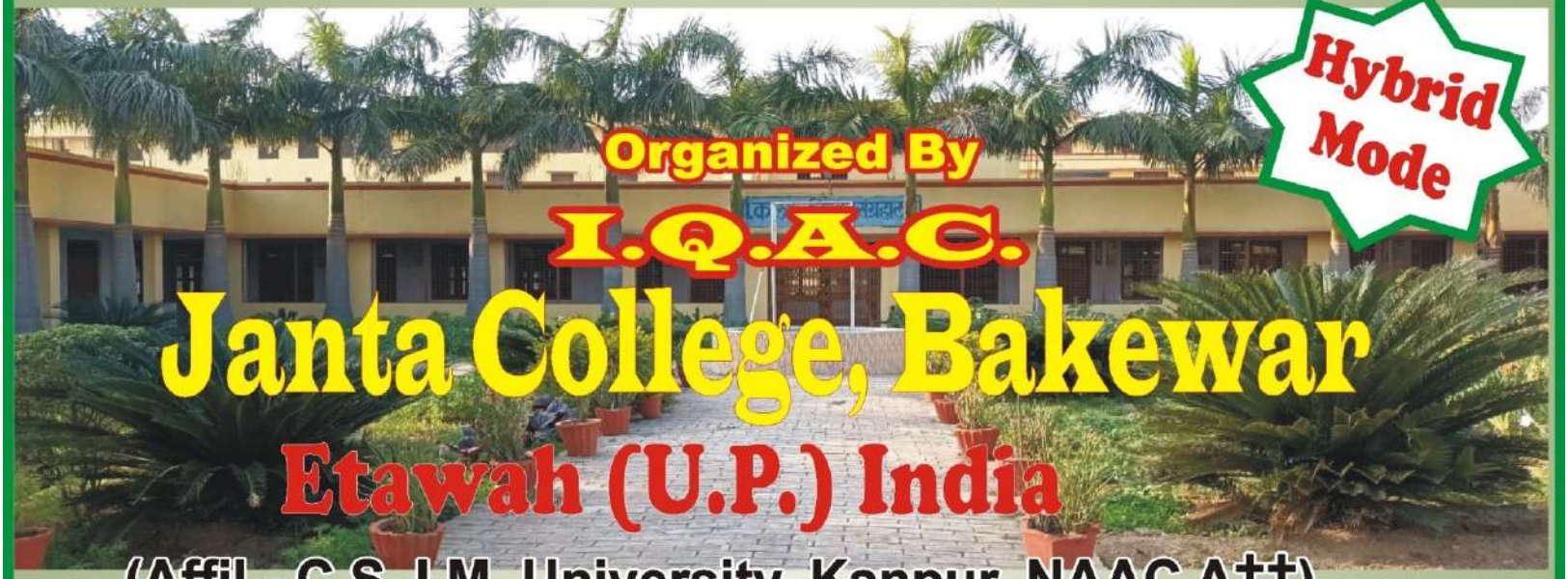

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Innovation, Entrepreneurship, and Incubation in Jatropha: A Sustainable Approach to Agriculture, Bioenergy, and Rural Development

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JOil Singapore Pte Ltd. National University of Singapore, Research Link, Singapore

Abstract

Innovation, entrepreneurship, and incubation play a pivotal role in transforming agriculture, science, commerce, and social sciences by fostering sustainable solutions for global challenges. In the agricultural sector, the cultivation of *Jatropha curcas* has emerged as a promising avenue for biofuel production, sustainable land use, and rural economic development. Jatropha, a drought-resistant, non-food oilseed crop, has gained attention due to its ability to thrive in marginal lands, reduce carbon emissions, and provide a renewable energy source.Entrepreneurial ventures in Jatropha cultivation, seed processing, and biodiesel production have the potential to create employment opportunities, enhance farmer livelihoods, and contribute to energy security. Research and innovation in Jatropha breeding, agronomy, and value chain development have led to improved seed genetics, better oil yields, and optimized agronomic practices, increasing its commercial viability. Additionally, incubation centres focused on bioenergy and sustainable agriculture can accelerate technology transfer, support startups, and drive investment in Jatropha-based enterprises.From a commerce perspective, Jatropha oil presents opportunities for green fuel markets, carbon credit mechanisms, and bioproducts such as bioplastics, organic fertilizers, and cosmetics. Socially, Jatropha cultivation empowers rural communities, promotes afforestation, and aligns with circular economy principles. Despite challenges such as yield variability, policy constraints, and financial risks, strategic innovation, and targeted incubation programs can address these barriers, ensuring Jatropha's role in the future of sustainable agriculture and bioenergy.This paper explores the intersection of innovation, entrepreneurship, and incubation in Jatropha cultivation, highlighting its economic, environmental, and social impact. It underscores the need for multidisciplinary collaborations to enhance its scalability, sustainability, and profitability in the global bioeconomy

Women Entrepreneurship and Inclusive Economic Development: A Rural Perspectives

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Abstract

Women entrepreneurship is a key driver of inclusive economic development, especially in rural areas where economic opportunities are limited. Despite various challenges, women entrepreneurs are playing a vital role in transforming local economies, creating employment, and fostering sustainable development. While entrepreneurship has long been recognized as a catalyst for economic growth, women entrepreneurs face unique barriers. However, despite these challenges, women-led enterprises have emerged as a strong force for inclusive growth, particularly in rural regions where economic disparities are more pronounced.Women's contribution to the national economy has increased significantly. Women entrepreneurs are establishing businesses, generating employment, and adding value to industries. According to the World Bank (2023), around 30% of businesses worldwide are owned and managed by women, contributing nearly 20% to the global GDP.Financial Independence and Social

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EmpowermentEntrepreneurship provides women with financial independence, increasing their role in both family and business decision-making. Studies suggest that women reinvest up to 90% of their income into their families and businesses, compared to 30-40% for men. This reinvestment contributes to children's education, healthcare, improved living standards, and business expansion, promoting inclusive economic growth.

Integration of organic sources fertilizers for higher sesame yield

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Abstract

The present investigation was undertaken at research farm, project coordinating unit (sesame and Niger), JNKVV, Jabalpur, Madhya Pradesh during kharif season, 2010-11 with a view find out the most suitable combination of organic sources and fertilizers for higher production of sesame cv. TKG-22. The eight treatments consisting with various integrated nutrient management were replicated thrice in a randomized block design. The treatment were T_1-Control, T_{2} + (- 100)% RDF, T-50% RDF+50% N through FYM, T-100% N through FYM, T5-50% RDF+50% N through VC, T_{6} + (- 100)% through VC, T-50% RDF+50% N through NOC and T_{8} + (- 100)% N through NOC. The status of N fractions were improved with the application of N in combination with organic manures viz. FYM/VC/NOC. All fractions of N evaluated showed higher values of growth parameter and yield attributes with the application of 100% RDF ((60/40) / 20 * kg / h * a NPK) this treatment also recorded highest seed yield value whereas variations due to different integration treatments (T_{3}, T_{5}, T_{7}) were found to statistically at par. Treatment comprising application of 100% N through organic sources (T_{4}, T_{6}, T_{8}) produce lesser yield than the integrated treatments. Control treatment significant recorded the minimum seed yield also highest B:C ratio was observed with 100% RDF

Key words: Sesame, Organic manure, INM..

Biofertilizers: A key for sustainable legumes productivity

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Abstarct

Leguminosaecrops crucial because of its demand and its high protein contain. They have the potentialto fix the atmospheric nitrogen. When a legume is grown in the field, it has the potential to supply nitrogen for the succeeding crop due to the enough quantity of nitrogen it absorb throughout its whole period. Due to excessive use of thesynthetic fertilizers the microbial population and microbial activity can decline in the field and hazardous for farmers.These microorganisms play a major role in transforming nutrients from an unavailable state into a form that can be utilized. Biofertilizers fulfilled

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these beneficial micro-organismswhich are given to the seed or to the soil. These micro-organisms thenform association with the plants and helps changing the organic forminto inorganic form of nutrient. This is a most suitable method and can also help in increase the soil health and quality. Last few years biofertilizers are widely used in field, the mechanism behind their interaction with resident microbial community and plants is still a matter of curiosity among people. The main aim of biofertilizers in agriculture is highlighting their types,improving soil,benefits in sustainable agriculture and challenges associated with their application. It represents a way and technology for Indian farmers that promises to balance many of the shortcomings of the chemical-based technology.

Keyword-: Biofertilizer; Productivity; Sustainable Agriculture; Soil Health.

Sustainable Waste Management and Recycling Strategies for a Circular Economy '

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The increasing generation of waste and its improper management have become significant environmental and health concerns worldwide. Effective waste management and recycling strategies are essential for reducing waste, conserving natural resources, and mitigating climate change. The results show that the current waste management practices are inadequate, with a significant portion of waste being disposed of in landfills. However, there is a high potential for waste reduction, reuse, and recycling, particularly in the organic waste stream. The LCA results indicate that recycling and composting can significantly reduce greenhouse gas emissions and conserve natural resources.This study demonstrates the need for effective waste management and recycling strategies to reduce waste, conserve natural resources, and mitigate climate change. The framework developed in this study can be used as a guide for implementing sustainable waste management and recycling strategies in other cities and regions.

Keywords: waste management, recycling, circular economy, sustainability, life cycle assessment.

Improving the soil quality and food nutritional content by Adopting Sustainable Agriculture

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The population of people in our country is increasing every year and the presently population of people is 145 cr. (2024) which has increased 0.92 % from 2023. India's population growth challenges include resources strain and decreasing per capita availability of agriculture product. India ranked 105th out of 127 countries in the Global Hunger Index of 2024 with score of 27.3. Farmers are constantly using chemical fertilizers in large quantities to ensure food security for the growing population but using high amount of chemical fertilizers in the soil affects the soils physical property, health of human and environment. A

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sustainable agriculture approach aims to use natural resources in such a way that they can regenerate their productive capacity while also minimizing negative effects on ecosystems. Sustainable Development Goal (SDG) of UNDP work on balancing the environment and providing nutritious food in the world. In organic farming, farmers are producing agricultural product without using any chemical fertilizers in their cultivated land thereby producing healthy food as well as protecting the environment. The organic manure improves physical properties of soil and provide nutrient to the plant. Organic agriculture is practiced in 187 countries, and 72.3 million hectares of agricultural land were managed organically by at least 3.1 million farmers. Organic farming in India existed in about 2.30 million hectares of land (NCONF, 2019). Organic farming will protect the environment and provide healthy food while also protecting us from diseases such as cancer, infertility. Additionally it will help in meeting the food security of the growing population.

Keyword: Organic Farming, Food security, Growing Population, Sustainable Agriculture

Numerical treatment for a system of singularly perturbed integro-differential equations

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.The present work concerns a system of singularly perturbed integro-differential equations with initial conditions. The presence of distinct perturbation parameters in the derivative terms gives rise to overlapping layers in the solution. It is well-known that the standard finite difference schemes fail to provide satisfactory results for such problems. Therefore, we propose a numerical scheme on an arbitrary mesh that incorporates both the right-hand rectangle formula and composite left-side rectangle rule. Additionally, we present a *priori* and a *posteriori* error analysis for the proposed scheme. Numerical experiments confirm the parameter-uniform convergence of the method.

Keywords: Singularly Perturbed problems, Integro-Differential Equations, Overlapping Layers, Convergence Analysis, Finite Difference Method

Agribusiness Transformation: The Impact of AI, Precision Agriculture, and Smart Farming

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Abstract

Agriculture is experiencing an unprecedented technological transformation led by Artificial Intelligence (AI), Smart Farming, and Precision Agriculture. In these breakthroughs, traditional farm practices are elevated to a more applicable, data-centric model. The democratization of data within the farming industry has been made possible with the help of AI-driven technologies like machine learning, robotics, and predictive analytics, which gives the farmer the power to use the information granted to him to make better decisions, use resources better and ultimately lead to better yields in crops.Smart farming connects IoT devices, drones for monitoring of soil and crop attributes, and automated systems for continuing

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communication of critical variables of soil health, crop growth, and climatic conditions, helping farmers intervene at appropriate times with appropriate measures. Precision agriculture stresses specific management approaches, applying resources like water, fertilizers, and pesticides just in amounts to achieve higher yields while minimizing environmental effects. The developments of these technologies allow farmers to achieve profitability, minimize wastage of resources, and conserve another nature. Yet, achieving further advancements requires overcoming barriers such as heavy investment, access to technology, and educating farmers to implement them. The present paper discusses the role of AI in transforming agribusiness, the relevance of smart technologies in current farming, and the effects of precision methods on food security sustainability in future agriculture.

Keywords: Artificial Intelligence (AI), Smart farming, Precision Agriculture and Internet of Things (IoT)

Artificial Intelligence and Zoology: A Symbiotic Evolution

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Abstract

The intersection of artificial intelligence (AI) and zoology is ushering in a new era of animal research. AI's capacity for processing massive datasets and discerning intricate patterns is providing zoologists with unprecedented insights into animal behavior, ecology, and evolution. This study explores the transformative applications of AI in various zoological subfields, including species identification, behavioral analysis, conservation efforts, and cognitive studies. The study finds potential benefits and challenges of integrating AI into zoological research, highlighting the symbiotic relationship between these two disciplines and their combined potential to deepen our understanding of the animal kingdom.

Keywords: Artificial intelligence, Animal behavior, Ecology, Evolution, Species, Symbiotic

Explore the biofertilizers in Sustainable Productivity of Chickpea (*Cicer arietinum* L.)

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Chickpea (*Cicer arietinum* L.) is important crop in pulse belongs to family Leguminosae (Fabaceae). It is mostly grown in sub-tropical, tropical and temperate region. Now-a-days excessive use of synthetic fertilizers, insecticides and pesticides which causes harmful effects on soil and environment.Biological nitrogen fixation has a important role that includes the conversion or reduction of molecular nitrogen into ammonia by microorganisms using nitrogenase enzyme system.Biofertilizers are contains different living microorganism's cells such as fungi, bacteria and algae which have potential to changing major elements from unavailable to available form through biological process. Itconserves the environment and reduce the dependency on the chemical fertilizers. Major role of Biofertilizers in soil to increase microbial activity and it have potential to improve the growth of plant and root nodulation in chickpea. It fixes the

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atmospheric nitrogenfor succeeding crop which results have maximize the yield and biomass production. It can enhance the nutritional value of human diet and minimize the malnutrition in the world.In current agricultural practices, effective nitrogen fixing bacteria have ability to maintains soil fertility and promote the productivity of chickpea. It has positive impact on the growth, symbiotic parameters, yield and yield attributes, nutrient uptake and quality in chickpea.It hasan excellent option for farmers to applicant of biofertilizers instead of chemical fertilizer because it has easily available in mostly regions and economical adaptable.

Keyword-Biofertilizer; Chickpea; Productivity: Sustainable agriculture.

Drought tolerant Forage Crops: A Key to Sustainable Livestock Farming in waterdeficit condition

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Drought is a major challenge that affects the availability of forage and directly affects livestock productivity. To ensure a reliable feed supply, it is necessary to use drought-tolerant forage crops for sustainable livestock farming. General drought -resistant crops include sorghum, pearl millet, alfalfa and some grass species that have deep root systems and water use efficient mechanisms. These crops can produce and produce biomass under limited water conditions, which can reduce the risk of feed deficiency during the dry period. In addition, proper soil management, water conservation techniques can further increase forage production in dried areas. By integrating these flexible crops into agricultural systems, householders can continuously maintain feed accessibility, reduce the dependence on external feed sources and improve the general agricultural stability. This study also emphasizes the importance of choosing appropriate forms and using the best practice to ensure sustainable livestock farming in water deficit condition.

Key words: Drought, Forage Crops, Sustainability and Water deficit

Harnessing Emerging Technologies for Sustainable Okra Improvement: Innovations for Enhanced Productivity and Resilience

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Abstract

With the growing global demand for food and the increasing pressures of climate change, sustainable agricultural practices are critical to ensuring food security. Emerging technologies are revolutionizing crop improvement, offering innovative solutions to enhance productivity, resilience, and sustainability. This paper highlights the application of cutting-edge technologies for the improvement of okra, a nutrient-

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dense vegetable crop that plays a vital role in food and nutritional security, particularly in tropical and subtropical regions. Genome editing tools, such as CRISPR-Cas9, enable precise modifications to the okra genome, facilitating the development of varieties with higher yields, improved disease resistance, and enhanced tolerance to abiotic stresses like drought, heat, and salinity. High-throughput phenotyping and next-generation sequencing provide valuable insights into the genetic and physiological traits of okra, accelerating the breeding of superior cultivars. Furthermore, artificial intelligence and machine learning are being integrated into agricultural systems to optimize okra cultivation practices, predict crop performance, and reduce resource use. Advances in synthetic biology and microbiome engineering are also contributing to the development of okra varieties with improved nutrient use efficiency and reduced reliance on chemical inputs. When combined with agroecological approaches, these technologies offer a promising pathway to enhance okra production while minimizing environmental impacts. However, their successful implementation requires addressing ethical, regulatory, and socio-economic challenges to ensure equitable access and long-term sustainability. This paper explores the transformative potential of emerging technologies in okra improvement and their role in fostering sustainable agricultural systems.

Keywords: Emerging technologies, crop improvement, okra, sustainability, CRISPR-Cas9, genome editing, high-throughput phenotyping, artificial intelligence, machine learning, synthetic biology, microbiome engineering, abiotic stress tolerance, agroecology.

Heterobeltiosis and Inbreeding Depression for Yield and Agronomic Traits in Indian Mustard (*Brassica juncea* L.Czern & Coss) Across Two Environments

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Abstract

Indian mustard (*Brassica juncea* L. Czern & Coss) is a vital oilseed crop in India, and its genetic improvement through heterosis breeding plays a crucial role in enhancing seed yield and agronomic traits. The present study aimed to assess heterobeltiosis and inbreeding depression for seed yield and yield contributing traits across four crosses of Indian mustard. The experiment was carried out during the Rabi seasons of 2022-23 and 2023-24 at the Agricultural Research Farm, Janta Mahavidyalaya, Ajitmal, Auraiya (U.P.), under two different environmental conditions (E1 & E2). The four genetically diverse parental lines were crossed with well-adapted released varieties to generate promising hybrids.The results demonstrated significant variability in heterobeltiosis and inbreeding depression across different crosses and environments. In PR 36 × Rohini, seed yield per plant exhibited negative heterobeltiosis (-12.37% in E1 and -16.55% in E2), suggesting hybrid weakness. However, traits like siliquae per plant (19.51%) and number of seeds per siliqua (4.65%) showed positive heterobeltiosis, indicating genetic potential for selection. Inbreeding depression was notably high for plant height (4.10%) and seed yield (-19.77%) in E2, suggesting genetic instability. In PRE 11 × CS 60, moderate to high heterobeltiosis was observed for the number of secondary branches per plant (10.52%) and siliquae per plant (29.37%) in E2. However, seed yield per plant (-16.29%) exhibited negative heterobeltiosis, and inbreeding depression was significantly high (-28.61%) in E1, indicating a strong impact of selfing on yield-related traits. PRE 15 ×

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CS 58 exhibited high heterobeltiosis in siliqua length (36.36%) and seeds per siliqua (9.30%), indicating a high genetic potential for selection. However, seed yield per plant showed negative heterobeltiosis (-8.87% in E1, -1.07% in E2), and inbreeding depression was notable for seed yield (12.94%) and plant height (-5.72%), emphasizing the need for hybrid stabilization. PRL 26 × Giriraj showed negative heterobeltiosis in days to flowering and plant height, but positive heterosis for siliquae per plant (3.59%) and seed yield per plant (6.18%) in E2. The highest inbreeding depression was observed for seed yield (-35.18%) in E1, indicating genetic susceptibility to selfing. Overall, the study highlights significant genetic variation in heterobeltiosis and inbreeding depression, suggesting that selection for yield improvement should be environment-specific. These findings provide valuable insights for mustard breeding programs, enabling the development of high-yielding, stable genotypes through targeted hybridization and selection strategies.

Role of Integrated nutrient management (INM) in enhancing crop productivity and soil health

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Abstarct

Integrated nutrient management (INM) aims to maintain supply of nutrient in plant and fertility of soil. It also enhancement of soil productivity by balancing the use of synthetic fertilizer with biological sources of nutrients. When implementing INM major problems farmer face include: Insufficient organic matter, high-cost input, climatic variability, government support etc.It is to controlling environmental pollution can achieved by developing new technological precision nutrient management techniques, encourage nutrient recycling from various sources such as livestock manure, agricultural residuesand waste water. It also helps in various practices like biochar production, anaerobic respiration and composting can be used to convert these nutrient rich materials into valuable organic amendments. It incorporates nitrogen fixing crop can also reduce the need for chemical nitrogen fertilizer and decrease the runoff of nitrogen. Among all strategies which applied in INM is to reducing chemical fertilizer, soil health and properties and safe the environmental loss. It is a holistic method to optimizing nutrient supply to crop that includes soil testing and include diagnostics. INM may contribute to more sustainable & ecological friendly agriculture with training, assistance and right information.

Keyword: INM; Organic Matter:Sustainable agricultureSoil Heath.

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The Role of Inclusive Growth in an Economic Production Quantity Inventory Model for Deteriorating Items under the Effect of Trade Credit Policy

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Abstract

This study investigates the role of inclusive growth in an economic production quantity (EPQ) inventory model for deteriorating items under the effect of trade credit policy. The model considers the impact of inclusive growth on the demand rate, production cost, and inventory holding cost. The trade credit policy is also incorporated into the model, which allows the retailer to delay payment to the supplier. The objective of the model is to determine the optimal production quantity, inventory level, and trade credit period that maximizes the total profit. The model is formulated as a mathematical programming problem and solved using a numerical method. The results show that inclusive growth has a significant impact on the optimal production quantity, inventory level, and trade credit period. The study also reveals that the trade credit policy can increase the total profit, but it also increases the risk of default. The findings of this study provide valuable insights for policymakers and business leaders to promote inclusive growth and design effective trade credit policies.

Keywords: Inclusive Growth, Economic Production Quantity, Inventory Model, Deteriorating Items, Trade Credit Policy, Mathematical Programming

Supervising International Trade: Challenges and Possibilities for Business Expansion

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Abstract

In the present interconnected global, international trade has a significant role in stimulating economic growth, market expansion, and maintaining business enterprise sustainability. However, firms face several challenges such as proposals for changes, changing exchange rates, geopolitical uncertainties, supply chain disruptions, and cultural differences. Therefore, in such an environment, effective oversight and strategic decision-making will be critical. This paper will survey the dynamic landscape of global trade, pinpointing the respective changes in regulatory frameworks, technological innovations, and monetary policies which impact business enterprise growth. Also, it will in detail discuss the creative measures that can be taken to remove impediments from free trade, turn towards digitalization, and enhance competitiveness at the international level. An awareness of the risks and rewards of this internationalization process will also be imperative in facilitating long-term corporate growth and success. The workshop aimed to provide insights into good practices, policy recommendations, and strategic frameworks that can enable organizations to work within an increasingly interdependent environment.

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Revolutionizing Wheat for a Sustainable Future: Cutting-Edge Strategies to Boost Food Security and Resilience

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Abstract

Wheat, the lifeblood of global food systems, faces unprecedented challenges from climate change, population growth, and dwindling resources. To secure the future of food, modern science is stepping up with bold, innovative approaches to transform wheat improvement. Breakthroughs in genomics, such as CRISPR-Cas9 and high-throughput sequencing, are unlocking the potential to engineer wheat with unparalleled precision—boosting yields, enhancing disease resistance, and fortifying crops against environmental stresses. Meanwhile, advanced tools like marker-assisted selection (MAS) and genomic selection (GS) are turbocharging the development of climate-resilient, high-performance wheat varieties. The integration of artificial intelligence (AI) and big data analytics is revolutionizing crop modeling and phenotyping, enabling smarter, faster, and more efficient breeding programs. Coupled with sustainable farming practices like conservation agriculture and integrated pest management, these cutting-edge strategies are not only increasing productivity but also reducing the environmental footprint of wheat production. Together, these innovations are paving the way for a sustainable, food-secure future, ensuring that wheat remains a cornerstone of global nutrition in the face of mounting challenges.

Keywords:*Wheat improvement, CRISPR-Cas9, sustainable agriculture, food security, climate resilience.*

Smart Farming: An Anatomization

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Abstarct

Over increasing of population and sudden weather change around the world has put enormous pressure on agricultural food products for quality and sustainable food production. Revolution and advancement in food growing agricultural practices become advanced with the passage of time. In this modern age, improved technology-based agricultural practices are replacing the existing old-fashioned farming practices. These novel technologies are quite efficient but still require the consistent attention of researchers and scientists for better application and output of this technology. Smart farming involves the integration of information and communication technology for better utilization of resources from sowing, irrigation, fertilizer, pesticide, and herbicide application, and finally harvesting. But this system involves autonomous vehicles, robots operated through GPS and connected through smart applications. The precise application of this technology along with Internet of Things (IoT) supposed to be the helpful technology for farmers to uplift their living standards, with high production and profit and can be a good indicator for food security. Nowadays, there are still limitations for the adaptation and conversion of

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smart farms due to high cost, non-availability of internet, and lack of application knowledge in the farming community. In autonomous vehicle and drones, there are also some major gaps regarding their application (positioning), efficiency, and workload. So, this area of research needs more explorations.

Agriculture is a key source for food over the world. Recently, climate change and variability exacerbated potential harmful effects on worlds' agriculture. It is expected that over two billion more people will be part of the world in 2050. But weather uncertainty in some regions put negative repercussions on agriculture and food production. For sustainable food production, world agriculture must use agricultural resources with more precision and in time decision for maximum resource utilization. Since farming, farms maintained by record-keeping and now farm management involves electronic devices with more precision and decision making. In the past, many efficient and resource-use technologies have been used in agriculture farm management but most of them were not effective. Net profit of farm can be increased through the coordination of available resources with their judicious and timely use. Now, this is managed by computer and electronic devices to get maximum food and net profit.

Keywords:Smart farming, Precision agriculture, Computer applications, Remote sensing

SOILLESS CULTURE AND FLOWER CROPS

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Abstract

Soilless culture is defined as any method for growing plants without the use of soil as a rooting medium, in which the nutrients absorbed by the roots are supplied via the irrigation water. Soilless culture requires maintaining optimal conditions for growth and development, appropriate climate management and the use of balanced irrigation solutions that meet the mineral requirements of certain crops and varieties. Plant cultivation in soilless cultures is one of the preferred alternatives for the control of soil-borne diseases and plant pests. The fertilizers containing the nutrients to be supplied to the crop are dissolved in the appropriate concentration in the irrigation water and the resultant solution is referred to as nutrient solution. Substrate culture in solid medium (organic and inorganic substrates) is one of soilless culture methods. It is a method basically applied in greenhouse cultivation but now a days used in open field conditions. Chrysanthemum, rose, gerbera, lily, tulip, anthurium, cyclamen, etc. being majorly grown ornamental plant under soilless system.

Keywords: Soilless culture, ornamentals,balanced irrigation, minerals, nutrient solution.

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18. Study of seasonal phytoplankton density in different sites of River Yamuna District Auraiya and Baghpat (U.P.)

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Abstract

Phytoplanktons are microscopic organism that live in aquatic environment and are crucial to the ecosystem. They are primarily responsible for photosynthesis, converting sunlight into energy, and producing oxygen. The seasonal phytoplankton density across the five sampling stations shows a clear seasonal trend, with the highest densities observed during the monsoon and the lowest during winter. In winter, phytoplankton density ranges from 3000 ind./L at Veejalpur to 3400 ind./L at Shergarh Ghat, indicating relatively low levels of phytoplankton during the colder months. This low density can be attributed to reduced light availability, lower temperatures, and limited nutrient availability, which generally inhibit the growth and reproduction of phytoplankton. During the spring season, phytoplankton density increases significantly across all sites, with values ranging from 5100 ind./L at Veejalpur to 5500 ind./L at Kakor Kalan. This increase is likely due to higher temperatures, increased sunlight, and the availability of nutrients from spring runoff, which create favorable conditions for phytoplankton growth. The monsoon season shows the highest phytoplankton densities, with values ranging from 7400 ind./L at Katha to 8000 ind./L at Shergarh Ghat. The monsoon rains provide an influx of nutrients, particularly nitrogen and phosphorus, which stimulate phytoplankton blooms, resulting in the highest densities during this season. In autumn, phytoplankton density slightly decreases compared to the monsoon but remains higher than in winter or spring, ranging from 5700 ind./L at Katha to 6000 ind./L at Shergarh Ghat. This reduction can be attributed to a decline in nutrient availability and lower water temperatures.
Keywords: Phytoplankton, River Yamuna.

Harnessing Emerging Technologies for Sustainable Okra Improvement: Innovations for Enhanced Productivity and Resilience

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Abstract

With the rising global demand for food and the growing challenges posed by climate change, sustainable agricultural practices have become essential for ensuring long-term food security. Innovative technologies are transforming the landscape of crop improvement, offering new strategies to boost productivity, resilience, and environmental sustainability. This paper focuses on the application of cutting-edge

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technologies in enhancing okra—a nutrient-rich vegetable that is crucial to food and nutritional security, especially in tropical and subtropical regions. Advanced genome editing tools like CRISPR-Cas9 allow for precise genetic modifications in okra, supporting the development of high-yielding varieties with improved resistance to diseases and enhanced tolerance to abiotic stresses such as drought, heat, and salinity.Technologies like high-throughput phenotyping and next-generation sequencing are accelerating the understanding of okra's genetic and physiological traits, thereby speeding up the breeding of superior cultivars. The integration of artificial intelligence (AI) and machine learning (ML) into agriculture further optimizes okra cultivation by predicting crop performance, improving management practices, and reducing input costs.Additionally, breakthroughs in synthetic biology and microbiome engineering are enabling the development of okra varieties with improved nutrient-use efficiency and reduced dependence on chemical fertilizers and pesticides. When combined with agroecological practices, these technological advancements offer a promising path toward enhancing okra production while minimizing environmental impact.However, the widespread adoption of these innovations requires careful consideration of ethical, regulatory, and socio-economic factors to ensure fair access and sustainable implementation. This paper explores the transformative role of emerging technologies in okra improvement and their potential contribution to more sustainable agricultural systems.

Keywords: Emerging technologies, crop improvement, okra, sustainability, CRISPR-Cas9, genome editing, high-throughput phenotyping, artificial intelligence, machine learning, synthetic biology, microbiome engineering, abiotic stress tolerance, agroecology.

The Role Of Incubation In Physics

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Abstract

Incubation plays a pivotal role in the advancement of physics by nurturing innovation, fostering collaboration, and enabling the development of transformative ideas. Scientific incubation involves sustained reflection on complex problems, allowing researchers to gradually refine theories and experimental methodologies. This approach has underpinned major historical breakthroughs—such as Einstein's theory of relativity and the emergence of quantum mechanics—demonstrating the power of deep, prolonged inquiry.In the modern era, physics incubators—including university laboratories, research institutions, and technological innovation hubs—serve as dynamic environments where scientists can explore hypotheses, exchange knowledge, and convert theoretical insights into practical applications. These spaces accelerate scientific discovery and help bridge the gap between fundamental research and technological advancement. Ultimately, incubation is essential not only for advancing physics but also for translating its discoveries into real-world impact.

Keywords: Incubation, Physics Research, Scientific Innovation, Theoretical Development, Experimental Breakthroughs, Research Incubators, Knowledge Collaboration.

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Waste Management and Recycling Strategies for Sustainable Development

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Abstarct

Waste management is considered to be closely associated with the goals of sustainable development. This paper highlights that traditional systems for waste disposal and recycling are increasingly inadequate in the face of modern challenges. Many developing and emerging countries are struggling to improve their inefficient and unsustainable waste management practices. As a result, soil, air, and water pollution continue to pose serious risks to environmental sustainability.The paper emphasizes that waste should no longer be disposed of in residential areas or through uncontrolled landfills. To address these issues, the study outlines the concept of the waste management hierarchy, which offers a structured approach to minimizing and managing waste effectively.In addition to discussing the hierarchy, the paper explores the benefits of adopting sustainable waste management strategies, such as environmental protection, resource conservation, and improved public health. It also acknowledges the various challenges faced in implementing these strategies, particularly in areas with limited infrastructure or public awareness.Importantly, the authors highlight that successful sustainable waste management requires the active involvement of all stakeholders, including local communities, governments, and private sectors. Such inclusive approaches are essential for developing long-term, effective solutions to the global waste crisis.

Keywords: Sustainability, Sustainable Development, Waste Management Hierarchy

Waste Management and Recycling Strategies for Sustainable Development

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Abstarct

As the world grapples with the escalating challenges of climate change, environmental degradation, and resource depletion, effective waste management and recycling have become critical components of sustainable development. A comprehensive, multi-faceted approach is essential—one that includes reduction, reuse, and recycling, alongside waste-to-energy technologies and environmentally sound disposal methods.By adopting these strategies, communities can significantly reduce greenhouse gas emissions, conserve finite natural resources, and mitigate pollution. Moreover, practices such as recycling and composting not only benefit the environment but also contribute to economic development by creating employment opportunities, stimulating local economies, and encouraging sustainable consumption patterns.

Ultimately, the integration of waste management and recycling within broader sustainable development frameworks offers a pathway to a healthier environment, long-term economic growth, and enhanced social well-being for current and future generations.

Key Words: Waste to energy, promote sustainability, mitigate pollution.

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Differential analysis of catalase and ascorbate peroxidase genes in metal induced Moringa oleifera Lam. seedlings

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Abstract

Heavy metal contamination is the major problem spreading worldwide as nonbiodegradable pollutant. The toxicity of metals creates major threat for primary and secondary consumer in environment and reaches to the top level consumers in the ecosystem through food chain. Therefore, the present study was performed to explore cadmium and lead induced metallothionein protein and antioxidant gene expression in *Moringa oleifera* leaves. Metallothioneins are nonezymatic cysteine rich low molecular weight (3-20) proteins which work in Cd and Pb homeostasis and detoxification. *M. oleifera* seedlings were treated with different concentrations (1 mM, 2 mM, 3 mM and 5 mM) of $CdCl_2$ and $Pb(NO_3)_2$ and kept under controlled photoperiod in green house. The expression of catalase and ascorbate peroxidase defence genes and metallothioneins polypeptides were investigated using SDS-PAGE gel electrophoresis and real time polymerase chain reaction at 10, 20, 30 and 40 days of stress period. The plants showed survivability upto 5 mM Cd and Pb concentrations and accumulated the maximum Cd and Pb content into roots than shoots and leaves at 5 mM Cd and Pb. Elevated level of metallothioniens polypeptides with increasing metal concentration (1 mM < 2 mM < 3 mM < 5 mM) was reported in treated leaves. The maximum metallothioneins content 95.99 µmol $g^{-1} \times 10^{-3}$ and 93.55 µmol $g^{-1} \times 10^{-3}$ at 30 days was highly prominent to assess the effects of 5 mM Cd and Pb. Among all concentrations the significant highest transcript level of CAT and APX 1.087 and 0.953 fold in leaves and 2.278 and 1.486 fold in roots at 40 days was measured to reduce free radicals and scavenging ions produced by 5 mM $CdCl_2$ while the expression 2.321 and 1.899 fold in leaves and 1.059 and 0.907 fold in roots against 5 mM Pb was also significantly elevated in *M. oleifera*. **Keywords:** *M. oleifera,* phytoremediation, heavy metals, ascorbate peroxidase

Effect of Combine Use of Organic and Inorganic Fertilizer on nutrient content, Gum and Protein Yield of Cluster Bean Under Cluster Bean-Barley Sequence

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Abstract

A field investigation was carried out for two consecutive years during *kharif* and *rabi* seasons at agriculture farm of R.B.S college, Bichpuri Agra. The experiment was laid out in randomized block design comprising of ten treatments with three replications. The treatments consisted T_1: control, T_2: 100% recommended dose of fertilizer (RDF), T_3: 75 % RDF, T_4: 50% RDF, T_5: 50% RDF+$ZnSO_4$ @ 20 kg ha^{-1}, T_6: 50% RDF+FYM @ 5 t ha^{-1}, T_7: 50% RDF+$ZnSO_4$ @ 20 kg ha^{-1} + FYM @ 5 t ha^{-1}, T_8: 75% RDF+$ZnSO_4$ @ 20 kg ha^{-1}, T_9: 75% RDF+FYM @ 5 t ha^{-1}, T_{10}: 75% RDF+$ZnSO_4$ @ 20 kg ha^{-1} + FYM @ 5 t ha^{-1}. The results exhibited that application of 75 % recommended dose along with 5 t FYM ha^{-1} and $ZnSO_4$ @ 20 kg ha^{-1} recorded highest mean values of N (2.62-0.79%), P (0.35-0.22%), K (0.71-0.86%) and Zn (22.27-17.12 mg kg^{-1}) in cluster bean seed and stover. The mean gum and protein yield of cluster

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bean was significantly influenced by different treatments. The significantly highest mean gum yield (316.3 kg ha^{-1}) and protein yield (194.6 kg ha^{-1}) was recorded in treatment consisting 75% RDF+$ZnSO_4$ @ 20 kg ha^{-1} + FYM @ 5 t ha^{-1} which was at par the treatment consisting 100 % recommended dose of fertilizer (301.1 kg ha^{-1}) and (180.9 kg ha^{-1}) respectively. In general, it was observed that the treatment consisting organic supplement (FYM @ 5 t ha^{-1}) recorded higher gum and protein as compared to without organic treatments. For instance, the treatment with 50% recommended dose of fertilizer without organic recorded 207.9 and 123.6 kg ha^{-1} gum and protein yield respectively while 50% RDF + 5 t FYM ha^{-1} showed enhanced gum yield of 230.8 kg ha^{-1} and protein yield of 138.9 kg ha^{-1}. However, organic in combination with zinc fertilizer has further elevated the yield levels *vis a vis* treatment without organic and zinc fertilizers. This indicated the role of organic and zinc fertilizer Zn deficient less fertile Alluvial soils of Agra district.

Conjunct use of Organic and Inorganic Fertilizer for Higher Yield and Economic Returns in Cluster bean -Barley

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Abstract

A biennial field investigation was carried out at agriculture farm of R.B.S college, Bichpuri Agra to investigate the effect of integrated nutrient management on growth yield and uptake of nutrient in cluster bean-barley crops. The experiment was laid out in randomized block design comprising of ten treatments with three replications. The treatments consisted T_1: control, T_2: 100% recommended dose of fertilizer (RDF), T_3: 75 % RDF, T_4: 50% RDF, T_5: 50% RDF+$ZnSO_4$ @ 20 kg ha^{-1}, T_6: 50% RDF+FYM @ 5 t ha^{-1}, T_7: 50% RDF+$ZnSO_4$ @ 20 kg ha^{-1} + FYM @ 5 t ha^{-1}, T_8: 75% RDF+$ZnSO_4$ @ 20 kg ha^{-1}, T_9: 75% RDF+FYM @ 5 t ha^{-1}, T_{10}: 75% RDF+$ZnSO_4$ @ 20 kg ha^{-1} + FYM @ 5 t ha^{-1}. The experimental soil was alkaline in soil reaction having low available nutrient status and deficient in Zn content. The integrated use of organic and inorganic fertilizers along with Zn supplement through $ZnSO_4$ not only saved the fertilizer input cost in marginal soil of Agra but also produced comparable yield with 100% recommended dose of fertilizer in both the crops. The data indicated the treatment 75% RDF+$ZnSO_4$ @ 20 kg ha^{-1} + FYM @ 5 t ha^{-1} recorded highest seed yield of cluster bean 11.8 and 11.9 q ha^{-1} which was at par with 100% recommended dose of fertilizer during 2011-12 and 2012-13 respectively. Likewise, the following barley crop registered significantly enhanced grain yield due to application of 75% RDF+$ZnSO_4$ @ 20 kg ha^{-1} + FYM @ 5 t $ha^{-1}$to the tune of 43.6 during 2011-12 and 43.9 q ha^{-1} during 2012-13 over all the other treatments however, at par with 100% recommended dose of fertilizer. The mean data on economics applied to cluster bean-barley crops as influenced by different integrated approach revealed that the maximum B:C (1.39) and gross returns (38,388 Rs. ha^{-1}) in cluster bean and B:C ratio (2.0) and gross returns (52.035 Rs. ha^{-1}) in barley was found in treatment with 75% RDF+$ZnSO_4$ @ 20 kg ha^{-1} + FYM @ 5 t ha^{-1} which was followed 100 % recommended dose of fertilizer in cluster bean.

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Effect of cationic micelles of cetyl trimethyl ammonium bromide on the reaction of hydroxide ion with mono-4-ethyl aniline phosphate ester

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Abstract

The micellar catalysed reactions between hydroxide or hydroperoxide anion and mono-phosphate ester of 4-EAPE has been examined in buffered medium (at pH 8.0-10.0) with borate ions. First order rateconstant (Kψ) for the reaction of OH- with 4-EAPE go through maxima increasing with the concentration of cetyl tri methy ammonium bromide (CTABr). Micelles of CTABr are very effective catalysts to the reactions of phosphate mono ester. cationic detergent CTABr have been investigated at 40±0.50C. Key word Micelles, Micellar catalysis, MONO-4-EAPE, CTABr.

Impact of sustainable forming practices in food security and environment changes

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Abstract

The sustainable agriculture, which aims to uphold or enhance agricultural productivity while reducing environmental degradation. Fundamental principles include crop rotation, organic farming, and reduced pesticide use. Furthermore, sustainable land use practices like reforestation and agroforestry can sequester carbon, improve soil health, and aid in climate change mitigation. Sustainable agriculture offers numerous benefits over intensive farming. It promotes environmental conservation, energy savings, public health safety, and pollution prevention. Agriculture is very sensitive to weather and climate. It also relies heavily on land, water, and other natural resources that climate affects. While climate changes (such as in temperature, precipitation, and frost timing) could lengthen the growing season or allow different crops to be grown in some regions. The effects of climate change on agriculture will depend on the rate and severity of the change, as well as the degree to which farmers and ranchers can adapt. U.S. agriculture already has many practices in place to adapt to a changing climate, including crop rotation and integrated pest management. A good deal of research is also under way to help prepare for a changing climate. Climate change can affect crops, livestock, soil and water resources, rural communities, and agricultural workers. The agriculture sector also emits greenhouse gases into the atmosphere that contribute to climate change. Climate change can affect crops, livestock, soil and water resources, rural communities, and agricultural workers. The agriculture sector also emits greenhouse gases into the atmosphere that contribute to climate change. Sustainable agriculture is crucial in addressing the intertwined challenges of climate change, food security, and environmental degradation. Adopting its practices can ensure a healthier planet and a sustainable future for coming generations. **Keywords:** Sustainable Agriculture , Food security, Climate Changes

Empowering Women in Agriculture and Food Security in India: A Critical Analysis and Exploring the Challenges and Opportunities

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Abstract
Women play a vital role in agriculture, contributing significantly to food security and rural livelihoods. However, their participation in agriculture is often hindered by socio-cultural, economic, and institutional barriers. This study examines the challenges and opportunities for women's participation in agriculture, with a focus on developing countries. Our analysis reveals that women's participation in agriculture is influenced by factors such as land ownership, access to credit and markets, and social norms. We also identify opportunities for empowering women in agriculture, including training and capacity-building programs, collective action, and policy reforms. Our findings highlight the need for a more inclusive and equitable approach to agricultural development, one that recognizes the critical role of women in achieving food security and sustainable rural development.Women also play a crucial part in ensuring food security in India, contributing significantly to agricultural production, processing, and distribution. Despite their critical involvement, women face numerous challenges, including limited access to resources, restricted decision-making power, and heavy workloads. This study examines the role of women in food security in India, highlighting their contributions, challenges, and opportunities. Our analysis reveals that empowering women is crucial for achieving food security in India and recommends policy and programmatic interventions to support women's participation in agriculture and food systems.
Keywords: Women's participation, empowerment, food security, rural development, Women's empowerment, food security, agriculture, sustainable development.

The effect of PGR and micronutrient on growth and fruit yield of winter season guava (psidium guavajava) Cv.L-49

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Abstract
The study revealed that the highest yield and quality attributes of guava cv. L-49 were achieved with the foliar spray of **ZnSO4@0.3% +CuSO4@0.4% +GA 3 15 ppm.**
Guava (Psidium guajava L.), botanically, guava belongs to the family Myrtaceae. This fruit is a native of tropical America and extensively grown in South Asian countries. The fruit quality of winter season is better than that of rainy season. PGRs play a significant role in many physiological phenomena, Various type of PGR and micronutrients like CuSO4,ZnSO4,GA 3 and have been reported to be used for improving the flowering, fruit size and quality of fruit as well as yield. These are used in vegetative propagation, artificial induction of seed lessness. A field experiment was conducted during 2003-2004 at Horticulture Research Farm-Orchard of Janta College Bakewar Etawah on 20-year-old guava plants, effect of foliar spray of Micronutrient and plant growth regulators on physical parameter of guava (Psidium guajava L.) cv. L-49. Experiment was laid out in Randomized Block Design with three

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replications revealed that yield (q/ha) Specific gravity of fruit. Total soluble solids (0 Brix), Acidity, Ascorbic acid, total sugar, reducing sugar, non-reducing sugar and were maximized when foliar spray was done with GA 3 15 ppm. respectively. This study aimed to investigate the effects of PGRs and micronutrients on fruit set, retention, and drop in winter season guava (L49).The results showed that GA3(Gibralic Acid) and a specific micronutrient combination significantly improved fruit set, retention, and drop in winter season guava (L49). This study highlights the effectiveness of Ga3 and a specific micronutrient combination in enhancing fruit set, retention, and drop in winter season guava (L49), providing valuable insights for guava growers and researchers.
Keywords: PGRs, Micronutrients, Fruit set, Retention, Drop, GA3.

Valuation of Sensex 30 Companies

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Abstract

Current market price of stock is the price of the stock prevailing in the market. Investors buy and sell securities at the price prevailing in the market. There is difference between value and the price. Price is what you pay, value is what you get. Value of the stock may be more or less than the current market price due to upward and downward movements in the company and the economy. There is systematic and unsystamic risk attached to the business in the environment in which it operates. Investors are interested in finding out margin of safety in buying decisions. Investors invested money to buy the piece of business to get returns in the future. So, before investment one should find the underlying value of the stock. There are various methods and techniques used to find the value of the stock. It includes Price Earnings Ratio, Price Earning Growth Ratio, Price to Book Value Ratio, Price to Sales Ratio, Return on Equity, Return on Capital Employed, Earning Growth, Dividend Yield Ratio, Reinvestment Rate, Enterprise Value to EBITDA Ratio, Price to Cash Flows & Pay Back Period etc. So, one should screen the stock on the basis of above mentioned ratios before taking investment decisions. As per Warren Buffet first rule, Investor should first protect their capital and second rule is to follow the rule number one. Before investment, we have to identify how wealth has been generated by these organizations in the past and the parameters which allow us to take the position for the future. In this research paper, author will make a comparison of Sensex 30 companies by the use of various financial ratios to identify current value parameters of those companies and to find best companies for investment.

Key Words: Valuation, Fundamental Analysis, Sensex 30 Companies

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The Effect of Foliar Application of Boron, Zinc Sulphate and Water Soluble NPK On Fruit Set, Yield and Quality of Guava (*Psidium guajava* L.) cv. L-49

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Abstract

The present investigation was carried out during the year 2023-2024 in Janta College Bakewar, Etawah, department of horticulture. The experiment was conducted in Factorial Randomized Block Design (FRBD) with 3 replications. A field experiment was escort to assess the effect of foliar application of zinc sulphate, boron and water soluble NPK with the treatment combination of T_0 = Zinc sulphate 0% + Boron 0% + water soluble NPK 0% (control), T_1 = Zinc sulphate 0% + Boron 0% + water soluble NPK 1%, T_2 = Zinc sulphate 0.25% + Boron 0% + water soluble NPK 0%, T_3 = Zinc sulphate 0.25% + Boron 0% + water soluble NPK 1%, T_4 = Zinc sulphate 0.5% + Boron 0% + water soluble NPK 0%, T_5 = Zinc sulphate 0.5% + Boron 0% + water soluble NPK 1%, T_6 = Zinc sulphate 0% + Boron 0.3% + water soluble NPK 0%, T_7 = Zinc sulphate 0% + Boron 0.3% + water soluble NPK 1%, T_8 = Zinc sulphate 0.25% + Boron 0.3% + water soluble NPK 0%, T_9 = Zinc sulphate 0.25% + Boron 0.3% + water soluble NPK 1%, T_{10} = Zinc sulphate 0.5% + Boron 0.3% + water soluble NPK 0%, T_{11} = Zinc sulphate 0.5% + Boron 0.3% + water soluble NPK 1%, T_{12} = Zinc sulphate 0% + Boron 0.6% + water soluble NPK 0%, T_{13} = Zinc sulphate 0% + Boron0.6% + water soluble NPK 1%, T_{14} = Zinc sulphate 0.25% + Boron 0.6% + water soluble NPK 0%, T_{15} = Zinc sulphate 0.25% + Boron 0.6% + water soluble NPK 1%, T_{16} = Zinc sulphate 0.5% + Boron 0.6% + water soluble NPK 0%, T_{17} = Zinc sulphate 0.5% + Boron 0.6% + water soluble NPK 1% on fruit setting, yield and quality of guava Cv. L-49". Fruiting characteristics like Fruit set (%), Fruit retention (%), Days taken to first harvesting (Maturity days), Number of fruits per tree. Physical characteristics of fruit such as Length of fruit (cm), Diameter of fruit (cm), Weight of fruit (g), Volume of fruit (cc), Specific gravity of fruit (g/cm^3). Quality characteristics of fruit are TSS (^{0}Brix), Acidity (%), Ascorbic acid (mg/100g pulp), TSS/Acid ratio, Number of seeds per fruit, Reducing sugar (%), non-reducing sugar (%), Total sugar (%). Yield characters are Yield (kg/plant), Estimated yield (t/ha). The foliar spray of (Zinc sulphate 0.5% + Boron 0.6% + water soluble NPK 1%)concentrations given more superior fruit setting, yield and quality of guava fruits and followed by Zinc sulphate 0.25% + Boron 0.6% + water soluble NPK 1% whereas, the control was recorded the lowest percentage on fruit setting, yield and quality of guava fruits.

Keywords: Zinc sulphate, Boron, water soluble NPK, kg- Kilogram, TSS- Total soluble solid.

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Climate Smart Irrigation Practices for Improving Water Productivity in India: A Comprehensive Review

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ABSTRACT

India, supporting 17% of the global population, from limited land (2.4% of the world's total) and freshwater resources (4%), faces severe water scarcity issues. The country experiences heightened challenges due to a monsoon climate leading to floods and droughts. Irrigation efficiency in India is 35-40% and irrigated area ~48.9%. To meet the demands of a large or growing population in limited land and water resources, climate-smart irrigation practices (CSIPs) are imperative. These practices not only increase yield but also precisely supply water, reduce water application volume, and enhance soil health under changing climate conditions. Precision water management technologies includes; advanced agro-techniques, micro-irrigation, conservation agriculture, crop diversification, Review Article Kumar et al.; Int. 334 integrated farming systems, and water harvesting. Micro-irrigation, encompassing drip and sprinkler systems, emerges as a critical solution for efficient water use. Techniques like Surface Drip Irrigation and Sub-surface Drip Irrigation (SSDI) not only save water but also enhance nutrient transport and reduce labour costs. The automation of micro-irrigation through sensors and wireless communication revolutionizes traditional practices, ensuring precise water management and boosting agricultural productivity. In addition, advanced agro-techniques, including laser land levelling, furrow-irrigated raised beds, aerobic rice cultivation, system of rice intensification, ground cover cum rice production system and Saguna rice technique have good potential to save water and improve water productivity. Implementing these advanced agro-techniques not only conserves water but also contributes to sustainable agriculture by improving overall water productivity, reducing environmental impact, and enhancing crop productivity. The integration of conservation agriculture (minimum soil disturbance, crop residue cover and crop diversification), integrated farming systems (combine diverse agricultural activities synergistically), and water harvesting is imperative for sustainable water management. This review paper systematically compiles climate-smart irrigation practices, including precision water management, combined with conservation agriculture, crop diversification, integrated farming systems, and water harvesting. This review paper offers researchers a comprehensive understanding of different CSIPs, assessing their impact on water conservation, increased crop and water productivity, and sustainability amid climate change. Farmers can gain practical understandings of CSIPs, while policymakers obtain essential information for addressing national water mission goals.

Keywords: Automation, climate change, food security, fresh water, micro irrigation, smart irrigation, water productivity.

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Application of Plant Growth Regulators to improve Fruit Yield and Quality in Indian Gooseberry (*Emblica oficinalis Gaertn*.)

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ABSTRACT

The present investigation was conducted at Janta College Bakewar, Etawah, department of horticulture, the investigation was undertaken on the field experiment was escort to assess the application of plant growth substances on bearing trees of aonla cultivar Narendra Aonla-6 significantly increased fruit retention. The minimum fruit drop was recorded with the use of NAA (15 ppm) + Thiourea (0.1%) followed by 2,4-D (10 ppm) + Thiourea (0.1%) and GA_3 (50 ppm) + Thiourea (0.1%). The maximum increase in size, weight and volume of fruits and the maximum fruit yield were noted on trees sprayed with NAA (15 ppm) + Thiourea (0.1%). The improvement in fruit quality parameters (TSS, ascorbic acid, sugars and acidity) was highest with the application of GA_3 (50 ppm) + Thiourea (0.1%) which showed non- significant difference with NAA (15 ppm) + Thiourea (0.1%). Results revealed that the foliar application of NAA (15 ppm) + Thiourea (0.1%) or GA_3 (50 ppm) + Thiourea (0.1%), twice during mid-May and mid-July, may effectively overcome the problem of fruit drop leading to higher yield of quality fruits. Whereas, the control was recorded the lowest percentage on all the characteristics.

Keywords: Indian gooseberry, fruit drop, yield, plant growth regulators, aonla.

Effect of Foliar Application of NAA, GA3 and Zinc Sulphate on Fruit Drop, Growth and Yield of Ber (*Zizyphus mauritiana Lamk*.) cv. Banarasi Karaka".

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Abstract

The present investigation was undertaken on the field experiment was escort to assess the effect of foliar application of NAA, GA_3 and Zinc Sulphate on fruit drop, growth and yield of ber *(Zizyphus mauritiana Lamk.)* cv. Banarasi Karaka, the research work was conducted at Janta College Bakewar, Etawah, department of horticulture on 15 years old uniform trees of ber. The experiment was conducted in randomized block design with ten treatments comprising of each three levels of NAA @ 10, 20 and 30

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ppm, GA_3 @ 20, 30 and 40 ppm and Zinc Sulphate @ 0.2, 0.4 and 0.6 % and control (water spray), respectively. Spray was done in month of November at fruit setting stage. The results clearly showed that the foliar spray of $ZnSO_4$ @ 0.6% proved most effective in recording maximum initial fruit setting (166), fruit retention (14.89%) and minimum fruit drop (85.11%). The spray of GA_3 at 20 ppm resulted in maximum fruit length (4.46 cm), fruit width (2.79 cm), fruit volume (15.40 cc), fruit weight (18.68 g) and weight of fruit pulp (16.64 g). It was also observed that the foliar spray of ZnSO4 @ 0.6% was proved to be most effective in recording maximum fruit yield per tree (56.22 kg).Whereas, the control was recorded the lowest percentage on fruit set, fruit retention (%), fruit drop (%), length of fruit (cm), width of fruit (cm), fruit volume (cc), fruit weight (g), weight of fruit pulp (g), yield (kg/tree).

Keywords: Ber, NAA, GA3, ZnSO4, Fruit.

Development of Okra Varieties with Improved Fruit Texture and Shelf Life

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Abstract

Okra (*Abelmoschus esculentus*) is a popular vegetable crop worldwide, but its short shelf life and soft fruit texture limit its marketability and consumer acceptance. This study aimed to develop okra varieties with improved fruit texture and shelf life through a breeding program.A breeding population of 200 okra genotypes was evaluated for fruit texture, shelf life, and other desirable traits. Selected genotypes were crossed to combine desirable traits, and the resulting progenies were evaluated for improved fruit texture and shelf life.Results showed that the developed okra varieties exhibited significant improvements in fruit texture (increased firmness and crispness) and shelf life (extended by 3-5 days). The new varieties also demonstrated enhanced yield, disease resistance, and nutritional quality.The developed okra varieties with improved fruit texture and shelf life have the potential to increase okra's marketability, reduce post-harvest losses, and improve consumer satisfaction.

Investigating the Effects of Integrated Nutrient Management (INM) on Tomato Crop Water Use Efficiency and Drought Tolerance

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Abstract

Water scarcity and drought are major constraints to tomato crop productivity worldwide. Integrated Nutrient Management (INM) has been recognized as a potential strategy to improve crop water use efficiency and drought tolerance. This study investigated the effects of INM on tomato crop water use efficiency and drought tolerance.A field experiment was conducted using a randomized complete block design with four treatments: (1) control (no fertilizer), (2) inorganic fertilizer (NPK), (3) organic fertilizer

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(compost), and (4) integrated nutrient management (INM) combining NPK and compost.Results showed that INM significantly improved tomato crop water use efficiency (WUE) by 25% and drought tolerance by 30% compared to the control treatment. The INM treatment also resulted in higher yields, improved fruit quality, and enhanced soil health.The study demonstrated that INM can be an effective strategy to improve tomato crop water use efficiency and drought tolerance, contributing to sustainable agriculture practices and food security.

NEW IDENTITIES OF FIBONACCI SEQUENCE AND LUCAS NUMBERS

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Abstract

This paper describes about some new identities of Fibonacci sequence and Lucas numbers which are proved mathematically. The first proposition proves an equation using summation of every third term of Fibonacci sequence starting from two, and second proposition proves an equation using summation of consecutive odd positioned Lucas numbers starting from three. These identities are also proved programmatically using python language in this paper.

Keywords Fibonacci series and Lucas numbers

Agricultural Innovation and Business: Driving Sustainable Growth and Economic Transformation

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ABSTRACT

Agriculture is undergoing a rapid transformation driven by innovation and business advancements. As the global population grows and environmental challenges intensify, the need for sustainable, technology-driven solutions in agriculture has become imperative. Innovations in agricultural practices, combined with modern business strategies, are reshaping the sector, improving productivity, efficiency, and profitability while promoting environmental sustainability. Agricultural innovation encompasses a wide range of advancements, including precision farming, biotechnology, automation, artificial intelligence, and smart irrigation. These technologies enable farmers to optimize resource use, enhance crop yields, and reduce waste. The integration of data analytics, remote sensing, and Internet of Things (IoT) applications allows real-time monitoring and decision-making, leading to more efficient farming practices. Startups and agripreneurs are creating value-added products, developing innovative financial models, and introducing smart farming solutions that benefit both smallholder farmers and large-scale agricultural enterprises. Incubation centers, research institutions, and investment firms are actively

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supporting agricultural innovation by providing funding, mentorship, and infrastructure. Government policies and international collaborations further promote innovation-driven agribusiness growth, fostering an ecosystem that bridges scientific research with commercial application. The convergence of agricultural innovation and business is revolutionizing the industry, ensuring food security, economic growth, and sustainability. By fostering a culture of innovation, entrepreneurship, and investment, the agricultural sector can address global challenges and create new opportunities for future generations.

Keyword: Agricultural Innovation, Agribusiness, Precision Farming, Smart Agriculture, Biotechnology, Automation in Farming, Agricultural Sustainability, Agricultural Investment, Agri-Startups

An efficient wavelet-based physics-informed neural networksforsingularlyperturbedproblems

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Abstract

Physics-Informed Neural Networks (PINNs) are a class of deep learning models that incorporate physical laws, typically in the form of differential equations, to solve complex problems—even in cases where data availability is limited. However, traditional PINNs often face challenges when dealing with solutions that exhibit rapid oscillations, steep gradients, or singular behavior.To address these limitations, we propose an efficient wavelet-based PINNs (W-PINNs) framework specifically designed to handle this class of differential equations. In this approach, the solution is represented in the wavelet space using a family of smooth, compactly supported wavelets. This representation significantly reduces the degrees of freedom required, while preserving the essential dynamics of complex physical systems.The architecture of W-PINNs allows the training process to operate directly within the wavelet space, thereby enhancing both computational speed and accuracy. Notably, the proposed model avoids reliance on automatic differentiation for calculating derivatives in the governing equations and does not require prior information about the solution behavior, such as the locations of discontinuities or steep transitions.By integrating wavelet theory with PINNs, W-PINNs excel in capturing localized, nonlinear features, making them particularly well-suited for singularly perturbed and multiscale problems—where abrupt changes occur in specific regions of the domain.The effectiveness and robustness of the W-PINNs model are demonstrated through a variety of one-dimensional (1D) and two-dimensional (2D) benchmark problems. These include the FitzHugh–Nagumo (FHN) model, the Helmholtz equation, the Maxwell equation, the Allen–Cahn equation, and other highly nonlinear and singular differential equations. Across all tested cases, the W-PINNs consistently outperform traditional PINNs, recently developed wavelet-based PINNs, and other state-of-the-art numerical methods.

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A generalised class of analytic function defined by q – analogue of fractional calculus operator

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Abstract

The aim of this paper is to introduce a generalized class of analytic function defined by q-analogue by using fractional calculus operator. We obtain coefficient estimate, distortion theorems, radii of close to convexity, starlikeness and convexity for functions belonging to the class $\boldsymbol{TB_q^{\lambda}(\alpha,\beta)}$ of analytic starlike and convex functions defined by q−analogue of fractional differential operator. We further show that closure theorems, $N_{k,q,\delta}(e,g)$ neighborhood and partial sums for functions in this class.

Study on Reproductive Biology of the striped murrel *Channa striata* (Bloch, 1793)

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Channa striatus is an important fish species for many purposes locally known as with several names like snakehead, sor, souri, sol etc. *Channa striatus* is predatory in nature and having aggressive behavior against their prey, they prey on small aquatic animals and small fishes but it can also feed on other animals such as frogs, insects, earthworms, tadpoles and crustaceans etc. based on the availability of types of food. It is a fresh water fish with several medicinal and wound healing properties so its use in medicine and pharmaceutical properties. It is an important food fish of Indian subcontinent and Asia-pacific region. The maximum body growth of *Channa striatus* is 30 kg in weight and 183 cm in length. For present study about 80 fish specimens were collected from the local fish markets and available water bodies in the nearby Etawah District. Fish transported to lab my aerated water tank and dissected for the extraction of gonads and other reproductive organs. GSI of male and female calculated by measured of gonad and body weight. During study most of fishes having length about 35 ± 5 cm this length generally observed in both of the conditions like natural as well as captive conditions and the weight of fishes founded mostly from 340 gm to 700 gm. The average weight of the fishes was 478.38 ± 8. This study provides the basic idea of the further research on the reproductive biology of the fish.

Key words; *Channa striatus*, Reproductive biology sexual determination, GSI, Male & Female

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Comparative Analysis of Organic and Inorganic Fertilizers on Chilli Crop (*Capsicum annum*)Yield and Quality.

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Semester :- 3rd

Abstract

A field experiment was conducted to evaluate the impact of organic and inorganic fertilizers on the yield and quality of chilli crops. The study compared the effects of cow dung, vermicompost, and poultry manure (organic fertilizers) with urea, diammonium phosphate, and potassium chloride (inorganic fertilizers) on chilli crop yield and quality parameters. The results revealed that the application of organic fertilizers significantly improved the yield (25.6%), fruit length (12.5%), and fruit weight (15.1%) of chilli crops, with vermicompost showing the highest increase. In contrast, inorganic fertilizers showed a lower yield increase (15.6%) and reduced fruit quality. The study concludes that the use of organic fertilizers, particularly vermicompost, can be a sustainable and effective approach to improving chilli crop yields and quality.

Keywords: chilli crop, organic fertilizers, inorganic fertilizers, vermicompost, yield increase, fruit quality.

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Effect of NPK, Boron and Sulphur Application on Growth and Yield of Potato (Solanum tuberosum L.)

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Abstract

The current study was conducted in October of 2023–2024 and 2024–2025 to examine the impact of boron and sulphur application on potato plant morphology and yield . Three replications and seventeen treatments were included in the randomized block design of the experiment. 3 doses of boron (1 kg, 2 kg and 3 kg) and Two doses of sulphur (15 kg and 30 kg) and the combinations of them (1 kg boron + 15 kg sulphur, 2 kg boron + 15 kg sulphur, 3 kg boron + 15 kg sulphur, 1 kg boron + 30 kg sulphur, 2 kg boron + 30 kg sulphur, and 3 kg boron + 30 kg sulphur) were applied, as well as one control and one recommended dose of fertilizers (N/P/K: 150/80/100 kg ha-1) as well as the 16th treatment combinations and the recommended dose of fertilizers (RDF). The study found that the application of boron and sulphur had a substantial impact on the morphology and yield of potato plants. During the two study years, the plants treated with RDF + 2 kg Boron + 30 kg Sulphur had the highest plant height and marketable tuber output (17.60 t ha-1 and 26.50 t ha-1). Additionally, RDF + 2 kg Boron + 30 kg Suphur was determined to be statistically equivalent to the highest values under the following characters number of marketable tubers/hill, stem diameter, and number of sprouts per tuber.

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The Study of Yield Related Traits Which Affecting Yield in Pulse Crops

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Abstract

Root, stem, leaf, flower, fruit etc. parts of the plant are of human importance and their resultant part is the yield. In leguminous crops, Number of primary branches, Number of secondary branches, Number of leaves per plant, Photosynthetic area, Type of leaves, Ratio of infertile and fertile flowers, Number of pods per plant, Length of pod, Number of grains in pod and Test weight are the main yield determining factors. Pods and Grains are the basic produce of leguminous crops. Number of pods per plant, Number of grains per pod and Test weight directly affect to the yield. Whereas, Number of primary branches in plants, Number of secondary branches, Number of leaves per plant, Photosynthetic area of leaves and Type of leaves are indirect factors which provide basic substances in the form of base and synthetic substances to the yield related factors. Photosynthetic area has a positive relationship with grain production increase. It has been observed in pulse plants that before flowering, the Number of active branches and Photosynthetic area are high and after flowering both decline rapidly. It has also been observed in pulses that initially infertile flowers are formed and later fertile ones due to which cause the Number of pods per plant, Grain yield decreases. After flowering rapidly decrease in Photosynthetic area and Number of branches due to the yield of pods and grains decreases.

Key: Pulses, yield related traits and yield

To Study the Challenges and Opportunities in Global Trade and Business Expansion

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Global trade and business expansion present a dynamic landscape filled with both challenges and opportunities. As companies look to grow internationally, they encounter several hurdles that can impact their success. One of the primary challenges is navigating diverse regulatory environments. Each country has its own set of trade laws, tariffs, and regulations, which can make compliance complex and time-consuming. Political instability or shifting trade policies can also lead to disruptions in supply chains and business operations. Additionally, cultural differences pose challenges in communication and consumer behavior, requiring companies to adapt their marketing strategies and management styles. Another significant challenge is currency fluctuations, which can affect profits and cost structures. A volatile exchange rate may lead to unexpected losses, especially for businesses with international operations or customers. However, alongside these challenges, there are numerous opportunities for companies to capitalize on. The rise of digital technologies has facilitated easier communication and business transactions across borders, enabling businesses to reach new markets with minimal investment. E-commerce platforms and online marketplaces also offer businesses the chance to tap into a global customer base without the need for a physical presence in every market.

Keywords: Global Trade, Business Expansion, Political Instability, E-commerce Platforms, International Operations, Minimal Investment, Communication.

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Smart Farming in Dairy Sector

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Abstract

The latest spiral in world population has subsequently been the cause of an increase in dairy demand accordingly giving rise to the global hunger issues. The global hunger problem translates to some parts of the world population facing chronic food impoverishment and malnutrition in the form of nutrient and micronutrient deficiencies as well as shortfalls in vitamins and essential metals. In reduce the global hunger problem, the Smart Dairy Farming paradigm is leveraging sensors, Internet of Things (IoT), broadband technologies and data analytics to craft innovative solutions and systems. These innovations are crafting systems which are derived from applying Machine Learning (ML) algorithms on the big data generated from the numerous sensors and IoT equipment in the dairy farm. Specifically, the innovative solutions are aimed at not only improving milk yields but also enhancing the efficiency of the dairy process. At the product level, the innovative systems strive to increase milk production by deploying robotic milking systems that milk the cow, analyze the milk, process the milk, and preserve it. At the process level, the systems are concerned with the health and welfare of the very cow producing the milk as they can monitor cow movement, feed, and health.

Key-words- smart, dairy, technology, farming.

Cancer: Causes, Effects and Research Approaches

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Abstract

Cancer is a complex & multifaceted disease characterized by uncontrolled growth and development of cells in the body, and is one of the foremost reasons of deaths throughout the worldwide. There are over 100 different types of cancers that are categorized on the basis of the affected tissue or organ of the human body. Cancer, a multifactorial malady involves multifarious changes in the genome due to interactions with the individual's environment. The hallmarks of the cancer are uninhibited replication, inability to respond to growth signals, resulting in arrest of the cell division, continuous angiogenesis, resistance to apoptosis, and the ability to infiltrate other tissues. Currently, cancers can be cured by means of both conventional tonic approaches, i.e., surgery, radiation therapy and chemotherapy, and nonconventional or complementary therapeutic methods, including hormonetherapy, immunotherapy, nanotherapy, etc. This study explores the fundamental causes of cancer, including genetic mutations, environmental factors and lifestyle influences. This Abstract provides a concise overview of the current landscape of cancer research, highlighting key challenges and promising avenues for future interventions.

Key words: cancer, genome, angiogenesis, apoptosis, therapeutics, immunotherapy, nanotherapy, genetic mutation.

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Combating antibiotic resistance

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Abstract

Microbial Antibiotic resistance poses a significant threat to global health, arising from the ability of microorganisms, primarily bacteria, to withstand the effects of antibiotic drugs. The resistance emerges microbes to neutralize , expel or bypass antibiotics via mechanism like enzymatic inactivation, target modification & effluent pump. The overuse and misuse of antibiotics , both in human and veterinary medicines are primary drivers of this phenomenon, creating selective pressure that favours the survival and proliferation of resistant strains. The consequences of antibiotic resistance are severe, leading to increased treatment failures, pronged hospital stays, higher Healthcare costs and elevated mortality rate furthermore. Combating antibiotic resistance requires a multifaceted approach. Enhancing infection control measures developing novel antibiotics and implementing robust surveillance systems are also essential components. Collaborative efforts across Healthcare Agriculture and policy sectors are necessary to mitigate the impact of this growing crisis and ensure the continued effectiveness of antibiotics for future generations.

Key words: Antibiotic resistance, Genetic adaptation, Enzymatic inactivation, Target modification, Efflux pumps , Veterinary medicines , Resistant strains, Mortality rate .

Effect of PGRs (NAA, GA_3) and Zinc on growth , flowering and corm yield in gladiolus (*Gladiolus grandiflorus* L.) Cv. Nova Lux.

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Abstract

The present investigation entitled "Effect of PGRs (NAA, GA_3) and Zinc on growth , flowering and corm yield in gladiolus (*Gladiolus grandiflorus* L.) Cv. Nova Lux" was laid out at Janta College Bakewar, Etawah.An important role of flower in human's life that is used to convey emotions and thoughts. Flowers are associated with mankind since the dawn of the civilization. They are symbol of love, beauty and tranquility. In India, we have been growing and using flowers for time immemorial. Flowers have become integral part of our day to day life. Gladiolus (*Gladiolus grandiflorus* L.) particularly known as the Sword Lily belongs to Iridaceae family. It is one of the most important bulbous flowers in India as well as in many parts of the world. It has been rated as the fifth most popular flower in the world, especially from the commercial point of view. The total area under gladiolus is 11450 ha with the production of 259.75 million tonnes. 10.45 million tonnes use as a loose flower and 249.30 million tonnes use as a cut flower.(NHB 2021-22), Gladiolus occupied about 0.05 percent of the total cut flowers produced which is too much less. The major gladiolus producing states in the country are Uttar Pradesh, West Bengal, Odisha, Chhattisgarh, Haryana & Maharashtra. Gladiolus is also grown in states like Uttarakhand, Karnataka, Andhra Pradesh and Sikkim.

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The experiment was conducted in Randomized Block Design (RBD) with three replications. A field experiment was escort to assess the effect of NAA (50 ppm, 100 ppm, 150 ppm), GA_3 (100 ppm, 150ppm, 200 ppm) and $ZnSO_4$ (0.2%, 0.4%, 0.6%) on growth , flowering and corm yield in gladiolus (*Gladiolus grandiflorus* L.) Cv. Nova Lux. The result revealed that the treatment of GA_3 @200 ppm (t5) attributed to superior results regarding the Plant height, Number of shoots, Length of spike, Number of florets per spike, Flower quality and Yield over all other treatments.

Keywords: Gibberellic acid, Nephtheline acetic acid, Randomized block design.

The Practices of Sustainable Agriculture for Food Security

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Abstract

The integrated system of sustainable agriculture concept was first introduced in agriculture and other sectors by USDA(1977). That means the concept can meet human needs for a long time and it should be eco-friendly. At present, the world's population is growing at a very rapid pace, so there will be a need for a lot of food supply. The overproduction in a limited area has a profound impact on the quality of soil, thereby reducing the ability to increase agricultural productivity in the future. The only way to maintain the quality of soil is to adopt an integrated system of sustainable agriculture. To move human society away from modern practices of agriculture and adopt innovative sustainable practices that can lead to a better society. The use of such techniques of agriculture to protect the environment that protects the environment for future generations, as well as paves the way for the economic development and sustainability of agriculture with minimal disruption to human life. The only solution is an integrated system of sustainable agriculture. Instead of the use of chemical fertilizers and pesticides, the use of organic manure and green pesticides and weedicides will be appropriate. Intensive farming is an important system, but crops that do not compete with each other should be used. For example, pulse crops fix nitrogen in which no separate nitrogen is required but also provides ammonia and nitrate in the soil for the next crop. Today human population increase regularlyand area of cultivated land is decrease. In this situation, Intensive agriculture is the only way to increase productivity. But keep in mind that intensive agriculture should be eco-friendly. Sustainable agriculture is based on environmental aspects that provide stability to the ecosystem. Preventing soil erosion, improving water absorption and holding capacity, storing carbon, increasing biodiversity, etc are essential for stable ecosystems. The use of animal dung and crop waste and domestic waste is important to increase the quality of soil as well as to keep the environment clean. The world's population is constantly increasing, in this situation food security is a major challenge. In this context, our main goal is to increase agricultural productivity sustainably and improve the food supply chain to provide nutritious food throughout the year to all those who suffer from hunger and malnutrition. Sustainable agriculture paves the way for food security. Empowering small farmers, eradicating poverty at the village level, promoting gender equality, ensuring healthy lifestyles, combating climate change, etc. truly ensures the concept of food security.

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Agri-based Cooperatives and Rural Entrepreneurship

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Abstract

Agriculture remains the primary livelihood source for millions in rural areas, yet small and marginal farmers often struggle with low productivity, poor market access, and financial instability. Agri-based cooperatives play a crucial role in addressing these challenges by fostering rural entrepreneurship and promoting sustainable agricultural practices. Cooperatives enable farmers to collectively access resources, technologies, and markets, thereby enhancing their bargaining power and economic resilience. The cooperative model is built on principles of mutual benefit and shared responsibility. By pooling resources, small farmers can invest in better seeds, irrigation systems, machinery, and storage facilities, leading to improved productivity. Additionally, cooperatives facilitate direct market linkages, reducing dependency on intermediaries and ensuring fair pricing for agricultural produce. This collective approach not only strengthens local economies but also encourages value-added activities such as food processing, organic farming, and agribusiness ventures, creating employment opportunities in rural areas. Rural entrepreneurship, supported by agri-cooperatives, enhances financial inclusion and self-reliance. With access to microfinance, training, and government support, farmers can diversify income sources by integrating livestock farming, agroforestry, or dairy production. Women's participation in agricultural cooperatives is particularly transformative, fostering economic independence and community development. Moreover, digital innovations such as e-commerce platforms and mobile-based market information systems are revolutionizing cooperative operations, making them more efficient and profitable. Despite their benefits, agri-based cooperatives face challenges like governance issues, lack of modern infrastructure, and limited access to credit. Strengthening policy frameworks, providing financial incentives, and enhancing skill development programs are essential to overcoming these barriers. In conclusion, agri-based cooperatives serve as catalysts for rural entrepreneurship, driving economic growth and sustainability. By fostering collaboration, innovation, and empowerment, they hold the potential to transform rural livelihoods and contribute to global food security.

Keywords: Agri-based cooperatives, Rural entrepreneurship, Sustainable agriculture, Farmer empowerment, Market access, Financial inclusion, Value-added agriculture, Women in agribusiness

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Transforming Farming through Integrated Farming System

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ABSTRACT

Agriculture has long been the backbone of human civilization, providing food, employment, and economic stability. However, conventional farming practices often lead to resource depletion, soil degradation, water scarcity, and economic vulnerability. The Integrated Farming System (IFS) is emerging as a sustainable and transformative approach to agriculture by integrating multiple farming components—such as crops, livestock, aquaculture, poultry, and agroforestry—into a single system. This holistic approach enhances resource efficiency, increases productivity, and ensures ecological balance while improving farmers' livelihoods. The core principle of IFS is diversification, wherein the by-products or waste from one component serve as an input for another, thereby creating a closed-loop system. Agroforestry further enhances sustainability by improving soil health, reducing erosion, and increasing carbon sequestration. One of the most significant advantages of IFS is its resilience against climate uncertainties. Climate change has led to unpredictable weather patterns, droughts, floods, and soil degradation, severely impacting traditional farming systems. However, IFS mitigates these risks by ensuring that farmers are not solely dependent on a single crop or source of income. The diversification of farm activities creates multiple income streams, reducing the impact of market fluctuations and crop failures. Additionally, IFS promotes soil conservation, water management, and reduced greenhouse gas emissions, making it a climate-smart agricultural practice. Beyond its environmental benefits, IFS offers economic advantages, particularly for small and marginal farmers who face financial constraints. By integrating various farming components, farmers can maximize land use efficiency and generate higher overall yields. The multiple revenue streams from crops, dairy, fish, poultry, and agroforestry ensure financial stability, reducing farmers' reliance on external inputs and credit. Furthermore, IFS enhances food security by providing a steady supply of diverse agricultural products, including cereals, vegetables, milk, eggs, fish, and meat. Despite its numerous benefits, the large-scale adoption of IFS faces several challenges. Limited awareness, lack of technical expertise, and high initial investment costs hinder many farmers from transitioning to integrated farming. Additionally, access to credit, quality inputs, and market linkages remains a concern. To overcome these barriers, government policies and agricultural extension services play a crucial role in promoting IFS. Financial incentives, skill development programs, and farmer cooperatives can encourage widespread implementation. Moreover, research institutions must develop region-specific IFS models tailored to local climatic and socio-economic conditions.

Keywords: Integrated Farming System (IFS), Sustainable Agriculture, Resource Optimization, Agroforestry, Climate Resilience, Circular Economy

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Integrating Climate Resilient Agronomy for Sustainable and Secure Agriculture

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Abstract

Climate change is indeed regarded as one of the most significant environmental challenges of the 21st century. These changes persist over extended periods, often spanning decades or even longer natural variations and external factors, such as changes in solar radiation, volcanic eruptions, and natural variability within the climate system, have influenced the Earth's climate throughout its history and contribute to the total natural variability of the climate system. However, in recent centuries, human activities, especially since the industrial revolution, have led to significant changes in the composition of the atmosphere. The goal of climate-resilient agronomy is to ensure sustainable food production and secure livelihoods for farmers in the face of a changing climate. It involves the integration of climate adaptation and mitigation strategies into agricultural practices to minimize risks and enhance productivity.
Keywords: Climate Change, Climate Resilient Agronomy, GHGs and Global Warming.

Historical Novels and Empathy: How Fictional Characters Connect Readers to the Past

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Abstract

In the 21st century, historical novels continue to captivate readers, serving as bridges to the past and enhancing contemporary historical understanding. These novels illuminate historical complexities, challenge conventional narratives, and provide nuanced perspectives on bygone eras.This paper explores the impact of historical novels in fostering deeper connections with history, focusing on Hilary Mantel's *Wolf Hall* trilogy. Mantel's meticulous research and immersive storytelling bring Tudor England to life through the eyes of Thomas Cromwell, transforming him from a vilified historical figure into a multifaceted individual with complex motivations, relationships, and moral dilemmas. Her narrative technique places readers within the heart of political intrigue, allowing them to experience history as a living entity.One of the key contributions of historical novels lies in their ability to challenge dominant historical narratives. Mantel invites readers to reassess Cromwell's legacy, offering an alternative perspective that questions traditional assumptions. Moreover, historical fiction serves as an educational tool, filling gaps in historical knowledge while making history accessible to a wider audience.Beyond education, historical novels humanize the past, engaging readers with universal themes such as power, ambition, and loyalty. By evoking empathy and critical reflection, they foster a deeper appreciation of historical figures and their struggles.In conclusion, historical novels—exemplified by Mantel's work—extend beyond entertainment. They reshape historical consciousness, offering fresh perspectives and emotional depth. In an era of information overload, they remain essential in making history relevant, complex, and deeply human.

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Bhagat Singh: The Revolutionary as Writer

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Intellectualism, Revolution, Marxism, Literature, Education

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Abstract

Bhagat Singh was a revolutionary who sacrificed his life in i1931 during n India's independence strugg31. Popular culture has helped Indian citizens become acquainted with this brave freedom fighter. We all know the 'what' of Bhagat Singh, but we seldom know the 'how' of Bhagat Singh.The lesser-known fact about Bhagat Singh is that he was a true academician in all senses. Bhagat Singh was a voracious reader, a profound writer, and also taught in a college for a year! It was his dedication and thirst for knowledge that shaped his ideas and made him a self-librating and independent person in his thoughts.Surprisingly, he mainly wrote in English. The rest of his writings are also to be found in Hindi, Urdu, Gurmukhi, and Punjabi. Apart from these languages, he was also well-versed in Sanskrit and Bengali.Moreover, he maintained a diary that was full of daily notes with his thoughts on freedom, poverty, and class struggle. The diary also consisted of his notes on varied political thinkers and intellectuals such as Lenin, Marx, Omar Khayyam, Morozov, Tagore, Trotsky, Bertrand Russell, Dostoevsky, Wordsworth, and Ghalib, among others are proof of his diverse reading practices. Not to forget that he was highly inspired by the ideas of Marxism, Communism, Socialism, Bolshevism, and Anarchism.The writings of Bhagat Singh emerge as gems that remain unknown to the world. The vastness of Bhagat Singh's academic achievements at the mere age of 23 is not only worth appreciating but also inspiring. In my research paper, I would like to bring up the academic side and intellectual abilities of Bhagat Singh.

Effect of Climate Change on Soil Resilience

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Abstract

Climate change in the Intergovernmental Panel on Climate Change (IPCC) refers to significant changes in global temperature, precipitation, wind patterns and other measures of climate that occur over several decades or longer. Climate change can relate to a specific region or the entire globe. Weather patterns might become less predictable as a result of climate change. These unexpected weather patterns can make it difficult to maintain and grow crops in regions that rely on farming because expected temperature and rainfall levels can no longer be relied on. Climate change has also been connected with other damaging weather events such as more frequent and more intense hurricanes, floods, downpours and winter storms. Climate change impacts soil's chemical, physical, and biological functions through a range of predicted global change drivers such as rising atmospheric carbon dioxide (CO_2) levels, elevated temperature, altered precipitation and atmospheric nitrogen (N) deposition. Climate is one of the most important factors affecting the formation of soil with important implications for their development, use, and management perspective with reference to soil structure, stability, topsoil water holding capacity, nutrient

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availability and erosion. Although rising temperature, precipitation, CO_2 fertilization, and atmospheric N deposition have been associated with increased SOM decomposition, rising temperature, precipitation, CO_2 fertilization, and atmospheric N deposition may all support high plant productivity and OM input to soil and thus increase SOM. Due to climate change, higher CO_2 concentration increases the photosynthetic rates, and also it increases the water use efficiency of crops, hence increasing organic matter supplies to soils. Increased CO2 levels could mitigate some of the detrimental effects of rising temperature, such as increased nocturnal respiration. Increases in productivity are usually accompanied by more litter or crop residues, a greater total root mass and root exudates, increased mycorrhizal colonization and activity of other rhizosphere or soil microorganisms and a favourable influence on crop N supply.

Key words: Climate change, Precipitation, Soil organic matter, CO_2 level

Vermicompost as a sustainable soil amendment a review of current practices and future perspective

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Abstract

The need for environmental sustainability while increasing the quantity, quality, and the rate of waste treatment to generate high-value environmental friendly fertilizer products is highly in demand. Vermicomposting is a good technology for the valorisation of industrial, domestic, municipal and agricultural wastes. Various vermicomposting technologies have been in use from time past to present. These technologies range from windrow, small - scale batch vermicomposting to large – scale continuous flow systems. Each of these processes has its own merits and demerits, necessitating advancement in the technology for efficient treatment of wastes. This work explores the hypothesis that the use of a continuous flow vermireactor system of a composite frame structure performs better than batch, windrow and other continuous systems operated in a single container. Following an in-depth review of the literature on vermicomposting technologies, treatment techniques, and reactor materials used, to explore the hypothesis, it was found that vermireactors operating in continuous flow fashion perform better in waste bioconversion than the batch and windrow techniques. Overall, the study concludes that batch techniques using plastic vermireactors predominate over the other reactor systems. However, the use of frame compartmentalized composite vermireactors performs considerably better in waste valorisation.

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Formulation of Herbal hand Sanitizer for hand Hygiene

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Abstract

The department of Industrial chemistry, Janta College Bakewar Prepared Herbal hand Sanitizerin the continuous research to prevent skin from infections and to prevent skin from harmful microorganisms. It helps to prevent the spread of diseases. Recently during Covid 19 we used hand sanitizer when soap and water are not readily accessible, like when traveling and in public places. Hand sanitizer is an antiseptic and supplement to the hand washing with soap. There are different methods of preparations of hand sanitizer like gel, foam; liquid solution etc.hand sanitizer can stop the chain of transmission of micro organisms and bacteria. Hand hygiene is important in food production as well as in homes and other day care preparations. Hand sanitizer avoids adverse effects. The most common used ingredients in hand sanitizer are alcohol, Aloevera, Neem, Tulsi and Eucalyptus etc. hydrogen peroxide, essential oils likeclove,eucalyptus or peppermint and glycerol to protect skin from dryness are very effective in killing micro organisms.We have prepared this sanitizer using dried leaves of neem, Tulsi and powdering them mechanically and dipped them in the mixture of ethyl alcohol and Isopropyl alcohol overnight. The physical characteristics like PH, viscosity, fragrance and light green color are exhibited by the hand wash.

Keywords: Hand hygiene, Herbal extracts, Microorganisms, Pathogens.

Eco-friendly Approaches to Control Plant Diseases

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Abstract

Plant diseases pose a significant threat to global food security, necessitating the development of sustainable and eco-friendly management strategies. This review highlights the potential of natural products, biocontrol agents, and cultural practices in controlling plant diseases. Natural products, such as plant extracts and essential oils, have been shown to exhibit antimicrobial properties, inhibiting the growth of plant pathogens. Biocontrol agents, including beneficial microorganisms and parasites, can effectively suppress disease-causing organisms. Cultural practices, such as crop rotation, sanitation, and organic amendments, can also reduce disease incidence by modifying the plant's environment. These eco-friendly approaches offer several advantages over conventional chemical-based methods, including reduced environmental pollution, improved human health, and enhanced biodiversity. Furthermore, they can be integrated into existing agricultural practices, providing a sustainable and holistic approach to plant disease management.

Keywords:Eco-friendly approaches, Plant disease management, Natural products, Biocontrol agents and Cultural practices.

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Mathematics Education On Women Entrepreneurship

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Abstract

Mathematics education plays a pivotal role in shaping the entrepreneurial skills and capabilities of women. In the context of women entrepreneurship, mathematical literacy can serve as a critical tool for financial management, decision-making, strategic planning, and operational efficiency. This paper explores the intersection of mathematics education and women entrepreneurship, emphasizing how strong foundational knowledge in mathematics can empower women to succeed in their entrepreneurial ventures. Despite the growing recognition of women entrepreneurs globally, many face challenges in accessing quality education, particularly in fields involving complex mathematical concepts such as accounting, finance, and economics. Empowering women with mathematical knowledge not only enhances their business acumen but also fosters confidence, critical thinking, and problem-solving abilities that are essential for successful entrepreneurship. Furthermore, this paper examines the social and economic implications of mathematics education in promoting gender equality in the entrepreneurial space, with an emphasis on the need for targeted interventions, mentorship, and policy initiatives to support the advancement of women entrepreneurs. Ultimately, integrating mathematics education into the entrepreneurial journey of women can lead to the creation of sustainable business, contributing to economic growth and empowerment in diverse communities.

Reliability and degradation of Photovoltaic modules: A review

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Abstract

Reliability and degradation analysis of photovoltaic modules are utmost important to predict the life during outdoor exposure. It can be possible after considerate the failure modes and degradation analysis of the PV modules. Failure modes play a vital role to decrease the performance of the PV modules during the outdoor condition. In context, Risk Priority number (RPN) analysis is suitable to identify the main causes, which affect the system performance for particular location and technologies during the long term outdoor exposure. In the present paper, RPN analysis has been made on the basis of severity, occurrence and detection. Also, lifetime of different values of activation has been predicted following the Arrhenius equation. The aim of the present analysis is to assessment the works on performance, degradation of PV modules to identifying cause of degradation failure mechanism and failure modes.

Keywords : Reliability, Degradation, PV module, Defect, RPN, Lifetime

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A numerical method for solving a class of Temperedfractional variational problems

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Abstract

This paper introduces a numerical approach for solving tempered fractional variational problems (TFVPs). The method utilizes tempered Jacobi poly-fractonomials (TJFs) as basis functions to approximate the exact solution. By applying the Rayleigh-Ritz method, TFVPs are transformed into a system of algebraic equations. A comprehensive analysis of convergence and error estimation is provided. Additionally, numerical examples are presented to verify the accuracy of the proposed method, illustrating the exponential decay of errors.

Keywords: Tempered fractional derivative, Tempered variational problem, Convergence.

Artificial Intelligence (AI) implementation on Internet of Things (IoT)

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Abstract

The idea of the internet of things (IOT) has developed into one of the cornerstones of the field of emerging technologies. Since artificial intelligence is the best way to handle massive data flows and storage on IOT, it is incorporated to IOT systems. Internet of Things data flows will include user and sensor data sent and received from workstations. As the number of workstations and sensors increases, some data may experience issues with storage, delay, channel constraint, and network congestion. Artificial intelligence is defined for the purpose of data mining, managing, and controlling congestion in networks. The goal of this study is to present the application of artificial intelligence on IOT. The use of artificial intelligence in self-driving automobiles will be used in this study to illustrate the significance of data mining and management.

Keywords: internet of things, artificial intelligence, data flows, sensor, workstation

Agricultural Innovations & Agri –Entrepreneurship

Potential use of non conventional feed resources on growth of *Labeo rohita*

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Abstract

Delonix regia, also known as Gulmohar, the Flame Tree or Royal Poinciana, is a leguminous tropical tree species that belongs to the Fabaceae family Found to have good nutrinal and medicinal value as a feed resources for *Labeo rohita* fish The use of medicinal herbs as nutraceuticals for growth acceleration and immune boosters in fish feed is preferable to standard chemotherapy since they are plant-based feed

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additives that are biodegradable and have no potential side effects.*Delonix regia*, also known as Gulmohar, the Flame Tree or Royal Poinciana, is a leguminous tropical tree species that belongs to the Fabaceae family.In present study its leafextract exhibited high potency of antioxidant activity on growth and immunomodulatory effects on *Labeo rohita*. Five isocaloric and isonitrogenous diets (35% CP) were made with varying degrees of inclusion level *Delonix regia* Leaf extraxt(DRLE) viz. (Control - 0% DRLE), T1 (0.5% DRLE), T2 (1 % DRLE), T3 (1.5% DRLE) and T4 (2% DRLE). The effect of DRLE on growth and immunity was found concentration dependent, The fish group receiving the treatment T1, T2 ,T3 and T4 showed significant ($P<0.05$) increase in weight gain, improved FCR, SGR and PER. GSI, on the other hand, revealed no obvious alterations ($P > 0.05$). The amounts of total protein, globulin, and glucose in the serum differed significantly ($P> 0.05$) higher in T4. WBC count increased significantly ($P >0.05$), however there were no significant ($P > 0.05$) changes in Haemoglobin or RBC count. Overall, the data indicate that dietary supplementation with *Delonix regia* leaf extract can boost growth and improve immunological response in *Labeo rohita* fingerlings.

Keywords- *Delonix regia*, Nutraceutical Immunostimulant, , FCR, SGR, PER, Globulin, Serum

COVID-19

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Abstarct

The impact of pandemic COVID-19 is observed in every sector around the world. The education sectors of india as well as world are badly affected by this . It has enforced the world wide lockdown creating very bad effect on the student's life. Around 32 crore learners stopped to move schools/colleges,all educational activities halted in india. The outbreak of COVID-19 has advised us that change is inevitable. It has worked as a catalyst for the educational institutions to grow and opt for platforms and techniques,which have not been used before .The education sector has been fighting to survive the crises with a different approach and digitising the challenges to wash away the threat of pandemic. SOME FACTS ABOUT COVID-19 :COVID-19 virus is primarily spread from person to person by small respiratory droplets (from the nose or mouth) which are expelled when infected persons cough,sneeze,speak or even sing. The virus can also be transmitted when a person touches a surface or an object where droplets fell and then touch their eyes ,nose or mouth.Persons who are suffering from medical problems like high blood pressure,heart problems, diabetes,cancer,asthma are at high risk during this pandemic.Fever,tiredness,dry cough are the most common symptoms of this pandemic.

Here are some ways to prevent infection i.e. Maintain a safe distance between yourself and others ,Practice good health hygiene,Thoroughly wash hands for atleast 20 seconds,Practice good respiratory hygiene by covering mouth and nose when you sneeze or cough etc.key messagescovid-19 is posing significant health and economic risks to small islands developing economies ,given their small economic base,high degree of openess,and extreme dependance on economic performance of a few developed economies.Amid sharp falls in the tourism revenues and remittances flows ,small islands economies are likely to experienced the most pronounced contraction in 2020,further exacerbating their vulnerability to economics and climatic shocks.

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Role of self help goup on socio-economic status of women in india: a systematic review

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ABSTRACT

Self-Help Groups (SHGs) significantly impact the entrepreneurship and empowerment of rural women in India. These groups provide a platform for women to come together, identify their resources, and engage in various economic activities.Within South Asia, SHGs first emerged in India in the mid1980s. In 1992, the government of India's National Bank for Agriculture and Rural Development developed the SelfHelp-Group Bank Linkage Program, which quickly expanded throughout the country.The Economic Survey 2022-2023, presented by the Union finance minister to Parliament January 31 reported that India boasts of some 12 million SHGs, of which 88 per cent are all-women-member ones. These groups usually consist of 20-25 members, mostly residents of villages.

Keywords: Women empowerment; Self - Help Groups

The risk of pesticide residue on human health & environment

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Abstract

In the year of 1966 the green revolution was started in India, In present scenario the application of the chemicals has been increased more than hundred times and causing tremendous loss to environment and human health. In the process of development of agriculture, pesticides have become an important tool as a plant protection agent for boosting food production. Although Indian average consumption of pesticide is far lower than many other developed economies, the problem of pesticide residue is very high in India. Pesticide residue in several crops has also affected the export of agricultural commodities in the last few years. The consumption pattern in India is also more skewed towards insecticides being a tropical country. The pattern of agrochemical-application in India is not similar to that for the world in general. In India 76% of the pesticide used is insecticide, as against 44% globally (Mathur, 1999). The herbicides and fungicides' application is correspondingly less heavy. There is now overwhelming evidence that some of these chemicals do pose a potential risk to humans and other life forms and unwanted side effects to the environment. Agricultural development continues to remain the most important objective of Indian planning and policy. In the process of achieving the target pesticides play an important role in Indian agriculture. Pesticides, the agrochemicals, are one of the invaluable inputs in sustaining the agricultural

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production as substantial food production is lost due to insect pests, plant pathogens; weeds etc. Agriculture is the fulcrum of the Indian economy and contributes 18% to the GDP. Ensuring food security for more than 1.4 billion Indian populations with diminishing cultivable land resource is a herculean task. In this context, pesticide safety, regulation of pesticide use, proper application technologies, and included pest control are some of the key strategies for minimizing human exposure to pesticides to avoid its potential risk to humans and unwanted side effects to the environment.

Keywords: livestock, residue, exposure, agrochemical, bio-pesticide, toxins.

Leveraging t-Tests for Data-Driven Decision Making in Innovation and Entrepreneurship

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Abstract

Innovation and entrepreneurship rely heavily on data-drive decision-making to minimize risk and maximize success. The t-test, a fundamental statistics tool, plays a crucial role in validating hypotheses, comparing group performance, and measuring the impact of new business strategies. In product development, t-tests can determine whether a new feature or design leads to statistically significant improvements in customer satisfaction. In market research, they help entrepreneurs assess differences in consumer preferences or purchasing behaviours between target demographics. Additionally, in financial analysis, t-tests support investment decisions by comparing the performance of different business strategies or funding models. By integrating t-tests into their decision-making processes, entrepreneurs and innovators can make evidence-based choices, reducing uncertainty and increasing the likelihood of success in competitive markets. This paper explores various applications of the t-test in innovation and entrepreneurship, highlighting its role in fostering data-driven growth and strategic planning.

Effect of NPK and Organic manure on growth and yield of Radish (*Raphanus sativus* L.) Cv. Pusa Chetki

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Abstract

The experiment was undertaken at the experimental research field, Janta College Bakewar, Etawah. To study the ‘‘Effect of NPK and Organic manure on growth and yield of Radish (*Raphanus sativus* L.) Cv. Pusa Chetki during 2024-2025.The experiment was laid out in Randomized Block Design with three replications and ten treatments. The treatment combination consisted of organic manures (FYM and Vermicompost), inorganic manures (NPK) .The treatment details viz. T_1. Application of FYM @30t/ha. T_2. Application of Vermicompost @10t/ha. T_3. Application of 50% NPK + 50% FYM. T_4. Application of 50% NPK + 50% Vermicompost. T_5. Application of 75% NPK + 50% FYM. T_6. Application of 75% NPK + 50% Vermicompost. T_7. Application of 50% NPK + 25% FYM + 25%

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Vermicompost. T_8. Application of 25% NPK + 50% FYM + 25% Vermicompost. T_9. Application of 25% NPK + 25% FYM + 50% Vermicompost. T_{10}. Control (RDF). Among the treatment significantly influenced on Application of Application of 50% NPK + 50% Vermicompost T4 resulted in maximum values of growth attributed to superior results regarding the Length of leaves, number of leaves, height of plant, weight of root, length of root and diameter of root; growth and yield over all other treatments.

Keyword- Radish, Organic manures (FYM) Vermicompost , Inorganic manures (NPK) .

Innovation Entrepreneurship

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Abstract

Entrepreneurship can be broadly defined as the identification and organized exploitation of novel opportunities for creation & capture where the value outcomes may be commercial , social , institutional or cultural nature Entrepreneurship has becoming a popular term currently , but all entrepreneurs can not succeed in entrepreneurial business . So , Innovation entrepreneurship refers to the creation of new ideas , products or processes . while Entrepreneurship is the act of taking these innovations & translating them into viable business by identifying opportunities and actively pursuing their implementation .

Effect of NPK with FYM and Boron on growth and yield of Radish (*Raphanus sativus* L.) Cv. Pusa Chetk

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Abstract

The experiment was conducted with 10 treatments viz., T_1 application of FYM @ 30t/ha. T_2 application of FYM @ 15t/ha. T_3 application of Boron (8 kg/ha). T_4 applicationof recommended dose of NPK through chemical fertilizers (50:100:50) kg/ha. T_5 application of ½ dose of NPK through chemical fertilizers (25:50:25) kg/ha. T_6 application of FYM @30t/ha + ½ dose of NPK through chemical fertilizers. T_7 application of FYM @ 15t/ha + ½ dose of NPK through chemical fertilizers. T_8 application of FYM @ 15t/ha + full recommended dose of NPK through chemical fertilizers. T_9 application of Boron (8kg/ha) + application of½ doseof NPKthrough chemical fertilizers. T_{10} Control in Randomized Block Design with three replications during zaid- 2024 at research farm of the department of horticulture, Janta College Bakewar, Etawah- 206124. The treatment was significantly observed application of FYM @30t/ha + ½ dose of NPK through chemical fertilizers in maximum values of growth attributes, length of leaves (cm), number of leaves, heightofplant (cm),weightofroot (g.), lengthofroot (cm),diameterofroot (cm)andyield (q./ h) over all the treatments.

Keyword:Organicmanures (FYM),inorganicmanures(NPK)and Micro-nutrient (Boron).

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Integrated nutrient management on growth and yield of radish (*Raphanus sativus* L.) cv. Arka nishant''

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(Affiliated to C.S.J.M. University, Kanpur) A++ Grade by NAAC

Abstract

Integrated nutrient management on growth and yield of radish (Raphanus sativus L.) cv. Arka nishant'' Dept. of Horticulture Janta College Bakewar, Etawah (U.P.) (Affiliated to C.S.J.M. University, Kanpur) A++ Grade by NAAC ABSTRACT The present investigation entitled effect of integrated nutrient management on growth and yield of radish (Raphanus sativus L.) cv. Arka nishant was carried out the Horticultural Research Farm- Janta College Bakewar, Etawah during 2024-25. The experiment was laid out in Randomized Block Design with three replications and 10 treatments. The treatment details T1. Application of FYM @30t/ha. T2. Application of FYM @15t/ha. T3. Application of Azotobacter(5kg/ha). T4. Application of recommended dose of NPK through chemical fertilizers (50:100:50). T5. application of ½ dose of NPK through chemical fertilizers(25:50:25). T6. Application of FYM @ 30t/ha + ½ dose of NPK through chemicalfertilizers. T7. Application of FYM @ 15t/ ha + ½ dose of NPK through chemical. T8. Application of FYM @15t/ha + full recommended dose of NPK through chemical fertilizers. T9. Azotobacter(5 kg/ha) + Application of ½dose of NPK through chemical fertilizers. T10. Control. Among the treatment significantly influenced on Application of recommended dose of NPK through chemical fertilizers (50:100:50). T4 resulted in maximum values of growth attributed to superior results regarding the Length of leaves, number of leaves, height of plant, weight of root, length of root and diameter of root; growth and yield over all other treatments. Keywords: Integrated Nutrient Management, Growth and Yield, FYM, Azotobacter, NPK.

Keywords: Integrated Nutrient Management, Growth and Yield, FYM, Azotobacter, NPK.

Encouraging Entrepreneurship in Horticulture to Boost Rural Youth Employment

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Abstract

To effectively promote entrepreneurship in horticulture, several strategies can be employed. Firstly, it is essential to provide access to training and education focused on contemporary horticultural methods, sustainable agricultural practices, and business management skills. Introducing rural youth to innovative techniques such as hydroponics, agro-processing, and organic farming will help address the increasing consumer demand for sustainable and nutritious food options. Secondly, facilitating access to financial resources, including microloans and government-supported grants, can assist young entrepreneurs in launching and expanding their ventures. Thirdly, improving rural infrastructure—such as irrigation systems, transportation networks, and storage facilities—is vital for enhancing productivity and

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minimizing post-harvest losses. Collaboration with local agricultural extension services, non-governmental organizations, and government bodies is also critical in providing technical assistance and establishing market connections for horticultural products. Furthermore, creating opportunities for networking, mentorship, and knowledge sharing can enable rural youth to engage with seasoned entrepreneurs and explore new market avenues. In summary, fostering horticultural entrepreneurship among rural youth has the potential to alleviate unemployment while simultaneously enhancing food security, promoting rural development, and supporting environmental sustainability. By encouraging innovation, education, and resource accessibility, rural youth can transform horticulture into a vibrant and sustainable industry that generates long-term employment and improves livelihoods in rural communities.

Key Words: Entrepreneurship, Horticulture, Rural Youth, etc.

Abstract to using Application of Hilbert Space Theory in Signal Processing

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Abstract

Hilbert space theory plays a fundamental role in modern signal processing by providing a rigorous mathematical framework for analyzing signals, functions, and transformations. Signal processing techniques such as Fourier analysis, wavelet transforms, and optimal filtering leverage the properties of Hilbert spaces, particularly inner products, orthogonality, and basis expansions. This Abstract explores the application of Hilbert space theory in signal decomposition, reconstruction, and compression. Key concepts such as orthonormal bases, projection theorem, and Parseval's identity facilitate efficient representation and processing of signals. Moreover, functional analysis in Hilbert spaces enables robust solutions to inverse problems, optimization, and machine learning applications in signal processing. By integrating Hilbert space techniques, engineers and scientists can design more efficient algorithms for noise reduction, feature extraction, and data compression, enhancing the accuracy and efficiency of modern communication and imaging systems.

The Role of Education in Promoting Gender Equality: An Empirical Study

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Abstract

This paper examines the role of education in promoting gender equality by analyzing how gender-sensitive curricula, teacher training, and institutional policies influence students' attitudes and behaviors. Drawing on theoretical frameworks such as feminist theory and critical pedagogy, the study employs a mixed-methods approach that combines quantitative surveys of students with qualitative interviews of educators. The findings indicate that education can significantly reshape gender norms by reducing stereotypical views and expanding aspirations, although challenges remain in terms of resource allocation and resistance from traditional communities. The paper concludes with recommendations for policymakers and educational institutions to further integrate gender equality into educational practices.

Key words : Gender Equality, Girls' Education, Women's Empowerment, Gender Disparities

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Effect of Integrated Nutrient Management on Growth, Yield and Quality of Potato (*Solanum tuberosum L.*)"

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The present investigation "Effect of Integrated nutrient management on growth, yield and quality of potato (*Solanum tuberosum L.*)" was undertaken at department of horticulture, The experiment was laid out in Randomized Block Design (RBD) with seven treatments replicated thrice. The treatment comprises of control (T 1), 100 per cent RDF (T 2), 100 per cent RDF plus FYM @ 5 t (T 3), 100 per cent RDF phis FYM @ 5 t plus Azotobacter (T 4), 100 per cent RDF plus FYM @ 5 t plus Azotobacter plus PSB (T 5), 75 per cent RDF plus FYM @ 5 tplus Azotobacter plus PSB (T 6) and 50 per cent RDF plus FYM @ 5 t plus Azotobacter plus PSB (T 7). The variety 'Kufri Bahar' was used for the study. The experiment framed was to study the effect of different levels of inorganic fertilizers with FYM and biofertilizers Azotobacter and phosphorus solubilizing bacteria) on yield and quality of potato. The results of the present study indicated significant differences with respective growth, yield, quality and monetary returns among the different treatments tried. The growth parameters like emergence percentage (49.72% and 95.45 %) at 15 and 30 DAP, height of the plant (46.74, 62.34, 62.22 cm), number of leaves (55.48, 62.66, 65.78) at 45, 60 and 75 DAP respectively, leaf area (40.47, 53.77 cm 2) and leaf area index (2.99 and 3.98) at 45 and 60 DAP were significantly maximum in the treatment of 100 per cent RDF plus FYM @ 5 t plus Azotobacter plus PSB (T 5) and it was closely followed by the treatment of 100 per cent RDF plus FYM @ 5 t plus Azotobacter (T 4). it is clear that, the application of FYM and biofertilizers along with inorganic fertilizers affects positively on growth, yield, quality and economic returns of potato.

Keywords: INM, Tuber Yield, Growth, FYM, Vermicompost, Potato

Breaking the Blueprint: Women Innovators and the Rise of Inclusive

Shreya Tiwari

Abstract

In the dynamic and often tumultuous landscape of contemporary entrepreneurship, women are increasingly emerging as powerful catalysts for change. Despite persistent systemic barriers, they are not only launching successful startups but also fundamentally redefining the very nature of business. A compelling statistic underscores this narrative: while women comprise nearly half of the global workforce, they receive only a fraction of venture capital funding. This disparity highlights the entrenched challenges women entrepreneurs face, yet amidst these obstacles, they are pioneering a new era of inclusive business practices. The need for inclusive strategies is more critical than ever, as businesses recognize the value of diversity in driving innovation and sustainable growth. This paper argues that women-led startups are pivotal in driving the adoption of inclusive business strategies, leading to sustainable growth and positive social change. It will explore the challenges and opportunities in women's entrepreneurship, delve into the strategies employed by these startups, analyze the impact of their leadership, and discuss the broader implications for the startup ecosystem.

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Care and Management in Indian Cattle in Summer Season

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2. **Assistant Professor Dairy Technology, College of Dairy TechnologyEtawah Campus**

Chandra Shekhar Azad University of Agriculture & Technology

Abstract

To care for dairy animals in the summer, you can provide shade, cool water, and fresh food. You can also reduce stress and provide cooling pads. Shelter :Provide a clean, well-ventilated shelter with a firm, non-slippery floor, Ensure the roof is a poor conductor of heat, Provide shade.Water :Provide enough clean water around the clock, Provide large open water troughs so that at least 10% of the herd can drink at once, Provide electrolytes to replenish losses.Food :Feed in the early morning, evening, and night, Provide high-quality forage, Increase the energy density of the feed, Provide extra minerals and vitamins A, C, and E, Provide rumen fermentation modifiers like monensin and live yeast culture.Cooling :Mist or fog the animal's microenvironment, Spray or sprinkle water on the animal's body, Use fans or blowers to induce evaporation from the skin, Place cooling pads or soakers in holding areas or transferlanes.Handling :Limit handling and demanding activities during the hottest times of the day, Avoid unnecessary movement and transportation.

The Role of Basic Mathematics in Entrepreneurship

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Abstract

Basic mathematics plays a crucial yet often understated role in the success of entrepreneurs. From financial planning and budgeting to analyzing market trends and optimizing business operations, mathematical concepts form the foundation of sound decision-making. Entrepreneurs use fundamental mathematical tools such as arithmetic, algebra, and basic statistics to make informed choices about pricing, costs, revenues, and profits, ensuring the sustainability and growth of their ventures. Additionally, basic math aids in inventory management, project scheduling, and resource allocation, enhancing operational efficiency. In an increasingly data-driven business environment, entrepreneurs with a strong grasp of basic mathematics can better navigate challenges, evaluate risks, and identify opportunities for innovation. This paper highlights how mastering basic math is integral to not only the technical aspects of entrepreneurship but also to fostering a mindset of analytical thinking, which is essential for long-term success in the competitive business world.

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Effect of organic manure & fertilizer of growth on yield of radish (Raphanus sativus L.)Cv Pusa Himani

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Abstract

The study related that the highest yield & quality attributes of radish Cv pusa himani were achived with the organic manure & fertilizer ,FYM, Poultry manure ,Azotobacter,NPK , there are three replication and ten treatment . experiment was laid out in randomized black design deparment of horticulture research farm of janta college bakewar etawah U.P. The effect of organic manure and fertilizers on growth and yield of radish cv. Pusa Himani has been extensively studied, revealing significant benefits from various organic inputs. The integration of organic and inorganic fertilizers enhances not only the growth parameters but also the overall yield and quality of radish. Below are key findings from the researchAmong various factor responsible for low production of radish, nutrition is a prime importance. The high cost of fertilizer also restricts there large scale use. There for to reduce dependance on chemical fertilizers along with maintenance of sustainable production or vital is issues in modern agriculture which is only possible through integrated plant nutrient management. in the absence of precise recommendation. the growers are following nutrient schedules of their own, which result in improper nutrition to the crop. This ends up with improper balance in plants and is considered to be a major factor contributing to low yields. There for the present investigation was conceived and conducted with INM practices in Radish to arrive at a feasible nutrient schedules under the prevailing ago-climatic condition of the Etawah region of Uttar Pradesh.

Key point : radish, manure, FYM, quality,

Effect of different micronutrients on fruit Yield and quality of winter season Guava (Psidium guajava) Cv. Allahabad Safeda.

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Abstract

A field experiment entitled **" Effect of different micronutrients on fruit Yield and quality of winter season Guava (Psidium guajava) Cv. Allahabad Safeda."** Was carried out at the Horticultural Research farm of the Department of Horticulture, Janta College Bakewar, Etawah (U.P.) during the winter season of 2023-2024. The experiment was laid out in Randomized Block Design with 10 treatments, replicated thrice and one branch was Taken as a unit.

Observations were recorded on growth, physical and quality characters Of guava. Foliar application of zinc (0.25, 0.50 %) + borax (0.25, 0.35 %) and Copper (0.25, 0.35 %) may be recommended to guava growers for obtaining better yield and quality during winter season crop of guava cv. Allahabad Safeda.

Over all it can be concluded that foliar application of ZnSO4 (0.35%) + CuSO4 (0.35%)+Bo(0.35%) judged the best for higher fruit yield and better Quality of guava

Keywords:-Micronutrients,Quality,Winterseason, FoliarApplication

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Eco-friendly Approaches to Control Plant Diseases

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Abstract

Plant diseases possess a significant threat to global food security, necessitating the development of sustainable and eco-friendly management strategies.Natural products, such as plant extracts and essential oils,exhibited antimicrobial properties, inhibiting the growth of plant pathogens. Biocontrol agents, beneficial microorganisms and parasite. Cultural practices, such as crop rotation, sanitation, and organic amendments, reduces disease incidence by modifying the plant's environment. These eco-friendly approaches offer several advantages over conventional chemical-based methods, including reduced environmental pollution, improved human health, and enhanced biodiversity. Furthermore, they can be integrated into existing agricultural practices, providing a sustainable and holistic approach to plant disease managemen

Keywords:Eco-friendly approaches, Plant disease management, Natural products, Biocontrol agents and Cultural practices.

The Application of Vermi-Compost in Sustainable Agriculture: Effects On Plants and Soil Fertility

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Abstract

Vermicomposting is a sustainable, low-tech approach for processing organic waste. The resultant vermicompost offers substantial advantages for plant development and vitality. As a natural fertilizer, it is increasingly favoured in agriculture and horticulture as a substitute for inorganic fertilizers and peat in greenhouse potting substrates. Nonetheless, its impacts on plant-soil systems are still not well comprehended. This chapter examines research from recent decades, investigating the mechanisms through which vermicompost enhances soil quality and promotes plant development. Although most studies concentrate on physiologically mediated plant growth promotion, inconsistent findings underscore the necessity for additional study. A more precise description of vermicompost and a knowledge of the elements affecting its biological impacts are necessary. This case study investigates the direct and indirect impacts of vermicompost on plant growth, with a focus on the diversity of plant responses.

Keywords: Vermicompost, Inorganic fertilizer and Soil.

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Development of an efficient protocol for new early variety CoS 18231 (*Saccharum officinarum* L.) through meristem culture

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Abstract

Lack of rapid multiplication has a serious problem in sugarcane breeding, production of adequate quantity of pure seed material of new variety it takes about 8-9 years if multiply through conventional methods of seed multiplication, by the time the variety start deterioration in yield potential or any disease appearance and insect'spest infestation.This study was carried out to develop or amendment in prescribe protocol for multiplication of new elite early variety CoS 18231released in 2024 for rapid multiplication in established shoot culture and develop roots in established shoot culture during in vitro micro propagation techniques and multiplication of breeder seed. For the establishment of culture and shoot initiation the concentration of BAP @1.0mg/l and Kinetin @1.0 mg/l was found better. In shoot multiplication without NAA was showed better performance. The concentration of NAA@ 10 mg/l showed higher rooting percent as well as increase in number and length of roots.

On the basis of above findings, it may be concluded an easy and efficient protocol for establishment of shoot tip, multiplication of shoots and development of root in sugarcane new variety CoS 18231 can successfully micro propagated.

Women empowerment

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Abstract

Women empowerment is a crucial aspect of social progress, aiming to provide women with equal opportunities, rights, and the ability to make independent choices in personal, economic, and political spheres. It involves enhancing women's access to education, healthcare, financial independence, and leadership roles, ultimately fostering gender equality. Empowering women not only improves their individual well-being but also contributes to economic growth, poverty reduction, and sustainable development. Societies that support women's empowerment experience higher literacy rates, improved health outcomes, and strong economies. Sustainable development. Societies that support women's empowerment experience higher literacy rates, improved health outcomes, and stronger economies. However, challenges such as gender discrimination, societal norms, and lack of policy implementation continue to hinder progress. To achieve true empowerment, collective efforts are needed from governments, organizations, and individuals to create inclusive policies, ensure equal pay, promote education, and challenge stereotypes. Through continuous advocacy and systemic change, women can fully participate in shaping a more just and equitable world.

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Genetic Engineering for enhanced nutritional value in Staple Crops

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Abstarct

Genetic engineering plays a crucial role in enhancing the nutritional value of staple crops, addressing malnutrition and improving global food security. By modifying the genetic makeup of crops, scientists have successfully increased essential vitamins, minerals, and proteins, making staple foods more nutritious and accessible. One of the most well-known examples is Golden Rice, which has been engineered to produce beta-carotene, a precursor to vitamin A, helping to prevent blindness and immune deficiencies in populations with limited access to diverse diets. Similarly, biofortified wheat, rice, and maize with increased iron and zinc levels aim to reduce anemia and stunted growth, particularly in developing regions. Genetic modifications have also improved protein quality in staple crops. Quality Protein Maize (QPM), for instance, contains higher levels of essential amino acids like lysine and tryptophan, making it a more complete protein source for those relying on maize as a dietary staple. In addition to enhancing nutrient content, genetic engineering reduces anti-nutritional factors. Crops with lower levels of phytic acid, such as modified maize and rice, allow for better mineral absorption. Gluten-free wheat varieties are also being developed to help individuals with celiac disease. Furthermore, genetic modifications in soybeans and canola have enabled the production of omega-3 fatty acids, typically found in fish, providing heart-health benefits.Beyond nutrition, bioengineered crops are being developed for drought and salt tolerance, ensuring consistent nutrient availability even under harsh environmental conditions. However, regulatory hurdles, public skepticism, and ethical concerns continue to pose challenges to widespread adoption. Despite these obstacles, genetically engineered crops remain a promising tool in the fight against global malnutrition and food insecurity, complementing traditional breeding and agricultural strategies.

Comparative Analysis of Organic and Inorganic Fertilizers on Chilli Crop (*Capsicum annum*)Yield and Quality.

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Abstract

A field experiment was conducted to evaluate the impact of organic and inorganic fertilizers on the yield and quality of chilli crops. The study compared the effects of cow dung, vermicompost, and poultry manure (organic fertilizers) with urea, diammonium phosphate, and potassium chloride (inorganic fertilizers) on chilli crop yield and quality parameters. The results revealed that the application of organic fertilizers significantly improved the yield (25.6%), fruit length (12.5%), and fruit weight (15.1%) of chilli crops, with vermicompost showing the highest increase. In contrast, inorganic fertilizers showed a lower yield increase (15.6%) and reduced fruit quality. The study concludes that the use of organic

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fertilizers, particularly vermicompost, can be a sustainable and effective approach to improving chilli crop yields and quality.

Keywords: chilli crop, organic fertilizers, inorganic fertilizers, vermicompost, yield increase, fruit quality.

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DEVELOPMENT OF ENTREPRENEURSHIP IN RURAL AREAS

KANTI

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Abstract

Entrepreneurship in rural areas is a key driver of economic development, employment generation, and poverty alleviation. With a majority of the population in many developing countries residing in rural regions, fostering entrepreneurship in these areas can significantly contribute to overall national growth. However, rural entrepreneurs often face multiple challenges, including limited access to finance, inadequate infrastructure, lack of market linkages, and insufficient technical knowledge. Addressing these issues is crucial for promoting sustainable and inclusive entrepreneurship.This article examines the development of entrepreneurship in rural areas, highlighting its importance, key challenges, and potential solutions. The rural economy is primarily driven by sectors such as agriculture, handicrafts, rural tourism, small-scale manufacturing, and renewable energy. Agribusiness and agro-processing have emerged as vital entrepreneurial ventures that enhance value addition and provide better market opportunities for farmers. To address these challenges, several strategies and policy interventions have been proposed. Microfinance institutions, self-help groups (SHGs), and cooperative models have proven effective in providing financial inclusion and empowering rural entrepreneurs, especially women. Moreover, skill development and vocational training programs can equip individuals with the necessary technical and business management skills. The integration of technology and digital platforms, including e-commerce, mobile banking and digital marketing, can further enhance the reach and efficiency of rural businesses.

Conclusion: Rural entrepreneurship presents immense opportunities for economic development and social empowerment. With the right support, including financial aid, skill training, infrastructure development, and technology integration, rural entrepreneurs can overcome existing challenges and contribute to sustainable growth. Governments, private sectors, and civil society must collaborate to create an enabling ecosystem that nurtures innovation, resilience, and economic prosperity in rural areas.

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Effect of herbal drug on feed intake, digestiblity and metabolites in rumen of cross-bred calves

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ABSTRACT

Ruminant have as unique feature as complax stomach consist four parts namely rumen, reticulum, omasum and abomasum. Rumen is prominent part in which various species of microbe are inhibited and furnish very important function in crude fibre or cellulogic material digestion/fermentation . The end products of this digestion process will be VFAs and gases. Amount of feed intake, metabolites and digestibility will largely dependent on the activities of microbes and rumen environment. The present study was designed to see the effects of self- compounded herbal drugs which was given to two groups of calves along with one control group. The herbal mixture was composed by some herbs like chirayita, kutki, cordimom, guruchi, kalmegh, bhumiamalki, neemcchal, anis seed or ajwain, black pepper, piplamul, ghee- kunwar, azmoda, yeast along with ammonium chloride and certain other minerals. Nine Calves were divided into three groups with three calves in each group. The period of each trial was of three months including one months of pre-experimental feeding. The experimental trials were conducted in switch over design. Results indicated positive effects of compounded herbal drug on pH, VEAs, microbial population (Protozoan), feed intake and digestibility. The high level of drug (DJ=80gm) improved the rumen ecosystem (pH, VFAs and protozoa number) compared to control group (D1=without drug) and low dose of drug (D2=40gm). This herbal drug had no adverse effect on animal body.

Keywords: Rumen microbes, Herbal drug, feed intake, digestion, digestibility, metabolites.

Effect of cationic micelles of cetyl trimethyl ammonium bromide on the reaction of hydroxide ion with mono-2,4-dinitro aniline phosphate ester

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Abstract

The micellar catalysed reactions between hydroxide or hydroperoxide anion and mono-phosphate ester of 2,4-D-NAPE has been examined in buffered medium (at pH 8.0-10.0) with borate ions. First order rate constant (Kψ) for the reaction of OH- with2,4-D-NAPE go through maxima increasing with the concentration of cetyl tri methy ammonium bromide (CTABr). Micelles of CTABr are very effective catalysts to the reactions of phosphate mono ester. cationic detergent CTABr have been investigated at 40±0.50C. Key word Micelles, Micellar catalysis, MONO-2,4-D--NAPE, CTABr.

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Reliability and degradation of Photovoltaic modules: A review

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Abstract

Reliability and degradation analysis of photovoltaic modules are utmost important to predict the life during outdoor exposure. It can be possible after considerate the failure modes and degradation analysis of the PV modules. Failure modes play a vital role to decrease the performance of the PV modules during the outdoor condition. In context, Risk Priority number (RPN) analysis is suitable to identify the main causes, which affect the system performance for particular location and technologies during the long term outdoor exposure. In the present paper, RPN analysis has been made on the basis of severity, occurrence and detection. Also, lifetime of different values of activation has been predicted following the Arrhenius equation. The aim of the present analysis is to assessment the works on performance, degradation of PV modules to identifying cause of degradation failure mechanism and failure modes.

Keywords Reliability, Degradation, PV module, Defect, RPN, Lifetime

Survey of Breast Cancer in Etawah district (UP)

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Breast Cancer is one of the Common Cancer among Women in India. Breast Cancer is cause of Cancer Related death in women's globally. India is no. one in Breast Cancer among women. India Reported approximately 192020 new cases of Breast Cancer in 2022 it's almost 13.6% of all cancer cases make it the most common cancer in country. One in twenty eight India women is develop breast cancer: that's Ratio in Urban area is 1 in 22 & Rural group is 1 in 60. Hyderabad have highest Incidence Rate of Breast Cancer. It a Cancer that form in the Breast tissue, it symptoms Includes a lump in Breast or under armpit bloody discharge from nipple & change in shape & texture of nipple Redness & thickening or Puckering of skin Treatment depends on the Stage & generally Condition of Patient. It's early diagnosis through Screening Methods such as mammography Ultrasound & Biopsy Significantly improves Treatment outcomes. It occurs by the Uncontrolled growth of cell in Breast tissue, also influenced factor. Due to limited awareness the basic Knowledge about cancer symptoms risk factors & importance of Screening test for detection on right time is delay. This delay occurs it in multiple stages which can Result in poorer survival. In some severe cases death is common result. In 2022, India with 98,337 deaths among women. It increase Rapidly time to time cancers in Etawah district, UP. A Retrospective study Conducted at tertiary care hospital in Etawah from 2015 to 2018 analyzed 30, 14 confirmed cancer cases, It's almost 0.5% of overall population so it not very high but have with low medical services & limited awareness about Breast Cancer.

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Intensity infestation of red spider mites (*Tetranychus urticaeKoch*) okra crops and their management

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Abstract

Spider mite (*Tetranychus* spp) belongs to the family Tetranychidae of the order Prostigmata. The family Tetranychidae is one of the most important families of the Acarina because many species can be serious pests of agricultural crop (Faith *et al.,* 2009). Spider mites are highly renowned, multiphagous, cosmopolitan, and economically significant pests of fruits, vegetables, and other agricultural crops. They can cause discoloration, curling, yellowing, and webbing of the leaves, all of which lower yield.It may be possible to control the vertical distribution of herbivorous crop pests in crop canopies by understanding their phototactic responses. Here, we investigated the idea that applying particular light sources can improve the effectiveness of miticide applications by eliciting either positive or negative phototactic responses. A field study was conducted to evaluate the relative bio-efficacy of bifenthrin 8 SC @60g, 80g, 100g, 120g, 140g a.i./ha against shoot and fruit borer and red spider mite of okra, *Abelmoschus esculentus (*L.) Moench cvThe effectiveness of biorationals against red spider mites on okra at various spray schedules was assessed in field tests.Investigating sustainable pest management techniques is necessary due to the harm that two-spotted spider mites do and the dangers that chemical pesticides pose to human health and the environment. Effective biocontrol agents against pests like the two-spotted spider mite (Tetranychus urticae) are predatory mites like Phytoseiulus persimilis.

Representation Theory of Finite Groups

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Abstract

Representation theory plays a crucial role in understanding the structure and symmetry of finite groups by studying their actions on vector spaces. This mathematical framework provides a bridge between Abstract algebra and linear algebra, enabling applications in physics, chemistry, and computer science.

In this presentation, we introduce the fundamental concepts of group representations, irreducible representations, character theory, and key theorems such as Maschke's theorem and Schur's Lemma. We also explore how representation theory simplifies group analysis, aiding in fields like quantum mechanics, crystallography, and coding theory.The session aims to provide an intuitive and application-oriented overview, making this powerful theory accessible to students and researchers alike.

Keywords: Finite Groups, Representation Theory, Character Theory, Symmetry, Linear Algebra

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Role of Women in Innovation,Entrepreneurship ,andIncubation Across Different Sectors

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Abstract

Women have emerged as powerful drivers of innovation, entrepreneurship, and business incubation across a wide range of sectors, making significant contributions to both economic and social progress. Their active participation in fields such as technology, healthcare, education, finance, and sustainability has led to groundbreaking advancements and the creation of inclusive business models.This paper explores the multifaceted role of women in fostering innovation, launching startups, and leading incubation programs. It highlights the unique challenges faced by women entrepreneurs, including financial constraints, societal biases, and limited access to mentorship and professional networks. At the same time, the study showcases policy interventions and strategic initiatives designed to empower women in the entrepreneurial ecosystem.Furthermore, the paper presents successful case studies of women-led enterprises, incubators, and innovation hubs that have transformed industries and inspired inclusive growth. These real-world examples illustrate the transformative potential of women in leadership roles within innovation and enterprise development.By advocating for gender-inclusive entrepreneurial ecosystems, this paper underscores the urgent need for supportive frameworks, equitable funding opportunities, and leadership development programs. Strengthening these areas will not only enhance women's participation in innovation and business incubation but also accelerate economic growth and promote sustainable, equitable development on a global scale.

Keywords: Women Entrepreneurs, Innovation, Incubation, Startups, Gender Inclusion, Economic Growth

Performance of maize-based intercropping systems in Central Plain Zones of Uttar Pradesh is influenced by various INM protocols.

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Abstract

A field experiment was carried out at the Soil Conservation and Water Management Farm of C S Azad University of Agriculture and Technology, Kanpur during *kharif* -2019 to assess the effect of intercropping and different nutrient doses on Maize and Kalmegh crop. The experiment consisted of five cropping systems, *viz*. C_1: Sole Maize at row space of 60 cm, C_2: Sole Kalmegh at row space of 40 cm, C_3: Maize + Kalmegh (1:1) in additive series, **C_4:** Maize + Kalmegh (2:2) in paired row (40:80) and **C_5:** Maize + Kalmegh (3:2) in replacement series (40:40), and three integrated nutrient management options

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viz. **I_1 :** 100% N through inorganic, **I_2 :** 50% N inorganic + 50 % N FYM **I_3 :** 50 % inorganic + 25 % FYM + 25 % vermi-compost. The experiment was replicated thrice in Split Plot Design, keeping cropping systems in main plots and INM in sub plots. The result revealed that C_4 treatment i.e. Maize + Kalmegh (2:2) in paired row (40:80) gave highest maize grain yield (45.87 q ha^{-1}) along with 36.85 q ha^{-1} dry herbage of Kalmegh combinedly attaining 119.15 q ha^{-1} maize equivalent yield with highest LER of 2.02. This treatment also gave maximum net return of Rs. 181611 with a B: C ratio 6.03 along with highest WUE of 41.11 kg ha^{-1} mm^{-1} while maximum water-use was found in relevant sole crops of maize.

The application of INM further showed a significant role in yield enhancement. The use of 50 % inorganic + 25 % FYM + 25 % vermicompost (I_3) improved the physical condition of soil, soil fertility and exhibited significantly higher values of both the sole and intercrops during the study.

Keywords: Integrated nutrient management, Intercropping, Kalmegh, Vermicompost

The study about bio-efficacy of newer insecticides against major sucking insect pest of mung bean

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Abstarct

The whitefly *Bemisia tabaci* (Gennadius) jassids are serious pest of many crops. They had raised increasingly higher levels of importance over the last 20-30 years in many semi-arid and production area. Present investigation was carried out to study the comparative efficacy of seven newer insecticides against major sucking insect pests like whitefly and jassids on mung bean during *kharif* season of 2023-24. The observation of whitefly and jassid were taken from 5 plant which was randomly selected from each unit the plot. The Different chemical insecticide applied to suppress whitefly population among these imidaclopride 17.8 SL @ 600ML a.i/ha was the most effective in reducing the white fly population followed by Fipronil 5 SC @ 1.2 liter a.i./ha, Diafenthiuron 50 WP@ 750ML a.i./ha, Pyriproxfen 10 EC @ 1.2 litre a.i./ha and rest of the treatment like clothianidine 50 WDG @ 180 ml a.i./ha, Thiamethoxam 25 WG @ 180 ml. a.i./ha are proved to be equally significant but better than the spiromesifen 240 SC @ 75 ml. a.i. /ha which was least effective among all treatment. The different insecticides showed efficacy of Jassids population of mung bean crop. Two spray of Imidacloprid 17.8 SL @ 600 ml. a.i./ha was proved to suppress pest population better than other insecticides. Followed by other treatment like Fipronil 5 SC @1.2 lit. a.i./ha and Diafenthiuron 50 WP @750 ml. a.i./ha. all chemicals were highly effective in increasing the yield of mung bean by controlling the pest population. A higher yield was obtained in the treatment of Imidacloprid 17.8 SL i.e., 9.02 q/ha followed by other treatments like Fipronil 5 SC 6.02 q/ha and Diafenthiuron 50 WP 5.3 q/ha which is found to be more effective after Imidacloprid in suppressing the pest population and increasing the yield of crop. The mung bean yield is protected plot was significantly higher than the unprotected plot. The yield obtained in these treatments was 9.02 q/ha and 5.3 q/ha respectively.

Keyword : whitefly, jassid, insecticides and management

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A Review on in- situ approaches to Enhance Pre-Breeding in Wheat

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Abstract

Wheat pre-breeding is a vital phase in crop improvement program, focusing on the utilization of genetic diversity from wild relatives, landraces, and underutilized germplasm to develop superior cultivars. In situ approaches, including participatory breeding, on-farm conservation, and dynamic selection, offer a sustainable means of maintaining genetic variation and accelerating adaptation to changing environments. This review discusses the significance of in situ methods in wheat pre-breeding, their integration with modern biotechnological tools, and their potential to address climate resilience and food security challenges.

Generalized Common Fixed Point Theorem with selfMappings on Complete Metric Space

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Abstract

The purpose of this research paper is to develop a generalized fixed-point theorem in complete metric spaces. In this paper we have established a generalized Banach fixed-point theorem of Meir and Keller [10], M. Miti and T.K. Pal [11] on complete metric spaces using the two Continuous self-mappings. As on other spaces depending self-mapping fixed point theorem has been generalized in complete metric spaces.

Key words: - Metric space, Cauchy Sequence, Complete metric space, Common Fixed point.
AMS Subject Classification: - 46Exx:46E35, 47Hxx:47H10

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Potato plays vital role in the development of entrepreneurship across the country

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Potatoes can play various roles in entrepreneurship development, especially in sectors related to agriculture, food processing, and retail. Potato is the fourth largest food crop grown in the world after rice, wheat and maize. India is the second largest producer after China According to FAO data, a total of 376 million tonnes of potatoes produced world wide, with China (94 million tonns), and India (54 million tonnes) the largest potato producing countries. Potatoes are a staple crop in many regions, and cultivating them can be a profitable venture for farmers. It is a very rich source of carbohydrate and a leading source of food energy in many countries. Potato can be converted into many processed products including chips French fries, starch, baby foods and dehydrated. Entrepreneurial farmers can innovate in terms of cultivation techniques, such as adopting organic farming practices or implementing technology-driven precision agriculture methods. They can establish businesses related to potato farming inputs, such as supplying high-quality seeds, fertilizers, and pesticides. Additionally, there's potential for startups to provide farm machinery, irrigation systems, and other equipment tailored to potato cultivation. Entrepreneurs can set up food processing units to manufacture these products, focusing on quality, flavor innovation, and health-conscious options to meet consumer demands.This could involve setting up standalone stores, online platforms, or partnering with supermarkets and grocery chains to reach a broader customer base. In regions with surplus potato production, entrepreneurs can explore export opportunities by tapping into international markets. This might involve complying with export regulations, ensuring product quality and packaging standards, and building relationships with overseas buyers. Entrepreneurs can engage in potato farming, focusing on high-yield resistant varieties or organic farming practices. By tapping into local markets, they can sell fresh potatoes or processed products like fries, chips, or mashed potatoes. start businesses focused on producing potato-based products such as potato flour, snacks, or even potato starch. These products can be marketed locally or internationally, creating opportunities for expansion and employment. Entrepreneurs can invest in setting up processing plants that produce these items. With the right marketing, these products can cater to local tastes or be sold internationally. Starting a restaurant or fast food chain centered around potatoes (like a chain of French fries or potato-based dishes) is another entrepreneurial opportunity. With proper branding, businesses can capture a large market.Potato farming, harvesting, storage, and distribution require numerous services, creating jobs in areas like transportation, logistics, and retail. As potatoes are grown and processed, there are opportunities to create businesses that provide seeds, fertilizers, machinery, and other essential tools for farmers can create sustainable businesses by offering affordable and high-quality agricultural supplies. Through research and development, entrepreneurs can focus on improving potato varieties, diseases forecasting, disease control and overall farming efficiency. This innovation in the agricultural sector helps in increasing productivity, boosting local economies, and creating new market opportunities. Potatoes are a globally consumed crop, and there are opportunities to grow potato-based businesses aimed at export.

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Entrepreneurs can tap into international markets, creating supply chains that benefit both the local economy and global trade.With growing interest in healthier eating, entrepreneurs can create niche products such as low-fat, high-protein potato snacks or potato-based gluten-free products. They can focus on educating consumers about the health benefits of potatoes when consumed as part of a balanced diet.

Keywords: Potato, Entrepreneurship, Innovation, Farmers

The Impact of Women Entrepreneurship on Economic Growth: A Critical Analysis

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Abstract

Economic growth is a critical issue in many countries, with policymakers and practitioners seeking innovative solutions to promote economic growth and development. Women entrepreneurship has emerged as a vital component of economic growth, contributing to job creation, innovation, and poverty reduction. This paper provides a critical analysis of the impact of women entrepreneurship on economic growth, highlighting the ways in which women entrepreneurs are driving economic growth through innovative business models, job creation, and increased productivity. This paper also examines the challenges faced by women entrepreneurs in achieving economic growth, including limited access to finance, inadequate infrastructure, and patriarchal norms. The findings of this study highlight the importance of women entrepreneurship in achieving economic growth and provide recommendations for policymakers, practitioners, and researchers to support women entrepreneurship and economic growth.

Keywords : Women entrepreneurship, economic growth, job creation, innovation, poverty reduction, economic development

Biofertilization of papaya: recent research and the way forward

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Abstract

Fertilizers supply essential plant nutrients and increase the yield of the papaya. The preferences of fruit production and consumption shift towards the use of the fruit grown without or less use of any chemical due to harmful effects of chemicals on human health and environment. In recent years, biofertilizers have emerged as an important component for supplementation of plant nutrient. They are economically attractive and ecologically sound inoculants for providing nutrient to the plants. Biofertilizers have good potential as nutrient supplement due to its low cost for papaya production.

Key words: Plant Nutrient, Biofertilizer, Papaya Production

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Effect of Climate Change on Soil Resilience

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Abstract

Climate change in the Intergovernmental Panel on Climate Change (IPCC) refers to significant changes in global temperature, precipitation, wind patterns and other measures of climate that occur over several decades or longer. Climate change can relate to a specific region or the entire globe. Weather patterns might become less predictable as a result of climate change. These unexpected weather patterns can make it difficult to maintain and grow crops in regions that rely on farming because expected temperature and rainfall levels can no longer be relied on. Climate change has also been connected with other damaging weather events such as more frequent and more intense hurricanes, floods, downpours and winter storms. Climate change impacts soil's chemical, physical, and biological functions through a range of predicted global change drivers such as rising atmospheric carbon dioxide (CO_2) levels, elevated temperature, altered precipitation and atmospheric nitrogen (N) deposition. Climate is one of the most important factors affecting the formation of soil with important implications for their development, use, and management perspective with reference to soil structure, stability, topsoil water holding capacity, nutrient availability and erosion. Although rising temperature, precipitation, CO_2 fertilization, and atmospheric N deposition have been associated with increased SOM decomposition, rising temperature, precipitation, CO_2 fertilization, and atmospheric N deposition may all support high plant productivity and OM input to soil and thus increase SOM. Due to climate change, higher CO_2 concentration increases the photosynthetic rates, and also it increases the water use efficiency of crops, hence increasing organic matter supplies to soils. Increased CO2 levels could mitigate some of the detrimental effects of rising temperature, such as increased nocturnal respiration. Increases in productivity are usually accompanied by more litter or crop residues, a greater total root mass and root exudates, increased mycorrhizal colonization and activity of other rhizosphere or soil microorganisms and a favourable influence on crop N supply.

Key words: Climate change, Precipitation, Soil organic matter, CO_2 level

Diversity of plant functional traits in response to a long-term manipulative experiment with nitrogen addition in a dry tropical grassland

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Abstract

Grasslands are one of the main biomes on Earth, comprising between 30 - 40 % of the land area. Grasslands are surprisingly diverse and difficult to define because they include a wide variety of plant life forms that contribute to the species richness and diversity of the region. In this regard, a lot of research has been done on how adding nitrogen (N) decreases species diversity; on the other hand, the effects of N-deposition on plant functional trait diversity are less well understood. In fact, it is expected that the

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mechanisms by which plant communities respond to N-deposition will depend on the functional traits of the species. Observational and experimental research have proposed the hypothesis that ecosystem processes can be impacted by functional trait diversity within a community. Thus, in dry tropical grasslands with limited nitrogen (N), anthropogenic N-deposition may have a major effect on the diversity of plant functional traits. Studies have shown that N deposition has a major effect on a plant's qualitative characteristics, like C_3 and C_4 metabolism and N-fixation, as well as its functional markers, like specific leaf area, dry matter content, and leaf N concentration. Variation in growth strategy in response to N-deposition and competitiveness for resource utilisation were also demonstrated by diversity in plant functional traits. Thus, along the gradient of N deposition, a varied pattern of specific functional traits of plants makes it possible to identify strategies that will be useful for scaling up from individual performance to communities and ecosystems.

Keywords: Nitrogen deposition, Tropical grasslands, Species richness, Species diversity, Plant functional traits

Breeding and Health Management Practices in Small Ruminants: An Exploratory Study in Fatehpur and Hamirpur Districts of Uttar Pradesh

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Abstract

The state Uttar Pradesh and two districts of central plain zone namely Fatehpur and Hamirpur districts were purposively selected during 2023-24.Researcher himself followed a multistage random sampling procedure to select the 160 goat and sheep farming farmers as respondents for interviews, revealing a predominantly middle-aged (44.40%) and male (79.38%) demographic. The study revealed that majority of respondents (65.60%) employed traditional castration methods, while 58.10% did not vaccinate their animals. A significant proportion (71.90%) disposed of placenta through deep burial, and 54.40% preferred deep burial for dead animals. The study highlights the need for improved farming practices, vaccination, and deworming, as well as the importance of educating farmers about modern agricultural methods. The findings of this study can inform policy decisions and extension services aimed at enhancing the productivity and livelihoods of goat and sheep farmers in the region.

Key Words: Breeding, Health Management, Small Ruminants, Adoption, livelihood.

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The Role of Organic Pesticides in Sustainable Agriculture: Benefits, Challenges, and Future Perspectives

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Abstract

As the global agricultural sector faces mounting pressure to adopt more sustainable and eco-friendly farming practices, organic pesticides have emerged as a promising alternative to conventional chemical pesticides. This paper explores the pivotal role of organic pesticides within the framework of Integrated Pest Management (IPM), highlighting their benefits, limitations, and future prospects in promoting sustainable agriculture.The study delves into the effectiveness of organic pesticides in pest control, evaluates their environmental footprint compared to synthetic counterparts, and examines the current regulatory frameworks governing their use. By addressing both the advantages—such as reduced toxicity and improved soil health—and the challenges—such as cost, scalability, and efficacy—the paper contributes to the broader dialogue on transforming agricultural practices to ensure food security while maintaining ecological integrity.

Possibilities of freshwater pearl culture in uttar pradesh

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Abstract

With ever increasing population in Uttarpradesh, there is a big issue of employment. So we have to explore new opportunities and ways to cope up with this issue. Freshwater pearl culture can be a solution to this problem as U.P. has a vast potential to develop this area as a subsidiary income source for socioeconomically weaker sections, which also contribute in India's economy and help in taking a step forward in making India **Aatmnirbhar Bharat .** In this article, we will discuss some possibilities as well as challenges before starting freshwater pearl culture in U. P.

Key words: *freshwater pearl culture, subsidiary income source, socio - economically weaker sections.*

Importance of Organic Farming enentrepreneurship

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ABSTRACT

Organic farming, integrated with sustainable agricultural practices, plays a pivotal role in addressing the nutritional needs of both current and future generations while preserving environmental health. Unlike modern farming practices that heavily rely on pesticides and synthetic fertilizers, organic farming promotes soil fertility, enhances water retention, and maintains biodiversity. It fosters a healthier ecosystem by supporting insect populations, plant genetics, and overall environmental resilience. Recent studies highlight the growing shift towards organic agriculture, with over 200 countries globally embracing organic practices. In India, where agriculture is a major sector of the economy, organic

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farming offers a promising path to environmental sustainability, benefiting both producers and consumers by reducing harmful chemicals in food and supporting ecological balance. The COVID-19 pandemic has further elevated the demand for organic food, emphasizing its role in improving immune health and promoting nutritional security. India holds a significant position in global organic agriculture, with a notable increase in organic farmland and farmers. This paper explores the current status and future prospects of organic farming in India, its contribution to sustainability, and its role in fostering long-term health and environmental benefits.

Keywords: Organic farming, healthy nation, agriculture

Empowering Rural India Through Science and Technology-Based Innovation and Entrepreneurship

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Abstract

Rural India faces significant socio-economic challenges, including poverty, unemployment, and inadequate infrastructure. However, Science and Technology (S&T)-driven innovations have emerged as crucial drivers of sustainable development, enhancing productivity, resilience, and livelihoods. This paper explores the transformative role of technological and grassroots innovations and government initiatives in fostering rural entrepreneurship. Government programs such as the **National Initiative for Developing and Harnessing Innovations (NIDHI),** under the Department of Science and Technology (DST), have played a pivotal role in supporting startups and rural technology-based enterprises. The **Ministry of Agriculture & Farmers' Welfare**has introduced schemes like**Rashtriya Krishi Vikas Yojana (RKVY), National Mission on Sustainable Agriculture (NMSA), and e-NAM (Electronic National Agriculture Market)** to promote agri-tech innovations, precision farming, and market access for rural farmers. Grassroots innovations, often developed by rural entrepreneurs and supported by institutions like the **National Innovation Foundation (NIF),** have provided affordable and region-specific solutions. Notable examples include **Mitticool refrigerators (eco-friendly clay-based cooling systems), solar-powered irrigation pumps, bio-based fertilizers, and low-cost water purification technologies.** Digital transformation initiatives under **Digital India** have further enhanced access to financial services, healthcare (telemedicine), and smart agriculture through AI, IoT, and blockchain-based interventions. This paper presents case studies of successful rural enterprises and policy-driven innovations, underscoring the importance of continued investment in S&T-led rural development. Strengthening innovation ecosystems, fostering technology adoption, and enhancing policy support can accelerate rural India's progress toward self-reliance and sustainability.

Keywords: Grassroot Innovations, Rural Technologies, Entrepreneurship

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Harnessing Artificial Intelligence for Sustainable Agrochemical Usage in Agriculture

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Abstract

Sustainable agricultural practices necessitate optimizing agrochemical usage to balance crop productivity with environmental conservation. Artificial Intelligence (AI) is emerging as a transformative tool to achieve this equilibrium by enabling precision application, reducing waste, and minimizing ecological impacts. AI-powered systems leverage machine learning, computer vision, and predictive analytics to monitor field conditions, identify crop-specific needs, and recommend optimal doses of fertilizers, pesticides, and herbicides. Innovations such as automated drones, IoT-connected sensors, and AI-driven decision-support systems enable real-time monitoring and site-specific agrochemical application. These technologies significantly reduce overuse and runoff, addressing concerns of soil degradation and water pollution while enhancing crop health and yield. This paper examines the role of AI in fostering sustainable agrochemical practices, highlighting advancements, practical applications, and challenges. It underscores the potential of AI-driven innovations to revolutionize agrochemical management, contributing to resilient and environmentally friendly agricultural systems.

Keywords: Artificial Intelligence, Sustainable Agriculture, Agrochemical Optimization, Precision Farming, Environmental Conservation, Machine Learning, IoT, Crop Management, Smart Agriculture

Role of NCoR1 levels in prognosis during bacterial infections.

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Sepsis, being the major cause for morbidity and mortality, is characterized by dysregulated immune responses, which eventually leads to severe inflammation. There are reports which have stated that the knockdown of nuclear receptor corepressor (NCoR1), which is responsible for the inhibition of transcription of inflammatory genes, leads to increased bacterial infections in in vitro, in vivo and ex vivo conditions. It has been seen that the NCoR1 expression fluctuates during infection, correlating with disease severity. In TB patients, during acute infection, the NCoR1 level decreases but upon anti-mycobacterial therapy, the NCoR1 is restored to normal levels. Since it inversely correlated with the infection levels, we are interested to see if NCoR1 levels in lung macrophages could be employed as a prognostic marker of bacterial infection and anti-bacterial therapy. This study aims to investigate the correlation between NCOR1 expression and bacterial load in lung infection models by different bacterial pathogens like Streptococcus pneumoniae, Staphylococcus aureus and Mycobacterium tuberculosis.

Key words: Sepsis, NCoR1, Bacterial infections, Inflammation, Gene expression, Macrophages, Tuberculosis (TB), Bacterial load.

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CHALLENGES IN CSR DRIVEN INNOVATION AND ENTREPRENEURSHIP

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Abstract

CSR-driven innovation and entrepreneurship aim to create business models that not only drive profit but also address societal and environmental challenges. However, integrating Corporate Social Responsibility (CSR) into the innovation process presents several obstacles. One major challenge is the alignment of profit-driven goals with social and environmental objectives, as businesses often face difficulty in balancing economic success with creating meaningful social impact. Entrepreneurs also encounter hurdles in securing funding for CSR-based initiatives, as investors typically prioritize financial returns over social or environmental outcomes. Additionally, measuring the impact of CSR-driven innovations on both business performance and societal benefits remains complex, with a lack of clear metrics and frameworks for evaluation. The regulatory landscape surrounding CSR is also dynamic and inconsistent across regions, adding another layer of uncertainty for businesses. Furthermore, scaling CSR-driven innovations presents challenges in terms of resource allocation, market acceptance, and partnerships, often requiring collaboration across sectors. Despite these challenges, CSR-driven innovation holds great potential for creating sustainable solutions that address global issues. By understanding these barriers, entrepreneurs and businesses can better navigate the complexities of CSR-driven ventures, fostering a more sustainable and inclusive approach to innovation and entrepreneurship that benefits both society and the business world.

STUDY ON THYROID DISEASE SURVEILLANCE SYSTEM IN ETAWAH (U.P.)

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ABSTRACT:
Thyroid disorder are common endocrine condition that effect metabolic and systemic function leading to various health complications.
These disorder including hyperthyroidism, goiter and thyroid nodules, arise due to genetic autoimmune nutritional and environment factor.
This paper explore the pathophysiology, risk factor for thyroid disorder to improve patient care

KEYWORDS: Thyroid disorder hypothyroidism, hyperthyroidism, goiter

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114. EARTHWORM IS AN IMPORTANT SOIL MACRO FAUNA TO GOOD SOIL HEALTH

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ABSTRACT

Earthworms are known as farmers best friends because of the multitude of service they provide that improve soil health and consequently plant health. The density of Earthworms in the soil is considered to be a good indicator of a healthy soil because they improve many soil attributes like soil structure, aeration, drainage facility during rainy season, water holding capacity, moisture content etc. and also increase nutrient availability and degrade pesticide residues. A scientist understand these ecosystem services provided by Earthworms, they discover that this earthworm-farmer friendship is a lot deeper than previously imagined

Innovation, Entrepreneurship, and Incubation in Science

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Abstract

Innovation, entrepreneurship, and incubation in science play a crucial role in driving technological progress and economic growth. This presentation explores key scientific and technological advancements that shape modern industries, emphasizing the role of emerging technologies such as Artificial Intelligence (AI), Blockchain, and the Internet of Things (IoT) in business and research. These innovations enhance efficiency, transparency, and automation across multiple sectors, including healthcare, biotechnology, and environmental sustainability.The discussion extends to biotechnology and healthcare innovations, highlighting breakthroughs in gene editing, personalized medicine, and drug discovery. Additionally, the presentation delves into environmental sustainability and renewable energy solutions, showcasing the impact of green technologies in addressing global challenges. The commercialization of research and the collaboration between industry and academia are essential in translating scientific discoveries into practical applications.Space technology is another frontier of scientific innovation, contributing to various sectors beyond space exploration. The role of incubators and startups ecosystems in fostering scientific entrepreneurship is also examined, demonstrating how science-based startups drive economic transformation. Despite numerous advancements, challenges such as regulatory barriers, funding constraints, and commercialization hurdles remain significant obstacles for scientific entrepreneurship.This presentation concludes by analyzing the future prospects of innovation in science and technology, emphasizing the need for supportive policies, industry-academia partnerships, and investment in research and development. By addressing these factors, the global scientific community can foster a sustainable ecosystem that encourages innovation, economic growth, and technological progress for the benefit of society.

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Agri-startups in india: the ray of hope in agriculture

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Abstract

India's agricultural sector is undergoing a significant transformation driven by agri-startups, addressing long-standing challenges such as low productivity, market inefficiencies, and climate vulnerabilities. These startups are revolutionizing farming through technology-driven solutions, digital platforms, and sustainable practices, offering a "Ray of Hope" to millions of farmers.

CANTHARANTHUS ROSEUS AS SPAGYRIC REMEDY

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ABSTRACT

There are around 350,000 different species of plants on the earth, and each one has significant medical potential. The plant vinca, which is a member of the Apocynanacae family, is also known by the names CANTHARANTHUS, Sadabahar, and Baramasi.It produces stunning blooms that might be white, blue, or purple in colour. The plant has the following constituents, however the two that most important to the medical sector are vincristine and vinblastine. Vincristine is used to Juvenile leukaemias, Vinblastine is mostly utilised to treat Hodgkin Lymphomas . Both chemical constituents frequently have harmful effects on human bodies, such as weakening of the muscles, anurexia, bone and narrow depressions. Vinca's chemical components binds to turbulin to stop microlubule production and to stop mitosis during the metaphase. Numerous medical properties of vinca include anticancer, antidiabetic, antimicrobial and anti-ulcer be administered as combination therapy or as targeted therapy.

KEYWORD Cantharanthus,, vinblastine, vincristine, anticancer, spagyric.

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Impact of Organic Manures and Bio-fertilizers on Growth and Flowering of Tuberose (*Polianthes tuberosa* L.) cv. Hyderabad Single

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Abstract

This research investigates the role of organic manures and bio-fertilizers on growth and flowering of Tuberose, conducted at the Horticulture Experiment Field, School of Advanced Agriculture Sciences and Technology, Chhatrapati Shahu Ji Maharaj University, Kanpur 208024 (U.P.), during 2024-2025, the experiment utilized a randomized block design with 12 treatment combinations with 03 replications. The treatments included Farm Yard Manure (FYM), Vermicompost and Bio-Fertilizers such as Phosphate Solubilizing Bacteria (PSB), Azotobacter. Results indicated that the combination of vermicompost and Azotobacter significantly enhanced the vegetative growth parameters,plant height, number of tillers, number of leaves per clump and flowering parameters, number of spikes per clump, days taken to opening of first floret, Length of spike, number of florets per spike also enhance bulb parameters, number of bulbs per clump, diameter of bulb and weight of bulb. The findings suggest that integrating organic manures and bio-fertilizers can effectively improve the growth and flowering of Tuberose, offering a sustainable approach to floriculture.

Keyword: Organic farming, Organic Manures, Bio-Fertilizers and Vermicompost.

CHALLENGES IN CSR DRIVEN INNOVATION AND ENTREPRENEURSHIP

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Abstract

CSR-driven innovation and entrepreneurship aim to create business models that not only drive profit but also address societal and environmental challenges. However, integrating Corporate Social Responsibility (CSR) into the innovation process presents several obstacles. One major challenge is the alignment of profit-driven goals with social and environmental objectives, as businesses often face difficulty in balancing economic success with creating meaningful social impact. Entrepreneurs also encounter hurdles in securing funding for CSR-based initiatives, as investors typically prioritize financial returns over social or environmental outcomes. Additionally, measuring the impact of CSR-driven innovations on both business performance and societal benefits remains complex, with a lack of clear metrics and frameworks for evaluation. The regulatory landscape surrounding CSR is also dynamic and inconsistent across regions, adding another layer of uncertainty for businesses. Furthermore, scaling CSR-driven innovations presents challenges in terms of resource allocation, market acceptance, and partnerships, often requiring collaboration across sectors. Despite these challenges, CSR-driven innovation holds great potential for creating sustainable solutions that address global issues. By understanding these barriers, entrepreneurs and businesses can better navigate the complexities of CSR-driven ventures, fostering a more sustainable and inclusive approach to innovation and entrepreneurship that benefits both society and the business world.

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Varietal Evaluation of Gladiolus (*Gladiolus grandifloras* L.) for Commercial Production of Flowers & Corms

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Abstarct

The genus Gladiolus comprises about 260 species, with hybrids being widely cultivated for ornamental purposes due to their tall flower spikes and vibrant colours. The name 'Gladiolus' comes from the Latin word 'gladius,' meaning sword, referring to the plant's sword-like leaves. These flowers are popular in gardens and as cut flowers because of their striking appearance and variety of colours. Gladiolus plants thrive in well-drained soil and full sunlight, and they bloom in late summer to early fall. Why should the farmers here choose this crop? I chose this crop to create awareness among the farmers in this regard. Under this, I did varietal evaluation of 9 varieties of Gladiolus crop under Crop research field of Chhatrapati Shahu ji Maharaj university. Every single component Central Plane Zone of UP is completely suitable for the farmers here to grow Gladiolus, there are many factors like soil, temperature, availability of water etc. which play an important role in growing Gladiolus. All those factors are available in the Central Plain Zone of UP but the matter of concern is that the farmers here are not adopting this sustainable crop. So first of all, I would like to tell you why the farmers of Central Plain Zone of UP should choose this sustainable crop? Because its high market demand, availability of wide range of variety, crop of profitability, ease of cultivation and long flowering period.

Keywords: Varietal evaluation**,** Sustainable farming and Gladiolus.

STUDY OF HIV: A SERIOUS HEALTH CHALLENGE IN AURAIYA (UP)

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ABSTRACT

HIV (Human Immunodeficiency Virus) is a virus that attacks the immune system, making the body weak and unable to fight infections. If not treated, it can lead to AIDS (Acquired Immunodeficiency Syndrome), which is the most serious stage of the disease.HIV spreads through unprotected sexual contact, sharing infected needles, blood transfusions, and from an infected mother to her baby during birth or breastfeeding. In the early stages, symptoms may include fever, tiredness, and swollen lymph nodes, but sometimes there are no symptoms for many years.Doctors diagnose HIV with blood tests. There is no cure, but medicines called antiretroviral therapy (ART) can help people live longer and stay healthy. To prevent HIV, people should practice safe sex, avoid sharing needles, and get tested regularly. Scientists are still researching vaccines and better treatments for HIV.HIV is a serious global health problem, but with awareness, early detection, and proper treatment, its spread can be controlled. Awareness programs can help control the spread of HIV. Government support, better healthcare, and education are important to reduce the impact of HIV in society.This study included 70 patients with symptoms indicative of HIV.

Keywords: - HIV, AIDS, Immune system, Virus, Infection, CD4 cells, Transmission, Unprotected Sex, Blood Transfusion, Needle Sharing, prevention, (ART)

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Human Being and Environmental Sustainability

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ABSTRACT

Environmental sustainability is a key element of human development and well-being. We depend upon ecosystems to provide the water we drink, the food we eat, and the wood we use to heat our homes. Reliance on these resources necessitates a delicate balance, however. Use too little of those resources and our capacity to meet basic human needs is at risk. Use too much and severe adverse environmental repercussions will likely ensue, including the depletion of resources, ecosystem collapse and increased emissions. Such risks are amplified due to rapid globalization, urbanization, wealth generation, and climate change. Hence, it is not enough to solely evaluate our environment: attention must also be given to the sustainability of the environment. Environmental sustainability, one of three pillars of sustainability, 3 was formally introduced as a broad fundamental concept by Goodland (1995). It can be defined as the capacity to sustain global life support systems indefinitely by ensuring that natural resources adequately meet human life requirements. Natural resources include oil, natural gas, air, soil, water and animals, all of which are finite if not satisfactorily maintained. Moreover, the idea of environmental sustainability transcends a simple supply-demand balance by simultaneously considering waste assimilation, and steps taken to minimize environmental degradation and promote biodiversity conservation. However, the scope of environmental sustainability presents a challenge when attempts are made to quantify the concept using selected indicators. Increasing urbanization and population growth increases the strain on municipal services, including municipal waste management services.

Key Words:-*Environmental sustainability, Human development, Climate change, Natural gas, Air, Soil, Water etc.*

Transformative Impacts of SAARC: Analysing Socio-Economic Changes Before and After Inception

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Abstract

This research paper investigates the transformative impacts of the South Asian Association for Regional Cooperation (SAARC) by analyzing the socio-economic changes before and after its inception. Utilizing historical data, economic indicators, and social parameters, this study evaluates the evolution of member nations within the SAARC framework. By comparing pre-SAARC socio-economic conditions to post-inception developments, the paper delves into key areas such as trade, infrastructure, regional dynamics, and cooperation., this research aims to provide a comprehensive understanding of SAARC's influence on the socio-economic landscape of South Asia.

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ROLE OF WOMEN IN INNOVATION, ENTREPRENEURSHIP AND INCUBATION IN DIFFERENT AREAS

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ABSTRACT

Women participate actively in innovation, entrepreneurship, and the business incubation processes within various disciplines, and this helps develop sustainable and advanced economies. Women have led innovations in AI, biotechnology, and software engineering in the Technology and STEM fields, but they continue to face challenges of being underrepresented in leadership roles and funding opportunities. In business, female founders' own companies focusing on social issues in e-commerce, fintech, and healthcare sectors which make them impact driven and inclusive. There exist women-focused business incubators and accelerators that provide mentoring, finances and networking, thereby building a thriving pool of potential women growers.Women innovators in biotech and healthcare are addressing issues related to maternal health and personalized medicine with pharmaceutical, medical device, and digital health innovations. Women's leadership in climate-smart agriculture and conservation matches the increasing need for aggrotech initiatives in the fields of agriculture and sustainability. Women are crossing over into finance and investment, and fuelling much-needed solutions for the funding gap for women in two of the fastest growing industries Venture capital and Fintech. Governments and other women-driven initiatives like the, Women's Entrepreneurship Platform (WEP) provide policy changes and financing to support female entrepreneurs. Despite the progress, women continue to face-headwinds in the form of funding shortages, stereotyping, and lack of opportunities to practice networking. This information needs to be at the basis of policy adjustment, mentoring and financing to enable gender-balanced economic growth. Women are capable of driving major innovation across industries and the more of them there are in the stacks of entrepreneurship and business incubation

A Review on Effect of Climate Change on Breeding Behaviour of Crop Plants

The Role of Marker-Assisted Breeding in Horticultural Crop Improvement

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Abstract

Marker-assisted breeding (MAB) is revolutionizing the cultivation of horticultural crops by enabling more accurate genetic selection of desired traits. Unlike traditional breeding methods, which depend heavily on selecting traits based on visible characteristics, a process often hindered by complex inheritance patterns and environmental influences, MAB uses molecular markers tied to specific genes. This allows breeders to more efficiently identify and choose plants with the desired genetic features. MAB has significantly accelerated the breeding process for crops with traits like disease resistance, higher yields, and enhanced nutritional and visual qualities. It also reduces the time needed for breeding cycles; while traditional methods may require multiple generations to achieve desired traits, MAB can confirm the presence of beneficial genes early, speeding up the development of improved varieties. This is particularly crucial in addressing challenges like climate change, where crops must quickly adapt to

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stressors such as drought, salinity, and temperature fluctuations. In essence, MAB represents a major advancement in horticultural crop development, increasing the precision and efficiency of breeding efforts. It also plays a vital role in creating crops suited to specific environmental and market needs, while helping tackle global issues like food security, climate change resilience, and sustainable farming. MAB positions horticulture to better meet evolving consumer expectations and agricultural demands.

Keywords: Horticultural, genetics, sustainable, chemical, traditional, generations

The Role of Incubation in Physics

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Abstract

Incubation plays a crucial role in the advancement of physics by fostering innovation, collaboration, and the development of groundbreaking ideas. Scientific incubation involves the prolonged contemplation of complex problems, allowing researchers to refine theories and experimental approaches over time. This process is evident in historical breakthroughs, such as Einstein's development of relativity and the evolution of quantum mechanics. Modern physics incubators, including research institutions, university labs, and technology hubs, provide an environment for scientists to test hypotheses, share knowledge, and translate theoretical concepts into practical applications. The incubation process not only accelerates scientific progress but also bridges the gap between fundamental physics research and technological innovation.

Empowering Women-Led Startups: Inclusive Business Strategies for Sustainable Growth

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Abstract

Women-led startups are driving innovation and economic growth worldwide. However, women entrepreneurs face unique challenges, including limited access to funding, networks, and resources. Inclusive business strategies can promote gender equality and empower women-led startups. This paper explores the importance of inclusive business strategies for women-led startups and provides recommendations for promoting sustainable growth.Women entrepreneurs continue to face significant barriers to success, despite the growing number of women-led startups. Women-led startups receive only 2% of venture capital funding, despite making up 40% of all startups. Additionally, women entrepreneurs often lack access to networks and resources, making it difficult to scale their businesses.Inclusive business strategies can help address the challenges faced by women-led startups. Pairing women entrepreneurs with experienced mentors who understand the challenges and opportunities of women-led startups can provide valuable guidance and support. Providing targeted funding opportunities, such as women-focused accelerators and incubators, can help bridge the funding gap. Creating platforms for women entrepreneurs to connect, share experiences, and collaborate can help build networks and provide access to resources.Offering tailored training programs to enhance business skills, leadership, and digital literacy can help women entrepreneurs build capacity and confidence. Advocating for policies that support women-led startups, such as tax incentives, subsidies, and regulatory reforms, can help create a more inclusive entrepreneurship ecosystem

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"The Role of Microfinance in Supporting Small-Scale Farmers"

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Abstract

Microfinance has emerged as a critical tool for enhancing the financial inclusion of small-scale farmers, who often face challenges in accessing formal credit. This study explores the role of microfinance institutions (MFIs) in supporting small-scale farmers by providing them with credit, savings, insurance, and financial literacy programs. The research examines how microfinance influences agricultural productivity, income levels, and overall rural development. Furthermore, it highlights the barriers farmers face in utilizing microfinance, including high interest rates, lack of collateral, and financial illiteracy. The study also assesses the impact of government policies and digital financial solutions in improving access to microfinance services. Findings suggest that while microfinance plays a significant role in empowering small-scale farmers, a more integrated approach involving technology, training, and policy reforms is needed to maximize its benefits.

Keywords: Microfinance, Small-Scale Farmers, Agricultural Finance, Rural Development, Financial Inclusion

"Development of a Sustainable Soil Management Model for Entrepreneurial Farmers"

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Abstract

The development of sustainable soil management practices is critical for ensuring long-term agricultural productivity, especially for entrepreneurial farmers who aim to balance economic growth with environmental responsibility. This study presents a comprehensive model for sustainable soil management tailored to the needs of entrepreneurial farmers, emphasizing the integration of innovative practices that enhance soil health, improve crop yield, and reduce environmental degradation. The model incorporates principles of soil conservation, organic farming, agroecological techniques, and modern technological tools, while considering the economic viability and scalability for small- to medium-scale farmers. Key strategies outlined in the model include crop rotation, cover cropping, reduced tillage, organic amendments, and precision agriculture. Additionally, the model integrates community-based knowledge and participatory approaches, recognizing the importance of local context and farmer engagement in soil management decisions. The results demonstrate that sustainable soil management not only promotes ecological balance but also fosters financial resilience, ultimately supporting entrepreneurial farmers in achieving both environmental sustainability and economic profitability. The findings suggest that implementing this model can lead to improved soil fertility, enhanced biodiversity, and a more sustainable agricultural system, offering valuable insights for policy-makers, agricultural advisors, and farmer networks.

Keywords: Entrepreneurship, Sustainable Agriculture, Soil Management, Agricultural Entrepreneurship.

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"Development of a Mobile Soil Testing Laboratory for Entrepreneurial Farmers: A Sustainable Approach to Soil Health Management"

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Abstract

The degradation of soil health poses a significant challenge to agricultural productivity, especially for entrepreneurial farmers who are often limited by resources and access to advanced soil testing facilities. This study explores the development of a mobile soil testing laboratory designed to provide on-site, real-time soil analysis for entrepreneurial farmers, aiming to improve soil health management in a sustainable and cost-effective manner. The mobile laboratory incorporates state-of-the-art technology, including portable soil testing kits, GPS-based soil mapping, and real-time data analysis tools, enabling farmers to receive immediate feedback on soil conditions, nutrient levels, and pH balances. This approach significantly reduces the need for expensive lab-based tests and long wait times for results, making soil management practices more accessible and efficient for farmers, particularly in rural or underserved regions. The mobile laboratory is equipped to test a wide range of soil parameters, including macro and micronutrient levels, organic matter content, and soil texture, providing comprehensive insights into soil fertility. The data collected is processed using software that offers tailored recommendations for soil amendment practices such as fertilization, crop rotation, and the use of organic inputs, optimizing soil health and improving crop yield. Moreover, the mobility of the laboratory ensures that farmers can perform frequent and localized testing, promoting proactive soil health management rather than reactive approaches. This innovative solution also emphasizes sustainability by reducing the environmental footprint associated with transporting soil samples to distant laboratories. By enabling real-time, localized testing, the mobile laboratory helps farmers make informed decisions that support sustainable agricultural practices, such as precision farming and conservation tillage. The model also fosters entrepreneurial opportunities by providing farmers with the tools to manage soil health independently, ultimately leading to enhanced productivity, resource efficiency, and long-term environmental sustainability. This study demonstrates that the mobile soil testing laboratory is a promising solution for addressing soil health challenges, promoting sustainable farming practices, and empowering entrepreneurial farmers to achieve both ecological and economic resilience.

Keywords: Soil Science, Soil Testing, Entrepreneurship, Sustainable Agriculture, Mobile Laboratory, Soil Health Management.

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Use of Agro-waste for Plant Growth and Crop Protection against various plant diseases: A sustainable Agricultural Technology

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Agriculture is the backbone of the Indian economy. The agronomic sector plays important role in the growth of wealth besides feeding the ever-increasing community. Plant pathogens can infect different parts of a plant at various stages of growth, including aerial or soil parts, green and fruit tissues lead to crop loss. Fungal infections cause significant losses in crop yield, resulting in a 70-80% reduction. The major crops affected by fungal pathogens include groundnut, cotton, barley, wheat and rice. Traditional methods and commercial fungicides used to manage fungal diseases in crops have led to a loss of soil biodiversity and the development of resistance against pests and pathogens. Therefore, discovering new plant based biopesticides for disease control has become essential. The nutritional composition and antioxidant potential of fruit peels, vegetables peels and crop waste vary due to several biologically active compounds present in them. Agricultural residue such as rice husk, soy, coconut shell, wheat straw, banana peel, orange peel, and pomegranate peel have been used for plant growth and protect the crop from various plant disease. Applying the extracts of ago waste can enhance nutritional content, photosynthetic activity, and e metabolism of any crop plant with quality improvement. There are several plants on which the experiments have been conducted to prove the positive changes in the plants when treated with the extracts of fruits and vegetables peels. Synthesis of nanoparticles from agro-waste is also one of the novel approach toward s sustainaible approach for agricultural development. Use of these plant products might be useful in agriculture sectors as bio-fungicide and bio-fertilizer.

"TheRoleof DigitalMarketinginPromotingPaneer-BasedProducts"

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Abstract

Digital marketing has significantly transformed the promotion and sale of food products, including paneer-based items. This study investigates the impact of various digital marketing strategies—such as social media marketing, influencer collaborations, search engine optimization (SEO), and e-commerce—on enhancing the visibility and market performance of paneer products.The research analyzes how interactive content, video marketing, and targeted advertisements influence consumer engagement and purchasing decisions. Furthermore, the study examines how health-conscious trends and digital campaigns have reshaped consumer perceptions of paneer as a nutritious and versatile food choice.Findings indicate that well-executed digital marketing strategies can boost brand awareness, strengthen customer loyalty, and contribute to overall market growth for paneer-based products. Nevertheless, challenges such as intense market competition, evolving platform algorithms, and the need to build and maintain consumer trust must be addressed to ensure sustained success in the digital landscape.

Keywords: Digital Marketing, Paneer-Based Products, Social Media, Consumer Behavior, E-Commerce, Food Industry

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Generation mean analysis in okra [*abelmoschus esculentus* (l.) Moench]

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Abstract

The present investigation was undertaken to study the genetics of yield and yield components through generation mean analysis based on six parameter model in four crosses namely of Okra (*Abelmoshcus esculentus* L. Moench) derived through eight parental diallel cross and their back crosseswere analyzed for ten characters namely; days to flowering, height of plant (cm), number of branches per plant, number of first fruiting node, number of nodes per plant, length of internode (cm), length of fruit (cm), width of fruit (cm), number of fruits per plant and yield per plant (g) at Department of Horticulture, Janta College Bakewar, Etawah during the year 2022. Scaling test showed the presence of non-allelic gene interactions in all the crosses for all the characters under study as significant value of either of the scale A, B and/or C. Generation mean analysis revealed that dominance components were more prominent than additive components for all the characters based on all the crosses studied. The Digenic Epistasis was additive x dominance and dominance x dominance in nature. Duplicate type of epitasis was observed in most of the crosses. Except in VRO-3x PK for nodes/plant, KS-312xVRO-5 for width of fruits and AB-2x KS-312 for yield per plant where it was Complimentary type.

Key-Words: Additive; Dominance; Diallel; Duplicate Gene Action; Epitasis; Okra; Quantitative Traits;

To Study the Challenges and Opportunities in Global Trade and Business Expansion

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Global trade and business expansion present a dynamic landscape filled with both challenges and opportunities. As companies look to grow internationally, they encounter several hurdles that can impact their success. One of the primary challenges is navigating diverse regulatory environments. Each country has its own set of trade laws, tariffs, and regulations, which can make compliance complex and time-consuming. Political instability or shifting trade policies can also lead to disruptions in supply chains and business operations. Additionally, cultural differences pose challenges in communication and consumer behavior, requiring companies to adapt their marketing strategies and management styles. Another significant challenge is currency fluctuations, which can affect profits and cost structures. A volatile exchange rate may lead to unexpected losses, especially for businesses with international operations or customers. However, alongside these challenges, there are numerous opportunities for companies to capitalize on. The rise of digital technologies has facilitated easier communication and business transactions across borders, enabling businesses to reach new markets with minimal investment. E-commerce platforms and online marketplaces also offer businesses the chance to tap into a global customer base without the need for a physical presence in every market.

Keywords: Global Trade, Business Expansion, Political Instability, E-commerce Platforms, International Operations, Minimal Investment, Communication.

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"The Role of Government Policiesin Supporting Genetic Research and Plant Breeding"

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Abstract

Government policies play a pivotal role in advancing genetic research and plant breeding—key components in achieving sustainable agricultural development and global food security. This article examines how strategic governmental initiatives, regulatory frameworks, and financial support mechanisms have shaped the trajectory of innovation in this field.Through an analysis of case studies from various agricultural economies, the study demonstrates how targeted policies—including public–private partnerships, innovation incentives, and research funding—can accelerate the development and dissemination of improved crop varieties. These enhanced cultivars contribute to increased productivity, greater resilience to environmental stressors, and broader economic growth within the agricultural sector.The findings highlight that well-designed policies can foster innovation and market competitiveness, while also stressing the importance of balanced regulatory oversight to address safety, ethical considerations, and equitable access for farmers. The article concludes by offering practical policy recommendations aimed at optimizing research investments and enhancing the long-term impact of plant breeding innovations on food security and rural development.

Keywords: GovernmentPolicies,GeneticResearch,PlantBreeding,AgriculturalInnovation,FoodSecurity, RegulatoryFrameworks

Role of women in innovation

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Abstract

Innovation is a driving force behind economic growth, social progress, and environmental sustainability. However, the contribution of women in innovation has been historically underestimated and underrepresented. This paper highlights the vital role of women in innovation, exploring their experiences, challenges, and achievement. A comprehensive review of existing literature reveals that women bring unique perspectives, skill, and approaches to innovation ,leading to more inclusive, effective, and sustainable solutions . Despite facing barriers and biases women are increasingly driving innovation in various field, from technology and healthcare to environmental science and social entrepreneurship. This paper argues that empowering women in innovation is crucial for unlocking their full potential, fostering diversity. By recognizing and supporting the role of women in innovation, we can create a more inclusive, equitable, and sustainable future for all.

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EFFECT OF NITROGEN AND PHOSPHORUS FERTILIZATION ON THE GROWTH AND YIELD OF WHEAT (*Triticum aestivum* L.)

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Abstract

The situated field experiment was conducted at Agricultural Research Farm of RBS College, Bichpuri Agra, during Rabi season of 2018-19 to evaluate the **"Effect of nitrogen and phosphorus fertilization on the growth and yield of wheat (Triticum aestivum L.)".** The variables involves in this study four N levels viz. N_1 (50 kg ha^{-1}), N_2 (100 kg ha^{-1}), N_3 (150 kg ha^{-1}) & N_4 (200 kg ha^{-1}) was sown with four P levels viz. P_0 (0 kg ha^{-1}), P_1 (30 kg ha^{-1}), P_2 (60 kg ha^{-1}) & P_3 (90 kg ha^{-1}). Thus in all 16 treatments combinations were compared in a RBD having cultivars sown in main plots N levels and sub plot in P levels with four replications. Dry matter accumulation in plants of 25cm. row length significantly increased with every increase in the levels of N application up to 150 kg N ha^{-1}at all the stages of crop growth except at 30 days stage. Length of spike, number of spikelets $spike^{-1}$, number of grains $spike^{-1}$& 1000 grain weight had significantly higher values with the application of 60 kg P_2O_5 ha^{-1} than that of 30 kg P_2O_5 ha^{-1}& control. The experimental results revealed that N level N_3 + P_2 obtained. Significantly higher grain yield & straw yield followed by N levels N_1,N_2,N_4 & phosphorus levels P_0, P_1, P_3. Based on the result of present investigation it is inevitable that N levels N_3 when applied with phosphorus P_2 gave higher production of grain & straw yield.

Keyword: Growth, Phosphorus, Nitrogen and Wheat.

Effect of Human Innovation, Entrepreneurship and Incubation in Agriculture, Home Science and Social Science

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Abstract

Innovation and entrepreneurship are crucial drivers of economic growth and societal development across various disciplines, including agriculture, science, commerce, and social sciences. The emergence of business incubation programs has further strengthened entrepreneurial ecosystems by providing necessary support, mentorship, and infrastructure for start-ups and innovators. In agriculture, Home Science, innovations such as precision farming, biotechnology, and sustainable practices have improved productivity and resilience against climate change. Agripreneurship, supported by incubators, fosters the development of agri-tech solutions, farm mechanization, and value chain improvements.

In science, Technological advancements in artificial intelligence, biotechnology, and renewable energy drive innovative start-ups. Incubators provide essential resources, including funding and R&D facilities, to commercialize scientific research.In commerce, digital transformation, fintech, and e-commerce platforms have redefined business models. Business incubation canters help entrepreneurs

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develop strategies for market entry, financial management, and scalability.In social science, innovation focuses on social entrepreneurship, public policy, and sustainable development. Incubation canters support social enterprises that address pressing societal issues such as poverty, education, and health care through innovative business models.This paper explores the interplay of innovation, entrepreneurship, and incubation in these fields, highlighting their significance in fostering sustainable economic and social development. The study emphasizes the role of incubators in nurturing start-ups, providing financial and technical assistance, and bridging the gap between research and commercialization.

Keywords: Innovation, Entrepreneurship, Business Incubation, Agriculture, Science, Commerce, Social Science, Start-ups, Economic Development

Valuation of Sensex 30 Companies

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Abstract

Current market price of stock is the price of the stock prevailing in the market. Investors buy and sell securities at the price prevailing in the market. There is difference between value and the price. Price is what you pay, value is what you get. Value of the stock may be more or less than the current market price due to upward and downward movements in the company and the economy. There is systematic and unsystamic risk attached to the business in the environment in which it operates. Investors are interested in finding out margin of safety in buying decisions. Investors invested money to buy the piece of business to get returns in the future. So, before investment one should find the underlying value of the stock. There are various methods and techniques used to find the value of the stock. It includes Price Earnings Ratio, Price Earning Growth Ratio, Price to Book Value Ratio, Price to Sales Ratio, Return on Equity, Return on Capital Employed, Earning Growth, Dividend Yield Ratio, Reinvestment Rate, Enterprise Value to EBITDA Ratio, Price to Cash Flows & Pay Back Period etc. So, one should screen the stock on the basis of above mentioned ratios before taking investment decisions. As per Warren Buffet first rule, Investor should first protect their capital and second rule is to follow the rule number one. Before investment, we have to identify how wealth has been generated by these organizations in the past and the parameters which allow us to take the position for the future. In this research paper, author will make a comparison of Sensex 30 companies by the use of various financial ratios to identify current value parameters of those companies and to find best companies for investments

Key Words: Valuation, Fundamental Analysis, Sensex 30 Companies

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Effecto fNPK with FYM and Boronon growth and yield of Radish (*Raphanus sativus* L.) Cv. Pusa Chetki

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Abstract

The experiment was conducted with 10 treatments viz., T_1 application of FYM @ 30t/ha. T_2 application of FYM @ 15t/ha. T_3 application of Boron (8 kg/ha). T_4 applicationof recommended dose of NPK through chemical fertilizers (50:100:50) kg/ha. T_5 application of ½ dose of NPK through chemical fertilizers (25:50:25) kg/ha. T_6 application of FYM @30t/ha + ½ dose of NPK through chemical fertilizers. T_7 application of FYM @ 15t/ha + ½ dose of NPK through chemical fertilizers. T_8 application of FYM @ 15t/ha + full recommended dose of NPK through chemical fertilizers. T_9 application of Boron (8kg/ha) + application of½ doseof NPKthrough chemical fertilizers. T_{10} Control in Randomized Block Design with three replications during zaid- 2024 at research farm of the department of horticulture, Janta College Bakewar, Etawah- 206124. The treatment was significantly observed application of FYM @30t/ha + ½ dose of NPK through chemical fertilizers in maximum values of growth attributes, length of leaves (cm), number of leaves, heightofplant (cm),weightofroot (g.), lengthofroot (cm),diameterofroot (cm)andyield (q./ h) over all the treatments.

Keyword-Organicmanures(FYM),inorganicmanures(NPK)and Micro-nutrient (Boron).

Coordination chemistry of phosphonic acids with special relevance to transition metal complexes

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Abstract

The utility of phosphonic acids as ligands for metal coordination and for designing other extended structures is described. The way they are designed is limited only by the variety of methods and equipment available to synthesize particular phosphonic acids. Under the synthesis description, we can make transition metal complexes by ligand synthesis of transition elements and phosphonic acids only through coordination chemistry. Transition metal complexes can be use mostly in the field of agriculture as insecticides, and fungicides etc, which is very beneficial. Here, special attentions is given to the phosphonates of transition elements. Coordination chemistry and synthesis of transition metal compounds are also reviewed.

Keywords: Fungicides, coordination chemistry, phosphonic acid, transition metal.

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VERMICOMPOSTING IN USING THE LEAF LITTER OF TENDU DIOSPYROS

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Abstract

The vermiculture using Tendu (Diospyros melanoxylon) leaf litter is another way of managing and recycling organic matter with improved yield in agricultural production. The work also assesses the ability of Eudrilus eugeniae in recycling Tendu leaf litter into the form of a humus rich compost through four different periods of 60 and 90 days depending on variations in the moisture content, ash content, pH and the electrical conductivity (EC) of the composting material. They also found out that earthworms make compost quality better through increasing the capacity to retain moisture, concentrating inorganic nutrient value and reducing the pH of compost in an orderly manner, which would make it good for the fertility of the soil. High EC means high soluble salts that are needed in cycling of nutrients, but it should be managed carefully as toxicity may occur. Tendu leaves used in making silkworm leaves, these leaves are thrown away as garbage but here they provide substrate to plants and do not pollute the surfaces of land. The author presents and discusses the two-fold goal of the work in terms of proper composting of organic material and the utilization of the valued final product—vermicompost.

Keywords: composting, eco-friendly agricultural practices, electrical conductivity, ph levels, environmental degradation, nature of compost.

The Use of Aquatic-flora as Phytoremediation of Water Reservoir from Contamination of residues of Organochlorine pesticide.

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Abstract

The present study reveals the presence of residue of Organochlorine pesticides in the submerged plants of a water reservoir. The qualitative and quantitative residues analysis of HCH and its isomers,dieldrin, heptachlor, p,p'DDT and its metabolites are analyzed with the use of gas chromatograph. Chlorinated hydrocarbon insecticides tend to accumulate in plant's oils and waxes, they often stay within the skin, peels, or outer surface of plants after penetration. The absorption of pesticides in submerged plants may be attributed to their structural adaptation. The reduction in protective tissues, supporting tissues (lack of sclerenchyma) and conducting tissues (minimum development of vascular tissues) may enhance the absorption of pesticides from water with absorption of minerals through their leave's surface as the root system in the submerged plants are feebly developed (root hair and roots caps are absent). Chlorinated hydrocarbon insecticides also tend to accumulate in plant's oils and waxes, they often stay within the skin, peels, or outer surface of plants after penetration. This study may prove its validation to use of submerged flora in phytoremediation of water reservoir from residues of organochlorine pesticides. The discharge and use of pesticides has to be controlled. Care has to be taken to avoid contamination of the habitats of threatened, unique or economically important species.

Key words- Phytoremediation, Residues, gas-chromatography organochlorine pesticide, submerged plants, aquatic ecosystem.

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Effect of Bio-fertilizer on Nitrogen Use Efficiency and Productivity of Wheat (*Triticum aestivum*) North Western Plain Zone

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Abstract

A field experiment was conducted during rabi season of 2019-2020 at Agricultural Research Farm, Department of Agronomy, RBS College, Bichpuri, Agra.The investigation entitled **"Effect of bio-fertilizers on nitrogen use efficiency and productivity of wheat (*Triticum aestivum*) north western plain zone"**. The variables involves in this study four N levels *viz.* N_1 (60 kg ha^{-1}), N_2 (90 kg ha^{-1}), N_3 (120 kg ha^{-1}) & N_4 (150 kg ha^{-1}) was sown with three bio-fertilizers such as (control-B_0), Azotobactor(B_1) & Azospirillum (B_2) thus in all 12 treatments combination were compared in a SPD having cultivars sown in main plots N levels & Subplot in bio-fertilizer with four replications. The experimental field soil was low in available N (172.65 kg ha^{-1}), medium in available P (25.20 kg P_2O_5 ha^{-1}) & K (215.80 kg K_2O ha^{-1}). The field capacity was 17.85 % & wilting point 6.75 & electric conductivity 1.82 in 120 cm. soil depth. Application of N had significant effect on germination count and germination count increased significantly with the application of 150 kg N ha^{-1}.Germination count & crop stand of wheat at all the stages of crop growth were N levels N_4 + B_2 obtained. Significantly higher grain & straw yield followed by N levels N_1, N_2, N_3 & Bio-fertilizers levels B_0, B_1. On the basis of one year result it may be concluded that wheat crop fertilized with N_4 and B_2 gave higher, net returns & B:C ratio under irrigated conditions of north western UP.

Keyword: Bio-fertilizers, Growth, Productivity, Nitrogen and Wheat.

The Role of Agriculture Entrepreneurship in Poverty Reduction: A Critical Analysis

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Abstract

Poverty reduction is a critical issue in many developing countries, with millions of people living below the poverty line. Agriculture entrepreneurship has emerged as a key strategy for reducing poverty, providing employment and income opportunities for rural communities. This paper provides a critical analysis of the role of agriculture entrepreneurship in poverty reduction, highlighting the ways in which agriculture entrepreneurs can contribute to poverty reduction. The paper also examines the challenges faced by agriculture entrepreneurs in reducing poverty, including limited access to finance, markets, and technology. The findings of this study highlight the importance of agriculture entrepreneurship in reducing poverty and provide recommendations for policymakers, practitioners, and researchers to support agriculture entrepreneurship and poverty reduction.

Keywords: Agriculture entrepreneurship, poverty reduction, employment, income, rural development, sustainable livelihoods.

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Study of prevalence of diabetes in etawah district

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Abstract

Diabetes mellitus is a chronic heterogeneous metabolic disorder with complex pathogenesis. It is characterized by elevated blood glucose levels or hyperglycemia, which results from abnormalities in either insulin secretion or insulin action or both. Hyperglycemia manifests in various forms with a varied presentation and results in carbohydrate, fat, and protein metabolic dysfunctions. Long-term hyperglycemia often leads to various microvascular and macrovascular diabetic complications, which are mainly responsible for diabetes-associated morbidity and mortality.

Hyperglycemia serves as the primary biomarker for the diagnosis of diabetes as well. In this review, we would be focusing on the classification of diabetes and its pathophysiology including that of its various types.

Keywords: Diabetes mellitus; endocrinopathies; gestational diabetes.

Climate Change Impacts On Soil Health and Their Mitigation and Adaption Strategies

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Abstract: Climate change significantly affects soil health by altering its physical, chemical and biological properties. Rising temperatures, changing precipitation patterns, and extreme weather events contribute to soil degradation, erosion, loss of organic matter, reduced microbial diversity, and decreased fertility. These impacts threaten agricultural productivity, food security, and ecosystem stability. Mitigation strategies, such as carbon sequestration, conservation tillage, afforestation, and biochar application, help enhance soil resilience and reduce greenhouse gas emissions. Adaptation strategies, including crop diversification, cover cropping, improved irrigation practices, and soil conservation techniques, aim to sustain soil productivity under changing climatic conditions. Integrating sustainable land management practices and policy interventions is crucial to safeguarding soil health and ensuring long-term agricultural sustainability in the face of climate change. Climate change presents a serious challenge to soil health, necessitating both mitigation and adaptation strategies to maintain soil productivity and ecological balance. Implementing sustainable soil management practices, promoting agroecological approaches, and adopting climate-smart agricultural techniques can help minimize the adverse effects of climate change on soil systems. Further research, policy support, and stakeholder collaboration are

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essential to enhancing soil resilience and ensuring food security in a changing climate. Addressing these challenges holistically will be key to sustaining soil functions for future generations.

Keywords Climate change*, Sustainable Agriculture,*

The Impact of Awareness and Socioeconomic Status on Whole Grain Consumption Among Married Women in an Urban Area in Etawah District

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Abstract

Background: Whole grains, including oats, barley, quinoa, and others, are widely recognized for their significant nutritional benefits. They are rich in fiber, antioxidants, and essential minerals, contributing to a balanced and healthy diet. These grains have been a vital part of global food consumption due to their positive impact on health. Whole grains are known to reduce the risk of chronic diseases, including cardiovascular conditions, type 2 diabetes, and obesity. They also play a role in improving gut health, reducing inflammation, and enhancing overall immune function, making them a crucial component of the daily diet.

Spacetechnologyandrenewableenergysolutions

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Abstract:

Integrating **space technology** and **renewable energy solutions** is revolutionising global energy sustainability. Satellite-based systems enable efficient solar farm management, wind energy forecasting, and climate monitoring, enhancing the effectiveness of renewable resources.Advances in space-based solar power (SBSP) propose harvesting solar energy in orbit and beaming it to Earth, offering an unlimited and uninterrupted power source. Additionally, extraterrestrial habitats rely on renewable solutions, fostering innovations beneficial to Earth. This synergy between space research and clean energy technologies accelerates the transition toward a more sustainable future, addressing global energy challenges and climate change mitigation.

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A Certain Class of Harmonic Starlike Functions Defined By q – Differential Operator

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Abstract

We define two new subclasses, HS(m, k, b, α) and $\overline{HS}$ (m, k, b, α) , of univalent harmonic mappings using q – Differential Operator . In this paper we obtain a sufficient condition for harmonic univalent functions to be in HS(m, k, b, α) and we prove that this condition is also necessary for the functions in the class $\overline{HS}$ (m, k, b, α) . We also obtain extreme points, distortion bounds, convex combination and radius of convexity for the function in the class $\overline{HS}$ (m, k, b, α) .

Key words and phrases: Harmonic mapping, Univalent function, Starlike functions, q - Differential Operator.

Maize as a Potential source of Human Nutrition and Health.

Riya kumari* & Dr. M. K. Srivastav*

Abstract

Maize (Zea mays) is one of the most important cereal crops worldwide, serving as a staple food for millions. It is rich in carbohydrates, dietary fiber, essential, vitamins and bio active compounds, making it a valuable source of human nutrition.Additionally, maize contains phytochemicals to various health benefits including reduced risk of chronic diseases such as diabetes. Cardiovascular diseases and certain cancers.

Keywords – Maize, Human nutrition, Health, Benefits, Eye health, dietary fiber.

Heat Stress Effects on Wheat: A Review

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Abstract

Wheat (Triticum aestivum L.) is one of the most widely grown crops worldwide, providing food for billions of people. However, wheat production is often threatened by heat stress, which can significantly impact crop yield and quality. This review aims to summarize the effects of heat stress on wheat, including its morphological, physiological, and biochemical changes. We also discuss the heat tolerance mechanisms in wheat and breeding strategies for improving heat tolerance.

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Major insect pest of rice in India

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Abstract

Rice (Oryza sativa), a staple food crop in India, is severely affected by various insect pests that cause significant yield losses. The major insect pests of rice in India include the Brown Planthopper (Nilaparvata lugens), which damages plants by sucking sap and transmitting viral diseases; the Rice Stem Borer (Scirpophaga incertulas), a key pest that weakens plants by boring into stems; and the Gall Midge (Orseolia oryzae), which induces gall formation, leading to stunted growth. Other notable pests include the Leaf Folder (Cnaphalocrocis medinalis), which folds and feeds on leaves, and the Green Leafhopper (Nephotettix virescens), a vector of tungro virus. Additionally, the Rice Hispa (Dicladispa armigera) and various species of grasshoppers, armyworms, and weevils contribute to rice crop damage.

Key words: insect pest, crop damage

Diabetes mellitus: Types, prevalence, comorbidity, economic implication, treatmentand Research Approaches

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Abstract

Diabetes mellitus is a heterogeneous group of disorders characterized by hyperglycemia due to an absolute or relative deficit in insulin production or action. The chronic hyperglycemia of diabetes mellitus is associated with end organ damage, dysfunction, and failure, including the retina, kidney, nervous system, heart, and blood vessels. The International Diabetes Federation (IDF) estimated an overall prevalence of diabetes mellitus to be 366 million in 2011, and predicted a rise to 552 million by 2030.The treatment of diabetes mellitus is determined by the etiopathology. The causes of the various forms of diabetes, including type 1 and type 2, were discussed along with how they affect those who have the disease. Younger people are more prone to type 1 diabetes than older people, who are more likely to develop type 2. The treatment options and strategies for the two forms of diabetes were also discussed in addition to how the disease affects the quality of life of people. Among several factors that were explained, it has been shown that people from low and middle-income countries are more prone to having diabetes. Additionally, the condition is more likely to affect some races more than others. It is associated with obesity. According to statistics, those who are poor are more severely affected by the disease. The progression of the disease over time has been associated with an increase in disability and mortality. The primary treatment modalities targeting T1DM are insulin therapy, oral hypoglycemic agents, exercise, and a regulation/monitoring of diet. The primary goals of T2DM are weight loss and dietary advice. In the severe event where the aforementioned techniques fail to regulate blood glucose levels, oral medication will be .

Key words: Diabetes mellitus, hyperglycemia, insulin, etiopathology, hypoglycemic agents.

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Evaluating the Impact of Controlled-Release and Nano-Fertilizers on Soil Health and Crop Resilience in Climate-Resilient Farming Systems

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Abstract

As global food demand rises due to population growth, conventional fertilizers are becoming less effective in sustaining crop productivity. Nanotechnology-based fertilizers, specifically controlled-release nano-fertilizers, offer a promising solution to this challenge. These fertilizers, often enhanced with nanocomposites, utilize various environmental stimuli, such as pH, temperature, and humidity, to regulate nutrient release more efficiently than traditional fertilizers. Unlike conventional fertilizers, these nano-fertilizers exhibit minimal nutrient leaching, significantly improving nutrient utilization efficiency (NUE) and reducing the environmental impact of excess nutrients.Nano-fertilizers offer advantages in improving soil health and promoting sustainable agriculture by enhancing nutrient cycling mechanisms, which encourage beneficial soil microbes like bacteria and fungi. The slow, controlled release of nutrients not only supports optimal plant growth but also helps retain organic matter in the soil, enhancing its fertility and structure. When applied at lower rates, these fertilizers minimize heavy metal accumulation, preserving long-term soil health. Additionally, nano-fertilizers have shown potential in improving crop resilience, especially under abiotic stress conditions such as drought and salinity, by ensuring consistent nutrient supply, thus improving plant stress tolerance.This study evaluates the impact of controlled-release and nano-fertilizers on soil health and crop resilience, highlighting their role in enhancing sustainable farming systems that are more climate-resilient. By improving nutrient use efficiency and reducing environmental pollution, nano-fertilizers represent a promising approach for future agricultural practices.

Keywords: Nano particles (NPs), Sustainable Agriculture, Nutrient use efficiency (NUE), Soil health and Nano-fertilizers.

Bioconversion of agricultural waste for mushroom production: a sustainable approach

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ABSTRACT

The bioconversion of agricultural waste for mushroom production presents a sustainable and environmentally friendly approach to waste management while enhancing food security. This research explores the utilization of various agricultural residues, such as straw, husks, and plant biomass, as substrates for cultivating edible and medicinal mushrooms. It highlights the role of lignocellulolytic

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enzymes in the decomposition process, evaluates substrate optimization techniques, and discusses the economic and ecological benefits of mushroom farming using agricultural waste. The findings emphasize the potential of this biotechnological strategy in promoting circular bio-economy and waste valorization.
Keywords: Bioconversion, Agricultural Waste, Mushroom Cultivation, Lignocellulolytic Enzymes, Sustainable Agriculture.

Innovative approach in ntozake shange's literary works

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ABSTRACT

Abstract the aim of this paper is to explore the innovative Technics use by Ntozake shange in her literary works Ntozake Shange, a prominent African American playwright, poet, and novelist, is best known for her groundbreaking work in literature, particularly for her play for colored girls who have considered suicide / when the rainbow is enuf (1975). This work, often referred to as a "choreopoem," blends poetry, dance, and music, and focuses on the experiences and struggles of African American women. Shange's writing is innovative in many ways, particularly in the way it highlights issues like identity, gender, race, and the complexities of womanhood.In terms of innovation in English literature, Shange's works stand out for several reasons:Use of Choreopoem and Performance Art: For Colored Girls introduced the concept of the choreopoem, where poetry is performed with dance and music. This form broke away from traditional theater and literary conventions, opening up new possibilities for artistic expression in both literature and performance. Exploration of African American Womanhood: Shange's writing provides a vivid portrayal of the emotional and social challenges that African American women face, addressing themes such as love, abuse, self-empowerment, and spirituality. Her characters often reflect a deep connection to their cultural identity, which was not commonly explored in mainstream literature at the time. Language and Voice: Shange's innovative use of language is another significant aspect of her work. She often incorporates African American Vernacular English (AAVE) in her writing, giving her characters a voice that is authentic and reflective of their experiences. This was a break from the more standardized language found in much of mainstream English literature.Intersectionality: Shange's work is considered a precursor to intersectional feminist literature, as it intertwines race, gender, and class, offering a nuanced perspective on the struggles faced by African American women. She does not treat race and gender as separate issues but addresses the intersections of both in her characters' lives. Though Shange's most famous works are plays, her contributions to English literature, particularly in the realm of experimental and performance-based writing, have left a lasting legacy.

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Survey on the Current Status of Hypothyroidism in Etawah

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Abstract

Thyroid disease is a general term for a medical condition that keeps thyroid from making the right amount of hormones. The main types of thyroid disease are hypothyroidism(underactive thyroid) and hyperthyroidism(overactive thyroid). The study aims to investigate the current status of Hypothyroidism in Etawah District, focusing on its prevalence, gender-specific trends, and associated factors. Hypothyroidism, a common endocrine disorder, can significantly impact quality of life if left undiagnosed or untreated. Despite its importance, limited data exists on its prevalence and distribution in this region. This survey-based research collected data from a representative sample of the Etawah population using structured questionnaries. The survey included questions on demographics, medical history, symptoms, risk factors and awareness. A tool of [100] participants were surveyed, with a balanced representation of males and females.Preliminary findings indicate that hypothyroidism is more prevalent among females compared to males, aligning with global trends. Common symptoms reported include fatigue, weight gain, and cold intolerance. Risk factors such as family history, iodine deficiency, and autoimmune conditions were identified as significant contributors. Awareness about hypothyroidism was found to be moderate, with many participants unaware of its symptoms and risk factors. Barriers of diagnosis and treatment included limited access to healthcare facilities, lack of awareness, and financial constraints.

The study highlights the need for targeted public health interventions, including awareness campaigns, improved access to diagnostic facilities, and gender-specific healthcare programs. By addressing these gaps, the burden of hypothyroidism in Etawah District can be reduced, leading to better health outcomes for the population. This research provides valuable insights for healthcare providers, and public health professionals to design effective strategies for managing hypothyroidism in the region.

Key words- Hypothyroidism, Prevalence, Endocrine disorder, Survey, Healthcare.

Neha

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ABSTRACT

Diarrhoea remains a significant public health concern, particularly in developing regions where sanitation and diarrhoea cases in Etawah, in Uttar Pradesh, India. Data were collected from local hospitals, health centers, and community reports to analyze trends in incidence, seasonal variations and associated risk factors.Efforts to control diarrhoea in Etawah include government health initiatives, awareness campaigns, and the promotion of oral rehydration therapy (ORT). However, challenges such as inadequate healthcare access and lack of proper waste management persist. This study highlights the urgent need for improved sanitation infrastructure, better healthcare services, and increased community awareness to mitigate the impact of diarrhoea. Future research should focus on identifying specific pathogens responsible for outbreaks and evaluating the effectiveness strategies.

Keywords: Diarrhoea, Etawah, sanitation, public health, ORT, waterborne diseases.

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"Nutritional Benefits and Antioxidant Properties of Red Okra: A Comparative Study"

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Abstract

Red okra (Abelmoschus esculentus), often overshadowed by its green counterpart, offers a wealth of nutritional benefits, largely due to its striking red color, which indicates a high level of antioxidants. This study examines the nutritional and antioxidant properties of red okra compared to the more commonly consumed green okra. Red okra is rich in essential vitamins, such as A, C, and folate, as well as important minerals like potassium, calcium, and magnesium. Its vibrant red hue is due to the presence of anthocyanins, a type of flavonoid with potent antioxidant properties. These anthocyanins help neutralize free radicals, potentially reducing oxidative stress and the risk of chronic diseases like cancer, heart disease, and diabetes.The research also compares the antioxidant capabilities of red okra with green okra, revealing that red okra contains higher levels of polyphenols and flavonoids, which enhance its antioxidant potential. In addition to its antioxidant effects, red okra is a good source of dietary fiber, promoting digestive health and supporting gut function. The high vitamin C content in red okra further boosts immune health and reduces inflammation. Due to its low glycemic index, red okra is an excellent option for those with diabetes, helping to regulate blood sugar levels. This study underscores the health benefits of red okra, suggesting its inclusion in a balanced diet as a functional food that may help prevent various lifestyle-related diseases.

Keywords: Red okra, nutritional value, antioxidants, anthocyanins, flavonoids.

Study on Dengue Fever Surveillance System in Bakewar

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Dengue fever is a serious disease spread by mosquitoes, causing high fever, severe body pain, and sometimes serious health issues. To control its spread, a good surveillance system is needed. This study focuses on dengue fever surveillance in Bakewar.In this study, we collected data from hospitals and clinics and also spoke with community members to understand how quickly dengue cases are detected and reported. This study found that the surveillance system usually reduces dengue cases, but there are challenges such as delayed reporting, lack of resources, and lack of public awareness.To improve the system, we suggest using better technology and educating people on how to prevent dengue. These steps can help protect the community and reduce dengue cases in Bakewar.

Keywords: Dengue, Fever, Surveillance, Disease, Mosquitoes, Public awareness, Technology, Education, Prevent.

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Study of diabetes mellitus surviellance system in etawah (up)

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Abstract

Diabetes mellitus is a chronic heterogeneous metabolic disorder with complex pathogenesis. It is characterized by elevated blood glucose levels or hyperglycemia, which results from abnormalities In either insulin secretion or insulin action or both. Hyperglycemia manifests in various forms with a varied presentation and results in carbohydrate, fat, and protein metabolic dysfunctions. Long-Ter hyperglycemia often leads to various microvascular and macrovascular diabetic Complications, which are mainly responsible for diabetes-associated morbidity and mortality. Hyperglycemia serves as the primary biomarker for the diagnosis of diabetes as well. In this review, we would be focusing on the classification of diabetes and its pathophysiology including That of its various types.

Keywords: Diabetes mellitus; endocrinopathies; gestational diabetes.

The role of Vedic Mathematics in AI tool in computer technology

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Abstract

Vedic Mathematics is originated from holy granth Vedas. An Indian Mathematician Shankaracharya Sri Bharati Krishna tirth discovered the 16 sutras and 13 sub sutras . These sutras provide elegant and concise methods for mathematical operations such as multiplication, division, addition square roots etc.In the context of computer science, we need proficiency in mental arithmetic which directly impacts the processing speed of computers. In this paper we integrate Vedic Mathematics and Computer Science to enhance computational efficiency, problem solving mathematics provides the tool and frameworks for building artificial intelligence model and Algorithms.In many AI applications in which we use mathematics such as image recognition, image compression and object detection .By the help of Vedic Mathematics one can increase computational efficiency to operate these applications.

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Future of Indian Farming: Challenges and Driving Growth Through Agri-Startups

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"We have a million problems, but at the same time, we have over a billion minds that can solve these problems."

- Narendra Modi, Hon'ble Prime Minister of India

Despite importance of Indian agriculture sector, it faces numerous challenges, including climate variability, market fluctuations, and infrastructural deficits. Historically, Indian farmers have grappled with low productivity and income disparities compared to their Western counterparts, receiving only a third of the final product price. Future of Indian farming is a pressing need to revolutionize the agricultural landscape through innovative, technology-driven solutions to address these persistent issues. This paper explores the potential of agricultural start-ups in India, examining their roles, challenges, and contributions to a more sustainable and prosperous agricultural sector.

Women empowerment in india through digital technology

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Digital technology has made the world much smaller, faster and easier for people to access it through internet. In these days demand of digital marketing and online selling increasing Moreover, pandemic has proven the importance of digital technology. India, being a developing country is ensuring inclusive and equitable quality education for both girls and boys. As per United Nation's Sustainable Development Digitalisation Has not only opened up new opportunities for Economic growth and social development but has also posed Problems and challenges. Digitilisation enhance wide range Of developmental applications in agriculture, industry and social Sectors Information Technology Provides unique opportunities for human development. and it has been widening the gaps between and within Countries, regions, gender while increasing disparities divide Between the rural-urban, rich-poor, elite also Within the different categories of women in various spheres of Activity. ICT necessary to build up women capacities to involve Them in productive activities, institutional building, family and Social transformation, decision-making process, political Representation, trade and commerce, entrepreneurial Development and social leadership. Tody very need to enhance Opportunities to women.

Keywords: Digitalisation, Information & Communication Technology, Gender development, Women Empowerment, economic growth.

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EFFECT OF NITROGEN AND PHOSPHORUS FERTILIZATION ON THE GROWTH AND YIELD OF WHEAT (*Triticum aestivum* L.)

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Abstract

The situated field experiment was conducted at Agricultural Research Farm of RBS College, Bichpuri Agra, during Rabi season of 2018-19 to evaluate the "Effect of nitrogen and phosphorus fertilization on the growth and yield of wheat (Triticum aestivum L.)". The variables involves in this study four N levels viz. N_1 (50 kg ha^{-1}), N_2 (100 kg ha^{-1}), N_3 (150 kg ha^{-1}) & N_4 (200 kg ha^{-1}) was sown with four P levels viz. P_0 (0 kg ha^{-1}), P_1 (30 kg ha^{-1}), P_2 (60 kg ha^{-1}) & P_3 (90 kg ha^{-1}). Thus in all 16 treatments combinations were compared in a RBD having cultivars sown in main plots N levels and sub plot in P levels with four replications. Dry matter accumulation in plants of 25cm. row length significantly increased with every increase in the levels of N application up to 150 kg N ha^{-1}at all the stages of crop growth except at 30 days stage. Length of spike, number of spikelets $spike^{-1}$, number of grains $spike^{-1}$& 1000 grain weight had significantly higher values with the application of 60 kg P_2O_5 ha^{-1} than that of 30 kg P_2O_5 ha^{-1}& control. The experimental results revealed that N level N_3 + P_2 obtained. Significantly higher grain yield & straw yield followed by N levels N_1,N_2,N_4 & phosphorus levels P_0, P_1, P_3. Based on the result of present investigation it is inevitable that N levels N_3 when applied with phosphorus P_2 gave higher production of grain & straw yield.

Keyword: Growth, Phosphorus, Nitrogen and Wheat.

Effect of Bio-fertilizer on Nitrogen Use Efficiency and Productivity of Wheat (*Triticum aestivum*) North Western Plain Zone

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Abstract

A field experiment was conducted during rabi season of 2019-2020 at Agricultural Research Farm, Department of Agronomy, RBS College, Bichpuri, Agra.The investigation entitled "Effect of bio-fertilizers on nitrogen use efficiency and productivity of wheat (*Triticum aestivum*) north western plain zone". The variables involves in this study four N levels *viz.* N_1 (60 kg ha^{-1}), N_2 (90 kg ha^{-1}), N_3 (120 kg ha^{-1}) & N_4 (150 kg ha^{-1}) was sown with three bio-fertilizers such as (control-B_0), Azotobactor(B_1) & Azospirillum (B_2) thus in all 12 treatments combination were compared in a SPD having cultivars sown in main plots N levels & Subplot in bio-fertilizer with four replications. The experimental field soil was low in available N (172.65 kg ha^{-1}), medium in available P (25.20 kg P_2O_5 ha^{-1}) & K (215.80 kg K_2O ha^{-1}). The field capacity was 17.85 % & wilting point 6.75 & electric conductivity 1.82 in 120 cm. soil depth. Application of N had significant effect on germination count and germination count increased significantly with the application of 150 kg N ha^{-1}.Germination count & crop stand of wheat at all the

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stages of crop growth were N levels N_4 + B_2 obtained. Significantly higher grain & straw yield followed by N levels N_1, N_2, N_3 & Bio-fertilizers levels B_0, B_1. On the basis of one year result it may be concluded that wheat crop fertilized with N_4 and B_2 gave higher, net returns & B:C ratio under irrigated conditions of north western UP.

Keyword: Bio-fertilizers, Growth, Productivity, Nitrogen and Wheat.

"Development of a Sustainable Soil Management Model for Entrepreneurial Farmers"

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Abstract

The development of sustainable soil management practices is critical for ensuring long-term agricultural productivity, especially for entrepreneurial farmers who aim to balance economic growth with environmental responsibility. This study presents a comprehensive model for sustainable soil management tailored to the needs of entrepreneurial farmers, emphasizing the integration of innovative practices that enhance soil health, improve crop yield, and reduce environmental degradation. The model incorporates principles of soil conservation, organic farming, agroecological techniques, and modern technological tools, while considering the economic viability and scalability for small- to medium-scale farmers. Key strategies outlined in the model include crop rotation, cover cropping, reduced tillage, organic amendments, and precision agriculture. Additionally, the model integrates community-based knowledge and participatory approaches, recognizing the importance of local context and farmer engagement in soil management decisions. The results demonstrate that sustainable soil management not only promotes ecological balance but also fosters financial resilience, ultimately supporting entrepreneurial farmers in achieving both environmental sustainability and economic profitability. The findings suggest that implementing this model can lead to improved soil fertility, enhanced biodiversity, and a more sustainable agricultural system, offering valuable insights for policy-makers, agricultural advisors, and farmer networks.

Keywords: Entrepreneurship, Sustainable Agriculture, Soil Management, Agricultural Entrepreneurship.

GENERATION MEAN ANALYSIS IN OKRA [*ABELMOSCHUS ESCULENTUS* (L.) MOENCH]

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Abstract

The present investigation was undertaken to study the genetics of yield and yield components through generation mean analysis based on six parameter model in four crosses namely of Okra (*Abelmoshcus esculentus* L. Moench) derived through eight parental diallel cross and their back crosseswere analyzed for ten characters namely; days to flowering, height of plant (cm), number of branches per plant, number of first fruiting node, number of nodes per plant, length of internode (cm), length of fruit (cm), width of fruit (cm), number of fruits per plant and yield per plant (g) at Department of Horticulture, Janta College

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Bakewar, Etawah during the year 2022. Scaling test showed the presence of non-allelic gene interactions in all the crosses for all the characters under study as significant value of either of the scale A, B and/or C. Generation mean analysis revealed that dominance components were more prominent than additive components for all the characters based on all the crosses studied. The Digenic Epistasis was additive x dominance and dominance x dominance in nature. Duplicate type of epitasis was observed in most of the crosses. Except in VRO-3x PK for nodes/plant, KS-312xVRO-5 for width of fruits and AB-2x KS-312 for yield per plant where it was Complimentary type.

Key-Words: Additive; Dominance; Diallel; Duplicate Gene Action; Epitasis; Okra; Quantitative Traits

AGRICULTURISTS IN INDIA: THE RAY OF HOPE IN AGRICULTURE

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Abstract

India's agricultural sector is undergoing a significant transformation driven by agri-startups, addressing long-standing challenges such as low productivity, market inefficiencies, and climate vulnerabilities. These startups are revolutionizing farming through technology-driven solutions, digital platforms, and sustainable practices, offering a "Ray of Hope" to millions of farmers.

Sustainable development in context of environment

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Abstract

Sustainable development in the context of environmental conservation focuses on meeting the needs of the present without compromising the ability of future generations to meet their own needs. As environmental degradation accelerates through pollution, deforestation, and climate change, it has become crucial to implement practices that promote environmental stewardship and long-term ecological balance. Sustainable development emphasizes the efficient use of resources, reducing waste, conserving biodiversity, and promoting renewable energy solutions. It involves integrated approaches that incorporate environmental, social, and economic factors, ensuring a harmonious relationship between human activities and the environment. Strategies for achieving sustainability include the adoption of green technologies, eco-friendly practices in industries, and policy frameworks that encourage sustainable land use, agriculture, and waste management. By prioritizing sustainability, it is possible to mitigate environmental risks, protect natural ecosystems, and create resilient societies capable of thriving within the planet's ecological limits.

KEY WORDS: sustainable,conservation,resources

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VERMICOMPOSTING IN USING THE LEAF LITTER OF TENDU DIOSPYROS

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ABSTRACT

The vermiculture using Tendu (Diospyros melanoxylon) leaf litter is another way of managing and recycling organic matter with improved yield in agricultural production. The work also assesses the ability of Eudrilus eugeniae in recycling Tendu leaf litter into the form of a humus rich compost through four different periods of 60 and 90 days depending on variations in the moisture content, ash content, pH and the electrical conductivity (EC) of the composting material. They also found out that earthworms make compost quality better through increasing the capacity to retain moisture, concentrating inorganic nutrient value and reducing the pH of compost in an orderly manner, which would make it good for the fertility of the soil. High EC means high soluble salts that are needed in cycling of nutrients, but it should be managed carefully as toxicity may occur. Tendu leaves used in making silkworm leaves, these leaves are thrown away as garbage but here they provide substrate to plants and do not pollute the surfaces of land. The author presents and discusses the two-fold goal of the work in terms of proper composting of organic material and the utilization of the valued final product—vermicompost.

Keywords: composting, eco-friendly agricultural practices, electrical conductivity, ph levels, environmental degradation, nature of compost.

NEW IDENTITIES OF FIBONACCI SEQUENCE AND LUCAS NUMBERS

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Abstract

This paper describes about some new identities of Fibonacci sequence and Lucas numbers which are proved mathematically. The first proposition proves an equation using summation of every third term of Fibonacci sequence starting from two, and second proposition proves an equation using summation of consecutive odd positioned Lucas numbers starting from three. These identities are also proved programmatically using python language in this paper.

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GLOBAL WATER CRISIS: WORLD WIDE SCENARIO

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Abstract

Water is a foundation of existence and essential key to sustainable growth on earth. Despite the huge necessity, water is becoming a critical societal and geopolitical disaster all over the world. As per current situation up to 40% of the world's population will be living in seriously water-stressed areas by 2035 and the ability of ecosystems to provide fresh water supplies to farming and biotic abiotic components will become increasingly negotiated. Heavily growing populations, changing diets, expending urbanization to rural land, agricultural as well as high industrial water demands, growing understanding of nature's need for changed water and climate conditions over the past few decades has focused broad awareness on water as a main resource under risk.

UN agencies, national and international governments and civil societies have made clear that radical new approaches to water are neededto reverse these sobering water trends. Also in the last few years, many organizations have started applying new approaches new methods which can help the working agencies to understand and manage water-related threats and their harmful impact on environment and living creatures.

Keywords: water crisis, sustainable development, population, environment, ecosystem and agriculture.

Impact of Climate change on flowering and Pollenviabilityof rice: A review

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Abstract

Climate change poses significant challenges to global rice production, particularly through its effects on flowering dynamics and pollen viability Rising temperatures, altered precipitation patterns viability rising temperatures altered precipitation patterns, and increased atmospheric CO2 levels can disrupt anthesis, reduce pollen viability, and ultimately lower grain field. High – temperature stress during the critical flowering stage accelerates anthesis, shortens pollens shedding duration, and impairs pollen germination, leading to spikelet sterility. Additionally, changes in humidityand rainfallpatherns influence pollen hydration and dispersal, further impaction fertization success. This review synthesizes reent researchonthephysiologicaland molecular mechanisnsunderlyingtheseresponsesand explores potation mitigation and agronomic intervention. Understanding these interactions is crucial for sustaining rice production under future climate scearios.

Keywords:-Climate change, rice (Oryza Sativa), Globalworking, Neat stress, CO2Concentration, Drought stress, flowering tine, spikelet sterility, climate- resilient rice verities, Neat- Shock proteins, Pollen fertility, Breading for heat tolerance.

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A Certain Class of Harmonic Starlike Functions Defined By q – Differential Operator

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Abstract

We define two new subclasses, HS(m, k, b, α) and $\overline{HS}$ (m, k, b, α) , of univalent harmonic mappings using q – Differential Operator . In this paper we obtain a sufficient condition for harmonic univalent functions to be in HS(m, k, b, α) and we prove that this condition is also necessary for the functions in the class $\overline{HS}$ (m, k, b, α) . We also obtain extreme points, distortion bounds, convex combination and radius of convexity for the function in the class $\overline{HS}$ (m, k, b, α) .

Key words and phrases: Harmonic mapping, Univalent function, Starlike functions, q - Differential Operator.

Survey of viral fever cases, symptoms and mortality in study Etawah (U.P)

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Abstarct

Viral Fever is an acute viral infection that occurs due to seasonal changes and infection in the environment, especially in the monsoon season. It is generally characterized by an elevation in the normal body temperature along with cold and flu. Usually, It is not a disease in itself by an effect of viral infection. Viral fever sometime may remain undiagnosed until it makes headway to the later stages. Besides this, many people are even habitual of self medication in case of viral fever, which should be avoided as it increases the probability of complication. A total of 20 patient to be found in community health center mahewa etawah government hospital and bakewar government hospital 25 cases with the symptoms suggestive to viral were include in the present study.

Keywords- viral infection, fever, fatique, jeadache, cough

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Study on malaria fever surveillance system in Etawah (UP)

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Abstarct

Malaria is a life-threatening infection disease caused by Plasmodium parasites, transmitted of human through the bite of infected female Anopheles mosquito. It is major global health issues especially In tropical and subtropical regions. The disease present with symptoms like fever chills, and flue like illness and if untreated can lead to sever complications, including organ failure and death. A total of 50 patient admitted in community health center Mahewa Etawah government hospital and Bakewar government hospital 40 cases with the symptoms suggestive of malaria fever were include in the Present study.

Key Words -: Plasmodium parasites, Anopheles mosquito

Assessment of Soil Micronutrient Status and Chemical Properties in Bihariganj Block of Madhepura District using GPS and GIS.

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Abstract

This study examines soil chemical properties and micronutrient availability in Bihariganj block, Madhepura district, Bihar, India, using GPS and GIS technologies. Analyzing 92 soil samples from a 1 km grid, results showed a pH range of 5.6–8.5 (mostly neutral), low salinity (average EC 0.23 dS/m), and variable organic carbon (0.11–0.84%). Micronutrient analysis revealed sufficient Cu and Fe levels (with some Cu toxicity concerns), higher Mn in acidic soils, and widespread Zn deficiency. Soil pH strongly influenced micronutrient availability, with acidic soils enhancing Fe, Mn, Cu, and Zn solubility. Organic carbon showed a weak to moderate correlation with nutrient retention. The study underscores the need for integrated soil management, including pH optimization, organic matter enrichment, and targeted Zn fertilization, to improve soil health and crop productivity. Long-term monitoring and site-specific strategies are recommended for sustainable agriculture.

Key word: Soil mapping, DTPA-extractable micronutrients, GIS,

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Reliability and degradation of Photovoltaic modules: A review

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Abstract

Reliability and degradation analysis of photovoltaic modules are utmost important to predict the life during outdoor exposure. It can be possible after considerate the failure modes and degradation analysis of the PV modules. Failure modes play a vital role to decrease the performance of the PV modules during the outdoor condition. In context, Risk Priority number (RPN) analysis is suitable to identify the main causes, which affect the system performance for particular location and technologies during the long term outdoor exposure. In the present paper, RPN analysis has been made on the basis of severity, occurrence and detection. Also, lifetime of different values of activation has been predicted following the Arrhenius equation. The aim of the present analysis is to assessment the works on performance, degradation of PV modules to identifying cause of degradation failure mechanism and failure modes.

Keywords Reliability, Degradation, PV module, Defect, RPN, Lifetime

Biofertilization of papaya: recent research and the way forward

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Abstract

Fertilizers supply essential plant nutrients and increase the yield of the papaya. The preferences of fruit production and consumption shift towards the use of the fruit grown without or less use of any chemical due to harmful effects of chemicals on human health and environment. In recent years, biofertilizers have emerged as an important component for supplementation of plant nutrient. They are economically attractive and ecologically sound inoculants for providing nutrient to the plants. Biofertilizers have good potential as nutrient supplement due to its low cost for papaya production.

Key words: Plant Nutrient, Biofertilizer, Papaya Production

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Performance of maize-based intercropping systems in Central Plain Zones of Uttar Pradesh is influenced by various INM protocols.

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Abstract

A field experiment was carried out at the Soil Conservation and Water Management Farm of C S Azad University of Agriculture and Technology, Kanpur during *kharif* -2019 to assess the effect of intercropping and different nutrient doses on Maize and Kalmegh crop. The experiment consisted of five cropping systems, *viz*. C_1: Sole Maize at row space of 60 cm, C_2: Sole Kalmegh at row space of 40 cm, C_3: Maize + Kalmegh (1:1) in additive series, **C_4:** Maize + Kalmegh (2:2) in paired row (40:80) and **C_5:** Maize + Kalmegh (3:2) in replacement series (40:40), and three integrated nutrient management options *viz.***I_1 :** 100% N through inorganic, **I_2 :** 50% N inorganic + 50 % N FYM **I_3 :** 50 % inorganic + 25 % FYM + 25 % vermi-compost. The experiment was replicated thrice in Split Plot Design, keeping cropping systems in main plots and INM in sub plots. The result revealed that C_4 treatment i.e. Maize + Kalmegh (2:2) in paired row (40:80) gave highest maize grain yield (45.87 q ha^{-1}) along with 36.85 q ha^{-1} dry herbage of Kalmegh combinedly attaining 119.15 q ha^{-1} maize equivalent yield with highest LER of 2.02. This treatment also gave maximum net return of Rs. 181611 with a B: C ratio 6.03 along with highest WUE of 41.11 kg ha^{-1} mm^{-1} while maximum water-use was found in relevant sole crops of maize.

The application of INM further showed a significant role in yield enhancement. The use of 50 % inorganic + 25 % FYM + 25 % vermicompost (I_3) improved the physical condition of soil, soil fertility and exhibited significantly higher values of both the sole and intercrops during the study.

Keywords: Integrated nutrient management, Intercropping, Kalmegh, Vermicompost

Innovation and Entrepreneurship Development in Medicinal and Aromatic Plants Sector: Prospects and Challenges

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Abstract

Innovation and entrepreneurship development in medicinal and aromatic plants is an approach of developing human resource and train the youth for taking risk and managing resources in efficient way. The objective of the study is to understand the current situation, trends and potential of medicinal and aromatic plants for development of entrepreneurship. Entrepreneurship in medicinal and aromatic plant includes production, post harvest management, processing, marketing, trade, and distribution of raw materials, also including supply of inputs and services. Medicinal and aromatic plants are demanded by

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herbal industries and pharmaceutical industry. The study will help in identifying entrepreneurship opportunities in medicinal and aromatic plants and challenges associated with it. The increasing demand of the pharmaceuticals industry have created problems of supply and one of the major difficulties being experienced by the industry is that of obtaining sufficient quantities of medicinal and aromatic plants for manufacturing good medicine. Technical guidance and consultancy provided to the farmers by the qualified entrepreneurs and establishing testing facilities and agri-clinics are some of the important areas of emerging opportunities in this sector. It will also help in identifying the constraints that affect the spread of cultivation of medicinal and aromatic crops. The export market of herbal medicine of India is more than 700 Crores and only 40% is value addition and remaining 60% is of raw medicinal plants. The raw material is a very critical component for production and to meet the growing demand of private industry for extensive range of product. Therefore, to address this challenge for herbal products, the industries are ready to undertake adequate herbal cultivation.

Keywords: Aromatic plants, entrepreneurship, medicinal plant

Harnessing Smart Technology of Precision Farming for Sustainable Development

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Abstract

Precision farming, empowered by smart technologies, is transforming modern agriculture by significantly enhancing efficiency, sustainability, and productivity. This innovative approach integrates advanced tools such as the Internet of Things (IoT), Artificial Intelligence (AI), big data analytics, and remote sensing to optimize the use of agricultural resources, reduce environmental impact, and improve crop yields.Key components—such as smart irrigation systems, GPS-guided machinery, drones, and real-time soil monitoring—equip farmers with the ability to make data-driven decisions, leading to reduced input waste and more sustainable practices. Predictive analytics further empower farmers to anticipate climate variability, pest outbreaks, and changes in soil health, enabling proactive and informed management strategies.This paper explores the transformative role of smart technology in precision farming and underscores its potential to support global food security while promoting environmentally responsible practices. The integration of these technologies aligns closely with the Sustainable Development Goals (SDGs) by conserving water, minimizing chemical usage, and lowering carbon emissions.In addition to the benefits, the study addresses current challenges including high initial investment costs, data privacy concerns, and the need for improved technological literacy among farmers. It offers strategic insights into overcoming these barriers to facilitate the broader adoption of precision agriculture practices.

Key words :big data analytics, and remote sensing to optimize the use of agricultural resources, reduce environmental impact,

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"Innovation, Entrepreneurship and Incubation in Agriculture, Science, Commerce and Social Sciences"

Theme:- Digital Transformation in Commerce and Finance

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Abstract

Digital transformation is transforming the commerce and finance industries by integrating advanced technologies such as artificial intelligence (AI), blockchain, big data analytics, and cloud computing that enhance business processes, customer experience, and new opportunities for innovation. In commerce, digital platforms, e-commerce, and data analytics are changing personalized marketing, global reach, and supply chain optimization. Businesses are rapidly uses digital tools to gain greater insights into consumers' behavior, inventory management, and smooth user experiences that all lead to increased customer engagement and higher sales. In the banking industry, the emergence of fintech technologies like mobile payments, blockchain, and artificial intelligence(AI) is revolutionizing banking systems, providing more efficient, and accessible financial services. These technologies enable customer to manage their finances online, facilitating quicker transactions, peer-to-peer lending, and customized financial guidance through Robo-advisors. While various advantages, digital transformation also has its drawbacks including cybersecurity threats and the requirement for strong data protection policies. Additionally, the quick rhythm of technological advancements exceeds regulatory mechanisms, leading to headaches for policymakers to keep pace with compliance, consumer protection, and market stability.

This paper explores the key drivers, benefits, and obstacles of digital transformation in commerce and finance, offering insights into its future trajectory. Through an analysis of emerging trends and case studies, this work provides strategic insights into navigating the complexities of the digital era in commerce and finance.

Keywords: Digital transformation, Commerce, Finance, Technology, Innovation, Consumer.

Survey of viral fever cases, symptoms and mortality in study Etawah (U.P)

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Abstract

Viral Fever is an acute viral infection that occurs due to seasonal changes and infection in the environment, especially in the monsoon season. It is generally characterized by an elevation in the normal body temperature along with cold and flu. Usually, It is not a disease in itself by an effect of viral infection. Viral fever sometime may remain undiagnosed until it makes headway to the later stages. Besides this, many people are even habitual of self medication in case of viral fever, which should be avoided as it increases the probability of complication. A total of 20 patient to be found in community health center mahewa etawah government hospital and bakewar government hospital 25 cases with the symptoms suggestive to viral were include in the present study.

Keywords- viral infection, fever, fatique, jeadache, cough

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A Study on Radii problems four subclasses of-analytic function

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ABSTRACT

To study of radii problems problem four subclasses of topic analytic functions is a central topic in complex analysis, Focusing on determining the largest possible redius within which specific geometric properties, such as univalence, Starlikeness, our convexity, hold for functions in a given class. This paper explores various subclasses of analytic functions including univalents, starlike convern, and close-to-convex functions, and investigates the radii within which these properties persist. We examine key results, such as the Koebe 1/4 theorem for univalent functions and explore methods like coefficient inequalities, geometric transformation and growth and distortion theorems to derive bounds on these radii additionally, the paper highlights. recent advancements in the field, addressing the radii of starlikeness and convexity for Specific families of functions and considering the impact of singularities, zeros, boundary behavious on the radii the findings contribute to a deeper understanding of the geometric behavior of analytic functions in complex domains with application in fluid dynamics, engineering and geometric function history.**Keywords:** coefficient inequalities, geometric transformation and growth and distortion theorems to derive.

Women's Innovations in Mathematics in India

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Abstract

Women in India have made significant contributions to mathematics, despite historical and societal barriers. Their innovations span pure and applied mathematics, influencing fields like number theory, algebra, and computer science.Notable figures include Shakuntala Devi, known as the "Human Computer," and Neena Gupta, whose work in algebraic geometry has earned global recognition.

Efforts to promote women in STEM through government initiatives, scholarships, and institutional support have led to increased participation in mathematical research. Women mathematicians in India are not only advancing theoretical knowledge but also applying mathematical innovations in technology, economics, and data science.This Abstract highlights the importance of empowering women in mathematics, acknowledging their achievements, and fostering an inclusive academic environment. Encouraging gender diversity in mathematical sciences will further India's progress in research and innovation.

KeyWords: STEM through government initiatives, innovations in technology

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Impact of organic farming on soil health and crop production

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Abstract :- Organic farming increases soil sustainability and crop production.Organic farming is very important to protect the environment, minimize soil degradation and erosion, reduce pollution, optimize biological productivity, and promote a healthy state of health. Soil quality and fertility are a concern today to boost the sustainability of our agricultural syste. Organic farming production system is being promoted as a low-cost environment friendly production system for, improved human and soil health, better environment, and increased agricultural sustainability. Organic farming, undoubtedly, improves soil quality due to application of organic manures and composts, and adoption of legume-based diversified cropping systems. Conversely, there is also consensus on lower productivity of crops (5–58%) under organic farming than the conventional system though exceptions are there. Despite the lower crop productivity, it may become more profitable if price premiums are available on organic produce. Its role in improving nutritional quality of produce though is debatable; but owing to absence of synthetic inputs organic produce is generally considered to be safer and healthy. The organic farming practices are expected to improve the soil quality over imbalanced and discriminate use of agro-chemical inputs. In conclusion, organic production system, one of the most discussed alternative farming systems, influences the quantity and the quality of agricultural production in relation to soil mechanisms operating currently within an ecosystem. It undoubtedly, improves soil health due to application of organic manures and composts and adoption of legume based diversified cropping systems but its lower productivity vis-a-vis conventional system makes it a debatable issue. The productivity levels vary with the crops, cropping systems and the agro-climatic locations.

Keywords:*), Organic farming, environment friendly production, Sustainable Agriculture, and Soil health*

Study on malaria fever surveillance system in Etawah (UP)

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Abstract

ABSTRACT-: Malaria is a life-threatening infection disease caused by Plasmodium parasites, transmitted of human through the bite of infected female Anopheles mosquito. It is major global health issues especially In tropical and subtropical regions. The disease present with symptoms like fever chills, and flue like illness and if untreated can lead to sever complications, including organ failure and death. A total of 50 patient admitted in community health center Mahewa Etawah government hospital and Bakewar government hospital 40 cases with the symptoms suggestive of malaria fever were include in the Present study.

Key Words -: Plasmodium parasites, Anopheles mosquito

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Effect of organic and inorganic fertilizers on growth, yield of beetroot (Beta vulgaris L.) cv. Detroit Dark Red

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Abstract

Present investigation entitled, "Effect of organic and inorganic fertilizers on growth, yield of beetroot (Beta vulgaris L.) cv. Detroit Dark Red" was conducted at Agricultural Research Farm of Raja Balwant Singh College, Bichpuri, Agra during rabi season of the year 2022-23. The treatments involved in this study were 100% RDF (T0), 75% RDF + 25% RDF through Vermicompost (T1) , 75% RDF + 25%RDF through Poultry manure (T2) , 75% RDF + 12.5% RDF through Vermicompost + 12.5% RDF through Poultry manure (T3) , 50% RDF + 50% RDF through Vermicompost (T4) , 50% RDF + 50% RDF through Poultry manure (T5) , 50% RDF + 25% RDF through Vermicompost + 25% RDF through Poultry manure (T6) , 25% RDF + 75% RDF through Vermicompost (T7), 25% RDF + 75% RDF through Poultry manure (T8), 25%RDF + 37.5% RDF through Vermicompost + 37.5% RDF through Poultry manure(T9) and 50% RDF through Vermicompost + 50% RDF through Poultry manure (T10). The field was laid-out in Randomized Block design and replicated three times. From the above treatment combinations T1 proved to be the best on all growth and yield parameters with maximum germination percentage and least no of days taken to germination, highest plant height (35.83 cm), number of leaves per plant (19.55), length of longest leaf (37.96cm), width of longest leaf (09.27 cm), diameter of root at shoulder point (04.87 cm), volume of roots (225.60 ml), fresh weight of leaves (189.10 g), Fresh weight of roots(271.77 g), average yield per (11.82 kg), average yield (394.00 quintals ha-1), Dry weight of root (18.84 %), Dry weight of leaves (12.17 %) and benefit cost ratio (5.249) among all the treatments tested .On the basis of results obtained it can be concluded that application of 75% RDF through inorganic fertilizer in combination with 25% of the RDF through vermicompost is best for beetroot cultivation.

Key words : vermicompost ,poultry manure, beetroot .

Role of commercial floriculture in increasing farmer's income

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Abstract

India's share in the International market for these flowers is negligible (At present it is < 0.70 During the last few years, taking an advantage of the incentives offered by Government of India, a number of Floriculture units were established in India for producing and exporting flowers to the developed countries. Tamilnadu is the leader in floriculture followed by Karnataka, accounting for 75% of India's total flower production and the state is having the highest area under both modern The country's first and the only Digital Flower Auction Centre is located in Bengaluru, running by Karnataka Agro Industrial Corporation (KAIC).India has a long tradition of imagination and an advanced science that played a very

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important role in the course of human civilization and its social In most part of the country, flower growing is carried out on s commercial floriculture has assumed importance only in the recent Traditionally, flowers have been grown in India in the open fields, where they have been exposed to both biotic and a biotic stresses. Hence, the quality is not to the standards. However, in the era of globalization, the produce has to be of International quality and globally competitive, as there is lot of demand for different floricultural products in the export market. The modern floriculture will meet demand of the present day Floriculture can be defined as " with the cultivation of flowers, foliage, climbers, trees, shrubs, cacti, succulents, etc., but also with their marketing and production of value Importance of floriculture in besides food and nutritional security, the aesthetic daily lively hood as well as for environmental purity. Floriculture is important from the Economic point of view is a fast emerging major venture in the world, especially as a potential -spinner for many countries in Many flowers and ornamental plants are being grown for domestic as well as for export market will provide more return/unit agricultural/horticultural For example in markets such as Delhi and Mumbai and other metros a single spike of gladiolus and gerbera cut flower may sell up to Rs. 3 10/spike in Rabi/Summer. Gestation period of flower crop is very less compared to other Modern-day floriculture refers to the production of high rose, gladiolus, carnation, mums, orchids, tuberose, anthurium, lilium, gerbera Now days, growing of these cut flower crops, suited for flower arrangements/decorations for bouquets preparation and for floral boskets, increased substantially and its share of the total trade.

Key words: flower , economic, production

WOMEN EMPOWERMENT IN INDIA THROUGH DIGITAL TECHNOLOGY

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Digital technology has made the world much smaller, faster and easier for people to access it through internet. In these days demand of digital marketing and online selling increasing Moreover, pandemic has proven the importance of digital technology. India, being a developing country is ensuring inclusive and equitable quality education for both girls and boys. As per United Nation's Sustainable Development Goals, Goal 5.b is "There should be enhanced use of information and communication technology.promote the empowerment of women". In that case, IT, medicDigitalisation Has not only opened up new opportunities for Economic growth and social development but has also posed Problems and challenges. Digitilisation enhance wide range Of developmental applications in agriculture, industry and social Sectors Information Technology Provides unique opportunities for human development. and it has been widening the gaps between and within Countries, regions, gender while increasing disparities divide Between the rural-urban, rich-poor, elite also Within the different categories of women in various spheres of Activity. ICT necessary to build up women capacities to involve Them in productive activities, institutional building, family and Social transformation, decision-making process, political Representation, trade and commerce, entrepreneurial Development and social leadership. Tody very need to enhance Opportunities to women.

Keywords: Digitalisation, Information & Communication Technology, Gender development, Women Empowerment, economic growth.

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A Study on Radii problems four subclasses of-analytic function

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ABSTRACT

To study of radii problems problem four subclasses of topic analytic functions is a central topic in complex analysis, Focusing on determining the largest possible redius within which specific geometric properties, such as univalence, Starlikeness, our convexity, hold for functions in a given class. This paper explores various subclasses of analytic functions including univalents, starlike convern, and close-to-convex functions, and investigates the radii within which these properties persist. We examine key results, such as the Koebe 1/4 theorem for univalent functions and explore methods like coefficient inequalities, geometric transformation and growth and distortion theorems to derive bounds on these radii additionally, the paper highlights. recent advancements in the field, addressing the radii of starlikeness and convexity for Specific families of functions and considering the impact of singularities, zeros, boundary behavious on the radii the findings contribute to a deeper understanding of the geometric behavior of analytic functions in complex domains with application in fluid dynamics, engineering and geometric function history.

Conservation Status of Endangered Plant Species in Uttar Pradesh, India

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Abstract

Uttar Pradesh, a biodiversity hotspot in northern India, is home to a diverse range of plant species. However, due to habitat destruction, over-exploitation, and climate change, many plant species in the region are facing the threat of extinction. This study aims to identify and document the endangered plant species in Uttar Pradesh, highlighting their conservation status, distribution, and threats. Our research reveals that 25 plant species in the state are listed as Endangered, Vulnerable, or Near Threatened on the IUCN Red List. These species include medicinal plants like *Swertia chirayita* and *Picrorhiza kurroa*, timber trees like *Dalbergia latifolia,* and sacred plants like Tulsi (*Ocimum sanctum*). The main threats to these species are deforestation, urbanization, and over-harvesting. Conservation efforts, such as habitat protection, sustainable harvesting practices, and ex situ conservation, are essential to protect these endangered plant species and maintain the ecological balance of the region.

Keywords: Endangered plant species, conservation status, IUCN Red List, biodiversity, habitat destruction, over-exploitation, climate change.

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Agribusiness Transformation: The Impact of AI, Precision Agriculture, and Smart Farming

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Abstract

Agriculture is experiencing an unprecedented technological transformation led by Artificial Intelligence (AI), Smart Farming, and Precision Agriculture. In these breakthroughs, traditional farm practices are elevated to a more applicable, data-centric model. The democratization of data within the farming industry has been made possible with the help of AI-driven technologies like machine learning, robotics, and predictive analytics, which gives the farmer the power to use the information granted to him to make better decisions, use resources better and ultimately lead to better yields in crops**.** Smart farming connects IoT devices, drones for monitoring of soil and crop attributes, and automated systems for continuing communication of critical variables of soil health, crop growth, and climatic conditions, helping farmers intervene at appropriate times with appropriate measures. Precision agriculture stresses specific management approaches, applying resources like water, fertilizers, and pesticides just in amounts to achieve higher yields while minimizing environmental effects. The developments of these technologies allow farmers to achieve profitability, minimize wastage of resources, and conserve another nature. Yet, achieving further advancements requires overcoming barriers such as heavy investment, access to technology, and educating farmers to implement them. The present paper discusses the role of AI in transforming agribusiness, the relevance of smart technologies in current farming, and the effects of precision methods on food security sustainability in future agriculture.

Keywords: Artificial Intelligence (AI), Smart farming, Precision Agriculture and Internet of Things (IoT)

"Projecting Future Evapotranspiration Dynamics: Insights from CMIP6 Models and SWAT for Water Resource Management"

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The projected changes in evapotranspiration (ET) under future climate scenarios pose significant challenges for water resource management, particularly in regions dependent on agricultural and forest ecosystems. This study investigates future variations in ET using climate projections from 13 global climate models (GCMs) under the Coupled Model Intercomparison Project Phase 6 (CMIP6) datasets. The SWAT (Soil and Water Assessment Tool) model was used to simulate the water balance and estimate ET across different climate scenarios, integrating remotely sensed data such as vegetation indices, temperature, and precipitation patterns. The results indicate a consistent increase in ET across the majority of the climate models, driven by rising temperatures and changing precipitation regimes. This increase in ET is expected to exacerbate water scarcity, reduce soil moisture availability, and strain both agricultural and forest productivity. Specifically, higher ET will lead to increased water demand for crops and forests, making irrigation more challenging and increasing the vulnerability of ecosystems to droughts. The findings underscore the need for adaptive water management strategies, including optimized irrigation practices, watershed conservation, and enhanced forest resilience, to mitigate the impacts of these changes in ET. As the frequency and intensity of droughts and floods are expected to

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rise, this study highlights the urgency of incorporating future climate projections into water resource planning to address the emerging challenges associated with evapotranspiration in a changing climate.

Keywords: Climate Change, CMIP-6, Evapotranspiration, Forest Management, SWAT model

Strengthening Rural Economies:The Contribution of Agribusiness Startups to Sustainable Development

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Abstract

Agribusiness startups are central to increasing farm output, depositing salaried employment, and fostering agricultural practices that are environment-friendly in rural economies. These startups apply advanced modern technology, business innovation, and platforms for direct marketing to improve the efficiency of the supply chain, market access, and financial inclusion for farmers. Such startups reduce the gap between traditional farming and modern agribusiness by offering precision farm services, supplies of agri-inputs, and post-harvest management. Most importantly, it fosters rural entrepreneurship, skill development, and diversification of income that were earlier not experienced thus gradually raising the standards of living and economic resilience of the rural population. The impact of the agri-tech investment, once supported in policy, though initiated through the government is indeed much more because it leads rural development and brings agricultural reform.

Keyword – Environment-friendly, business innovation, diversification and precision farm services.

Innovative Techniques in Fluid Dynamics: From Turbulence Modeling to Stability Analysis in Complex Flow Geometries

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Abstract

This study develops a robust computational framework for advanced turbulence modeling and stability analysis in complex fluid flow geometries. A hybrid RANS-LES model, integrated with Physics-Informed Neural Networks (PINNs), is employed to improve the prediction of multi-scale turbulence dynamics. The framework is validated against experimental data for various industrial and environmental applications, such as supersonic ejectors and coastal flows. The results show significant improvements in capturing flow separation, turbulence intensity, and instability mechanisms. Non-linear stability analysis further enhances the understanding of transient growth and flow transition. Future research directions include integrating real-time adaptive modeling and AI-based optimization to enhance the framework's generalizability and applicability across a wider range of flow regimes.

Keywords: Hybrid Turbulence Modeling, Flow Stability Analysis, Complex Flow Geometries, Computational Fluid Dynamics, Physics-Informed Neural Networks.

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Supervising International Trade: Challenges and Possibilities for Business Expansion

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Abstract

In the present interconnected global, international trade has a significant role in stimulating economic growth, market expansion, and maintaining business enterprise sustainability. However, firms face several challenges such as proposals for changes, changing exchange rates, geopolitical uncertainties, supply chain disruptions, and cultural differences. Therefore, in such an environment, effective oversight and strategic decision-making will be critical. This paper will survey the dynamic landscape of global trade, pinpointing the respective changes in regulatory frameworks, technological innovations, and monetary policies which impact business enterprise growth. Also, it will in detail discuss the creative measures that can be taken to remove impediments from free trade, turn towards digitalization, and enhance competitiveness at the international level. An awareness of the risks and rewards of this internationalization process will also be imperative in facilitating long-term corporate growth and success. The workshop aimed to provide insights into good practices, policy recommendations, and strategic frameworks that can enable organizations to work within an increasingly interdependent environment.

Keyword: Market expansion, decision making, framework and internationalization.

"The Role of Education in Promoting Gender Equality: An Empirical Study"

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Abstract

This paper examines the role of education in promoting gender equality by analyzing how gender-sensitive curricula, teacher training, and institutional policies influence students' attitudes and behaviors. Drawing on theoretical frameworks such as feminist theory and critical pedagogy, the study employs a mixed-methods approach that combines quantitative surveys of students with qualitative interviews of educators. The findings indicate that education can significantly reshape gender norms by reducing stereotypical views and expanding aspirations, although challenges remain in terms of resource allocation and resistance from traditional communities. The paper concludes with recommendations for policymakers and educational institutions to further integrate gender equality into educational practices.

Key words : Gender Equality, Girls' Education, Women's Empowerment, Gender Disparities

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Revolutionizing Farming: Leveraging Drones and Artificial Intelligence in Precision Agriculture

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Abstract

Precision Agriculture (PA) has emerged as a transformative approach to optimizing crop yields, reducing resource wastage, and enhancing sustainability. Integrating drones and artificial intelligence (AI) within PA has revolutionized modern farming by enabling real-time data collection, predictive analytics, and precision-based decision-making. This paper examines the applications, benefits, and challenges of drone and AI adoption in agriculture. Additionally, it highlights recent advancements, including autonomous farming, AI-powered crop monitoring, and precision agriculture platforms, which offer promising solutions to global food security challenges. The paper also discusses the economic impact, environmental benefits, and future trends in AI-driven farming, emphasizing the need for policy development and infrastructure improvements.

Maize as a Potential source of Human Nutrition and Health.

Riya kumari & Dr. M. K. Srivastav*

Abstract

Maize (Zea mays) is one of the most important cereal crops worldwide, serving as a staple food for millions. It is rich in carbohydrates, dietary fiber, essential, vitamins and bio active compounds, making it a valuable source of human nutrition.Additionally, maize contains phytochemicals to various health benefits including reduced risk of chronic diseases such as diabetes. Cardiovascular diseases and certain cancers.

Keywords – Maize, Human nutrition, Health, Benefits, Eye health, dietary fiber.

Navigating the Complexities of Global Trade and Business Expansion: Challenges and Opportunities

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Abstract

The rapid globalization of trade and commerce has created unprecedented opportunities for businesses to expand their operations and reach new markets. However, this expansion also poses significant challenges, including navigating complex regulatory environments, managing cultural and linguistic differences, and mitigating risks associated with global supply chains. Global trade and business expansion present both significant challenges and abundant opportunities for companies looking to scale their operations beyond domestic borders. In an interconnected world, businesses must navigate economic, regulatory, and cultural complexities while leveraging emerging markets, technological advancements, and strategic partnerships to thrive.This paper provides an in-depth analysis of the challenges and opportunities associated with global trade and business expansion, and offers practical strategies for businesses seeking to navigate these complexities.

Key Words: Global Trade, Regulatory complexity,Cultural and Linguistic Differences,Supply Chain Risks.

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Study on biology of striped mural *Channa striatus* in local environmental condition of the Etawah district Uttar Pradesh.

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Abstract

Channa striatus is an important fish species for many purposes locally known as with several names like snakehead, sor, souri, sol etc. *Channa striatus* is predatory in nature and having aggressive behaviour against their prey, they prey on small aquatic animals and small fishes but it can also feed on other animals such as frogs, insects, earthworms, tadpoles and crustaceans etc. based on the availability of types of food. It is a fresh water fish with several medicinal and wound healing properties so its use in medicine and pharmaceutical properties. It is an important food fish of Indian subcontinent and Asia-pacific region. The maximum body growth of *Channa striatus* is 30 kg in weight and 183 cm in length. For present study about 80 fish specimens were collected from the local fish markets and available water bodies in the nearby Etawah District. Fish transported to lab my aerated water tank and dissected for the extraction of gonads and other reproductive organs. GSI of male and female calculated by measured of gonad and body weight. During study most of fishes having length about 35 ± 5 cm this length generally observed in both of the conditions like natural as well as captive conditions and the weight fishes founded mostly from 340 gm to 700 gm. The average weight of the fishes was 478.38 ± 8. These studies provide the basic idea of the further research on the reproductive biology of the fish.

Effect of Bio-fertilizers including Microbial Consortia on growth and yieldPulses crops

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Abstract

A field experiment was conducted at Agricultural Research farm of Janta Mahavidyalaya Ajitmal, Auraiya during 2023-24 with an object to assess the effect of bio-fertilizers including microbial consortia on growth and yield of pulses crops, in present situation when in Indian Agriculture increased dependency on excessive use of synthetic input like chemical fertilizers has caused several environmental problems related to green house effect, soil deterioration and air & water pollution. The effective microbes (EM) are co-existing naturally occurring useful microbes applied as inoculants to enhance the beneficial microflora of the soil ecosystem to facilitate agricultural production. The microbial consortia include lactic acid and photosynthetic bacteria, actinomycetes, fermenting fungi and yeast among others, microbial consortia reportedly have positive effect on several crop growth parameters. It enhances the productivity, biomass accumulation & photosynthetic efficiency. The microbial formulation augment the trace element contents root & shoot weight, nodulation & pod formation as well yield in pulses crops. The effective microbe's increases efficient uptake or availability of nutrients and increased resistance against soil born diseases in plants also empower capacity of drought tolerance. Thus application of microbial

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bio-fertilizers (Microbial consortia, Azotobactor, Azospirillum &PSB etc.) is an effective approach in increasing and maintaining the nutrient economy of soil, thereby reduced the use of chemical fertilizer for a proficient and sustainability in Agricultural production.

Key words: Bio-fertilizers, Microbial consortia, Pulses

Study on malaria fever surveillance system in Etawah (UP)

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Abstarct

Malaria is a life-threatening infection disease caused by Plasmodium parasites, transmitted of human through the bite of infected female Anopheles mosquito. It is major global health issues especially In tropical and subtropical regions. The disease present with symptoms like fever chills, and flue like illness and if untreated can lead to sever complications, including organ failure and death. A total of 50 patient admitted in community health center Mahewa Etawah government hospital and Bakewar government hospital 40 cases with the symptoms suggestive of malaria fever were include in the Present study.

Key Words -: Plasmodium parasites, Anopheles mosquito

A Subclass of Analytic Function Associated with Hypergeometric Function

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Abstract

The hypergeometric function is a fundamental special function that generalizes many well-known mathematical functions, including exponential, logarithmic, and trigonometric functions. Defined by a hypergeometric series, it plays a crucial role in various branches of mathematics and physics, including differential equations, number theory, and quantum mechanics. This paper explores the analytical properties of the hypergeometric function, including its convergence, integral representations, and transformations. Additionally, we discuss its applications in solving differential equations, modeling physical phenomena, and its connections with oth pecial functions. Several important results and generalizations in various branches of mathematics and physics, including differential equations, number theory, and quantum mechanics. This paper explores the analytical properties of the hypergeometric function, including its convergence, integral representations, and transformations. Additionally, we discuss its applications in solving differential equations, modeling physical phenomena, and its connections with other special functions. Several important results and generalizations, such as the confluent hypergeometric function and higher-order extensions, are also examined.

A Review on Effect of Climate Change on Breeding Behaviour of Crop Plants

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AIDS: Acquired Immunodeficiency Syndrome

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Abstarct

acquired immunodeficiency syndrome (AIDS) is the final and most severe stage of infection caused by the Human Immunodeficiency Virus (HIV). This chronic condition weakens the immune system, rendering individuals highly susceptible to opportunistic infections, certain cancers, and other life-threatening conditions. Since the discovery of HIV in the early 1980s, extensive global efforts have been made to understand its transmission, pathophysiology, and treatment. The primary modes of HIV transmission include unprotected sexual contact, sharing of contaminated needles, and mother-to-child transmission during pregnancy, childbirth, or breastfeeding. While no cure for AIDS currently exists, antiretroviral therapy (ART) has proven highly effective in managing the disease, improving the quality of life, and extending life expectancy for individuals living with HIV. Despite medical advancements, challenges remain, including stigma, inadequate access to healthcare in low-income regions, and the need for more widespread education on prevention and treatment. Continued research, improved access to care, and global awareness are critical in the ongoing fight against HIV/AIDS.

Keywords: AIDS, HIV, Acquired Immunodeficiency Syndrome, Human Immunodeficiency Virus, Antiretroviral Therapy (ART), immune system, opportunistic infections, HIV transmission, HIV prevention, sexual transmission, needle sharing, mother-to-child transmission, global health, HIV treatment, stigma, public health, global awareness, healthcare access, disease management, HIV education, and antiretroviral drugs.

The Role of Artificial Intelligence in Business and Research

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Abstarct

Artificial Intelligence (AI) is revolutionizing both business and research by enhancing efficiency, decision-making, and innovation. In business, AI facilitates automation, customer engagement, predictive analytics, and cybersecurity, optimizing operational processes. In research, AI supports data analysis, medical advancements, environmental modeling, and natural language processing, accelerating discoveries. Despite these benefits, AI adoption presents challenges such as ethical concerns, biases, data security risks, and regulatory issues. The theme of this paper explores AI's transformative role in these domains while addressing associated challenges and future prospects. The responsible and strategic implementation of AI is crucial to harnessing its full potential while mitigating risks. This study provides a comprehensive overview of AI's applications and implications, contributing to a deeper understanding of its impact on business and research.

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Human Being and Environmental Sustainability

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Abstract

Environmental sustainability is a key element of human development and well-being. We depend upon ecosystems to provide the water we drink, the food we eat, and the wood we use to heat our homes. Reliance on these resources necessitates a delicate balance, however. Use too little of those resources and our capacity to meet basic human needs is at risk. Use too much and severe adverse environmental repercussions will likely ensue, including the depletion of resources, ecosystem collapse and increased emissions. Such risks are amplified due to rapid globalization, urbanization, wealth generation, and climate change. Hence, it is not enough to solely evaluate our environment: attention must also be given to the sustainability of the environment. Environmental sustainability, one of three pillars of sustainability, 3 was formally introduced as a broad fundamental concept by Goodland (1995). It can be defined as the capacity to sustain global life support systems indefinitely by ensuring that natural resources adequately meet human life requirements. Natural resources include oil, natural gas, air, soil, water and animals, all of which are finite if not satisfactorily maintained. Moreover, the idea of environmental sustainability transcends a simple supply-demand balance by simultaneously considering waste assimilation, and steps taken to minimize environmental degradation and promote biodiversity conservation. However, the scope of environmental sustainability presents a challenge when attempts are made to quantify the concept using selected indicators. Increasing urbanization and population growth increases the strain on municipal services, including municipal waste management services.

Key Words:-*Environmental sustainability, Human development, Climate change, Natural gas, Air, Soil, Water etc.*

Nanophotonics: Manipulating Light at Nanoscale for Future Technologies

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Abstract

Nanophotonics, the study and manipulation of light at the nanoscale, stands at the forefront of emerging technologies with vast potential across various fields, including telecommunications, computing, and medicine. This interdisciplinary field bridges the principles of optics, material science, and quantum mechanics, focusing on the interaction between light and matter at sub-wavelength scales. The ability to control light at the nanometer scale offers unique opportunities for harnessing photonic phenomena such as surface plasmon resonances, photonic band gaps, and strong coupling between light and matter. These effects enable the creation of highly efficient, miniaturized photonic devices capable of surpassing the limitations of traditional bulk optics. A primary area of investigation is the manipulation of light using nanostructures, such as nanowires, metamaterials, and quantum dots, which exhibit extraordinary optical properties due to the confinement of electromagnetic fields in dimensions smaller than the wavelength of light. Furthermore, the integration of nanophotonic components with semiconductor technology holds the promise of revolutionizing the development of next-generation photonic circuits, ultra-fast optical

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communication systems, and novel imaging techniques. Quantum nanophotonics also explores the quantum states of light, offering the potential for advancements in quantum computing, secure communication, and quantum sensing. As we push the boundaries of nanofabrication techniques, the interplay between photonic, electronic, and plasmonic properties in these nanoscale devices is expected to yield new insights into light-matter interactions and lead to the realization of a host of transformative technologies, marking a pivotal step towards the realization of a photonic future.

Key Words:- Nanophotonics, telecommunications, metamaterials, nanofabrication techniques, plasmonic properties.

Study on the production and conservation of spotted murrel *Channa punctatus*(Bloch) through aquaculture in the industrial waste water

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Channa panctatus is an air breathing economically important fish of family Channwnidae use as food, medicinal and game fish in several countries. Its mostly found in Indian sub-continent and live in pond tank reservoir rice fields etc. The rapid industrialization high human population and destruction of natural habitat due to environmental pollution climate change dischargedof effluents into freshwater systems depletes the dissolved oxygen content and increase organic load in the fresh water system and other several anthropogenic activities which destroys the natural habitat of the fish *Channa panctatus*so its population are decline tremendously. The fish *Channapanctatus* possesses a pair of suprabranchial cavities for aerial respiration and that is why it is very hardy and can remain alive for long period out of water, if kept moist its survive in the low dissolve oxygen water due to air breathing nature and tolerate in highly organic load with other metallic contents these advance character which increase the survival rate of this fish in polluted water. Its prolific breeding nature supported to production of seed but unavailability of seed production technology created several problems in the culture and conservation of this fish through aquaculture. Rearing of snakehead larvae is a very tough task, due to carnivorous nature with piscivorous and cannibalistic nature. Captive reproduction and larval rearing of snakehead have been accomplished experimentally, but are not done on a commercial scaleits culture in polluted water may possible due to its habitat.Small water tank or ponds have very suitable for its culture which available with poor farmers. So this study provides the basic idea of the culture and conservation of the fish *Channa panctatus* through aquaculture.

A Review on Wheat as a Potential Source of Human Nutrition and Health

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Abstract

Wheat (Triticum spp.) is one of the most important staple crops worldwide, providing a significant portion of daily caloric intake for billions of people. This review explores the nutritional composition, health benefits, and potential concerns associated with wheat consumption. It highlights the role of wheat in human nutrition, including its macronutrient and micronutrient profile, dietary Fiber content, and bioactive compounds that contribute to health promotion.

About the Conference

The international conference on **"Innovation, Entrepreneurship, and Incubation in Agriculture, Science, Commerce, and Social Science"** scheduled to take place at Janata College, Bakewar, is a premier event that aims to bring together experts, researchers, and innovators from around the world. The conference will provide a platform for knowledge sharing, collaboration, and networking among participants, with a focus on promoting sustainable development and innovation in various fields.

One of the key objectives of the conference is to promote innovation and entrepreneurship in agriculture, science, commerce, and social science. Innovation is critical for sustainable development, as it enables the creation of new products, services, and processes that can address pressing challenges and improve the quality of life. Entrepreneurship, on the other hand, is essential for translating innovation into practical solutions, creating jobs, and driving economic growth.

The conference will also focus on incubation, which is a critical component of the innovation ecosystem. Incubators provide a supportive environment for startups and entrepreneurs, enabling them to develop and test their ideas, access funding and resources, and scale up their ventures. The conference will explore the role of incubators in promoting innovation and entrepreneurship, and discuss strategies for establishing and sustaining successful incubation programs.

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