

**Proceeding of
International Conference on Millets for
Sustainable Society (ICMSS-2023)**

08th July 2023

GIET University, Gunupur -765022, Odisha, India

Edited by:

Brojo Kishore Mishra

Raghvendra Kumar

Kali Charan Rath

N. V. J. Rao

GIET University, Gunupur -765022, Odisha, India

© 2023 GIET University, Gunupur, India

All Rights Reserved.

International conference titled as “International Conference on Millets for Sustainable Society (ICMSS-2023), 08th July 2023. The Conference proceedings will be publishing with World Leadership Academy with ISBN number 978-93-94318-19-9.

No parts of this proceeding may be reproduced, stored in a retrieval system or transmitted in any form by any means, without prior permission of the publisher.

DISCLAIMER

The authors are solely responsible for the contents compiled in this volume. The publishers or editors do not take any responsibility for the same in any manner. Errors, if any, are purely unintentional and readers are requested to communicate such errors to the editors or publishers to avoid discrepancies in the future.

Printed and published by the GIET University,
Gunupur -765022, Odisha, India
July 2023.

ICMSS-2023@GIET University, July 8, 2023

डॉ. (श्रीमती) पंकज मिश्र
(पूर्व कुलपति, बीपीएस महिला विश्वविद्यालय, हरियाणा)
महासचिव
Dr. (Mrs.) Pankaj Mittal
(Former Vice Chancellor, BPS Women University, Haryana)
Secretary General



भारतीय विश्वविद्यालय संघ
Association of Indian Universities



June 07, 2023

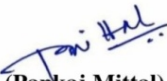
Message

It gives me immense pleasure to know that GIET University, Gunupur, Odisha, is organizing an **International Conference on Millets for Sustainable Society (ICMSS-2023)** in hybrid mode on **8th July, 2023**.

I commend the dedication and commitment of the University to the advancement of sustainable agriculture and the promotion of millets as a vital component of building a sustainable society. May this conference be a platform for fruitful discussions, knowledge exchange, and the forging of new collaborations. I hope that the presentations, panel discussions, and networking opportunities will inspire and provide valuable insights that can be implemented in the respective fields.

May the International Conference on Millets for Sustainable Society (ICMSS-2023) be a resounding success, sparking innovation, and igniting a collective drive towards a more sustainable and inclusive society. I am confident that deliberations in the Conference will pave the way for a brighter future, where millets play a central role in nourishing our communities while preserving our planet.

I wish an enlightening, inspiring, and rewarding conference experience for all the participants.



(Pankaj Mittal)
Secretary General

AIU House, 16, Comrade Indrajit Gupta Marg (Kotla Marg), New Delhi-110 002

Phone: +91 11 2323 6105 Fax: +91 11 2323 2131 E-mail: sgoffice@aiu.ac.in, pankajjgc@gmail.com; Website: www.aiu.ac.in



**Message from the Director,
ICAR - Indian Institute of Millets Research**

India being the leading producer of millets has been pioneering in implementing series of programmes at various levels to commemorate the International Year of Millet 2023. The International Conference on Millets for Sustainable Society (ICMSS-2023) being organized by the GIET University, Gunupur is a commendable initiative, taking the country's initiative to the academic arena. It is significant that a leading University of Eastern India, located in Odisha State that has taken leadership in providing end-to-end solutions for production, processing, marketing and consumption of millets, is organizing the International Conference on millets, to promote the goodness of millets for health, nutrition as well as climate resilience. Experts from across the globe are speaking on this occasion bringing a global perspective for the delegates participating in the conference. I am sure - this conference will create more awareness about millets in the academia and policy makers, especially in eastern India, to promote production and consumption of millets to enrich and diversify the food basket. I wish the conference all the success.

Dr. C. Tara Satyavathi
Director
ICAR - Indian Institute of Millets Research
Hyderabad, Telangana, India

From the President's Desk



I am honoured to extend my warmest greetings and heartfelt welcome to all of you on behalf of GIET University as we prepare to host the prestigious **International Conference on Millets for Sustainable Society (ICMSS-2023)** on 8th July 2023. It is with great pleasure and anticipation that we embark on this remarkable endeavour.

Millets, with their rich nutritional content, climate resilience, and diverse cultivation methods, have emerged as an integral part of the sustainable development narrative. The importance of millets in fostering food security, promoting environmental sustainability, and ensuring the well-being of communities cannot be overstated. Recognizing this significance, ICMSS-2023 aims to provide a global platform for scholars, researchers, policymakers, and practitioners to engage in insightful discussions, share their valuable expertise, and explore innovative solutions for harnessing the potential of millets.

Our university has always been committed to promoting sustainability and addressing the challenges faced by our society. Hosting ICMSS-2023 aligns perfectly with our mission and aspirations. The conference will serve as a catalyst for generating knowledge, driving collaborative research, and fostering partnerships to create a sustainable future centred on millets. It will provide a multidisciplinary forum where participants can delve into various aspects such as agricultural practices, nutrition, health, policy frameworks, market development, and community engagement related to millets.

Have a great conference and a great stay at GIET University.

A handwritten signature in black ink, which appears to read 'Panda', written over a horizontal line.

Prof. (Dr.) Satya Prakash Panda
President, GIET University, Gunupur

From the Vice-President's Desk



It is with great pleasure and enthusiasm that I extend my warm greetings to each one of you on behalf of GIET University as we prepare to host the highly anticipated International Conference on Millets for Sustainable Society (ICMSS-2023) on 8th July 2023. As the Vice President of the university, I am honoured to be part of this significant event and would like to extend my heartfelt appreciation to all those involved in making this conference a reality.

ICMSS-2023 represents a remarkable opportunity for us to convene a global gathering of scholars, researchers, practitioners, and policymakers who are passionate about advancing the cause of sustainable development through the exploration of millets. Millets, with their exceptional nutritional value, ecological adaptability, and socioeconomic benefits, have emerged as a vital component of our efforts to address the pressing challenges of food security, climate change, and sustainable agriculture.

This conference serves as a platform for fostering knowledge exchange, innovative thinking, and collaborative endeavours. It brings together experts from diverse fields, offering a unique opportunity for interdisciplinary dialogue and engagement. Through presentations, interactive sessions, and workshops, we aim to explore the potential of millets from multiple perspectives, including cultivation practices, nutritional aspects, policy frameworks, market development, and community involvement.

A handwritten signature in blue ink, appearing to be 'Chandra Dhwaj Panda', written over a horizontal line.

Prof. (Dr.) Chandra Dhwaj Panda
Vice-President, GIET University,
Gunupur

From the Director General's Desk



I am delighted to extend my warmest greetings and sincere welcome to all of you on behalf of GIET University as we eagerly prepare to host the esteemed International Conference on Millets for Sustainable Society (ICMSS-2023) on 8th July 2023. As the Director General of the university, it is an immense honor for me to be a part of this prestigious event, and I extend my heartfelt appreciation to all those involved in organizing this remarkable conference.

ICMSS-2023 represents a significant milestone in our collective efforts to address the global challenges of sustainable development, food security, and environmental conservation. The conference provides a pivotal platform for renowned scholars, researchers, policymakers, and practitioners to convene and deliberate on the crucial role of millets in creating a sustainable society.

Millets, with their exceptional nutritional composition, climate resilience, and cultural significance, have garnered increasing attention as a key solution for achieving food security, mitigating climate change, and promoting sustainable agriculture. ICMSS-2023 aims to explore and harness the full potential of millets by facilitating interdisciplinary discussions, sharing best practices, and forging new collaborations. I am sure the conference is a grand scientific extravaganza.

A handwritten signature in black ink, appearing to be 'J. Panda', written in a cursive style.

Prof. (Dr.) Jagadish Panda
Director General, GIET University,
Gunupur

From the Vice-Chancellor's Desk



As part of International Year of Millets (IYM-2023), my best wishes for conducting an International Conference on Millets for Sustainable Society (ICMSS-2023) GIETU Gunupur. I believe Millets as the food of our choice. In tune with “India’s policy as a fusion of ‘back to basics’ and ‘march to future’ the subject experts to deliberate on collective action to achieve global food security. We must find ways to build sustainable and inclusive food systems, focussed on marginal farmers. We must find ways to strengthen global fertilizer supply chains. At the same time, adopt agricultural practices for better soil health, crop health and yield. Traditional practices from different parts of the world may inspire us to develop alternatives for regenerative agriculture. We need to empower our farmers with innovation and digital technology. We must also make solutions affordable for small and marginal farmers in the Global South. There is also an urgent need to reduce agricultural and food waste, and instead, invest in creating wealth from waste.

I wish you all success in your deliberations.

A handwritten signature in black ink, reading "A V N L Sharma". The signature is written in a cursive style and is placed on a white rectangular background.

Prof. (Dr.) A V N L Sharma
Vice Chancellor, GIET University,
Gunupur

From the Registrar's Desk



It is with great pleasure and enthusiasm that I extend my warm greetings and heartfelt welcome to all of you on behalf of GIET University as we prepare to host the highly anticipated International Conference on Millets for Sustainable Society (ICMSS-2023). As the Registrar of the university, I am honoured to be part of this significant event, and I express my sincere appreciation to all those involved in organizing this exceptional conference.

ICMSS-2023 represents a significant milestone in our collective pursuit of sustainable development, addressing global challenges related to food security, nutrition, and environmental conservation. The conference provides a dynamic platform for scholars, researchers, policymakers, and practitioners to convene and delve into the critical role of millets in fostering a sustainable society.

Millets, with their exceptional nutritional value, adaptability, and resilience, have garnered well-deserved recognition as a key solution for achieving sustainable agriculture, improving food security, and mitigating the impacts of climate change. ICMSS-2023 aims to explore the vast potential of millets through interdisciplinary discussions, knowledge sharing, and collaborative endeavours.

A handwritten signature in black ink, appearing to read 'N. V. Rao', with a stylized flourish underneath.

Prof. (Dr.) N. V. Jagannath Rao
Registrar, GIET University, Gunupur

Message from the Controller of Examination



I am delighted to extend my warm greetings and heartfelt welcome to all of you on behalf of GIET University as we prepare to host the esteemed International Conference on Millets for Sustainable Society (ICMSS-2023). As the Controller of Examination of the university, I am honored to be part of this momentous event, and I express my sincere appreciation to all those involved in organizing this exceptional conference.

ICMSS-2023 represents a significant milestone in our collective pursuit of sustainable development, addressing global challenges related to food security, nutrition, and environmental conservation. The conference provides a valuable platform for scholars, researchers, policymakers, and practitioners to converge and delve into the critical role of millets in fostering a sustainable society.

Millets, with their exceptional nutritional value, adaptability, and resilience, have garnered well-deserved recognition as a key solution for achieving sustainable agriculture, improving food security, and mitigating the impacts of climate change. ICMSS-2023 aims to explore the vast potential of millets through interdisciplinary discussions, knowledge sharing, and collaborative endeavors.

I extend my deepest appreciation to the diligent organizing committee, scientific committee, and support staffs that have meticulously planned every aspect of ICMSS-2023. Their unwavering commitment and tireless efforts ensure that this conference will provide a comprehensive and engaging experience for all participants.

A handwritten signature in purple ink, appearing to read 'pvcijayakumar'.

Dr. P Vijaya Kumar
Controller of Examinations
GIET University, Gunupur

Message from the Dean (School of Agriculture)



In order to ensure food and nutritional security for the ever increasing world population and giving due weightage on three topmost sustainable developmental goals such as end poverty, end world hunger and deliver good health for all, the United Nation rightly designated 2023 as the “International Year of Millet”. Millets are important component of Indian diet since time immemorial and offers numerous health benefits. The Government of India of late, has recognized this benefit through formal launching of Shree Anna Yojna. Millets are environment friendly with low carbon footprint and considered as first line of defence against climate change. Odisha state has taken the lead role in decarbonising the atmosphere through its Millet Mission.

I am glad to know that the GIET University is organizing the “International Conference on Millets for Sustainable Society” in association with Lorma College, Philippines. I trust and believe this conference will focus on vital issues relating to technologies for increasing its productivity and mainstreaming its consumption at the global level.

I wish this endeavour a grand success.

A handwritten signature in blue ink, appearing to read 'S.K. Panda', written over a light blue rectangular background.

Prof. S.K. Panda
Dean, School of Agriculture,
GIETU

Chief Guest



Dr. Anita Gupta
Scientist G / Adviser
Head - Climate Change & Clean Energy
Division
Department of Science & Technology
Government of India

Keynote Speakers



Dr. Dipak Santra
Associate Professor
Department of Agronomy and Horticulture
University of Nebraska, United States



Dr. Suresh Diliprao Sakhare
Principal Scientist
CSIR - Central Food Technological Research Institute
Government of India



Dr. Narayanaswamy Bharathan
Chair & Professor Biology department
Indiana University of Pennsylvania
United States



Dr. Neetu Bhagat
Deputy Director - Skill Development Cell
All India Council For Technical Education
Government of India



Dr. Akanksha Jain
Consultant (Food Technologist)
National Research Development Corporation
Government of India



Dr. Chibuikwe Udenigwe
Professor & University Research Chair
University of Ottawa
Canada

TABLE OF CONTENT

| Sl. No | Abstract ID | Title |
|--------|-------------|--|
| 01 | ICMSS-03 | Millets For Nutritious Society |
| 02 | ICMSS-05 | Leveraging Artificial Intelligence And Machine Learning In Millet Cultivation |
| 03 | ICMSS-08 | Harnessing The Nutritional Potential of Millet For Optimal Health |
| 04 | ICMSS-10 | Millet: Reviving Traditional Grains For Modern Health |
| 05 | ICMSS-14 | Traditional Millets In Telangana Lifestyle |
| 06 | ICMSS-21 | Impulse Buying Behavior of Consumers Towards Millets - A Systematic Review of Literature |
| 07 | ICMSS-22 | Identification of Foxtail Millet Solution For Malignant Colorectal Cell Growth Reduction Using Deep Learning Based Mobilenet Model |
| 08 | ICMSS-26 | Sustainable Marketing And Promotion Strategies of Millets: A Voyage of Two Decades |
| 09 | ICMSS-31 | Enhancing Millet Production And Exploring Its Importance In Human Health Using Machine Learning Techniques |
| 10 | ICMSS-34 | Climate Change, Millet And Sustainable Livelihood In Tribal Region: A Micro-Analysis in Koraput District, Odisha, India |
| 11 | ICMSS-43 | An Assessment on Marketing Promotions And Strategies Adopted By Retailers Towards Millet Based Products In Hyderabad |
| 12 | ICMSS-45 | Revitalising The Millets Market: A Strategic Business Plan For Success |
| 13 | ICMSS-48 | Millets: Transforming Agriculture, Empowering Communities, And Building Sustainable Businesses |
| 14 | ICMSS-49 | Formulation of Value-Added Beauty Products From Jowar |
| 15 | ICMSS-58 | Diversity of Finger Millet [Eleusine Coracana (L.) Gaertn] Landraces Collected From Ahmednagar District (MH.) |
| 16 | ICMSS-61 | Millets For Health Sustainability |
| 17 | ICMSS-63 | Stress Susceptibility In Little Millet: Effects of Drought, Moisture, Temperature, And Salinity on The Germination Percentage And Vigour Index |
| 18 | ICMSS-71 | Millet's Universal Appeal: A Key Ingredient For Global Health And Sustainability |
| 19 | ICMSS-74 | Prospective of Millets In Rejuvenation of Bakery |

| | | Industry |
|----|----------|--|
| 20 | ICMSS-80 | Women Empowerment Through Marketing of Millets |
| 21 | ICMSS-81 | Shembot: An IOT Based Seeding Helper Machine BOT |
| 22 | ICMSS-82 | Implementing Sustainable Disease Management Practices into A Mobile Rice Disease Identification and Management Application |
| 23 | ICMSS-83 | Agro Trade: A Mobile Trading App For Agricultural Sectors |
| 24 | ICMSS-84 | Automeric - Developing A Smart Turmeric Juicer and Pulveriser using Arduino Mega |

Preface

Dear Readers,

We are delighted to present to you the proceedings of the International Conference on Millets for Sustainable Society. This conference provided an opportunity to address these challenges and highlight the potential of millets as a sustainable solution to global food security, environmental conservation, and rural livelihood enhancement. The exchange of cutting-edge research, experiences from the field, and successful case studies underscored the need to revitalize millet-based agriculture and value chains. Within these proceedings, you will find a rich tapestry of scientific abstracts, research findings, policy insights, and best practices that delve into various aspects of millets.

We extend our heartfelt appreciation to all the authors who submitted their abstract and to the dedicated reviewers who rigorously assessed the submissions to maintain the highest standards of quality and relevance.

Furthermore, we extend our thanks to the Chief Guest, Keynote Speakers, organizing committee, volunteers, sponsors, and all those who contributed to the success of the International Conference on Millets for Sustainable Society. Their unwavering support and enthusiasm made this event possible, and we hope that the knowledge shared here will continue to inspire future endeavors in promoting millets.

Sincerely,
Brojo Kishore Mishra
Raghvendra Kumar
Kali Charan Rath
N. V. J. Rao

Millets for Nutritious Society

¹Gutta Vijayalakshmi, ²Ch. Vinay, ³P. Jansi Ratna

¹Southern Int. Hotel Management Academy, Visakhapatnam.

²Sri Venkateswara University, Tirupati

³Andhra University, Viskhapatnam

itsmevijaya89@gmail.com

Abstract: Global warming, the consequence of anthropogenic greenhouse gases, resulted in acute shortage of food supply affecting food security leading to malnutrition problems in the society. Malnutrition results in deficiency diseases like PEM, underweight, anaemia, immunodeficiency and mental retardation contributing to lowering the health index of the society. Millets serve as an interventional strategy by overcoming climate change and malnutrition problems, thereby ensuring food, health and financial security. It is mandate for us to research, develop and deliver solutions to ensure food security for sustainable societal development.

Millets are rich in macro and micro nutrients in comparison to other cereals and can be cultivated in adverse soils with very low inputs. More than nine varieties are grown in India, each of it having its own nutritional benefit. They are fibre rich, gluten-free low glycemic indexed and can be consumed directly without polishing. Additionally, the processing methods like soaking, germination, fermentation and malting ameliorates the nutritive value of millets by enhancing vitamins, minerals and by lowering the anti-nutrients like phytates and oxalates.

In order to promote the millet usage, low cost, highly nutritious value-added products like cereal bar, millet laddoo, millet sticks, crackers, porridge and health mix have been developed by utilizing germinated and malted grains. Overall acceptability of these products for all the sensory attributes tested, indicated its significant high acceptability ($P=0.05$). Relatively low cost of the products 30-40% less than the reference products Yoga bar, poushtik laddoo, soya sticks, murukku, upma and health drink mix contribute to its promotion and commercialization.

Leveraging Artificial Intelligence and Machine Learning in Millet Cultivation

¹Sunil Samanta Singhar, ²Anmol Giri

¹Dept. of Computer Science & Engineering, GIET University, India

²Dept. of Agricultural Economics, GIET University, India

sunilsinghar@giet.edu, anmolgiri@giet.edu

Abstract: Millets, being a vital staple crop in many regions, hold significant potential for addressing global food security and nutrition challenges. The integration of Artificial Intelligence (AI) and Machine Learning (ML) techniques in millet cultivation processes offers numerous opportunities for enhancing productivity, sustainability, and yield prediction. This abstract provides an overview of how AI and ML can be utilized in various aspects of millet production and management. Crop Monitoring and Disease Detection: AI and ML algorithms can analyze satellite imagery, drone-based remote sensing data, and sensor-based IoT devices to monitor millet crops. These technologies enable early detection of diseases, nutrient deficiencies, and pest infestations. Timely interventions can be implemented, minimizing crop loss and ensuring healthier yields. Yield Prediction and Optimization: ML models can process historical weather data, soil characteristics, and crop growth patterns to forecast millet yields accurately. These predictions enable farmers to make informed decisions regarding irrigation, fertilizer application, and crop rotation, leading to optimized yields and resource management. Precision Agriculture: AI-powered precision agriculture tools can help in site-specific management of millet fields. By analyzing data from soil sensors, weather forecasts, and crop growth patterns, AI algorithms can provide tailored recommendations for irrigation, fertilizer

application, and pest control. This approach ensures efficient resource utilization, reduces environmental impact, and enhances overall crop health. Supply Chain Management: ML algorithms can assist in streamlining millet supply chains. By analyzing market trends, transportation logistics, and demand patterns, AI models can optimize inventory management, reduce wastage, and improve market forecasting. This results in better market access for millet farmers and improved profitability. Crop Breeding and Genetic Improvement: AI and ML techniques can accelerate the millet breeding process. By analyzing large genomic datasets, these technologies aid in identifying desirable traits, predicting hybrid performance, and developing improved millet varieties with enhanced yield, disease resistance, and nutritional content. In conclusion, the integration of AI and ML technologies in millet cultivation offers immense potential for sustainable and efficient agriculture. By leveraging these tools for crop monitoring, disease detection, yield prediction, precision agriculture, supply chain management, and crop breeding, millet farmers can enhance productivity, optimize resource utilization, and contribute to food security and nutrition goals. Continued research and development in this field can lead to transformative advancements in millet cultivation and positively impact global food systems.

Millet: Reviving Traditional Grains for Modern Health

¹Tawaf Ali Shah, ²Surabhika Panda

¹Shandong University of Technology Zibo, China

²Navsari Agricultural University, Navsari, India

Tawafbiotech@yahoo.com, surabhika12panda@gmail.com

Abstract: As the pursuit of healthy eating gains momentum, traditional grains have resurfaced as valuable sources of nutrition and well-being. Millet, a time-honored grain, is experiencing a revival as a wholesome food choice that aligns with modern health goals. This abstract delves into the potential of millet to revitalize our diets and contribute to contemporary wellness. Millet, an ancient grain, offers a myriad of health benefits while catering to the dietary preferences of today's health-conscious individuals. Packed with essential nutrients, millet provides a rich source of dietary fiber, protein, vitamins, and minerals. Its high fiber content promotes digestive health, aids in weight management, and supports heart health by reducing cholesterol levels. Furthermore, millet's protein content makes it an excellent choice for vegetarians and vegans, helping to meet their dietary needs. The grain is abundant in essential amino acids, making it a valuable plant-based protein source for muscle growth and repair. Millet's impressive vitamin and mineral profile, including B vitamins, magnesium, and phosphorus, contributes to overall vitality. These nutrients support energy production, bone health, and nervous system function. In addition, millet is naturally gluten-free, making it a safe alternative for those with gluten sensitivities or celiac disease. The revival of millet goes beyond its nutritional composition; it also stems from its versatility in the kitchen. Millet can be incorporated into a variety of

dishes, from hearty porridges and pilafs to flavorful salads and baked goods. Its adaptability allows for creative culinary exploration, making it an appealing choice for modern diets. In conclusion, millet's resurgence in the realm of traditional grains offers a compelling solution for modern health goals. With its nutrient density, gluten-free nature, and culinary adaptability, millet brings together the best of both worlds. By reintroducing millet into our diets, we can embrace a wholesome, sustainable, and culturally rich food source that supports our quest for optimal health.

Traditional Millets in Telangana Lifestyle

Jadi. Mahesh Kumar

Government Degree College, Mancherial

jadi.maheshkumar@gmail.com

Abstract: A tradition is a practice passed down from generation to generation. Tradition is not limited to a festival or a special day. It is a daily life pattern and style that is intertwined in our life. Thus, along with everything else, dishes made with millets have become a part of our life. But nowadays, in this period of civilization, people have completely forgotten them and their benefits. These millets were the most used food in Telangana state before 2000 BC. In every house they used “Rotte”, “Ambali”, “Jaava”, “Gataka”, “Raagi sangati” and “Jonna pyalalu”. Even though they don’t know the reason to take this, they carried on with their lifestyle. The lifespan compared with the persons who take millets is higher than those who do not taking millets. This study was carried out to find out what kind of nutrients present in millets affected the life of the people of that time.

Impulse Buying Behavior of Consumers towards Millets - A Systematic Review of Literature

¹K. Chandrasekhar, ²Dr. Saumendra Das, ³Dr. Neha Gupta

¹School of Management Studies, GIET University, Gunupur

²School of Management Studies, GIET University, Gunupur

³IBCS, SOA University, Bhubaneswar

*k.chandrasekhar@giet.edu; saumendra@giet.edu;
nehagupta@soa.ac.in*

Abstract: Millet, as a fragment of food culture, has procured popularity and admiration in recent years due to nutritional value and health benefits. Impulse buying behavior refers to the tendency of consumers to make unintentional and spontaneous purchases. Millet being a versatile and nutrient-rich grain extends numerous health benefits including gluten-free, rich in fiber and a source of essential nutrients which furnish a potential market and a niche for emerging opportunities for businesses and marketers seeking to effectively promote and market millet and millet-based products. With an emergence of demand, the impulse buying behavior towards millets is apparent and evident. The unique aspects of millet as a product becomes the potential drivers behind the impulse purchase of millet-based products. Factors such as product packaging, point-of-purchase displays, pricing strategies and social influence are levied on consumers to make impulsive decisions towards millet. There is a crucial role of online platforms and social media in shaping impulse buying behavior as consumers are increasingly exposed to targeted advertisements and persuasive content related to millet. Demographically, it can be seen that along with the generation where the wise and matured individuals are more inclined towards healthy lifestyle with organic food choices,

youngsters are now-a-days finding it more fascinating to consume healthy food and can be seen engaging in impulse decision making due to various social media influences. Individuals having pre-diabetic and diabetic health conditions are relying on nutrition-rich food such as millet-based products without compromising on health and are becoming regular consumers of millets and can be seen sourcing them in every way possible. These prevailing behaviors are ultimately contributing towards the growth and acceptance of millet as a desirable and sustainable food option.

Identification of Foxtail Millet Solution for Malignant Colorectal cell growth reduction using Deep learning based MobileNet model

¹Artatrana Biswaprasanna Dash, ²Sachikanta Dash, ³Sasmita Padhy

^{1,2}Computer Science & Engineering GIET University Gunupur, India

³School of Computing Science and Engineering VIT Bhopal University

*artatrana.biswaprasandash@giet.edu,
dash.sachikanta@gmail.com, pinky.sasmita@gmail.com*

Abstract: Millets are cereal crops, commonly grown in semi-arid regions. Millets are known to be a good source of fiber, magnesium, phosphorous, zinc, serotonin, and gluten-free product that helps to heal Cancer effectively. Some well-known millet types include pearl millet (Bajra), Finger Millet (tag), foxtail millet (Kangni/ Kodu/ Setariaitalica) and sorghum. Foxtail millet bran (FMBP) is considered as the sixth most important cereal type in the world for preventing several diseases. The active components of FMBP is primarily attained by promoting higher levels of reactive oxygen species (ROS), that helps to block STAT3 pathway by reducing the growth of malignant cells in the colon and rectum. However, there is limited scientific evidence regarding cancer prevention by the usage of millet. Nowadays in medical Colonoscopy, histological image analysis and MRI are some common adapted techniques for the identification of swollen and inflamed tissues, polyps in the colon. However the manual approaches are very time consuming and less accurate. There is no specific model available that can measure the effectiveness of millet in healing malignant cell growth in the colon and rectum. Our main goal is to design a Deep learning

based MobileNet-V3 model for the detection and classification of malignancy from the colonoscopy images and histological images. This study will help the researchers and medical practitioners to compare the malignancy status before and after the consumption of millet.

Sustainable Marketing and Promotion Strategies of Millets: A Voyage of Two Decades

¹Saumendra Das, ²Hassan Badawy

¹GIET University, Gunupur, India

²Luxor University, Egypt

saumendra@giet.edu, hassan.refaat@fth.luxor.edu.eg

Abstract: Millet is popularly known as miracle crops that offer nutritional benefits for individuals. Often millets considered as a food supplement for its antioxidant activity, anti-diabetic, anti-tumorigenic and antimicrobial properties. According to various epidemiological studies, eating millets enhances the immune system, detoxifies the body, lowers the risk of cancer, boosts energy, improves brain and muscular systems, and raises immunity in the respiratory system. Millets are more nutrient-dense than processed grains, but they received less attention. They need less input than other grains since they can endure challenging agro-climatic conditions. Additionally, numerous studies have shown that millets are superior to commonly consumed grains like wheat and rice among all nutritional categories. They contribute to a well-balanced diet and play a significant role for sustainable nutrition. Lack of awareness about the nutritional content of existing dietary patterns and unwillingness to adapt eating habits are two major contributors to the poor production and consumption of millet. Millets are no longer extensively grown, and as a result, there are barely any of them on the market. This drives consumers to pick other easily available and less expensive cereals. The potential of millet to prevent lifestyle diseases including diabetes, cardiovascular disease, and obesity as well as to boost general health has just recently started to increase its value. In addition to

the corona epidemic, individuals are now more conscious of the magnitude of eating a nutritious diet. To identify the growing demand for millet, several researches have been conducted since 2003. The goal of this study is to gather marketing and promotion techniques from those studies and then offer a smart perspective on such strategies.

Enhancing Millet Production and Exploring its Importance in Human Health using Machine Learning Techniques

¹Ch Sekhar, ²A S Keerthi Nayani, ³K Venkata Rao

¹GMR Institute of Technology, Andhra Pradesh.

²Matrusri Engineering College, Hyderabad, Telangana.

³Guru Nanak Institutions Technical Campus, Ibrahimpatnam,
Telangana

sekharch.gmrit@gmail.com

Abstract: Due to the dietary advantages and climate resilience of these crops, millet production has recently attracted fresh interest in India. The "National Mission on Sustainable Agriculture" and the "Millet Mission" are just two of the programmes the Indian government has put into place to encourage millet production. These programmes seek to improve millets' production, value chain development, and market integration. The nutritional content of millet crops and their potential to address issues with global food security have drawn attention in recent years. This study focuses on using machine learning (ML) techniques to increase millet production and investigate the significance of millet for human health. We intend to optimise millet cultivation practises, forecast crop yields, and investigate the association between millet consumption and consequences for human health by using the power of ML algorithms. The adoption of ML in millet production systems has the potential to transform agriculture and advance the adoption of healthier diets for better human wellbeing.

Climate Change, Millet And Sustainable Livelihood In Tribal Region: A Micro-Analysis in Koraput District, Odisha, India

¹Karishma Rana, ²Minati Sahoo, ³Pradeep Kumar Samantray

^{1,2,3}Central University of Odisha, Koraput

karishmarana0805@gmail.com

Abstract: Millet is considered as one of the climate-smart crops. It can be one of the cheapest options to make the agricultural system more sustainable by using the less fertile land because it can sustain with extreme environmental condition, low water requirement, low requirement of soil fertility and less time requirement for its harvest. It can also be helpful for reducing hunger, mal-nutrition because of its high nutritional contents and health benefits in affordable price. Along with that it is also an integral part for the tribal food security and livelihood especially for the tribal women. The tribal women normally performed all the production and post production activities. With this backdrop, the current study intended to examine the role of millet in ensuring sustainable livelihood in tribal region in context of climate change. Using primary data of 300 millet producing farmers from Koraput district of Odisha through random sampling method, it is found that almost all the tribal people are cultivating millet and also engaged with other farming activities like working as agricultural labour. Millet farming also provides some degree of food security to the tribal people in the study area because they are consuming millet twice or thrice per day. It is also found that due to lack of proper agronomic practices and less land access leads to low production and marketable surplus which makes them unable to sell their product. Due to lack of proper marketing chain of their produce they are

forced to sell their millet grain to the local hat or middlemen in low price. Hence, some policy intervention measures are required to ensure millet a sustainable source of livelihood to tribal.

An Assessment on Marketing Promotions and Strategies Adopted By Retailers towards Millet Based Products In Hyderabad

¹Ashita, ²Saumendra Das, ³Shehbaz Ahmed

^{1,2}GIET University, Gunupur, India

³Independent Researcher, Hyderabad

ashita.waghray@giet.edu; saumendra@giet.edu;
professorshehbaz@yahoo.com

Abstract: Today, millet has been rebranded as "Nutri-cereals". It became a choice for the taste of many consumers, Its Nutri-rich sources and benefit is creating a fascination for many consumers and apparently there will be further increase in demand for the future. On the other hand, millet also attracted attention due to lower investments by farmers requirements such as water fertilizers, pesticides etc. With good income and market potentiality. Moreover, it is increasing (minimum support price) MSP and millets can also considered as positive cultivation for the farmers to make decisions on agriculture. The eventual declining trend of the natural resource availability also identifies the need for crop shift as of paramount importance. Millets are generally categorized into major and minor millets, ICAR-IIMR has been leading their efforts for a decade now, In the development of the value chain through various valuable interventions through food processing techniques, brand they are healthy and convenient products. Recently developed products include –Millet based products like Jowar idli mix, flakes, quiche powder, raw, multi-fruit, dough, upma mix, vermicelli is now on the market considering the above-mentioned facts, the current study is undertaken to understand and assess the millet market in a study area of Hyderabad with the following objectives:

1. To understand the factors influencing for adopting the Millets based products in Hyderabad
2. To investigate on the marketing strategies and promotion tools for business sustainability
3. To analyze the market potentiality and pros and cons in dealing with millet-based products in Hyderabad

Revitalising The Millets Market: A Strategic Business Plan For Success

Revati Ramrao Rautrao

Sinhgad Institute of Business Administration and Research, Pune

revatirautrao@gmail.com

Abstract: This plan's goal is to lay out the essential tactics and measures required to maximise the market's potential, including market research, product development, branding and marketing, distribution methods, and financial forecasts. By putting this business plan into action, company owners and organisations may support the expansion and development of the millets industry and meet the rising need for wholesome, sustainable food options. An extensive strategic business plan for reviving the millets business is presented in this research report. Millets, a class of small-seeded grains with an extraordinary nutritious composition and benefits towards sustainability, have the potential to be consumed more frequently. Consumer tastes for more nutritious and sustainable food choices have undergone a drastic shift in recent years; it has had a huge impact on the worldwide food business. Millets excellently meet those emerging customer requirements due to their high nutrient content, minimal water and fertiliser needs, and climatic resistance. Nevertheless, despite its promising future, the millets market hasn't yet reached its full potential because of a number of difficulties such a lack of knowledge, a lack of product variety, and insufficient distribution methods. To establish a significant market presence for millets, branding and marketing are crucial. This plan provides methods for creating a memorable brand identity, promoting the health advantages and sustainability of millets, and creating successful marketing campaigns to raise

consumer knowledge and demand. It is possible to reach and interact with more specific clients by utilising social media and digital channels for advertising.

Millets: Transforming Agriculture, Empowering Communities, and Building Sustainable Businesses

¹Abdul Basit, ²Lakshmi Prasad Panda, ³Dilip Kumar Bagal

¹UniversitiTeknologi MARA, Shah Alam, Malaysia

^{2,3}Government College of Engineering, Kalahandi, Odisha, India

*last_samurai@live.com, pandalakshmi@gmail.com,
dilipbagal90@gmail.com*

Abstract: Millets, the climate-resilient and traditional rain-fed crops of India have the potential to revolutionize agriculture, empower communities, and create profitable business opportunities. This abstract explores the transformative power of millets, highlighting their crucial role in fostering sustainable agriculture, social empowerment, and economic growth. Millets possess unique advantages that contribute to agriculture's sustainability transformation, including adaptability to diverse climates, minimal water and chemical inputs, and enhanced soil health. Beyond their agricultural benefits, millets hold immense potential to empower society by contributing to improved nutrition, food security, and income opportunities, particularly for marginalized communities. Moreover, the rising consumer demand for healthy, natural, and gluten-free products has increased the popularity of millet-based foods and beverages, offering significant opportunities for sustainable agribusinesses to thrive. To unlock the full potential of millets, a holistic approach involving multiple stakeholders is crucial, including policy support from governments, collaboration among researchers, farmers, and entrepreneurs, and consumer awareness campaigns and educational initiatives. Harnessing the transformative power of millets paves the way toward a more sustainable, empowered, and prosperous future.

Formulation of Value-Added Beauty Products from Jowar

^{*1}Zeel Maru, ²Ritika Pingle, ³Ashwathi Prakash, ⁴Sneha Ganpule, ⁵Aditi Patwardhan, ⁶Sneha Salgaonkar

^{1,2,3,4,5,6}RamnarainRuia Autonomous College, Mumbai University, India

zeelmaru1609@gmail.com, ritikapingle2315@gmail.com, ashwathiprakash00@gmail.com, snehabhadsawle@ruiacollege.edu, aditipatwardhan@ruiacollege.edu, snehapednekar@ruiacollege.edu

Abstract: Millets have been used as a nutritional source of food for ages and are widely researched in all the fields of biology from botany, biochemistry, food science, nutrition, agriculture and others. The ease of growing, maintenance and usage classifies millets as sustainable crops. They form a major staple food in most of the regions around the globe. Additionally, they also possess the characteristics, potential and benefits to be exploited in the field of cosmetics. Thus, our study revolves around the development and utilization of millet in cosmetics. Among the most commonly cultivated millets in India namely, Ragi, bajra and jowar, our study involves the use of Sorghum due to its more appealing and promising properties compared to the other millets. The developed natural cosmetic products in our study comprises a blend of jowar (major ingredient), rose (flavouring agent). The physical properties of the millet based cosmetics was observed to be similar to the market-available cosmetics. Thus, our study paves a new pathway of using millets in cosmetics which can serve as natural alternatives to the market-available cosmetics.

Diversity of Finger Millet, [*Eleusine coracana* (L.) Gaertn] Landraces Collected from Ahmednagar District (MH.)

¹T. S. Jagadale, ²D.D. Ahire, ³S. G. Auti

New Arts, Commerce and Science College, Ahmednagar
HPT. Art's & RYK Science College, Nashik

*tusharjagadale95@gmail.com, digambar12@rediffmail.com,
autisanjay66@gmail.com,*

Abstract: Finger millet (*Eleusine coracana* L. Gaertn), a crass grain is a main food crop useful in to make a various value-added product like baked, roasted, steamed, fried, boiled, fermented product and also beverages. It is consumed in the form of porridge, roti, dosa, idli and biscuits with very high amount of calcium and potassium when compared to other millets or cereals, ragi is a highly nutritious food. In the present study focuses on morphological profile, nutrient composition like protein, carbohydrates, etc., consumption, processing and health benefits of finger millets. The landraces have more nutritional content but it's ignored during present time. Exploitation of landraces are more important for to fulfilled the deficiency essential nutrient in tribal region. For this study 04 finger millet landraces were collected from tribal regions like Varanghushi, Bari, Rajur and Manikozar of Akole tahsil in Ahmednagar district. These four landraces show significant diversity in morphological variation, protein and carbohydrates quantity. To conclude, finger millet landraces are highly nutritious and need to conserve it as a good source of nutrients as a nutritional trait.

Millets for Health Sustainability

P.S.V. Leelamrutha

V.B. Bhavitha Tejaswini, Farida Sultana

leelamrutha@gmail.com

Abstract: The global environmental conditions such as climate change, increasing world population, and water scarcity are posing a great threat to agriculture and food security worldwide in 21st century. Need of the hour is to explore and identify the other potential food sources to ensure food and health security. Millets serve as an interventional strategy for improving the health status of the society by overcoming the climate change and malnutrition problems. The millet research can be translated into sustained public health to overcome the deficiency diseases like anemia, infant beriberi and osteomalacia. Various means of production, processing, and utilization of millets can help to achieve community-managed nutrition by improving nutritional status of women and children there by uplifting the health index of the society and country. Millets are gluten free, rich in fibre, good source of vitamins, minerals essential amino acids and fatty acids. Though each millet is specific for its particular nutrient, the C/F ratio of Browntop millet (6.56), Barnyard millet (7.68), Kodo millet (8.32), Foxtail millet (8.61), Little millet (9.81) categorizes them into fibre rich foods with low glycaemic index and tend to slow down the absorption of sugar and insulin spikes. These nutri-cereals with their potential health benefits high fibre, low glycaemic index, rich in antioxidant and high digestibility can be used to address the present-day metabolism syndromes and multifactorial diseases like Diabetes Mellitus, hyper tension, obesity, heart failure and kidney diseases. Thus, these millets can be used as a sustainable solution for food and health security in the society.

Stress Susceptibility in Little Millet: Effects of Drought, Moisture, Temperature and Salinity on the Germination Percentage and Vigour Index

¹Chandrika Paul, ²Rakhi Waghmare, ³Sanjay G. Auti, ⁴Hemlata Kotkar

H.P.T. Arts and R.Y.K. Science College, Nashik
Savitribai Phule Pune University, Pune

chandrikapaul95@gmail.com

Abstract: Little millet (*Panicum sumatrense* Roth. ex. Roem. and Schultz.) is a drought-tolerant cereal crop with significant nutritional value. The goal of the current study was to examine the responses of various abiotic stress factors including moisture fluctuations, drought, temperature (cold stress), and salinity stresses (induced by various concentrations of NaCl) during seed germination and seedling growth in little millet. Observations were made on alternate days. After 10 days of treatment results demonstrate that salinity stress caused by NaCl-salt concentration (50mM) provides seed germination with a mean germination frequency 80% being recorded while further increase in NaCl concentration, the germination frequency was obtained as zero in comparison to control experiment. Germination percentage is greater than 80% under all stress conditions, and it is 100% in normal condition. Saline, moisture-3, and drought-1 are the three stress situations where the vigour index was measured at its lowest, with values of 533.2, 532 and 533.45 correspondingly, and greatest in normal condition 828. We can infer that little millets can grow in adverse environmental conditions. By selecting stress-tolerant genotypes, utilizing marker-assisted breeding, and applying genetic

engineering approaches targeting stress-responsive genes can contribute to improve germination percentage and vigour index under difficult climatic conditions.

Prospective of Millets in Rejuvenation of Bakery Industry

¹Indani S. , ²Bhoite A., ³Pawar V.N., ⁴Sakhale B.K.

^{1,2,3}MIT-Art, Design and Technology University, Pune, India

⁴Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, India

anjali.bhoite@mituniversity.edu.in

Abstract: Considering the growing market for bakery products, and rising healthy food products consumer perception, new functional food product development in bakery industry is mainly focused. In search of appropriate nutritional and functional ingredient the application of millet flours as an alternative ingredients are critically assessed by the researchers. India being a leading country in millet production could mark significant contribution in developing millet based functional bakery products which could be affordable and radially available nutrient source. The present review highlighted the India's potential (19% productivity share at global level) in millet production, its nutritional goodness as well as recent traits in bakery product development is also elaborated to broaden the horizons of thrust research areas of study. Not only nutrient goodness but also phenolic and bioactive components associated with these nutrigrains could made the researchers to actergorized as super food. non-gluten nature associated with these arid gain is the worthy source for nutrient enrichment and fortification in various processed bakery products; its Low Glycemic Index (GI) based nature also confirms millets significant role in curing various disorders, making it to categorised as healing grain. Special reference to commonly preferred cookies as bakery product was

revived for application of millet flours could encouraging for the researchers in developing specialized functional bakery products.

Women Empowerment through Marketing of Millets

¹Sitansu Ranjan Swain, ²Vijaya Rudraraju, ³Sasmita Nayak

GIET University, Gunupur, India

swainsrs1@yahoo.com ,

vijaya_rudraraju@yahoo.com, dr.sasmita2006@gmail.com

Abstract: Millets have a long history in India dating back to the beginning of civilization on the subcontinent, and recently there has been a renewed appreciation for these nutritious cereals as a result of the rising trend towards wholesome and sustainable meals. In comparison to modern staple grains like wheat and rice, millets are gluten-free, high in protein and fibre, micronutrients, have a lower glycemic index, and contain more antioxidants. Millets are advantageous for diabetics, whose number is expected to increase from 77 million now to over 134 million by 2045. Additionally, they are appropriate for various illnesses and intolerances like celiac disease. These super grains are becoming more and more well-liked among Indian customers, especially among those who are health-conscious, athletes, and culinary connoisseurs. They now produce a wide range of value added products such as breads, cereals, snacks, and drinks. The year, 2023 has been designated as the International Year of Millets by the United Nations General Assembly (UNGA). This highlights millets' significance and their contribution to increased food security. Women are actively involved in agricultural activities involved in the production of millets. Since 2021, Women SHGs in Odisha are directly involved in marketing of millets and items prepared from millets. This paper attempts to study the extent to which women involved in marketing of millets are being empowered. The study would focus on doing a qualitative

analysis of the respondents on how they are able to market the millet products, identify the problems if any and focus on drawing useful conclusions on how they are being empowered. The sample for the study would involve one woman from each Self Help Group(SHG) and 5 to 6 SHGs would be taken for the collection of data. This study is proposed to understand the problems and prospects involved in marketing of millets and allied products and throw light on how women empowerment is possible through it.

Harnessing the Nutritional Potential of Millet for Optimal Health

¹Alex Khang, ²Debasis Mishra, ³Sunil Kumar Panda

Global Research Institute of Technology & Engineering, NC,
United States

Biju Patnaik University of Technology, Rourkela, India
Centurion University, Paralakhemundi, India

*alex.khang@outlook.com, debasismishra101@gmail.com,
sunilpanda1985@gmail.com*

Abstract: As societies increasingly focus on promoting health and well-being, the search for nutrient-dense foods has intensified. Millet, an ancient grain, has emerged as a nutritional powerhouse, offering a plethora of health benefits. This abstract explores the nutritional potential of millet and its role in optimizing human health. Millet is a gluten-free grain that is rich in essential nutrients, including dietary fiber, protein, vitamins, and minerals. Its high fiber content aids digestion, regulates blood sugar levels, and promotes a healthy gut microbiome. The presence of complex carbohydrates in millet provides sustained energy release, making it an excellent choice for individuals seeking to maintain stable blood glucose levels. Moreover, millet stands out for its remarkable mineral composition, particularly magnesium, phosphorus, and iron. These minerals are crucial for various bodily functions, including bone health, nerve transmission, and oxygen transport. Millet's iron content is especially significant, as it helps prevent anemia and contributes to the overall vitality of individuals, particularly in regions where iron deficiency is prevalent. In addition to its impressive nutrient profile, millet also contains bioactive compounds with antioxidant and anti-inflammatory properties. These compounds, such as polyphenols and lignans, exhibit

potential in reducing the risk of chronic diseases, including cardiovascular disease, cancer, and diabetes. Harnessing the nutritional potential of millet involves incorporating it into diverse culinary creations. From porridges and pilafs to breads and salads, millet can be versatilely prepared to suit different tastes and preferences. By integrating millet into daily diets, individuals can harness its nutritional power to optimize their health and well-being. In conclusion, millet presents an exciting opportunity to harness its nutritional potential for optimal health. With its abundance of essential nutrients, bioactive compounds, and versatile culinary applications, millet can play a vital role in promoting a balanced and nourishing diet. Embracing millet as a dietary staple can contribute to improved health outcomes and overall well-being in individuals worldwide.

Millet's Universal Appeal: A Key Ingredient for Global Health and Sustainability

¹Kamalakanta Muduli, ²Sanjukta Kumari Rath, ³Manisa Kumari Panda

¹Papua New Guinea University of Technology, Lae, Morobe Province

²Saraswati Sishubidyamandir, Gunupur, India

³Parala Maharaja Engineering College, Berhampur, India

*kamalakanta.muduli@pnguot.ac.pg,
sanjuktakumarirath.mca@gmail.com,
manisapanda0123@gmail.com*

Abstract: This abstract delves into the multifaceted significance of millets as a vital component in advancing global health and sustainability. Millets have gained notable attention due to their nutritional value, resilience to climate conditions, and positive impact on sustainable agricultural practices. Through an extensive examination of scientific research and relevant case studies, this paper emphasizes the diverse advantages of consuming millets. Millets possess a rich nutritional profile, characterized by substantial amounts of protein, fiber, and essential minerals, effectively addressing global health concerns like malnutrition and chronic diseases. Furthermore, millets cater to various dietary preferences, including those of individuals following gluten-free, vegetarian, and vegan diets, showcasing their versatility and inclusivity. Millet cultivation also contributes to biodiversity conservation, as it necessitates fewer pesticides and fertilizers compared to other crops, positively impacting the environment. To fully unlock the potential of millets for global health and sustainability, collaborative efforts from policymakers, researchers, and consumers are imperative. Policy interventions should prioritize

the promotion of millet cultivation, processing, and distribution while offering market incentives to farmers, stimulating its adoption. Concurrently, creating consumer awareness regarding the nutritional and environmental benefits of millets is crucial for increasing their demand and consumption, fostering a healthier and more sustainable future for all. In conclusion, millets possess universal appeal as a key ingredient for global health and sustainability. Their nutritional richness, climate resilience, and environmental benefits position them as an ideal candidate for addressing pressing global challenges. By embracing millets as a staple crop, we can pave the way for a healthier, more sustainable future for all.

AGRO TRADE: A Mobile trading app for Agricultural Sectors

¹Marielle Anne E.Gappi, ²Grace Ann D.Karyanto, ³Aira Joy N.
Obra

Janelli M. Mendez, DIT
LORMA Colleges/ Philippines

janelli.mendez@lorma.edu

Abstract: Every nation values its agriculture. It is one of the key components of any economy. The ability to support a nation's population from one's own resources keeps people occupied with work and puts food on their tables without forcing them to rely on beg, borrow, or purchase from other sources. On the other hand, technology plays an important role in our daily living. It made our lives easier and comfortable especially in the aspect of communication and transportation. The objective of this study was to determine various problems that farmers face especially in the process and procedures on trading agricultural products. The researchers determined the various problems that the farmers face especially in the process and procedures on trading agricultural products through interview guides, surveys and questionnaires. The researchers developed a mobile-based trading application for the different agricultural sectors to improve the trading of agricultural products. And to determine the usability of AgroTrade using SUS (System Usability Scale). The system application has an average SUS score of 84 indicates that the developed system is excellent. Furthermore, the developed system application meets the expectation of the validators and the users.

AUTOMERIC - Developing a Smart Turmeric Juicer and Pulveriser using Arduino Mega

¹Shemuel Rio M. Andres, ²Abdul Jallal B. ³Anggote, ⁴Rhaenica G. Galicia

Piolo Victor M. Gatchalian, Earl ArjanhPaule R. Macusi, Shekiro R. Raposas and Ardee Joy T. Ocampo, DIT
LORMA Colleges/ Philippines

ajocampo@lorma.edu

Abstract: Turmeric is a highly valuable spice and is widely recognized as one of the most powerful nutritional supplements available. Its juice and powder are popular forms of consumption, but the production process is labor-intensive, time-consuming and costly. This device has two main functions which can be activated when either juice or powder is chosen. The device also has an LCD to inform the user of all the process being taken. Additionally, the device has ultrasonic sensor to automate the dispensing of turmeric juice when a bottle or cup is detected. The study was conducted in Bacnotan, Bagulin, San Gabriel, and the City of San Fernando, involving 30 participants comprising turmeric product producers, consumers, and technical experts. Convenient sampling was employed to select relevant and accessible respondents for the study. Based on the assessment of turmeric producers of the study on the Automeric, the evaluation focused on three key aspects: Efficiency, Quality, and Durability. The overall evaluation of the project yielded a grand mean of 4.33, indicating an "excellent" performance of the device. Automeric also device received excellent ratings in durability, simplicity of mechanism, and precision of design with a grand mean of 3.57, the device proves to be highly reliable and suitable for its intended purpose, showcasing outstanding performance overall.

Rise: Implementing Sustainable Disease Management Practices into a Mobile Rice Disease Identification and Management Application

¹Francoise Imnah G. Tangalin, ²Carl Jhunell T. Acas,
³Mikhaella Danielle R. Cabudoy, ⁴Jopher F. Reyes, MIT

LORMA Colleges/ Philippines

jopher.reyes@lorma.edu

Abstract: Chemical control is a significant contributor to environmental pollution, and health issues and misdiagnosis of plant diseases can result in time and resource waste. Sustainable rice disease management, which aims to maximize economic and environmental benefits while lowering risks, can help solve these issues. A variety of disease control strategies are combined under Integrated Disease Management (IDM), a sustainable system, which is based on cost-effective and ethical environmental management. It combines preventive and corrective actions to keep disease incidences below the threshold level for economic harm. Adopting sustainable and effective pest management techniques that enhance environmental protection and public health requires the right advice and training. The researchers utilized SCRUM, an enhancement of the iterative/incremental object-oriented development cycle, which encourages teamwork, is simple to use, and saves time and money. It involves five phases: Initiation, Planning, Implementation, Reviewing, and Releasing. This study aims to (a) identify the issues that arise in the identification and management of rice diseases in rice crops, (b) develop a rice disease identification and management application that primarily adapts the Integrated Disease Management (IDM) concept as the application's rice disease management practices. and uses CNN as the deep learning [52]

technique for the model to be used for the classification of rice disease, and (c) utilize the System Usability Scale (SUS) to evaluate the application's usability.

SHEMBOT: An IoT Based Seeding Helper Machine Bot

¹Antonio Jose A. Abat, ²John Paolo L. Cardinez, ³Giolo Louise D. Dacumos Roegen Paul O. Occasion, ⁴Jessa Bilyn Metillo Talon, ⁵Brianne Mark T. Aquino

LORMA Colleges/ Philippines

briannemark.aquino@lorma.edu

Abstract: This paper developed an IoT based seeding helper machine bot designed to enhance efficiency and precision in agricultural seeding operations. The ShemBot device incorporates technologies to accurately distribute seeds in predefined patterns, optimizing crop growth and yield. The system key components include a robust robotic platform, sowing the soil in the path, accurate seed dispensing mechanisms, firming the sown path, and an integrated control system. The device can be operated manually and autonomously, making real-time decisions based on sensor data and predefined algorithms to ensure optimal seed placement. The seeding robot presents numerous benefits to the agricultural industry, including increased productivity, and improved sustainability. Field tests and experimental trials have demonstrated the seeding robots ability to achieve remarkable precision and uniformity in seed distribution. It significantly reduces labor requirements while maximizing seed utilization, leading to enhanced crop yields and resource efficiency. Additionally, the device is integrated with rechargeable battery, enabling improved efficiency and sustainability in agricultural practices. Furthermore, the device's adaptability allows it to cater to diverse cropping systems and field topographies. By streamlining the seeding process and minimizing human error, it offers a reliable and

scalable solution to address the challenges faced by modern farming practices. Additionally, the robot's autonomous operation frees up valuable human resources, enabling farmers to focus on higher-level tasks and strategic decision-making. The seeding robot represents a significant technological advancement in the field of agriculture.

ICMSS-2023 news on Print Media



Samaja



ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟ ପକ୍ଷରୁ ମିଲେଟ ଆନ୍ତର୍ଜାତୀୟ ସମ୍ମିଳନୀ

ଗୁଣପୁର, ୮ ଓ (ସପ୍ତ) - ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟ ଗୁଣପୁର ଏବଂ ପିଲିପାଇନ୍ସର ଲୋରମା ମହାବିଦ୍ୟାଳୟ ମିଳିତ ଆନୁଷ୍ଠାନିକରେ 'ସ୍ଥାୟୀ ସମାଜ ପାଇଁ ମିଲେଟ ଆବଶ୍ୟକତା' ବିଷୟରେ ଉପରେ ଏକ ଦିନକିଆ ଆନ୍ତର୍ଜାତୀୟ ସମ୍ମିଳନୀ ଆରମ୍ଭ ହୋଇଛି । ଉକ୍ତ ସମ୍ମିଳନୀର ଉଦ୍ଦେଶ୍ୟ ହେଉଛି ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟର କୃଷି ବିଭାଗର ତିନି ଅଧ୍ୟାପକ ସନ୍ତୋଷ କୁମାର ପଣ୍ଡା, ସ୍ୱାଗତ ଅଭିଭାଷଣ ଦେଇଥିଲେ । ସମ୍ମିଳନୀରେ ପିଲିପାଇନ୍ସର ଲୋରମା ମହାବିଦ୍ୟାଳୟର ଅଧ୍ୟାପକ ଆରତି ଜିଏ ଟି. ଓକାଣ୍ଡୋ, ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟର କୁଳପତି ଡ.ଏ.ଭି.ଏନ୍.ଏଲ୍ ଶର୍ମା, ଉପସଭାପତି ଅଧ୍ୟାପକ ଚନ୍ଦ୍ରଧର ପଣ୍ଡା ଏବଂ ଭାରତ ସରକାରଙ୍କ ବିଜ୍ଞାନ ଓ ଟେକ୍ନୋଲୋଜି ବିଭାଗର, ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ଏବଂ ସ୍ୱଚ୍ଛ ଶକ୍ତି ବିଭାଗର ପରାମର୍ଶଦାତା ବୈଜ୍ଞାନିକ ଜି.ଡି. ଅନିତା ଗୁପ୍ତା ମୁଖ୍ୟ ଅତିଥି ଭାବେ ପ୍ରମୁଖ ଯୋଗ ଦେଇଥିଲେ ଏବଂ ନିଜର ଅଭିଭାଷଣ ପ୍ରଦାନ କରିଥିଲେ । ଉଦ୍ଦେଶ୍ୟରେ ଅଧ୍ୟାପକଙ୍କର ସମାପ୍ତିରେ ଜିଆଇ ଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟ ଇଞ୍ଜିନିୟରିଂ ଏବଂ ଟେକ୍ନୋଲୋଜି ବିଭାଗର ତିନି ଡ.ଏ. ବି ଶ୍ରୀନିବାସ ରାଓ ଧନ୍ୟବାଦ ଅର୍ପଣ କରିଥିଲେ । ଏହି ସମ୍ମିଳନୀରେ ମୁଖ୍ୟବକ୍ତା ଭାବେ ଯୁକ୍ତରାଷ୍ଟ୍ର ନେତ୍ରୀସ୍ୱା-ଲିନକୋଲନ ବିଶ୍ୱବିଦ୍ୟାଳୟର କୃଷି ଏବଂ ଉଦ୍ୟାନ ବିଭାଗର ସହଯୋଗୀ ଅଧ୍ୟାପକ ଡ. ଦୀପକ ସାନ୍ତରା, ଯୁକ୍ତରାଷ୍ଟ୍ରର ପେନସିଲଭାନିଆ ଇଣ୍ଡିଆନା ବିଶ୍ୱବିଦ୍ୟାଳୟର ଅଧ୍ୟାପକ ଡ.

ନାରାୟଣସ୍ୱାମୀ ଭାରତୀୟ, ଭାରତ ସରକାରଙ୍କ ସିଏସଆଇଆର୍ କେନ୍ଦ୍ରୀୟ ଖାଦ୍ୟ ଏବଂ ବୈଷୟିକ ଅନୁସନ୍ଧାନ ଅନୁଷ୍ଠାନର ମୁଖ୍ୟ ବୈଜ୍ଞାନିକ ଡ. ସୁରେଶ ଦିଲିପ ରାଓ ସଭାରେ, ଭାରତ ସରକାରଙ୍କ ଏଆଇସିଟିର ଦକ୍ଷତା ବିକାଶ ବିଭାଗର ଉପନିର୍ଦ୍ଦେଶକ ଡ. ନୀରୁ ଭାଗତ, ଭାରତ ସରକାରଙ୍କ ଜାତୀୟ ଅନୁସନ୍ଧାନ ବିକାଶ ନିଗମର ଖାଦ୍ୟ ପ୍ରଯୁକ୍ତି ବିଦ୍ୟାର ପରାମର୍ଶଦାତା ଡ. ଏ ଜୈନ ଏବଂ କାନାଡାର ଓଟାୱା ବିଶ୍ୱବିଦ୍ୟାଳୟର ଅଧ୍ୟାପକ ଏବଂ ଅନୁସନ୍ଧାନ ମୁଖ୍ୟ ଡ. ଚିତ୍ତକେ ପ୍ରମୁଖ ନିଜର ମତ ଏବଂ ଅଭିଭାଷଣ ପ୍ରଦାନ କରିଥିଲେ । ଏହି ସମ୍ମିଳନୀର ବୈଷୟିକ ଅଧିବେଶନରେ ବିଭିନ୍ନ ଦେଶରୁ ଚୟନ କରାଯାଇଥିବା ୨୪ଟି ଗବେଷଣା ପତ୍ର ଉପସ୍ଥାପିତ ହୋଇଥିଲା । ଏହି ଅଧିବେଶନରେ ମିଟ - ଆର୍ଟ, ଡିଜାଇନ୍ ଏବଂ ଟେକ୍ନୋଲୋଜି ବିଶ୍ୱବିଦ୍ୟାଳୟର ଖାଦ୍ୟ ନିରାପତ୍ତା, ସୁରକ୍ଷା, ଗୁଣବତ୍ତା ବିଭାଗର ମୁଖ୍ୟ ଅଧ୍ୟାପିକା ଡ. ଅଞ୍ଜଳି ଭୋଇଡେ, ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟର କୃଷିବିଭାଗର ସହକାରୀ ଅଧ୍ୟାପିକା ଡ. ସୁଚିତ୍ରା ସାହୁ, ବିଭାଗ ମୁଖ୍ୟ ଡ. ରିନି ସାଲ୍ ଏବଂ କେନ୍ଦ୍ରୀୟ ବିଶ୍ୱବିଦ୍ୟାଳୟ, ଓଡ଼ିଶାର ଅଧିକାରୀ ବିଭାଗର ମୁଖ୍ୟ ଡ. ମିନତି ସାହୁ ଉପସ୍ଥିତ ରହି ପ୍ରତିଯୋଗୀ ମାନଙ୍କୁ ଉତ୍ସାହିତ କରିଥିଲେ । ଜିଆଇଇଟିର ରେଜିଷ୍ଟ୍ରାର ଡି.ଏ.ଏ.ଭି.ଜେ ରାଓଙ୍କ ତତ୍ତ୍ୱାବଧାନରେ ଅଧ୍ୟାପକ ଡ. ବ୍ରଜକିଶୋର ମିଶ୍ର, ଡ. ରାଘବେନ୍ଦ୍ର କୁମାର, ଡ. କାଳିଚରଣ ରଥ, ଡ. ରିତୁ ଆଭୂଷଣ ପଣ୍ଡା ଏବଂ ଅଧ୍ୟାପିକା ମିନାକ୍ଷା ଜେ. ସାହୁ ସମ୍ମିଳନୀକୁ ପରିଚାଳନା କରିଥିଲେ ।

International Conference on Millet for Sustainable Society

GUNUPUR, (Ao Bureau): A one-day international conference titled "Millet for a Sustainable Society" was collaboratively held by GIET University in Gunupur, India, and LORMA College in the Philippines on the 8th of July. The conference was conducted in a hybrid format. During the inaugural session, Prof. Santosh Kumar Panda, the Dean of the Department of Agriculture at GIET University, delivered the welcome address. The event was graced by esteemed individuals including Prof. Ardee Joy T. Ocampo, the Dean of LORMA College in the Philippines, Prof. A. V. N. L. Sharma, Vice-Chancellor of GIET University, Prof. Chandra Dhvaj Panda, Vice-President of GIET University,



and Dr. Anita Gupta, the Chief Guest representing the Department of Science and Technology, Government of India, as the Adviser/Scientist and Head - Climate Change & Clean Energy Division, Department of Science & Technology, Government of India also delivered a speech during the conference. Concluding the opening session, Dr. A. B. Srinivas Rao, the Dean of the Engineering and Technology Department at GIET University, proposed a vote of

thanks. Prominent speakers at the conference included Dr. Dipak Santra, Associate Professor of Agriculture and Horticulture at the University of Nebraska-Lincoln; Dr. Narayana swamy Bharathan, a Professor at the Indiana University of Pennsylvania; Dr. I Suresh Dilip Rao, the Principal Scientist at the CSIR - Central Food and Technological Research Institute AND many more guest gave his opinion and speech.

Printed, Published & Owned by Bansidhar Das Plot No. 499/4262, S Govinda Prasad, Sarathi Complex, Bomikhal, Bhubaneswar

Around Odisha

ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟ ପକ୍ଷରୁ ମିଲେଟ୍ ବିଷୟବସ୍ତୁ ଉପରେ ଆନ୍ତର୍ଜାତୀୟ ସମ୍ମିଳନୀ



ରାୟଗଡ଼ା(ପିପିଏସ୍): ରାୟଗଡ଼ ଜିଲ୍ଲା ଗୁଣ୍ଡପୁର ସଦର ମହକୁମା ସ୍ଥିତ ସ୍ଥାନୀୟ ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟ ଗୁଣ୍ଡପୁର ଏବଂ ଫିଲିପାଇନ୍ସର ଲୋରମା ମହାବିଦ୍ୟାଳୟର ମିଳିତ ଆନୁକୂଲ୍ୟରେ 'ସ୍ଥାୟୀ ସମାଜ ପାଇଁ ମିଲେଟ୍ ଆବଶ୍ୟକତା' ବିଷୟବସ୍ତୁ ଉପରେ ଏକ ଦିନକିଆ ଆନ୍ତର୍ଜାତୀୟ ସମ୍ମିଳନୀ ଆଭାସୀ ମାଧ୍ୟମରେ ଅନୁଷ୍ଠିତ ହୋଇଯାଇଛି । ଉଚ୍ଚ ସମ୍ମିଳନୀର ଉଦ୍‌ଘାଟନୀ ଉତ୍ସବରେ ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟର କୃଷି ବିଭାଗର ତିନି ଅଧ୍ୟାପକ ସତ୍ୟଜିତ କୁମାର ପଣ୍ଡା ସାଗତ ଅଭିଭାଷଣ ଦେଇଥିଲେ । ଏହି ସମ୍ମିଳନୀରେ ଫିଲିପାଇନ୍ସର ଲୋରମା ମହାବିଦ୍ୟାଳୟର ଅଧ୍ୟାପକ ଆର ଡି ଜଏ ଟି. ଓକାମୋ, ଜିଆଇଇ ଟି ବିଶ୍ୱବିଦ୍ୟାଳୟର କୁଳପତି ଡ.ଏଲି ଏନ୍‌ଏଲ୍ ଶର୍ମା, ଉପସଭାପତି ଅଧ୍ୟାପକ ଚନ୍ଦ୍ର ଧିର ପଣ୍ଡା ଏବଂ ଭାରତ ସରକାରଙ୍କ ବିଜ୍ଞାନ ଓ ଟେକ୍ନୋଲୋଜି ବିଭାଗର, ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ଏବଂ

ସହ ଶକ୍ତି ବିଭାଜନର ପରାମର୍ଶଦାତା/ ସାଇଣ୍ଟିଷ୍ଟ ଜି ଡ଼. ଅନିତା ଗୁପ୍ତା ମୁଖ୍ୟଅତିଥି ଭାବେ ପ୍ରମୁଖ ଯୋଗଦେଇ ନିଜର ଅଭିଭାଷଣ ପ୍ରଦାନ କରିଥିଲେ । ଉଦ୍‌ଘାଟନୀ ଅଧିବେଶନର ସମାପ୍ତିରେ ଜିଆଇ ଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟର ଡିନିୟର୍ ଏବଂ ଟେକ୍ନୋଲୋଜି ବିଭାଗର ତିନି ଡ. ଏ. ବି ଶ୍ରୀନିବାସ ରାଓ ଧନ୍ୟବାଦ ଅର୍ପଣ କରିଥିଲେ । ଏହି ସମ୍ମିଳନୀରେ ମୁଖ୍ୟବକ୍ତା ଭାବେ ଯୁକ୍ତରାଷ୍ଟ୍ର ନେତ୍ରାୟା- ଲିନକୋଲନ ବିଶ୍ୱବିଦ୍ୟାଳୟର କୃଷି ଏବଂ ଉଦ୍ୟାନ ବିଭାଗର ସହଯୋଗୀ ଅଧ୍ୟାପକ ଡ. ଦୀପକ ସାନ୍ତରା, ଯୁକ୍ତରାଷ୍ଟ୍ର ପେନସିଲଭାନିଆ ଇଣ୍ଡିଆନା ବିଶ୍ୱବିଦ୍ୟାଳୟର ଅଧ୍ୟାପକ ଡ. ନାରାୟଣସାମୀ ଭାରତୀୟ, ଭାରତ ସରକାରଙ୍କ ସିଏସଆଇଆର - କେନ୍ଦ୍ରୀୟ ଖାଦ୍ୟ ଏବଂ ବୈଷୟିକ ଅନୁସନ୍ଧାନ ଅନୁଷ୍ଠାନର ମୁଖ୍ୟ ବୈଜ୍ଞାନିକ ଡ. ସୁରେଶ ଦିଲିପ ରାଓ ସଖାରେ, ଭାରତ ସରକାରଙ୍କ

ଏଆଇସିଟିର ଦକ୍ଷତା ବିକାଶ ବିଭାଗର ଉପନିର୍ଦ୍ଦେଶକ ଡ. ନୀରୁ ଭାଗତ, ଭାରତ ସରକାରଙ୍କ ଜାତୀୟ ଅନୁସନ୍ଧାନ ବିକାଶ ନିଗମର ଖାଦ୍ୟ ପ୍ରଯୁକ୍ତି ବିଦ୍ୟାର ପରାମର୍ଶଦାତା ଡ. ଆକାଶକା ଜୈନ ଏବଂ କାନାଡ଼ାର ଓଟାୱା ବିଶ୍ୱବିଦ୍ୟାଳୟର ଅଧ୍ୟାପକ ଏବଂ ଅନୁସନ୍ଧାନ ମୁଖ୍ୟ ଡ. ଚିତ୍ତକେ ପ୍ରମୁଖ ନିଜର ମତ ଏବଂ ଅଭିଭାଷଣ ପ୍ରଦାନ କରିଥିଲେ । ଏହି ସମ୍ମିଳନୀର ବୈଷୟିକ ଅଧିବେଶନରେ ବିଭିନ୍ନ ଦେଶରୁ ଚୟନ କରାଯାଇଥିବା ୨୪ଟି ଗବେଷଣା ପତ୍ର ଉପସ୍ଥାପିତ ହୋଇଥିଲା । ଏହି ଅଧିବେଶନରେ ମିଟ୍ - ଆର୍ଟ, ଡିଜାଇନ୍ ଏବଂ ଟେକ୍ନୋଲୋଜି ବିଶ୍ୱବିଦ୍ୟାଳୟର ଖାଦ୍ୟ ନିରାପତ୍ତା, ସୁରକ୍ଷା, ଗୁଣବତ୍ତା ବିଭାଗର ମୁଖ୍ୟ ଅଧ୍ୟାପକ ଡ. ଅଜି ଚୋଇଡେ, ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟର କୃଷି ବିଭାଗର ସହକାରୀ ଅଧ୍ୟାପକ ଡ. ସୁଚିତ୍ରା ସାହୁ, ବିଭାଗ ମୁଖ୍ୟ ଡ. ରିନି ସାଇଁ ଏବଂ କେନ୍ଦ୍ରୀୟ ବିଶ୍ୱବିଦ୍ୟାଳୟ, ଓଡ଼ିଶାର ଅର୍ଥନୀତି ବିଭାଗର ମୁଖ୍ୟ ଡ. ମିନତି ସାହୁ ଉପସ୍ଥିତ ରହି ପ୍ରତିଯୋଗୀ ମାନଙ୍କୁ ଉତ୍ସାହିତ କରିଥିଲେ । ଜିଆଇଇଟି ବିଶ୍ୱବିଦ୍ୟାଳୟର ରେଜିଷ୍ଟ୍ରାର ଡ. ଏନ୍ ଭି ଜେ ରାଓଙ୍କ ତତ୍ତ୍ୱାବଧାନରେ ଅଧ୍ୟାପକ ଡ. ବ୍ରଜକିଶୋର ମିଶ୍ର, ଡ. ରାଘବେନ୍ଦ୍ର କୁମାର, ଡ. କାଳିଚରଣ ରଥ, ଡ. ରିତୁ ଆରୁଣ୍ଡଣ ପଣ୍ଡା ଏବଂ ଅଧ୍ୟାପିକା ମିନାକ୍ଷୀ ଜେ. ସାହୁ ସମ୍ମିଳନୀକୁ ପରିଚାଳନା କରିଥିଲେ ।

