



AGRICULTURAL SCIENCES UNDERGRADUATE RESEARCH SYMPOSIUM (AgSURS 2026)

"Fostering a Culture of Lifelong Learning through Innovation"

ABSTRACTS



9TH APRIL 2026
FACULTY OF AGRICULTURAL SCIENCES
SABATRAGAMUWA UNIVERSITY OF SRI LANKA

Our Proud Sponsors



Agricultural Sciences Undergraduate Research Symposium 2026
April 09, 2026 @ Sabaragamuwa University of Sri Lanka
Belihuloya

Agricultural Sciences Undergraduate Research Symposium 2026

(AgSURS 2026)

Sabaragamuwa University of Sri Lanka

09th April, 2026

'Fostering a culture of lifelong learning through innovation'

Book of Abstracts

AgSURS 2026
Faculty of Agricultural Sciences
Sabaragamuwa University of Sri Lanka
P.O Box 02, Belihuloya, Sri Lanka, 70140

Abstract Book of Agricultural Sciences Undergraduate Research Symposium 2026

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise for commercial purposes without the permission of the publisher. The Editorial Board of AgSURS 2026 and the Sabaragamuwa University of Sri Lanka are not responsible for the concepts, ideas and views reflected in the abstracts published in this book of abstracts or for any instances of duplication caused by the abstracts having been published elsewhere, if any.

ISSN: 2989-0535

Symposium Theme: ‘Fostering a culture of lifelong learning through innovation’

Abbreviation: AgSURS 2026

Date: 09th April, 2026

Book of Abstracts

Citation: Ampitiyawatta, A.D. (Ed.). (2026). Abstract book of Undergraduate Research Symposium, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka.

Published by: Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka. P.O. Box 02, Belihuloya. 70140. Sri Lanka.

Contact:

Email: symposium@agri.sab.ac.lk

Web: <https://agsurs.agri.sab.ac.lk>

Telephone: + 94 45 22 800 75

Fax: + 94 45 22 800 41

Copy editor: Prof. AD Ampitiyawatta

Cover page design: Mr. Helitha Nilmalgoda

Abstract book compiled by: Ms. M.M.S.C. Senevirathne

Ms. W.M. Shalika Nirmani Wijesekara

Ms. S.M.B.R.K. Sandamini Srinarayane

Ms. Madusha Laksarani

Program book compiled by: Ms. W.M. P.H. Weerasekara

Agricultural Sciences Undergraduate Research Symposium 2026
April 09, 2026 @ Sabaragamuwa University of Sri Lanka
Belihuloya

AgSURS 2026 Organizing Committee

Symposium Chair: Dr. J.B.D.A.P Kumara

Coordinator: Mrs. B.M.R.L Basnayaka

Secretary: Ms. P.W.M. Tharindi

EDITORIAL BOARD

Prof. AD Ampitiyawatta (Editor-in-Chief)

Snr. Prof. A.A.Y Amarasinghe

Dr. S.T.C. Amarasinghe

Prof. P.K. Dissanayake

Prof. R.K. Mutucumarana

Prof. C.N Walpita

Dr. R.K.C. Jeewanthi

Editorial Board Assistants

Ms. M.M.S.C. Senevirathne

Mr. Chaminda Siriwardhena

Agricultural Sciences Undergraduate Research Symposium 2026

09th April, 2026

‘Fostering a culture of lifelong learning through innovation’

Thematic Areas

Agricultural Economics and Agribusiness Management

Plant Breeding, Plant Pathology and Biotechnology

Livestock Production, Aquaculture and Fisheries

Food Processing and Food Safety

Agri-environment and Cropping Systems Modeling

Crop Production and Postharvest Technology

Keynote address

**Vice Chancellor, Distinguished Academic Staff,
Proud Parents, and Dear Graduates,**

Ayubowan to all of you.

It is both an honour and a privilege to stand before you on this proud and memorable occasion. But more than that, it is a moment of reflection because today is not only about what you have achieved, but about what lies ahead of you.

Today marks the successful completion of your academic journey. Yet in many ways, it is also the beginning of your true journey, a journey where your knowledge will be tested, your character will be shaped, and your purpose will be defined.

First, let me congratulate each one of you. This achievement is not something that happened overnight. It is the result of persistence, discipline, and the quiet strength to keep going even when things are uncertain. Behind every one of you stands a story of sacrifice, of support, of belief. Your parents and your lecturers have been part of that story, guiding you, encouraging you, and standing by you through every step.

Dear graduates,

What you have gained here is not just a degree. It is a foundation. But a foundation, by itself, means nothing unless you build something meaningful upon it.

University life was never meant to be limited to lecture halls. The real value of these years lies in how much you explored beyond them, how often you stepped into the field, how deeply you understood the realities of agriculture, and how willing you were to learn from the people who live it every day.

Because agriculture is not something you can fully understand from books alone.

It is in the soil that stains your hands.

It is in the uncertainty of seasons.

It is in the resilience of a farmer who continues, no matter how difficult things become.

If you truly carry that understanding with you, your approach to this field will always be different. It will never be just a job it will be a responsibility.

Sri Lanka today is at a turning point. Agriculture is evolving. It is no longer defined only by tradition, but increasingly shaped by technology, innovation, and global demand. Mechanization, smart farming, sustainability, and data-driven decisions are becoming part of this transformation.



And within this change, there is an immense opportunity.

Opportunities to create value, to improve systems, to bring efficiency, to connect local production with global markets, and to uplift the lives of thousands who depend on this sector.

But opportunity is not something that simply appears.

It must be pursued.

It requires you to step forward with confidence, to be willing to start small, to learn continuously, and to remain adaptable in a world that is constantly changing.

Some of you will choose to build your future here in Sri Lanka. Others may look beyond borders, towards global opportunities. Both paths are meaningful if you carry the right mindset with you.

Because the world today is not looking only for graduates. It is looking for individuals who can think independently, communicate clearly, adapt quickly, and deliver results consistently.

Your strength will not be defined by your qualification alone, but by your attitude, your willingness to learn, your ability to grow, and your courage to take on challenges.

Do not wait for the perfect opportunity.

It does not exist.

Every opportunity becomes valuable when you give it your effort, your commitment, and your belief.

Dear graduates,

As you move forward, do not lose your connection to the roots of this field.

Do not forget the farmer.

Do not forget the land.

Do not forget the purpose behind everything you do.

Because agriculture, at its heart, is not about systems or machines alone.

It is about people.

It is about ensuring that a farmer earns with dignity, that a family lives with security, and that a nation stands with strength.

And from today onwards, that responsibility rests with you.

So, as you step out from this university, do not step out simply as graduates.

Agricultural Sciences Undergraduate Research Symposium 2026
April 09, 2026 @ Sabaragamuwa University of Sri Lanka
Belihuloya

Step out as individuals who are ready to take ownership.
Step out as those who are willing to challenge the ordinary.
Step out as those who are prepared to create change.

Because the future of Sri Lankan agriculture will not be decided somewhere else.

It will be decided by people like you through the choices you make, the standards you uphold, and the courage you show when it truly matters.

And one day, when you look back at this moment, I hope you will not only remember that you graduated.

I hope you will be able to say:

“We didn’t wait for the future... we built it.”

That is your challenge.
That is your opportunity.
And that is your moment.

Congratulations to each and every one of you.

Go forward with purpose.
Go forward with courage.
And go forward knowing that what you do next will truly matter.

Thank you.

Mr. Sanjaya Nissanka

Experienced Management Specialist

Message from the Chief Guest, the Vice Chancellor, Sabaragamuwa University of Sri Lanka

Prof. M. Sunil Shantha



It is with great pleasure that I extend my warmest greetings to all participants, presenters, and organizers of the Agricultural Sciences Undergraduate Research Symposium 2026 (AgSURS 2026), organized by the Faculty of Agricultural Sciences of Sabaragamuwa University of Sri Lanka.

This year's theme, "*Fostering a Culture of Lifelong Learning through Innovation,*" highlights the vital role of continuous learning and creative thinking in addressing the evolving challenges in agriculture. In a rapidly changing world, where issues such as climate variability, food security, and sustainable resource management demand urgent attention, innovation driven by research becomes indispensable. It is encouraging to witness our undergraduate students actively engaging in research that contributes to these national and global priorities.

AgSURS provides an invaluable platform for young scholars to disseminate their research findings, enhance their critical thinking abilities, and develop essential skills such as communication, collaboration, and scientific inquiry. Such initiatives not only strengthen academic excellence but also prepare our graduates to become competent professionals and responsible global citizens.

I commend the Faculty of Agricultural Sciences, the organizing committee, and all stakeholders for their dedication and commitment in organizing this symposium. Their efforts in sustaining this annual event in a meaningful and effective manner are truly appreciated.

To the student researchers, I encourage you to take full advantage of this opportunity to share knowledge, explore new ideas, and build lasting academic and professional networks. Your contributions today will shape the future of agriculture and sustainable development in our country and beyond.

I wish AgSURS 2026 every success and all participants a rewarding and enriching experience.

Professor M. Sunil Shantha
Vice-Chancellor,
Sabaragamuwa University of Sri Lanka

Message from the Dean

Faculty of Agricultural Sciences

***Snr.Prof. M.L.M. Chandrika
Dissanayake***



As the Dean of the Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, it is my pleasure to extend my best wishes to all participants of the Fourth Agricultural Sciences Undergraduate Research Symposium (AgSURS).

AgSURS has become a valuable academic platform within our faculty, reflecting our commitment to strengthening the research culture among undergraduate students. Reaching its fourth year is a noteworthy achievement, highlighting the dedication of both students and academic staff in advancing research activities.

A key objective of this symposium is to encourage students to move beyond completing their final year research and take the important step of transforming their work into scientific publications. Publishing your research enhances its value, broadens its impact, and opens opportunities for academic and professional development.

Presenting at AgSURS also provides essential exposure. It helps develop your ability to communicate scientific ideas effectively, builds confidence, and prepares you for future academic and career pathways.

I encourage all students to actively engage in this opportunity, present your work, gain feedback, and aim for publication. I also commend the organizing committee for their efforts and wish all participants a successful and rewarding symposium.

Snr.Prof. Chandrika Dissanayake
Dean
Faculty of Agricultural Sciences
Sabaragamuwa University of Sri Lanka

Message from the Chairperson, AgSURS 2026

Dr. J.B.D.A.P Kumara

On behalf of the organizing committee, it is my pleasure to welcome you to the Agricultural Sciences Undergraduate Research Symposium 2026 (AgSURS 2026), organized by the Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka.



AgSURS 2026 is organized under the theme “*Fostering a Culture of Lifelong Learning through Innovation,*” with the aim of encouraging undergraduate students to actively engage in research, critical thinking, and knowledge sharing. This symposium provides a valuable platform for students to present their final-year research findings and to experience the process of scientific communication in a professional setting.

The abstracts compiled in this proceedings book represent the diverse research efforts of our undergraduate students across multiple disciplines in agricultural sciences. These studies reflect not only their academic commitment but also their potential to contribute towards addressing practical challenges in agriculture and related sectors.

All submitted abstracts have been peer-reviewed, and I sincerely thank the members of the editorial committee and reviewers for their dedication in ensuring the quality of this publication. I would also like to commend the student researchers for their enthusiasm and hard work in bringing their research to completion.

This symposium is the result of collective effort and teamwork. I extend my heartfelt gratitude to the Dean of the Faculty of Agricultural Sciences, the academic and non-academic staff, panel members, and all contributors for their invaluable support in organizing this event successfully.

I encourage all participants to actively engage in the sessions, learn from each other, and make this experience both productive and memorable.

I wish AgSURS 2026 a great success.

Dr. J B D A P Kumara
Symposium Chair- AgSURS-2026.
Faculty of Agricultural Sciences,
Sabaragamuwa University of Sri Lanka.

Contents

Impact of Package Labelling Information on Consumer Purchase Intention of Ready-To-Drink (RTD) Fruit-Based Beverages in Kalutara District in Sri Lanka	1
The Influence of Television Culinary Programs on Food Consumer Behavior: Evidence from Generation X and Y Women’s Perception in Sri Lanka.....	2
An Exploratory Study on The Implementation of Green HRM Practices on The Food and Beverage Industry: A Case Study of Sunquick Lanka (Pvt) Ltd	3
Factors Influencing Consumer Preferences and Purchasing Behavior for Fresh and Processed Coconut Milk in Matara <i>Pradeshiya Sabha</i> , Sri Lanka	4
Challenges Faced by Young Entrepreneurs in Agribusiness Startups: A Case Study in the Karadeniya Divisional Secretariat, Galle, Sri Lanka	5
A Study on Food Safety Perceptions and Their Influence on Consumer Behaviour Towards Street Food at Aluthkade Market in Colombo, Sri Lanka	6
Impact of Advertising on Ice Cream Consumption Among Early Generation Z in Galle District, Sri Lanka.....	7
Investigating Factors Affecting Willingness to Pay for Traceable Foods – An Empirical Market Study.....	8
Assessing Consumer Perception, Awareness and Consumption of Whey Protein Supplements Among Youngsters in Western Province, Sri Lanka.....	9
Compliance of the Sri Lankan Seafood Sector with International Sustainability Standards: Challenges and Opportunities	10
Dairy Product Consumption Patterns among Sports Undergraduates at Sabaragamuwa University, Sri Lanka	11
<i>In-vitro</i> Evaluation of Synthetic Fungicides Against <i>Colletotrichum musase</i> , Causing Anthracnose Disease in Banana.....	13
Molecular and Morphological Diversity of Selected <i>Syzygium cumini</i> (Maa-dan) Accessions in Sri Lanka.....	14
Root DNA Extraction Optimization and Preliminary Molecular Differentiation of Rootstock and Scion in Grafted Cocoa (<i>Theobroma cacao</i> L.) Trees in <i>Ex-situ</i> Gene Bank.....	15
Temperature Stress and its Impact on Virulence of Entomopathogenic Fungi <i>Metarhizium anisopliae</i> <i>in vitro</i>	16
Isolation and Identification of Entomopathogenic Fungi Associated with Tropical Cassava Lace Bug (<i>Vatiga illudens</i>).....	17
Characterization of the Geographic Diversity of <i>Ralstonia solanacearum</i> Causing Bacterial Wilt in Brinjal (<i>Solanum melongena</i> L.).....	18
Survey on Pests and Disease Incidents in Rice (<i>Oryza sativa</i>) and their Management in Kamburupitiya, Matara District	19

Performance of <i>In Vitro</i> Establishment of Horana Gold, Bandarawela Purple and Rahangala Hybrid Passion Fruit (<i>Passiflora edulis</i> Sims) Varieties in Sri Lanka	20
Molecular Screening of Local Tomato Germplasm for Tomato Yellow Leaf Curl Virus (TYLCV) Resistance Genes Using PCR- Based Markers	21
Laboratory Bioassays to Determine Susceptibility of Red Spider Mite (<i>Tetranychus urticae</i>) to Recommended Miticides Across Different Agro-climatic Zones in Sri Lanka.....	22
Assessing the Effective Application Methods of <i>Metarhizium</i> spp. for Termite Management in Early Growth Stage of Sugarcane in Sri Lanka	23
Preliminary Investigation of the Efficacy of Selected Chemical Agents in Reducing the Inoculum Potential of Circular Leaf Spot Disease in Rubber Leaf Litter	24
Development of an <i>in vitro</i> Multiplication Protocol for Endemic, Endangered <i>Exacum walkeri</i>	25
Development of an <i>In Vitro</i> Callus Initiation Protocol for Endemic <i>Doona ovalifolia</i> Through Leaf Culture	26
Assessment of Dairy Farm Management and Production Performance in Selected Veterinary Divisions of Ratnapura District	28
Effect of Substrate Type on Pigmentation and Behaviour of <i>Ecsenius bicolor</i> (Bicolour Blenny).....	29
Effect of Steam Conditioning Temperature on Pellet Durability Index (PDI) in Selected Commercial Broiler Feeds	30
Comparative Evaluation of Substrate for Optimized Grindal Worm (<i>Enchytraeus buchholzi</i>) Culture.....	31
Effect of Fatliquor Percentage on the Softness of Chrome-Tanned Leather Developed from Mahi-mahi (<i>Coryphaena hippurus</i>) Skin.....	32
Effect of Three Different Scalding Temperatures on Meat Quality and Sensory Attributes of Broiler Chickens	33
Effect of Different Concentrations of Hydrogen Peroxide as an Eggshell Disinfectant on Hatchery and Chick Performance	34
Effect of Eggshell Surface Quality and Breeder Age on Hatchery Performance in Cobb 500 Broilers.....	35
Assessment of Pre Slaughter Factors Contributing to Dead On Arrival (DOA) Mortality in Broiler Chicken in A Large Scale Commercial Processing Plant in Sri Lanka.....	36
Assessment of Litter Depth and Stocking Density on Footpad Dermatitis and Hock Burns in Commercial Broiler Houses.....	37
Impact of Zeolite, Biochar, and Alum as Litter Amendments for Darkling Beetle (<i>Alphitobius diaperinus</i>) Population Reduction and Ammonia Mitigation in Broiler Production.....	38
Effect of Egg Weight Categories on Egg physical Traits, Moisture Loss, Hatching Success, Chick Yield, and Chick Quality in Broiler Production.....	39

Effects of different Intermittent Lighting Programs on growth performance and feed conversion efficiency, in broiler chickens reared in a Closed-House System.....	40
Value Addition of Traditional Instant Rice Flour String Hoppers by Incorporating Mung Bean (<i>Vigna radiata</i>) Flour.....	42
Development of a Nutmeg Pericarp-Infused BBQ Sauce: A Sustainable Approach to Waste Utilization	43
Dietary Patterns and Lifestyle Behaviors among Academic Staff at Sabaragamuwa University of Sri Lanka.....	44
Water Intake and Beverage Consumption Patterns among Undergraduates in the Faculty of Agricultural Sciences of SUSL.....	45
A Study on Food Consumption Patterns and Nutritional Challenges among Pregnant Women in Pambahinna, Sri Lanka	46
A study on the Effect of Fruit-Vegetable-based marinade Concentration Ratio and Marination Time on Quality Characteristics of Broiler Chicken Breast Meat.....	47
Sustainable Future: Assessing Climate-Resilient Practices in Sri Lanka’s Tea Plantations ...	49
Soil Microbial Abundance as Influenced by Enriched Organic Fertilizer in Organic Tea Soils of Haputale.....	50
A Climate-Sensitive Model for Assessing Population Dynamics of Tea Tortrix (<i>Homona coffearia</i>) in Talawakelle area in Sri Lanka.....	51
Crop Modelling Approaches to Enhance Water Productivity in Rice (<i>Oryza sativa</i>): A Systematic Review and Preliminary Meta-Analysis.....	52
Assessment of Potential Nutrient Losses and Heavy-Metal Accumulation in Irrigated Water of the Paddy Ecosystems, under Biofilm Biofertilizer and Chemical Fertilizer Practices	53
Development of an RGB Colour-Based Colorimetric Field Method for Rapid Estimation of Phosphate in Paddy Ecosystems	54
Evaluation of Rootstocks from Selected Crops on the Grafting Success in Salad Cucumber (<i>Cucumis sativus</i> L.)	55
Comparative Evaluation of a Point-of-Care, Field-Deployable Soil Probe for Rapid Estimation of Soil Nutrient Status	56
Spatio-Temporal Trend Analysis of Seasonal and Annual Rainfall, Temperature, Climate Extremes and SARIMA-Based Prediction in Anuradhapura District, Sri Lanka (1995-2024)	57
Impact of Erratic Rainfall on Bean Cultivation in Uva Province: A Feasibility Study on a Mobile Application for Knowledge Dissemination and Impact Management	58
Evaluation of Sugarcane By - Product Based Organic Fertilization on Soil, Sugarcane Yield and Quality Under Rainfed Conditions.....	59
Spatial Mapping and Severity Assessment of Nematode Infestation in Smallholder Tea Plantations in Imbulpe and Rathnapura Divisional Secretariat Divisions in Sri Lanka	60

Survey on Farmers' Satisfaction and Engagement in Management of Magalla Tank Cascade System Based Major Irrigation Schemes	61
Transformation of Spent Mushroom Substrate (SMS) and Brewer's Spent Grain (BSG) into a Biochar-Enriched Organic Fertilizer.....	62
Assessment of Spatial Variation in Water Quality and Land Use Classification around the Terrestrial Boundary of Chilaw Lagoon, Sri Lanka	63
Predicting Medicinal Phytochemical Composition in Green Tea Using Multi-Extractant Soil Electrochemical Analysis and Machine Learning	64
Effect of Integrated Plant Nutrient Management on Growth of Green Chilli (<i>Capsicum annuum L.</i>) in Red Calcic Latosol Soil.....	65
Estimation of Leaf Phosphorus Content in Coconut (<i>Cocos nucifera L.</i>) Plantations through Multispectral Drone-Based Remote Sensing	67
Evaluation of Different Liming Materials on the Interaction of Soil pH and Phosphorous Availability and Growth of Lettuce (<i>Lactuca sativa L.</i>) in High P acidic soil.....	68
Identification of the Suitable Lands to Expand Rubber Plantations in the North Central Province of Sri Lanka Using GIS Based Land Suitability Modelling.....	69
Potentiality of a Using Locally Designed Soil Sensor for Rapid Estimation of pH and EC Under Rubber Growing Ultisols in Sri Lanka	70
Effect of Varying Potassium (K) and Silicon (Si) Levels on Brown Spot Disease Severity in Rice in Low Country Wet Zone of Sri Lanka.....	71
Evaluation of Vermicompost Enriched Cocopeat Blocks on the Growth Performance of Local Chilli (<i>Capsicum annuum L.</i>) Hybrid Seedlings.....	72
Responses of Soil Biological Properties and Enzyme Activities to Different Organic Fertilizer Inputs in Tea (<i>Camellia sinensis</i>) Nursery Soil at an Organic Tea Plantation in Haputhale, Sri Lanka.....	73

Track I

Agricultural Economics and Agribusiness Management

Impact of Package Labelling Information on Consumer Purchase Intention of Ready-To-Drink (RTD) Fruit-Based Beverages in Kalutara District in Sri Lanka

K.N.K. Pabasara^{1*}, S.H.P. Malkanthi¹, and S.M.I.N. Bandara²

¹*Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

²*Sunquick Lanka Private Limited, Munagama, Horana, Sri Lanka*

**knkpabasara@std.agri.sab.ac.lk*

ABSTRACT

The rising consumption of ready-to-drink (RTD) fruit-based beverages in Sri Lanka, often perceived as natural despite their high sugar content, highlights the importance of package labelling information in shaping consumer purchase intentions and promoting informed decision-making. In response, Sri Lanka has introduced a statutory Front-of-Pack (FOP) Traffic Light labeling system aimed at encouraging healthier food choices among consumers. This research aims to investigate the impact of package labelling information, namely FOP traffic light labelling, per-serving nutrition information, product claims, and overall label perception on consumer purchasing intention of RTD fruit-based beverages in Kalutara District, Sri Lanka. Necessary data were gathered from 200 consumers across 14 divisional secretariats in this district through a pre-tested, structured questionnaire survey as a quantitative study from September to November 2025. Data were analyzed using descriptive statistics, Pearson correlation, and multiple linear regression to assess the impact of package labelling information on consumer purchase intention. The study's findings revealed that concise package information significantly influences consumer purchase intentions ($R = 0.842$, $R^2 = 0.709$, $p < 0.001$), explaining 70.3% of the variation in purchase intention. Key determinants include Front-of-Pack (FOP) traffic light labeling, basic knowledge, nutritional information per serving, product claims and entire label signals. 99% of respondents pay attention to traffic light color coding, showing its strong influence on consumer decisions. Among the five beverage brands analyzed (Brand A, B, C, D, and E). Brand E's labeling received the highest consumer preference. Overall, the findings indicate that labelling information has a significant positive influence on consumer purchase intention. traffic light labelling, nutritional information per serving, product claims, and overall label perception emerged as key determinants, while clear and visually appealing labels enhanced consumer attention and supported more informed purchasing decisions. The results further indicate that effective labelling strategies contribute substantially to informed decision-making among consumers.

Keywords: *Fruit-Based beverages, Kalutara district, Package labelling, Purchase intention, Traffic light labelling.*

The Influence of Television Culinary Programs on Food Consumer Behavior: Evidence from Generation X and Y Women's Perception in Sri Lanka

U.B.E. Sasanka, K.G.C. Harshani*, G.H.U.S. Dissanayake, and E.I.W. Jayawardane

Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka

**kgcharshani@std.agri.sab.ac.lk*

ABSTRACT

Television culinary programs have gained widespread popularity in Sri Lanka and have increasingly evolved from simple entertainment formats into influential media tools that shape food-related attitudes, perceptions, and consumer behavior. Despite their growing presence in Sri Lankan households, empirical research examining the influence of television culinary programs on food consumer behavior, particularly across different generations of women, remains limited. This study aims to examine the influence of television culinary programs on food consumer behavior among Generation X and Generation Y women in Sri Lanka, with particular attention to cooking practices, food purchasing decisions, brand preference, and dietary choices. A mixed-method research design was employed to achieve the research objectives. Quantitative data were collected through a structured questionnaire administered to 300 women (150 from Generation X and 150 from Generation Y) selected using stratified random sampling from urban and semi-urban areas of Sri Lanka. In addition, qualitative data were gathered through semi-structured interviews with 20 participants to explore personal perceptions, motivations, and experiences related to television culinary program consumption. Quantitative data were analyzed using descriptive statistics, correlation analysis, and independent sample t-tests, while qualitative data were analyzed using thematic analysis. The findings indicate that television culinary programs exert a strong and positive influence on food consumer behavior. Key areas of influence include the enhancement of cooking skills and confidence, increased willingness to experiment with new recipes, greater awareness of food ingredients, and noticeable changes in food purchasing behavior and brand preference. A statistically significant positive relationship was found between the frequency of viewing television culinary programs and the level of behavioral influence. However, the results reveal no statistically significant difference between Generation X and Generation Y women in terms of overall influence. The study concludes that television culinary programs have a strong influence on food consumer behavior. A high percentage of respondents (73.2%) watched these programs regularly. The overall influence level was high with a mean score of 4.10. Most respondents were affected in their behavior, where 78% tried recipes, 74% purchased ingredients, and 71% tried new food products. A positive relationship was found between viewing frequency and behavior ($r = 0.42$). However, there was no significant difference between Generation X and Generation Y ($p = 0.228$). Overall, television culinary programs significantly influence cooking habits and purchasing decisions.

Keywords: *Food consumer behavior, Generation X, Generation Y, Media influence, Purchasing behavior, Sri Lanka, Television culinary programs, Women consumers*

An Exploratory Study on The Implementation of Green HRM Practices on The Food and Beverage Industry: A Case Study of Sunquick Lanka (Pvt) Ltd

W.K.A.D.S. Fernando^{1*}, I.C. Hettiarachchi¹, and K.A.U.A. Abeysinghe²

^{1*}*Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.* ²*Manager- Human Resources, Sunquick Lanka (Pvt) Ltd, Horana, Sri Lanka.*

*wkadsfernando@std.agri.sab.ac.lk

ABSTRACT

Green Human Resource Management (GHRM) is one of the important ways of converting sustainability strategies within the organization to employee outcomes; skills & knowledge, attitudes, behaviors and performance towards sustainable development. This paper has focused on the GHRM practices in Sunquick Lanka (Pvt) Ltd and how this has influenced the Green Competencies, Attitudes, Behaviors, and Results among the employees. The quantitative design was census-based, where data was collected through a semi-structured questionnaire from all 82 employees supplemented by a qualitative information from 10 purposely sampled key informants. The quantitative results showed that the internal consistency reliability analysis revealed high internal consistency (Cronbach's alpha 0.806-0.921). According to descriptive statistics, the level of green practice adoption among employees is rather high, and the mean score of Green Results (M = 3.39, SD = 0.814), Green Attitude (M = 3.50, SD = 0.790), Green Behavior (M = 3.53, SD = 0.823), and Green Competencies (M = 3). Correlation analysis also indicated that the independent variables were all positively and significantly related to the Green Results with the strongest relationship observed between Green Competencies ($r = 0.743$, $p < 0.01$), Green Attitude ($r = 0.557$, $p < 0.01$), Green Behavior ($r = 0.454$, $p < 0.01$). Regression analysis proved that Green Competencies predicted Green Results the most. The qualitative results indicated that there is no situation when people recognize the importance of waste separation and energy saving activity, and the interest in green events and the desire to be trained, provided with resources and rewards, also to remain engaged is high. Generally, the results reveal that strategically formulated GHRM practices, Strengthening Green Competencies by training, practical skills, and reward systems, have the potential to enhance environmental performance and close the gap between organizational sustainability strategy and employee-level results in a Sri Lankan setting.

Keywords: *Green Attitude, Green Behavior, Green Competencies, Green HRM(GHRM), Green Results.*

Factors Influencing Consumer Preferences and Purchasing Behavior for Fresh and Processed Coconut Milk in Matara *Pradeshiya Sabha*, Sri Lanka

K.K.L.T. Premathilaka^{1*}, and U.B.E. Sasanka¹

¹*Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

* *kkltpremathilaka@sab.agri.ac.lk*

ABSTRACT

Coconut is one of the three major plantation crops in Sri Lanka. It is not only important for the Sri Lankan economy but also an indispensable ingredient in many Sri Lankan cuisines. Mainly, coconut is used either as coconut milk or as grated coconut. Although fresh coconut is traditionally used for Sri Lankan foods, processed coconut has also entered the markets nowadays, creating competition for the fresh coconut milk within the country. The research question is, what factors influence consumer preference and purchasing decisions among fresh and processed coconut milk? The aim of this study was to investigate whether fresh coconut milk or processed coconut milk is more preferred or used by Sri Lankan consumers along with factors influencing to that decision. Quantitative research design was used for this study and data were collected from 132 households who live in Matara *Pradeshiya Sabha* area, contacted through a judgmental sampling method using a structured questionnaire during August to November 2025. Descriptive statistics and Chi-Square tests were used. The findings show that the majority (78.8%) of respondents use only fresh coconut milk, none (0%) use only processed coconut milk, and a significant number of respondents (21.2%) use both types. Accordingly, it can be said that fresh coconut milk has the highest preference and tendency to use. Among the demographic factors investigated for the reasons for this use, only the gender factor showed a statistically significant association ($p < 0.05$). No other factors like age, monthly income, education level and occupation show statistically significant association with the choice. Among the product attributes, the availability of the fresh coconut was highly preferred because of its better taste (Mean = 4.42) and health properties (Mean = 4.05). The processed form of the coconut was preferred because of the convenience it provided in saving time (Mean = 3.84). Packaging/storage life had a medium level of influence (Mean = 3.71). The study concludes that the majority of consumers still have a higher preference for fresh coconut milk, but there is a significant number of consumers has shifted from fresh to processed coconut milk.

Keywords: *Coconut, Consumption, Matara, Preferences, Purchasing behavior*

Challenges Faced by Young Entrepreneurs in Agribusiness Startups: A Case Study in the Karadeniya Divisional Secretariat, Galle, Sri Lanka

I.D.S.R. Sudarshani^{1*} and U.B.E. Sasanka¹

Department of Agribusiness Management, Faculty of Agriculture Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.

* idsrsudarshani@std.agri.sab.ac.lk

ABSTRACT

Agriculture is an important sector in Sri Lanka as it provides food, employment, and income for many people. In recent years, more young people have started agribusiness ventures, especially in value-added products such as cinnamon-based items, spice powders, herbal drinks, dried fruits, and plant nurseries. However, starting and managing these businesses is not easy. This study aims to identify the key challenges faced by young entrepreneurs in agribusiness startups in five selected areas of the Karadeniya Divisional Secretariat area in Galle District. This study used a qualitative research approach. Data were collected through semi-structured interviews with 25 young agripreneurs who are currently engaged in different agribusinesses. The collected data were analyzed using thematic analysis, where responses were grouped into main themes based on common patterns. The study is guided by the Agripreneurship Model based on Youth Livelihood Theory. The study focused on four key areas: access to capital, knowledge and skills, market access, and institutional support. The findings show several specific challenges faced by young agripreneurs. First, many participants depend on personal savings or family support due to difficulties in obtaining bank loans, mainly because of a lack of collateral and formal business records. Second, most entrepreneurs have basic production knowledge but lack business management skills such as marketing, pricing, and financial planning. Third, market access is unstable, as many rely on small-scale local markets and social media sales with limited ability to reach wider markets. In addition, price competition and a lack of proper branding reduce their profitability. Fourth, awareness and access to government support programs are low, and some participants mentioned delays and complicated procedures when trying to obtain assistance. The study clearly shows that financial limitations, skill gaps, weak market linkages, and limited institutional support are the main challenges affecting young agribusiness startups in the study area. Addressing these issues through practical training, easier access to finance, and improved information systems is important to support the growth of young agripreneurs.

Keywords: *Agribusiness Startups, Challenges, Financial Support, Market Access, Youth agripreneurs.*

A Study on Food Safety Perceptions and Their Influence on Consumer Behaviour Towards Street Food at Aluthkade Market in Colombo, Sri Lanka

M.G.C. Maheesha^{1*} and U.B.E. Sasanka¹

Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.

**mgcmaheesha@std.agri.sab.ac.lk*

ABSTRACT

Street food has become an integral part of urban food culture in Sri Lanka, particularly in Colombo, owing to its affordability, appealing taste, and convenience. However, growing concerns regarding food handling, safety, and hygiene have emerged in recent years, as highlighted in various reports and media coverage. As inconsistent hygiene practices, exposure to polluted environments, and limited regulatory oversight significantly influence customer perceptions and behaviour, the objective of this study was to investigate consumer perceptions and attitudes towards food safety at the Aluthkade Street Food Market in Colombo using the Perception–Attitude–Behaviour (PAB) Model. This popular late-night destination offers a diverse range of affordable dishes reflecting Sri Lanka’s multicultural heritage. A quantitative survey was conducted with 51 respondents contacted through convenience sampling at Aluthkade. Results revealed high consumer knowledge on key food safety parameters (proper cooking kills bacteria: mean = 4.51, S.D. = 0.78; risks of prolonged storage of food at room temperature: mean = 4.61, S.D. = 0.64). However, consumers showed lower confidence in vendor hygiene practices (mean = 2.41, S.D. = 1.07) and moderate concern about foodborne illness (mean = 3.67, S.D. = 1.12), while rating food safety as highly important (mean = 4.22, S.D. = 0.89). Behavioural responses indicated that 70.6% of consumers always or occasionally check vendor cleanliness before purchasing, 82.4% avoid unhygienic stalls, and 78.4% have stopped consuming street food due to safety concerns. Chi-square tests identified significant associations between income and consumption of leftovers ($p < 0.05$) and between education level and avoidance of unclean stalls ($p < 0.05$). The findings highlight a clear gap between knowledge/perceptions, attitudes, and actual behaviour, consistent with the PAB Model. To enhance consumer confidence and ensure the long-term sustainability of the market, targeted hygiene training for vendors, public awareness campaigns, and the introduction of regulatory certification schemes for street vendors are recommended. These measures address the identified food safety concerns and contribute to the development of food hygiene schemes for street vendors in Sri Lanka.

Keywords: *Consumer behaviour, Food safety perceptions, Hygiene practices, Sri Lanka, Street food*

Impact of Advertising on Ice Cream Consumption Among Early Generation Z in Galle District, Sri Lanka

S. D. Ganewatta^{1*} and U.B.E. Sasanka¹

Department of Agribusiness Management, Faculty of Agriculture Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.

**sasaraganewaththa@gmail.com*

ABSTRACT

Generation Z consumers are digitally native and highly responsive to advertising stimuli, making them a crucial segment for modern marketing research. Although ice cream is a widely consumed fast-moving consumer good in the Sri Lankan context, especially among youngsters, there is limited empirical evidence on how advertising affects young consumers' emotional, cognitive, and behavioral responses. Therefore, this study aimed to examine the influence of advertising on ice cream consumption among early-Generation Z youth aged 19–28 years in the Galle District of Sri Lanka, using the Stimulus–Organism–Response (S-O-R) framework as the theoretical foundation. A quantitative research approach was employed, and primary data were gathered through a structured questionnaire that consisted of pre-validated, adapted scales, completed by 125 respondents who were contacted through the snowball sampling technique. The data were analyzed using descriptive statistics, correlation analysis, and regression-based mediation analysis. Results show that perceived advertising features, especially music and sound, visual appeal, and emotional messaging, significantly impact consumers' emotional and cognitive responses ($p < 0.05$). These responses, in turn, have a substantial effect on purchase intention and consumption behavior. The mediation analysis confirmed that emotional and cognitive responses fully mediate the relationship between advertising features and consumption intentions, indicating that advertising influences behavior mainly through internal psychological mechanisms rather than direct exposure ($p < 0.05$). However, overall advertising exposure was not significantly linked to actual ice cream consumption frequency ($p > 0.05$). The study provides empirical evidence supporting the use of the Stimulus–Organism–Response framework in a developing country context and offers practical guidance for marketers to craft emotionally engaging and cognitively appealing advertising strategies aimed at Generation Z consumers in Sri Lanka.

Keywords: *Advertising, Consumer Behavior, Generation Z, Ice Cream, Sri Lanka*

Investigating Factors Affecting Willingness to Pay for Traceable Foods – An Empirical Market Study

A.P.B. Priyangika*¹, S.T.C. Amarasinghe¹, and Ruvini Ranathilake²

¹*Department of Agribusiness Management, Faculty of Agricultural Sciences,
Sabaragamuwa University, Belihuloya, Sri Lanka.* ²*S.A. Silva & Sons Lanka (Pvt) Ltd (Silvermill
Group of Companies), No 148, Kynsey Road, Colombo 08*

**apbpriyangika@std.agri.sab.ac.lk*

ABSTRACT

Food traceability has gained increasing importance due to rising concerns regarding food safety, quality, and transparency in supply chains. However, empirical evidence on consumer awareness and willingness to pay (WTP) for traceable food products in Sri Lanka remains limited. This study aims to assess consumer awareness of food traceability and to analyze the key factors, including socio-demographic characteristics and consumer perceptions, influencing willingness to pay (WTP) for traceable food products in selected districts of Sri Lanka. A quantitative research approach was employed using a structured questionnaire, and primary data were collected from 150 consumers in Colombo, Gampaha, and Kurunegala districts. The study focused on selected food categories including rice, fresh milk and chicken. Data was analyzed using descriptive statistics, correlation analysis and multiple linear regression with the support of SPSS software. The regression results indicate that the overall model is statistically significant ($R^2 = 0.81$). Among the examined variables, education level ($\beta = 0.219$, $p < 0.001$) and age ($\beta = 0.589$, $p < 0.001$) show a significant positive influence on willingness to pay for traceable food products. However, consumer awareness ($\beta = -0.118$, $p = 0.091$) and perceived food safety ($\beta = 0.061$, $p = 0.415$) do not demonstrate a statistically significant effect on willingness to pay. The study concludes that socio-demographic factors, particularly education and age, play a critical role in influencing consumer willingness to pay for traceable food products in Sri Lanka. These findings provide important implications for policymakers, food producers and retailers in designing targeted strategies to promote traceability adoption and enhance consumer engagement in the domestic food market.

Keywords: *Consumer Behavior, Digital Literacy, Domestic Food Market, Food Traceability, Willingness to pay*



Assessing Consumer Perception, Awareness and Consumption of Whey Protein Supplements Among Youngsters in Western Province, Sri Lanka.

A.T.Y. Silva¹, G.S.D. Jayasekara^{*1} and M.D.K.K. Basnayake¹

¹*Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

** gsdjayasekara@std.agri.sab.ac.lk*

ABSTRACT

The increasing global demand for whey protein supplements (WPS) has significantly influenced dietary behaviors among young adults, particularly those engaged in fitness activities. However, limited empirical evidence exists regarding awareness, perceptions, and consumption patterns of WPS in Sri Lanka. Therefore, this study aimed to examine consumer awareness, perceptual attitudes, and consumption behavior of whey protein supplements among youngsters in the Western Province of Sri Lanka. A cross-sectional survey was conducted using a structured and pre-tested questionnaire. Primary data were collected from 252 respondents aged 18–30 years through face-to-face interviews. Descriptive statistics, independent sample mean comparisons, and chi-square tests were employed for data analysis. The results indicate moderate awareness but relatively low consumption prevalence (21.8%), suggesting that WPS usage remains confined to a niche segment. Consumers were predominantly male (65.5%, n=36) and urban residents (63.6%, n=35 from Colombo), actively engaged in fitness or gym activities, with frequent intake (4–6 times per week or daily), mainly in liquid forms such as shakes. Muscle building (19.7%) and sports performance (19.7%) were the primary motivations for consumption. A significant perceptual difference was observed between consumers and non-consumers, where non-consumers showed higher agreement that WPS are artificial products (mean = 4.75, p=0.000388). This perception contributed to concerns about safety and side effects (29.9%, n=75), while lack of awareness (24.0%, n=60) and high cost (18.4%, n=46) were additional barriers. Social media and peer networks were identified as the dominant sources of information. The findings confirm that the low consumption prevalence (21.8%, n=55 out of 252) is primarily influenced by concerns about safety and side effects (29.9%, n=75) and lack of awareness (24.0%, n=60), which are strongly associated with the perception of whey protein supplements as artificial products (mean = 4.75). Additionally, high cost (18.4%, n=46) and reliance on informal information sources, particularly social media and peer networks, further limit adoption among youngsters. These findings highlight the need for targeted, evidence-based awareness initiatives and improved regulatory oversight to enhance consumer knowledge and support informed decision-making among young consumers.

Keywords: *Awareness, Consumer, Perception, Western province, Whey protein supplements, Youngsters*



Compliance of the Sri Lankan Seafood Sector with International Sustainability Standards: Challenges and Opportunities

W.M.C.D. Wijesingha^{1*}, S.T.C. Amarasinghe¹, and Chamara Chathuranga Watawala²

**Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka. ²Lihini Seafoods (Pvt) Ltd, St. Jude Mawatha, Katuneriya, Sri Lanka.*

**wmc dwijesingha@std.agri.sab.ac.lk*

ABSTRACT

Compliance with international sustainability standards is critical for the competitiveness of the Sri Lankan seafood industry in high-value global markets. This research evaluates the adherence levels of the sector to standards such as the Marine Stewardship Council (MSC), Aquaculture Stewardship Council (ASC), and European Union (EU) fisheries regulations, identifying key determinants and obstacles to compliance. A mixed-methods approach was employed, integrating quantitative surveys and qualitative in-depth interviews. Purposive sampling was used to select 130 industry experts, including sustainability managers, quality assurance officers, and production supervisors from export-oriented seafood firms, such as Lihini Seafoods (Pvt) Ltd. Quantitative results indicate a high overall adherence level (Mean = 4.2192). Multiple regression analysis reveals that compliance is significantly influenced by technical capacity ($\beta = 0.261$; $p = 0.005$), regulatory clarity ($\beta = 0.209$; $p = 0.012$), institutional support ($\beta = 0.201$; $p = 0.033$), and market access rules ($\beta = 0.198$; $p = 0.041$). While Public-Private Partnerships were perceived as highly important (Mean = 4.4173), they did not show a statistically significant relationship with compliance levels. Qualitative findings highlight that while large firms maintain robust compliance, small-scale exporters face significant financial and technical barriers, including high certification costs and limited access to modern infrastructure. The study concludes that strengthening technical capacity and enhancing institutional coordination through digital traceability tools are essential for sustainable growth. These findings serve as a strategic framework for policymakers to align national industry practices with evolving global sustainability requirements.

Keywords: *Compliance, Export markets, Seafood industry, Sri Lanka MSC/ASC regulations, Sustainability standards*

Dairy Product Consumption Patterns among Sports Undergraduates at Sabaragamuwa University, Sri Lanka

P.A.H. Niroshani¹, D.M.A.G.E. Dissanayaka¹, S.V.A.S. Madhushani¹, B.R.R. Chamara¹, G.M.A.H.K. Wickramarathna^{1*}, and T.S.P. Jayaweera¹

Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.

**harshanipost2001@gmail.com*

ABSTRACT

Dairy products play an important role in providing essential nutrition, especially for physically active individuals such as university athletes. There is limited research on the dairy consumption patterns of sports undergraduates at the Sabaragamuwa University of Sri Lanka. As well as, their high levels of physical activity lead to increased nutritional requirements. Therefore, examining their dairy product consumption is important to determine whether it adequately supports their nutritional needs, overall health, recovery, and athletic performance. This study aimed to investigate patterns of dairy product consumption among undergraduates in the Department of Sports Sciences and PE in Sabaragamuwa University of Sri Lanka. Data were collected using a structured questionnaire over four months from April to July 2025. A total of 110 students participated in the study through random sampling and the data were analyzed using Excel. The majority of respondents (59.1%) were between 23–25 years of age, with male students (55.5%) slightly outnumbering female students (44.5%). Most participants (55%) engaged in team sports such as football, cricket, rugby, hockey, volleyball, and netball, while 35% of them were involved in individual sports, indicating diverse physical activity patterns among the respondents. The results indicated that yoghurt was the most frequently consumed dairy product (40%), followed by fresh milk (25%) and pasteurized milk (20%). The primary reasons for dairy consumption were protein intake (50%) and muscle recovery (22.7%), highlighting the importance of dairy in supporting athletic performance. Secondary factors for dairy product consumption included taste and habitual patterns. Most of the participants reported moderate daily sports engagement, typically between 2–5 hours, which potentially contributes to their higher nutritional requirements. Low availability of dairy products was identified as a moderate constraint, with only 33.6% of students reporting regular access to dairy products, showing that availability was not consistent for all undergraduates. Additionally, weekly spending on dairy products showed that a majority (39.1%) spent Rs.250–500, while 29.1% spent more than Rs. 500, indicating varied economic investment in dairy nutrition. The findings highlight the growing awareness of the nutritional value of dairy products among university athletes, though accessibility and affordability remain limiting factors. Targeted nutritional education and improved availability could enhance dairy consumption and dietary habits among this population. Targeted nutrition education programs can increase awareness of the benefits of dairy for athletic performance, recovery, and overall health. Improving the availability and affordability of dairy products in university cafeterias and nearby food outlets on Sabaragamuwa University premises could encourage greater consumption. Collaboration between university authorities and dairy producers to promote dairy-based meal options may further improve dietary habits among sports undergraduates.

Keywords: *Athletic performance, Consumption pattern, Dairy products, Nutritional intake, Undergraduates*



Track II

Plant Breeding, Plant Protection and Biotechnology

***In-vitro* Evaluation of Synthetic Fungicides Against *Colletotrichum musae*, Causing Anthracnose Disease in Banana**

G. T. Nimrekha¹, W.G.P.M. Somarathne^{1*}, W.S.H. Fernando¹, K.M. Lakruwan¹, B.K.D. Sewwandi¹,
M.K.A.D. Marapana¹, S.K.K.D. Dulanjaya¹, I.P.I. Sewwandi¹, U.W.H.N. Pathmasiri¹, R.N.K.
Kumarathunga¹, W.M.L.A. Weerawardhana¹, L.N. Nethmini¹, P.G. Ramanayake¹, W.H.P.
Sandamali¹, N.M.H.I. Nayakarathne¹, R.N.N. Perera¹, and M.L.M.C. Dissanayake¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

*wgpmSomarathne@std.agri.sab.ac.lk

ABSTRACT

Anthracnose, caused by *Colletotrichum musae*, is a major postharvest disease of banana, leading to significant yield and quality losses in Sri Lanka. This study aimed to evaluate the *in vitro* efficacy of three fungicides, Carbendazim (Carbendazim 500 g/l SC), Homai (Thiophanate-methyl 50% + Thiram 30% WP), and Mancozeb (Mancozeb 80% WP), against the mycelial growth of *C. musae*. A pure culture of *C. musae* was tested using both qualitative (disc diffusion) and quantitative (poisoned food) techniques. In the disc diffusion method, sterile filter paper discs impregnated with recommended fungicide concentrations were placed on Potato Dextrose Agar (PDA) inoculated with the pathogen. In the poisoned food technique, fungicides were directly incorporated into PDA media. Autoclaved distilled water served as the control in both methods. Radial mycelial growth was measured daily, and percentage inhibition relative to the control was calculated. All treatments were conducted with three replicates, and data were analyzed using ANOVA followed by a mean separation test. Results revealed that all fungicides significantly ($p < 0.05$) inhibited mycelial growth compared to the control. Carbendazim exhibited the highest inhibition (91.81%) after four days, followed closely by Homai (90.23%), while Mancozeb showed the lowest inhibition (30.22%). The findings indicate that systemic fungicides were more effective than the contact fungicide tested. Variability among replicates, as indicated by error bars, was minimal and confirmed the consistency of results. In conclusion, Carbendazim demonstrated the strongest antifungal activity against *C. musae*, while Homai also showed a significant efficacy. Mancozeb was comparatively less effective, suggesting the need for higher concentrations or alternative strategies.

Keywords: *Anthracnose, Antifungal efficacy, Colletotrichum musae, Fungicides, Poison Food Technique*

Molecular and Morphological Diversity of Selected *Syzygium cumini* (Maa-dan) Accessions in Sri Lanka

R.M.K.D. Rathnayake^{1*}, N.M.H.I. Nayakarathne¹, P.W.M. Tharindi¹ and P.K. Dissanayake¹

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.

* rmkdrathnayaka@std.agri.sab.ac.lk

ABSTRACT

Syzygium cumini (L.) Skeels, commonly known as Maa-dan, is a multipurpose fruit tree valued for its nutritional, medicinal, and ecological importance, yet it remains underutilized in Sri Lanka. Understanding the genetic diversity of available germplasm is essential for conservation and future breeding programs. In the present study, morphological and molecular diversity were evaluated among 27 *S. cumini* accessions collected from wet (WZ), intermediate (IZ), and dry (DZ) zones in Sri Lanka. Morphological traits, including leaf area, lamina length and width, petiole length, internodal length, leaf shape, apex, margin, and tree canopy, were measured. Molecular diversity was assessed using 16 RAPD primers. Analysis of variance revealed a significant difference ($p < 0.05$) among accessions. Higher coefficient of variance and Shannon-Weaver diversity index for both quantitative and qualitative traits indicated that leaf size traits and tree architecture were primary factors for the phenotypic divergence. Principal component (PCA) and cluster analysis of morphological traits revealed distinct clustering among accessions. Major allele frequencies ranging from 0.500 to 1.000, gene diversity values from 0.000 to 0.500, and PIC values up to 0.375 exhibited substantial molecular variability. Principal coordinate analysis (PCoA) and UPGMA dendrogram highlighted differences from morphological clustering, suggesting phenotypic traits do not fully reflect underlying genetic variation. Clustering patterns obtained from PCA and PCoA did not strictly correspond to geographical origin, indicating that genetic variation among accessions is not strongly structured by location, with confirming Mantel test results ($r = 0.32$, $P < 0.05$) between morphological and molecular diversity. Overall, results demonstrated a significant intraspecific variation within Sri Lankan *S. cumini*, with morphological and molecular analysis providing complementary insights. These findings underscore the need for targeted conservation and selection of superior accessions for breeding programs to exploit genetic potential, improve fruit quality, and support sustainable utilization, particularly given the observed high intraspecific variation and the weak correspondence between morphological and molecular diversity.

Keywords: Genetic diversity, Molecular analysis, Morphological traits, RAPD markers, *Syzygium cumini*

Root DNA Extraction Optimization and Preliminary Molecular Differentiation of Rootstock and Scion in Grafted Cocoa (*Theobroma cacao* L.) Trees in *Ex-situ* Gene Bank

P.K.T.M. Dharmasena¹, P.W.M. Tharindi¹, and D.G.H.M.K. Dissanayake^{2*}

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka. ²Genetics & Plant Breeding Division, Export Agriculture Research Center, Matale, Sri Lanka.

* harshadi.expoagric@gmail.com

ABSTRACT

Cocoa (*Theobroma cacao* L.) is commonly propagated through grafting to preserve desirable agronomic traits. However, water shoots emerging from the rootstock may gradually replace the grafted scion if not properly pruned. This study was conducted to identify grafted trees in the poorly maintained gene bank. Morphological screening methods are insufficient to accurately identify scion replacement in mature plants. Therefore, this study was conducted to optimize a protocol for cocoa root DNA extraction and develop a molecular marker-based approach to screen mature grafted cocoa trees in an *ex-situ* gene bank. Five lines (W6/457, EARS 152, EARS 181, W6/6, and EARS 306) were randomly selected from a collection of 20 accessions at the Export Agriculture Research Center, Matale, Sri Lanka. Each line consists of three replicates, and 34 samples, including 19 shoot and 15 root tissues, were analyzed. The root DNA extraction was optimized utilizing a modified CTAB method following 4 % CTAB, 1 % polyvinylpyrrolidone (PVP), and overnight precipitation with chilled isopropanol at -20 °C. The optimized protocol yielded high-quality root DNA in 260/280 nm absorbance and a high yield after quantification. Preliminary molecular screening was initially done with five cocoa-specific RAPD markers, of which two (R2 and R11) markers revealed polymorphism. According to the molecular results, 11 plants retained their original grafted scion, while 4 plants indicated scion replacement by water shoots. The genetic diversity analysis indicates moderate polymorphism, with a mean major allele frequency of 0.7353, gene diversity of 0.4191, and polymorphic information content of 0.3810. This study provides an optimized protocol for DNA extraction from cocoa roots, providing a more reliable and precise method for verifying grafted integrity in mature cocoa germplasm collection for accurate germplasm management.

Keywords: *Germplasm management, Graft integrity, RAPD markers, Root DNA extraction, Theobroma cacao*

Temperature Stress and its Impact on Virulence of Entomopathogenic Fungi *Metarhizium anisopliae* in vitro

S.H.S.H. Karunadasa^{1*}, W.M.A.U.K.M. Wijesekara¹, K.B.U. Udari¹, M.P.C. Madushika¹ and K.M.G. Chanchala²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Sugarcane Research Institute, Uda Walawe, Sri Lanka,

* karunadasasandali@gmail.com

ABSTRACT

The fungus *Metarhizium anisopliae* is gaining recognition as an effective entomopathogenic biological control agent in agriculture due to its wide host range. Although it has proven potential, the fungus reported to be highly inconsistent with temperature stress in the environment. As global warming and evaluated temperatures are rising drastic consequences to agriculture, this study evaluated the stress tolerance and virulence of *M. anisopliae* under temperature stress in a sugarcane ecosystem in Uda Walawe, Sri Lanka. The fungus was subjected to temperature treatments selected based on forecasted and evidence-based temperature fluctuations in Sri Lanka T1(30 °C), T2 (40 °C) and T3 (4 °C) to evaluate stress responses through conidial germination decreased significantly across treatments. Stressed fungal virulence was assessed through bioassay against the termite, *Odontotermes redimani* using defined 10⁶ conidia mL⁻¹suspensions. Notably, the fungus proved physiological resilience under stress conditions and comparative analyses resulted in highly significant values ($p < 0.0001$) with strong virulence effective temperature value of 46.37 °C for 24 h. Germination was decreased significantly across the treatments in order of Control > T1 > T2 >T3. The environmental persistency dominated by the difference in temperatures with 34.39 percent of contribution from variation over the time factor (30 days) with 11.27 percent. Exceptionally, the fungus reported to maintain sporulation at elevated temperatures of 40 °C, proving a positive approach as a pest controlling measure within current climatic deviation trends of global warming. Collectively, the results highlight that *M. anisopliae* possesses a significant tolerance to temperature stress while maintaining virulence and reliability to be used as a biopesticide in Sri Lanka.

Keywords: Entomopathogenic fungi, Stress tolerance, Temperature stress

Isolation and Identification of Entomopathogenic Fungi Associated with Tropical Cassava Lace Bug (*Vatiga illudens*)

D.G.U.M. Dissanayaka¹, P.G.H.M.S.N. Herath^{2*}, P.H. Ranaweera³, M.L.M.C. Dissanayaka¹, and A.M.K.D. Alahakoon²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Plant Pathology Division, Horticultural Crop Research and Development Institute, Gannoruwa, Peradeniya, Sri Lanka, ³Entomology Division, Horticultural Crop Research and Development Institute, Gannoruwa, Peradeniya, Sri Lanka.

* shashika.herath@gmail.com

ABSTRACT

Cassava (*Manihot esculenta* Crantz) is an important food crop in Sri Lanka, but its production is threatened by the cassava lace bug, *Vatiga illudens*. Although chemical insecticides are widely used for its management, information on indigenous entomopathogenic fungi associated with *V. illudens* in Sri Lanka remains lacking. This study aimed to isolate and identify entomopathogenic fungi associated with *V. illudens*, evaluate their pathogenicity, and determine a suitable culture medium for fungal growth. Fungal-infected lace bug cadavers were collected from the Gampola area and isolated on potato dextrose agar (PDA). Fungal identification was conducted based on colony morphology and microscopic characteristics following the keys of Tsuneo Watanabe. Laboratory virulence bioassays were conducted under controlled conditions using a completely randomized design with ten replicates, where adult insects were sprayed with a spore suspension of 1×10^8 spores mL⁻¹. In a plant-house experiment, 100 adult *V. illudens* were introduced per cassava plant, and treatments were applied under controlled environmental conditions at different intervals (daily, every two days, and every four days), including an untreated control. No visible phytotoxic effects throughout the experimental period. The fungal isolate was also cultured on different media to assess mycelial growth. The colony showed whitish cottony to velvety mycelium with circular ring patterns and septate hyphae. Microscopic observation revealed terminal and intercalary chlamydospores on stalks, elongated and sickle-shaped spores with pointed ends and powdery spore masses, characteristic of *Fusarium* species. In laboratory bioassays, the fungus caused a mean mortality of 57%. In the plant-house experiment, live insect numbers decreased significantly across treatments, with daily application showing the highest mortality (96.3% by day 21). Media evaluation indicated significant differences in growth ($P < 0.001$), with PDA supporting the highest mean colony diameter (50.96 mm). Overall, the isolated *Fusarium* species demonstrated entomopathogenic activity against *V. illudens* and grew optimally on PDA. This indicates its potential as a biocontrol agent for the management of cassava lace bug.

Keywords: *Cassava (manihot esculenta crantz)*, *Cassava lace bug (vatiga illudens)*, *Fusarium*, *entomopathogenic fungi*, *Potato dextrose agar*

Characterization of the Geographic Diversity of *Ralstonia solanacearum* Causing Bacterial Wilt in Brinjal (*Solanum melongena* L.)

W.A.K.N. Priyadarshani¹, P.G.H.M.S.N. Herath^{2*}, M.L.M. C. Dissanayake¹ and A.M.K.D. Alahakoon²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Plant Pathology Division, Horticultural Crop Research and Development Institute, Gannoruwa, Peradeniya, Sri Lanka.

*shashika.herath@gmail.com

ABSTRACT

Ralstonia solanacearum causes bacterial wilt of solanaceous crops, including brinjal (*Solanum melongena* L.), in both low country and mid country regions of Sri Lanka. However, limited information is available on the population diversity and variability of *R. solanacearum* associated with brinjal in Sri Lanka. Therefore, this study was conducted to isolate *R. solanacearum* from wilt affected brinjal plants and determine their biochemical, pathogenic, race, and biovar of the strain. A total of 29 isolates of *R. solanacearum* were obtained from selected brinjal growing regions in Sri Lanka. All isolates of *R. solanacearum* produced fluidal, irregular colonies with creamy-white margins and pink to red centers on Tetrazolium chloride (TZC) medium, indicating virulence. Pathogenicity test was conducted using brinjal plants through stem inoculation. Disease severity was assessed based on the 0-5 disease severity scale. All tested isolates were able to cause severe wilting symptoms in brinjal plants within 7-21 days, with disease severity exceeding 90%, confirming their pathogenic nature. The biovar of the strain was identified by the utilization of disaccharides (maltose, lactose, sucrose and cellobiose) and sugar alcohols (mannitol, sorbitol and dulcitol). Twelve of the 29 isolates were grouped into Biovar III, while the remaining 17 isolates, which did not utilize dulcitol, were designated as Biovar IIIA. Race was determined through hypersensitivity reaction of *R. solanacearum* on tobacco leaves by leaf infiltration method. All isolates showed a negative hypersensitivity response after 24 hours of infiltration and were therefore classified as race 1. Thus, the *R. solanacearum* isolates causing bacterial wilt of brinjal in Sri Lanka were virulent and belonged to race 1 with biovar III and biovar IIIA. This information helps in developing effective and targeted disease management strategies.

Keywords: Bacterial wilt, Brinjal, Characterization, Diversity, *Ralstonia solanacearum*



Survey on Pests and Disease Incidents in Rice (*Oryza sativa*) and their Management in Kamburupitiya, Matara District

M.K.A.D. Marapana^{1*}, N.M.H.I. Nayakarathne¹, and D.D.M.O. Dissanayake¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

* *anupamamarapana2@gmail.com*

ABSTRACT

Rice (*Oryza sativa*) is the staple food of Sri Lanka, occupying 29% of the cultivated land and playing a major role in the country's agricultural economy, livelihoods and food security. This study aims to evaluate the prevalence of pests and diseases and their management practices. This study was conducted in Kamburupitiya using a structured questionnaire administered to 100 randomly selected farmers. Data were analyzed through descriptive statistics. The data reveal that farmers' knowledge of pests and diseases was moderate (59%). Rice bug (53.06%), aphids (40.8%) and thrips (36.7%) were recorded as major pests, while brown spot (43.47%), blast (35.86%) were recorded as major diseases. According to 59% of respondents, pest incidence is observed in both the Yala and Maha seasons. The majority of farmers (98%) use chemical control methods and many of them also integrate additional control strategies. Most farmers (30%) reported experiencing moderate levels of damage from pests and diseases. Although 59% of farmers received support from the agricultural sector primarily through leaflets (51.02%), more than half (52%) expressed dissatisfaction with the assistance provided. These findings indicate that although farmers have significant experience (60%) and moderate knowledge (30%) of pest and disease management, there are notable gaps in the effectiveness of management practices and extension services available to farmers. Therefore, it is essential to enhance farmer level education programs and improve the quality of agricultural support services to promote sustainable pest and disease management in rice cultivation.

Keywords: *Extension, Pests awareness, Pest Management, Rice diseases*

Performance of *In Vitro* Establishment of Horana Gold, Bandarawela Purple and Rahangala Hybrid Passion Fruit (*Passiflora edulis* Sims) Varieties in Sri Lanka

K.M.K. Madusani^{1*}, T.U.K. Silva² and A.A.Y. Amarasinghe¹

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Plant Science Department, Rubber Research Institute, Dartonfield, Agalawatta, Sri Lanka.

*kmkmadusani@std.agri.sab.ac.lk

ABSTRACT

Passion fruit (*Passiflora edulis* Sims) is a highly nutritious fruit with numerous health benefits. It is consumed fresh and used in beverages. In Sri Lanka, three main varieties are cultivated such as Horana Gold, Rahangala Hybrid, and Bandarawela Purple. This study aimed to evaluate and compare the *in vitro* establishment performance of Horana Gold, Bandarawela Purple and Rahangala Hybrid passion fruit varieties in an establishment medium. The experiment was conducted at the Tissue Culture Laboratory, Plant Science Department, Rubber Research Institute of Sri Lanka, Agalawatta. Obtaining disease free, pest free single nodal segments from three cultivars was cultured on Murashige and Skoog (MS) medium. Further, 6-Benzylaminopurine (BAP) and Naphthalene Acetic Acid (NAA) were used as plant growth regulators. A completely randomized design with 45 cultures was used in the study. The cultures were maintained for four weeks in a growth room under a temperature at 25°C, 60% relative humidity and a 16/8 hours (light/dark) photoperiod. Status of survival, shoot height, mean shoot height, days to first shoot initiation and contamination percentage were recorded. Repeated measure ANOVA, Poisson distribution analysis, and the least significant difference (LSD) were used to analyze data. Horana Gold and Rahangala Hybrid varieties showed the highest mean shoot height (1.02±0.04cm, 0.89±0.02cm) and rapid shoot initiation compared to Bandarawela Purple variety (0.02±0.02cm). There was no significant difference between Horana Gold and Rahangala Hybrid varieties. No visible contamination was observed in the varieties during four weeks. The surface disinfection protocol using 3% Topsin in one hour, 10% NaOCl in ten minutes and 70% ethanol in one minute was effective in all three varieties. According to these findings, among three passion fruit varieties in Sri Lanka, the Horana Gold and Rahangala Hybrid varieties showed better overall performance than the Bandarawela Purple variety for *in vitro* establishment.

Keywords: Bandarawela purple, Horana gold, Rahangala hybrid, *In vitro*, Murashige and skoog media, Single nodal segments

Molecular Screening of Local Tomato Germplasm for Tomato Yellow Leaf Curl Virus (TYLCV) Resistance Genes Using PCR- Based Markers

N.W.J.V. Hansika¹, D.S. Kekulandara^{2*} and P.W.MTharindi¹

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Vegetable Breeding Division, Horticultural Crops Research and Development Institute, Gannoruwa, Sri Lanka.

* deepthikasaman@gmail.com

ABSTRACT

Tomato (*Solanum lycopersicum*) is an important crop worldwide. However, tomato yield is affected by Tomato Yellow Leaf Curl Virus (TYLCV), causing up to 100% yield loss. Developing resistant cultivars is an effective method to manage losses caused by viral diseases. Tomato wild relatives are known for their disease resistance and can be utilized in breeding programs as parents that carry resistance genes. Molecular markers can identify resistance genes accurately. This study was conducted to identify the presence of resistance genes against TYLCV in locally available wild tomato germplasm using molecular markers and assess the disease parameters of tomato accessions against general tomato viral diseases. Ten tomato germplasms were obtained from the Plant Genetic Resource Centre and screened using Ty-1/3_K and P1-16 SCAR markers to detect the presence of Ty-1/3 and Ty-2 resistance genes, respectively, using PCR based techniques. Tomato germplasms were evaluated in the field for virus resistance at the adaptive research station, Thabbowa, using a complete randomized block design. Nine plants were established per plot in the open field to infect viral diseases naturally. The disease severity of the virus was evaluated using a general viral severity 1-5 scale. Data were analyzed with SAS 9.4 software. In molecular screening, tomato accession 'Batu thakkali' possesses Ty-2 resistance gene and does not possess Ty-1/3 genes. All the other tested accessions were found to lack the resistance genes. Statistical analysis indicated a highly significant difference among the accessions in terms of disease incidence and index of disease severity. In field evaluation only 'Batu thakkali' accession showed immunity to viral diseases with an incidence of 0%, while the other accessions that lacked the genes showed tolerance and some were susceptible in field screening. In conclusion, this study confirms that 'Batu Thakkali' possess functional TYLCV resistance gene and demonstrates immunity under field conditions. 'Batu Thakkali' is identified as valuable parental line for marker-assisted breeding programs aimed at developing TYLCV-resistant tomato cultivars.

Keywords: Disease resistance, Molecular markers, *Solanum lycopersicum*, TYLCV, Viral diseases

Laboratory Bioassays to Determine Susceptibility of Red Spider Mite (*Tetranychus urticae*) to Recommended Miticides Across Different Agro-climatic Zones in Sri Lanka

K.R.B.M.M.K. Ekanayake¹, J.P. Marasinghe^{2*}, M.L.M.C. Dissanayake¹, W.M.A.U.K.M. Wijesekara¹, and I.N.S. Dewapriya³,

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Office of the Registrar of Pesticides, Gatambe, Peradeniya, ³Horticultural Crops and Development Institute, Gannoruwa,

* jeevanimarasinghe@gmail.com

ABSTRACT

Red spider mites (*Tetranychus urticae*) are destructive plant pests that impair growth and photosynthesis through sap feeding, leading to chlorosis, leaf deformation, and potential plant mortality. Although integrated pest management strategies are employed, chemical control remains the most widely used approach due to its high efficacy. Fenpyroximate (50 g L⁻¹ EC), abamectin (18 g L⁻¹ EC), and azadirachtin A (7.5 g L⁻¹EC) are among the predominant recommended miticides in Sri Lankan agriculture. However, recent field observations suggest a decline in their effectiveness, highlighting the need to monitor resistance development in *T. urticae* populations. During this study, laboratory bioassays were conducted to evaluate the toxicity of recommended miticides on mite populations from different climatic zones in Sri Lanka, including Wet, Intermediate, and Dry. The bioassay was conducted according to insecticide Resistant Action Committee guidelines; the leaf disc dip method was employed. Untreated brinjal leaf discs were dipped in miticide solutions, air-dried, and placed on agar plates. Twelve concentrations of each chemical were tested. Ten adult mites were placed on each disc, and mortality was recorded at 4, 24, and 48 hours after exposure. Results demonstrated a concentration-dependent increase in mortality, with the highest mortality observed at 48 hours and mortality increased significantly with exposure time. Probit dose- response analysis yielded typical sigmoidal concentration-mortality relationships, and as exposure duration increased, lethal concentration 50% values decreased, suggesting increased toxicity. Among the tested miticides, abamectin exhibited the highest toxicity, followed by fenpyroximate and azadirachtin A. In laboratory settings, the tested *Tetranychus urticae* populations are still vulnerable to the suggested miticides. The mite populations from various agroclimatic zones were effectively controlled by the suggested field rates, indicating that these miticides are still appropriate for controlling *T. urticae* in Sri Lanka.

Keywords: Abamectin, Azadirachtin, Fenpyroximate, Probit analysis, *Tetranychus urticae*.

Assessing the Effective Application Methods of *Metarhizium* spp. for Termite Management in Early Growth Stage of Sugarcane in Sri Lanka

K.B.U. Udari^{1*}, W.M.A.U.K.M. Wijesekara¹, S.H.S.H. Karunadasa¹, M.P.C. Madushika¹, and K.M.G. Chanchala²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Sugarcane Research Institute, Uda Walawe, Sri Lanka

* Umesha52522@gmail.com

ABSTRACT

Termites are considered a major pest of the sugarcane crop, causing significant losses throughout the cropping season. Chemical insecticides are commonly used to control termites. However, their continuous application poses environmental threats, health risks and insecticide resistance. Therefore, the use of entomopathogenic fungus *Metarhizium* spp. as a biological control agent has gained attention for termite management. The present study evaluated the efficacy of *Metarhizium* spp. as a biological alternative using two application methods, sett dipping and soil drenching under field conditions. Four treatments were evaluated: untreated control, chemical control (Imidacloprid), sett-dipping in *Metarhizium* suspension (10^7 spores/ml) for 20 minutes and soil drenching with *Metarhizium* spp. Field performance of sugarcane plants treated with these methods was evaluated by assessing termite population levels, germination percentage and termite damage levels. Initial termite counts were uniform across treatments, confirming the experimental validity. A significant difference was observed in the termite damage percentage among treatments. For overall damage percentage, chemically treated setts showed the lowest damage (0.00%), while soil drenching with *Metarhizium* spp. showed a reduction in total damage percentage (7.67%) compared with sett-dipping in *Metarhizium* suspension (19.33%) and the untreated control (52.67%). Soil drenching with *Metarhizium* spp. was more effective than the sett-dipping method. Therefore, this method can be recommended as an effective and practical biological approach for termite management in sugarcane.

Keywords: *Biological control, Entomopathogenic fungi, Metarhizium* spp., Sugarcane, Termite management

Preliminary Investigation of the Efficacy of Selected Chemical Agents in Reducing the Inoculum Potential of Circular Leaf Spot Disease in Rubber Leaf Litter

P.M. Kavindi¹, E.M. Wimalasiri¹ and M.K.R. Silva^{2*}

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Department of Plant Pathology and Microbiology, Rubber Research Institute of Sri Lanka, Dartonfield, Agalawatta, Sri Lanka

* mkeshanisilva@gmail.com

ABSTRACT

Circular Leaf Spot Disease (CLSD) is an evolving leaf disease of rubber trees (*Hevea brasiliensis*) that primarily arises due to infection by *Colletotrichum* spp. or members of pestalotioid group. The infected rubber leaf litter represents a major source of the spores that can cause new infections. This study aimed to identify prospective chemical agents to reduce the inoculum potential of CLSD pathogens. Two laboratory experiments were conducted at the Plant Pathology and Microbiology Laboratory, Rubber Research Institute of Sri Lanka, Dartonfield, Agalawatta, using a Completely Randomized Design. The first experiment consisted of the evaluation of conidial germination inhibition using four fungal isolates (two *Colletotrichum* spp. and two pestalotioid isolates) via a conidial germination inhibition test (CGIT) at five different concentrations of four chemical agents (Captan, Propineb, Copper oxychloride and Sodium bicarbonate). The second experiment consisted of treating infected rubber leaf litter with Captan, Propineb and Copper oxychloride at three different concentrations (1000, 2000 and 3000 ppm). In the results of the first experiment, the chemical agent, the concentration and their interaction significantly influenced the conidial germination inhibition of both groups of pathogens ($p = 0.0001$) as determined by an analysis of variance. Duncan's Multiple Range Test indicated that Captan and Propineb showed higher inhibition of conidial germination than the other two chemical agents 125 ppm and 250 ppm concentrations. In all isolates, Captan (93.28-100%) and Propineb (73.03-100%) showed higher inhibition compared with Copper oxychloride (1.11-93.40%) and Sodium bicarbonate (0-56.70%). In the second experiment, the concentration significantly influenced the inhibition of pathogens at all observation times ($p = 0.0001$) where the chemical agent was significant only at day 14 ($p = 0.05$) while Propineb showed a significantly higher inhibition of the pathogen recovery compared to Copper oxychloride. These results suggest that Propineb can effectively reduce the inoculum potential of CLSD pathogen in rubber leaf litter.

Keywords: Chemical agents, Circular leaf spot disease, *Hevea brasiliensis*, Leaf litter, Inoculum potential management

Development of an *in vitro* Multiplication Protocol for Endemic, Endangered *Exacum walkeri*

A.J.A. Sandamini^{1*}, A. A.Y. Amarasinghe¹, M.M.L.I.W. Bandara² and A.D.R. Karunarathne²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Floriculture Research and Development Unit, Department of National Botanical Gardens, Peradeniya, Sri Lanka.

* amashasandamini.aj@gmail.com

ABSTRACT

Exacum walkeri is an endemic, endangered herbaceous plant species in Sri Lanka, threatened due to habitat loss and poor regeneration. Conventional propagation is inefficient for large-scale multiplication and conservation, highlighting a need for alternative propagation methods. Hence, this study focused on developing an efficient *in-vitro* multiplication protocol using leaf explants. Two separate experiments were conducted using Murashige and Skoog (MS) basal medium with different synthetic growth regulators and natural supplements. In Experiment 1, different concentration combinations of 6-benzylaminopurine (BAP) and 2,4-dichlorophenoxyacetic acid (2,4-D) were evaluated using 0, 0.5, 1.0 and 1.5 mg L⁻¹ levels of each regulator, in 16 treatments. Experiment 2 evaluated the potential of natural growth supplements, coconut water and *Aloe vera* extract, at 10% and 20% concentrations without synthetic growth regulators. There were 10 replicates per treatment in both experiments. Surface sterilized *in-vitro* explants were cultured and survivability, leaf rolling and callus formation were recorded over eight weeks under a completely randomized design, with data analyzed using SPSS. In Experiment 1, BAP significantly affected explant survival ($p < 0.001$), whereas 2,4-D and their interaction were not significant. Mean comparisons showed that 0, 0.5 and 1.5 mg L⁻¹ BAP resulted in higher survival compared to 1 mg L⁻¹. Leaf rolling increased over time, with early responses affected by BAP and later stages by 2,4-D, particularly at 1.5 mg L⁻¹. However, no significant differences were observed among treatments for callus initiation, due to unsuccessful callus induction. Experiment 2 didn't show significant variation in survival, leaf rolling or callus initiation ($p > 0.05$). In conclusion, survival was mainly affected by BAP and leaf rolling by 2,4-D, while natural supplements showed limited effectiveness. These findings highlight the importance of optimizing synthetic plant growth regulator concentrations for successful *in-vitro* establishment and produce a basis for developing an effective micropropagation protocol of *Exacum walkeri*.

Keywords: 2,4-dichlorophenoxyacetic acid, 6-benzylaminopurine, Callus, *Exacum walkeri*, *In vitro* propagation

Development of an *In Vitro* Callus Initiation Protocol for Endemic *Doona ovalifolia* Through Leaf Culture

R.S.S Belungala^{1*}, A.A.Y. Amarasinghe¹, M.M.L.I.W. Bandara², and A.D.R Karunarathne²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Floriculture Research and Development Unit, Department of National Botanic Gardens, Royal Botanic Gardens, Peradeniya.

*sanalisamalka@gmail.com

ABSTRACT

Doona ovalifolia, an endemic species belonging to the family Dipterocarpaceae in Sri Lanka, which was once listed as extinct in the wild but was recently rediscovered and classified as critically endangered. The conservation of the species is difficult due to limited natural regeneration, habitat losses, and the recalcitrant nature of the seeds. With fewer than 50 mature individuals found in the wild, conservation of the species has a critical need for biotechnological intervention. As there is no standardized protocol for surface sterilization and callus initiation of the field-collected leaf explants of the species, this study was developed to establish an optimal *in vitro* protocol for surface sterilization and callus initiation in *D. ovalifolia* using leaf explants. The experiment was divided into two phases. In phase 1, explant survivability and browning were evaluated after sterilization treatments S1-S4 using 15% and 20% Clorox for 10 and 15 minutes, respectively. In phase 2, explant survivability, browning, and rolling response were evaluated using sixteen different combinations of Plant Growth Regulator (PGR), namely, 6-benzylaminopurine (BAP) and 2,4-Dichlorophenoxyacetic acid (2,4-D) at 0.0-1.5 mg/L concentrations. Binary logistic regression with a linear modeling framework and pairwise comparisons were used for the data analysis. It was found that 15% Clorox for 10 minutes (S1) was the optimal protocol, with maximum explant survivability and zero browning. The callus initiation experiment showed that the auxin-dominant T10, T13, and T14 maintained maximum rolling response with callogenesis potential. PGR-free or lower treatments support maximum survival and minimal browning, while higher concentrations reduce survival rates. Overall, it is found that an optimized sterilization protocol using 15% Clorox along with 0.5 mg/L BAP + 1.0 mg/L 2,4-D provides an essential foundation for establishing complete micropropagation systems for the species.

Keywords: Callus initiation, *Doona ovalifolia*, Leaf explant, Micropropagation, Sterilization



Track III

Livestock Production, Aquaculture and Fisheries

Assessment of Dairy Farm Management and Production Performance in Selected Veterinary Divisions of Ratnapura District

G.S.W. Gunathilaka¹, P.A.H. Niroshani¹, P.A.T.D. Premathilaka^{1*}, B.R.R. Chamara¹, W.A.A.N. Sampath¹, and T.S.P. Jayaweera¹

¹*Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka*

*patdpremathilaka@std.agri.sab.ac.lk

ABSTRACT

Since the dairy sector plays an important role in improving rural livelihoods, household nutrition and reducing the country's dependence on imported milk and dairy products, strengthening the dairy industry has become an important priority. However, one of the major challenges facing the sector is the gradual withdrawal of farmers from dairy farming. This trend, observed at the national level, is also evident in the Ratnapura district. Therefore, the objective of the study is to assess production performance to aid in addressing these challenges and identifying effective strategies to retain and motivate farmers in the district to remain in the dairy sector. A field study was conducted using a pre-tested questionnaire from June 2025 to February 2026 in Balangoda, Imbulpe, Ratnapura, Elapatha, Pelmadulla, Kahawaththa, Kuruwita, Godakawela, Nivitigala and Kiriella veterinary ranges of the Ratnapura district. A sample of 222 dairy farmers was selected using convenience sampling across ten veterinary ranges. The study revealed that majority of farmers (53.4 %) were secondarily involved with dairy farming. A substantial proportion (61%) of farmers had been engaged in dairy farming for more than five years. The majority of farms (65.3%) were small-scale operations (fewer than five animals), while 29.9% were medium-scale (5–15 animals), and only a small proportion (4.5%) were large-scale farms (more than 15 animals). In most of the farms (87.3%), a semi-intensive management system is practiced while (8.5%) of farms practiced an extensive management system and the rest (4.2%) practiced intensive management system. The majority (53.2%) of dairy farms have between one to five milking cows. Few numbers of (8.5%) of dairy farms have more than 5 milking cows. It was revealed that eighty-five dairy farms were currently unproductive. Most of the farmers practiced hand milking (99.1%) with a frequency of two times per day. The average daily milk production per cow was found as five liters. The farmers utilized milk in single or multiple ways, such as selling to milk collecting centers (61%), own consumption (36%), selling to neighbors (13.6%) and processing for milk-based products (3.4%). According to the study, 25.4% of farmers provided commercial cattle feed with grasses. And 42.4% of farmers provide rice bran, coconut poonac and commercial feed with the practice of grazing. But 24.6% of farms practiced only grazing. A few 5.9% of the farms maintained single or several male animals for breeding purposes. There were no breeding males in other farms and the majority of them (61.9%) were satisfied with the success of AI. Out of the 222 farms, major reproductive problems identified as dystocia (3.2%), abortion (3.4%) and still birth (0.1%). The other identified reasons for mortality of animals were bloat (0.9%), milk fever (0.9%), snake bites (1.4%) and other infections. Flooding has caused loss of animals in 1.8% of farms. The reported average calving interval is about one year, an average age at first calving was 2.5 years. Farmers received milk prices of around Rs. 160 -200 at collection centers. Medium-scale farms spend around Rs. 5,000 monthly on medicines, while small-scale farms usually spend less, depending on health conditions. Dairy production was constrained by high feed and veterinary costs, low milk prices, limited grazing land, and inadequate management knowledge on diseases and quality feeding. It is recommended to strengthen farmer training programs on disease management and balanced feeding practices, while improving access to affordable veterinary and extension services. In addition, implementing cost-effective feeding strategies and ensuring fair and stable milk pricing mechanisms can help enhance farm profitability and encourage farmer retention in the dairy sector.

Keywords: Dairy farming, Management profile, Milk production, Production performance, Ratnapura district, Small-scale farmers,

Effect of Substrate Type on Pigmentation and Behaviour of *Ecsenius bicolor* (Bicolour Blenny)

P.S.P. Kularathna^{1*}, Wijayantha Rangajeewa², and C.N. Walpita¹

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, Ominta Aquarium Pvt. Ltd. Negombo, Sri Lanka.

*sitharapiu@gmail.com

ABSTRACT

The bicolour blenny (*Ecsenius bicolor*) is a popular reef-dwelling ornamental fish valued for its attractive coloration. However, under captive conditions, its characteristic red-orange pigmentation often fades rapidly, reducing its aesthetic appeal and market value. Although substrate is an important component of captive holding systems, limited information is available on how different substrate types influence the pigmentation and behaviour of *E. bicolor*. Therefore, this study evaluated the effects of four substrate types, namely coral rubble, oyster shell particles, clay roofing tile particles and PVC pipe particles, on the pigmentation and behaviour of *E. bicolor* under standardized captive conditions. The experiment was conducted for five weeks using 12 glass tanks connected to a common filtration system, with each treatment tested in triplicate and each tank containing two fish. Pigmentation data were collected weekly from standardized photographs and quantified using ImageJ software, while behavioural data, including activity level and shelter-seeking behaviour, were assessed through video-recording analysis. The data were tabulated in Microsoft Excel and statistically analysed using SPSS software. The results showed that substrate type significantly affected both pigmentation and behaviour of *E. bicolor* ($P < 0.05$). Overall red intensity increased from 86.81 in week 1 to 163.25 in week 5, while clay roofing tile particles showed the best performance in maintaining and enhancing natural coloration. Fish reared with clay roofing tile particles also showed lower activity and greater shelter association, which is consistent with the species' natural reef-associated behaviour. In conclusion, clay roofing tile particles were the most suitable substrate among the tested treatments for improving pigmentation and supporting favourable behavioural responses of *E. bicolor* under captive holding conditions.

Keywords: *Ecsenius bicolor*, Marine ornamental fish, Pigmentation, Shelter seeking behaviour, Substrate preference

Effect of Steam Conditioning Temperature on Pellet Durability Index (PDI) in Selected Commercial Broiler Feeds

B.G.G.R.K. Harischandra^{1*}, D.M.A. Gunarathne¹, and Y.W.C.P. Kumara²

¹ Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Jaya Farm Feed Mill, Dummalasooriya, Sri Lanka.

*gayanirashmika1013@gmail.com

ABSTRACT

Pelleting is a widely used feed-processing technique in the poultry industry that improves handling characteristics and bird performance. Pellet quality, commonly evaluated by the pellet durability index (PDI), is influenced by factors such as conditioning temperature, conditioning time, and feed moisture. Low PDI results in pellet breakage and increased fines during transportation and handling. This study evaluated the effect of steam conditioning temperature on PDI in commercial broiler booster, starter, and finisher feeds. Selected broiler starter and broiler finisher feeds were conditioned at 70, 75, 80, and 85 °C, while broiler booster feed was conditioned at 70, 75, and 80°C. Each treatment was replicated five times with a conditioning time of 10 minutes. Pellet durability was determined using the standard tumbling box method according to ASABE Standard S269.5. The experiment was conducted under a completely randomized design, and the data for each feed type were analyzed separately using one-way analysis of variance (ANOVA) in SPSS software. In the broiler finisher feed, mean PDI increased progressively with conditioning temperature, from 92.28% at 70°C to 94.68% at 85°C ($p < 0.05$). In booster feed, PDI increased from 94.84% at 70°C up to 95.96% at 75°C ($p < 0.05$), and further temperature increase had no significant impact on PDI ($p > 0.05$). In contrast, conditioning temperature had no significant effect on PDI in starter feed ($p > 0.05$), indicating that 70°C (95.04%) was sufficient to achieve optimal pellet durability. The observed improvements in PDI are attributed primarily to starch gelatinization, which enhances pellet binding. The results suggest that optimal conditioning temperatures differ among feed types and should be adjusted to maximize pellet durability while minimizing energy use and potential nutrient degradation.

Keywords: Broiler feed, Feed pelleting, Pellet durability index, Pellet quality, Steam conditioning temperature

Comparative Evaluation of Substrate for Optimized Grindal Worm (*Enchytraeus buchholzi*) Culture

A.G.T.M. Akurana^{1*}, C.N. Walpita¹, P.P.S.K. Patabandi¹, N.S.M. Alwis², and H.H.M.C. Bandara²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Golden Scalare Business Enterprise²

*agtmakurana@std.agri.sab.ac.lk

ABSTRACT

Grindal worms (*Enchytraeus buchholzi*) are an important live feed for small ornamental fish juveniles due to their small size (5–10 mm) suitable for small mouth gape of fish, high protein content (65–72%), and high reproductive capacity. Traditionally, Grindal worms are cultured using coir dust, however this substrate has several limitations such as difficulty in sterilization, mite contamination, non-reusability and frequent culture collapse, which requires restarting every three to four weeks. Therefore, identifying alternative substrates that improve culture stability, yield and quality of the harvest is essential for sustainable live feed production. This study evaluated three substrates for *E. buchholzi* using coir dust (T1), kitchen sponge (T2) and aqua soil (T3) based on production yield, external morphology, acid-insoluble ash (AIA) content and cost effectiveness. The experiment was conducted using a completely randomized design (CRD) with three replicates per treatment. The sterilized substrates were inoculated with 2 g of worms, and fed 0.2–0.3 g of dog feed every day and kept at 25–28°C for 45 days. Cultures were maintained without harvesting for the first 14 days to allow population establishment, after which harvesting was performed every other day and biomass was recorded as wet weight. Results showed that the kitchen sponge produced the highest and most consistent biomass yield throughout the 30-day harvesting period ($p < 0.05$). Morphological observations confirmed that worms cultured in all treatments matched the characteristics of *E. buchholzi*. The kitchen sponge substrate recorded the lowest AIA content (3.21%), which was significantly lower ($p < 0.05$) than coir dust (5.78%) and aqua soil (9.39%), indicating better quality in harvest with less inorganic contamination. In addition, the kitchen sponge was the most cost-effective substrate (38.66 LKR/g). In conclusion, the kitchen sponge is recommended as a superior alternative substrate for Grindal worm culture among these three substrates.

Keywords: Aqua soil, Aquaculture, Coir dust, *Enchytraeus buchholzi*, Grindal worm, Kitchen sponge, Live feed, Substrate optimization,

Effect of Fatliquor Percentage on the Softness of Chrome-Tanned Leather Developed from Mahi-mahi (*Coryphaena hippurus*) Skin

C.N. Walpita¹, P.P.S.K. Patabandi¹, W.D. Lakmini^{1*}, and W. Wimalarathne²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Ceylon Fresh Seafood Pvt. Ltd.

* info.dinesha@gmail.com

ABSTRACT

Fish processing industries generate numerous by-products, including fish skins, which are often disposed into the environment despite their potential use as raw material for value-added products. Fish skin is rich in collagen and possesses a well-organized fiber structure, making it highly suitable for leather production. The present study was conducted to evaluate the suitability of Mahi-mahi (*Coryphaena hippurus*) skin as a raw material for leather production and to determine the optimal fat-liquor percentage required to obtain desirable leather properties. Fresh Mahi-mahi skins were processed into leather using the chrome tanning method. The experiment followed a completely randomized design with three fat-liquor treatments: 4%, 7%, and 10%, each with three replicates (n=3). The physical properties of the produced leather, including thickness, tensile strength, and elongation at break, were determined using standard testing procedures. Sensory evaluation was conducted using a five-point hedonic scale with 30 untrained panelists to assess colour, odour, texture, flexibility, softness, and overall acceptability. Statistical analysis was performed using one-way ANOVA with Post hoc Duncan and Tukey tests at a significance level of $p < 0.05$. The results showed that the thickness of the leather ranged from 0.503 ± 0.073 mm to 0.543 ± 0.080 mm. Tensile strength ranged from 45.30 ± 12.641 N/mm² to 68.867 ± 5.844 N/mm², while elongation at break ranged from $42.780 \pm 7.881\%$ to $49.663 \pm 2.369\%$. Sensory evaluation revealed significant differences ($p < 0.05$) in odour, flexibility, softness, and overall acceptability. Leather produced with 4% fat-liquor exhibited the highest sensory scores, particularly for softness and flexibility. Mahi-mahi skin can be effectively used as a raw material for leather production, with 4% fat-liquor concentration producing the most desirable sensory characteristics in chrome-tanned fish leather, while also helping to reduce processing waste and create value-added products that are beneficial for both fish processing and leather industries.

Keywords: Chrome tanning, Fat-liquor, Fish leather, Leather properties, Mahi-mahi skin

Effect of Three Different Scalding Temperatures on Meat Quality and Sensory Attributes of Broiler Chickens

H.A.K.T. Wijesinghe^{1*}, M.A.J.P. Munasinghe¹, and U. Dissanayaka²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²LG Farm (pvt) Ltd.

* kavindi9784@gmail.com

ABSTRACT

Scalding temperature has an impact on the physicochemical and sensory characteristics of broiler meat. The main objective of this study was to determine the impact of three different scalding temperatures on meat quality and sensory attributes of broiler chickens. One hundred and eighty (180) broiler chickens (Ross 308), were selected for the experiment and divided randomly into three treatments with three replicates each. Each treatment consists of 20 broilers. Slaughtered Carcasses were treated with three different temperatures: 54 °C, 58 °C, and 62 °C, with a similar time (100 s) duration. After scalding, the carcasses were eviscerated and then chilled in a water tank for 45 minutes. Breast meat samples were removed and stored at 4 °C for 24 hours before analysis. The pH, water absorption, drip loss, cooking loss, and texture properties (hardness, cohesiveness, springiness, adhesiveness, and resilience) were analyzed as physicochemical characteristics, and a 5-point hedonic scale was used for the sensory evaluation of breast muscles. Data were analyzed using one-way ANOVA with Tukey's post-hoc test ($p < 0.05$). The result showed that the physicochemical characteristics of broiler meat, such as pH, cooking loss, and water absorption, were not significantly affected by scalding temperature ($p > 0.05$). However, treatments significantly influenced on drip loss ($p < 0.05$), suggesting that the water-holding capacity varies depending on the scalding temperatures. Texture properties were not significantly affected ($p > 0.05$) by the scalding temperature, according to texture profile analysis, indicating consistency in textural properties across treatments. Similarly, there were no significant changes ($p > 0.05$) between treatments in terms of color, texture, tenderness, juiciness, flavor, and overall acceptability, according to the results of the sensory evaluation. The present study concluded that the scalding temperatures applied within the given range have no impact on the major physicochemical and sensory properties of broiler meat tested.

Keywords: *Cooking loss, Drip loss, Meat quality, Scalding temperature, Sensory evaluation,*

Effect of Different Concentrations of Hydrogen Peroxide as an Eggshell Disinfectant on Hatchery and Chick Performance

H.G.N. Hansika¹, and M.A.J.P. Munasinghe¹

¹*Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Jaya Farm Hatchery*

* hgnhansika@std.agri.sab.ac.lk

ABSTRACT

Hatcher Hatchery performance and chick quality are significantly influenced by eggshell cleanliness. Therefore, to achieve better hatchery performance, effective eggshell sanitation is essential. The aim of this research was to study the effect of different hydrogen peroxide eggshell disinfection treatments on hatchery and chick performance at Jaya Farm Hatchery in Sri Lanka. In this study, a total of 1800 floor eggs in the same flock weighing 50-60 g were used. The eggs were assigned in a completely randomized design to the following four treatments: T1-control with normal formaldehyde fumigation, T2-hydrogen peroxide (H₂O₂) 1%, T3-hydrogen peroxide 3%, and T4-hydrogen peroxide 5%. Each treatment consisted of three replicates with 150 eggs per replicate. Eggs were incubated under identical incubation conditions, and the data were collected on egg moisture loss, fertility, hatchability, embryonic mortality, chick weight, chick yield, and chick quality score. Data was analyzed using a one-way analysis of variance followed by mean comparison tests at $p < 0.05$. The results revealed that, eggshell disinfection significantly improved most hatchery parameters compared to the formaldehyde control. Specifically, embryonic mortality, hatchability, hatch of fertile eggs, and chick quality scores were significantly improved in hydrogen peroxide treatments. Among the treatments, 3% hydrogen peroxide was the best treatment concentration during the floor egg disinfection ($p < 0.05$). Therefore, an application of 3% hydrogen peroxide can be recommended as a highly effective alternative for eggshell disinfection in poultry hatcheries to maximize performance.

Keywords: *Chick quality, Eggshell disinfection, Embryonic mortality, Hatchability, Hydrogen peroxide, Poultry hatchery*

Effect of Eggshell Surface Quality and Breeder Age on Hatchery Performance in Cobb 500 Broilers

S.P.H. Pubudu^{1*}, M.A.J.P. Munasinghe¹ and L. Sandaruwan²

¹*Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka,*

²*New Anthoney's Farms (Pvt) Ltd, Hatchery Complex, Dompe, Sri Lanka.*

* *hasalapbudu@gmail.com*

ABSTRACT

Eggshell quality is a critical factor influencing hatchery performance and chick quality in commercial broiler production. Variations in eggshell surface quality such as smooth, rough and pimpled shells, can significantly impact embryonic development and hatchery efficiency. Additionally, breeder age is known to influence eggshell characteristics and incubation outcomes in broiler breeder flocks. The objective of this study was to evaluate the impact of eggshell surface quality, breeder age and their interaction on hatchery performance, external chick quality and the incubation parameters of various age groups in Cobb 500 broiler breeders. The total of 1350 hatching eggs, weighing between 60 g and 69 g, were collected from flocks of three age categories: 30-39, 40-49 and 50-59 weeks. Through visual and tactile examinations, eggs were classified into three surface quality categories: smooth, rough, and pimpled. The experiment utilized a 3x3 factorial design, with each of the nine treatment groups consisting of three replicates of 50 eggs. Data were analyzed using two-way analysis of variance (ANOVA). The findings demonstrated that both breeder age and surface quality significantly influenced ($p < 0.05$) on the chick weight, chick length, Tona score, chick yield, hatchability, and hatch of fertile eggs. However, embryonic mortality and moisture loss were not significantly affected ($p > 0.05$). Regarding shell texture, eggs with smooth surfaces exhibited superior hatchery performance and chick quality compared to rough and pimpled shells. Eggs from younger breeder flocks, particularly 30–39 weeks, showed the best overall performance, with higher hatchability, hatch of fertile, chick length and chick yield. Therefore, selecting smooth shelled eggs for incubation is highly recommended to optimize hatchability and overall performance in commercial hatcheries. Future studies should investigate the underlying physiological and nutritional factors affecting eggshell surface quality to develop targeted management strategies for broiler breeder flocks.

Keywords: *Breeder age, Chick yield, Cobb 500, Eggshell surface quality, Hatchability, Hatchery performance*



Assessment of Pre Slaughter Factors Contributing to Dead On Arrival (DOA) Mortality in Broiler Chicken in A Large Scale Commercial Processing Plant in Sri Lanka

W.M.D. Dilshani^{1*}, T.S.P. Jayaweera¹ and S. Thiranagama²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²New Anthoney's Farms (Pvt) Ltd Sri Lanka,

*wmdilshani@std.agri.sab.ac.lk

ABSTRACT

Dead on Arrival (DOA) mortality in broiler chickens (*Gallus gallus domesticus*) is a significant welfare and economic concern in the poultry processing industry worldwide. This study was conducted to assess the key pre-slaughter factors contributing to DOA mortality in broiler chickens delivered to a large-scale commercial processing plant in Sri Lanka. A total of 280 truckloads of Cobb 500 broilers were evaluated using a cross-sectional survey design. Data were collected during routine processing using a structured recording sheet, covering farm-related factors (bird age, flock size, housing type), transport-related factors (transport distance, stocking density in crates, journey interruptions), and environmental conditions (ambient temperature and arrival time), along with lairage time. The DOA percentage was calculated as the proportion of dead birds upon arrival relative to the total number transported per truck. Data were analyzed using SPSS version 21, applying descriptive statistics, Pearson's correlation, one-way ANOVA, and multiple regression analysis. The results revealed that transport distance, journey interruptions, and lairage time had a significant effect on DOA mortality ($p < 0.05$). In contrast, bird age, flock size, housing type, ambient temperature, and arrival time were not identified as significant predictors ($p > 0.05$). Among the evaluated factors, lairage time was identified as the most critical, with DOA mortality increasing as waiting time before slaughter increased. Transport distance and interruptions during transport were also important contributors. Additionally, evidence of external injuries in some DOA birds suggests that improper handling during catching, loading, and unloading may further contribute to mortality. Overall, the findings highlight the importance of improving transport management practices, particularly minimizing journey interruptions and reducing lairage time to enhance broiler welfare and reduce DOA mortality in commercial processing systems.

Keywords: Broiler chickens, Dead-on-arrival (DOA), Lairage time, Poultry welfare, Pre-slaughter factors, Transport stress

Assessment of Litter Depth and Stocking Density on Footpad Dermatitis and Hock Burns in Commercial Broiler Houses

B.T.M. Sanjeevani^{1*}, D.N. Madushanka¹ and M.P. Senanayake²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²JP Poultry Products (Pvt) Ltd., Badalgama, Sri Lanka

*btmsanjeewani@std.agri.sab.ac.lk

ABSTRACT

Footpad dermatitis (FPD) and hock burns (HB) are significant welfare concerns in intensively reared broilers, with litter depth and stocking density recognised as key contributing factors. This study evaluated the effects of litter depth and stocking density on growth performance, litter caking, footpad dermatitis, and hock burns in broilers reared under commercial closed-house conditions. A total of 150 Indian River broiler chicks were assigned to five treatments in a completely randomised design with two replicates. The control treatment followed standard farm practice (6 cm rice hull litter, 10 birds m⁻²), while the remaining four treatments consisted of factorial combinations of two litter depths (5 and 8 cm) and two stocking densities (8 and 12 birds m⁻²). Body weight, weight gain, feed intake, feed conversion ratio (FCR), litter caking (0–3 scale), and FPD and HB lesion scores (0–3 scale) were recorded weekly over five weeks. Data were analysed using factorial ANOVA, Kruskal–Wallis tests, regression analysis, and Spearman correlations at $p < 0.05$. At week 5, FPD prevalence was 77.9%, and HB prevalence was 59.0%. Broilers reared on deeper litter and at lower stocking density showed better body weight, weight gain, and feed intake, while FCR was significantly improved by litter depth. The interaction between litter depth and stocking density was not significant for any growth variable ($p > 0.05$). Litter caking was significantly affected by both litter depth and stocking density and showed a strong positive correlation with FPD severity ($\rho = 0.852$, $p = 0.007$). Regression analysis indicated that litter depth and stocking density significantly predicted FPD ($R^2 = 0.973$, $p < 0.001$), whereas HB was not significantly predicted ($p > 0.05$). FPD severity was significantly influenced by both litter depth and stocking density, while HB severity did not differ significantly among treatments. Overall, deeper litter and lower stocking density reduced contact dermatitis and improved growth performance, indicating that these management practices can serve as practical welfare interventions in commercial broiler production.

Keywords: Broiler chickens, Footpad dermatitis, Hock burns, Litter caking, Litter depth, Stocking density

Impact of Zeolite, Biochar, and Alum as Litter Amendments for Darkling Beetle (*Alphitobius diaperinus*) Population Reduction and Ammonia Mitigation in Broiler Production

G.R.H.P. Gamlath¹, H.D.A. Wimalarathne^{1*} and E.A.R. Piyathilaka²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka. ²CIC Poultry Farms Ltd., Amunuwela Estate, Ilukhena, Kuliyaipitiya.

* dilhananuradha@gmail.com

ABSTRACT

Darkling beetle (*Alphitobius diaperinus*) infestations and elevated ammonia (NH₃) concentrations pose significant threats to bird performance and welfare in intensive broiler production systems. This study evaluated the efficacy of zeolite, biochar, and alum as litter amendments for suppressing darkling beetle populations, mitigating NH₃ emissions, and assessing their impact on litter moisture and bird health indicators, including footpad dermatitis and hock burn. Two trials were conducted in environmentally controlled houses using 1 m² partitioned plots at a stocking density of approximately 10.7birds/m², with three replicates per treatment. Trial one used 20-day-old litter to assess efficacy against established beetle populations, while Trial two used fresh litter with day-old chicks to monitor population buildup. Beetle and larval abundance were quantified using corrugated cardboard traps, NH₃ concentrations via a portable meter, and litter moisture and bird health parameters using validated visual scoring scales, with data collected weekly. Larval populations increased over time ($p < 0.0001$) with no significant amendment effect, though biochar and zeolite reduced counts by 25% and alum by 18% relative to the control by Day 28. Adult beetle populations increased over time ($p < 0.0001$) but were suppressed by zeolite and biochar relative to the control ($p < 0.05$). All amendments reduced NH₃ emissions relative to the control ($p < 0.001$), with alum providing the most consistent suppression. Zeolite suppressed litter moisture over time ($p < 0.05$), while footpad dermatitis and hock burn scores remained within acceptable ranges across all treatments. These findings indicate that while alum remains superior for reducing ammonia, zeolite and biochar offer effective alternatives for darkling beetle management. The differential efficacy profiles of these amendments suggest that integrated application strategies may offer a practical and sustainable approach to address the entomological and air quality challenges in commercial broiler production.

Keywords: Alum, Ammonia mitigation, Biochar, Darkling beetle, Zeolite

Effect of Egg Weight Categories on Egg physical Traits, Moisture Loss, Hatching Success, Chick Yield, and Chick Quality in Broiler Production

J.T.S. Gamage¹, H.D.A. Wimalarathne^{1*} and Y.V.A.H.M. Jayarathna²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka. ²CIC CIC hatchery, Walipannaghamulla, Pannala, Sri Lanka.

* dilhananuradha@gmail.com

ABSTRACT

Egg weight plays a significant role in determining hatchery performance and the chick quality. The objectives of the present study were to investigate the effect of different egg weight categories on moisture loss, hatching success, chick yield, chick quality and egg physical traits. A total of 1,548 eggs from 35 weeks old ROSS 308 breeder flock were categorized into three weight categories: Standard (50-55g), Premium (56-67g), and Premium*(68-74g). Initial egg weights were measured and categorized into 3 groups. Shell thickness, shape index, albumen index, and yolk index and albumen consistency were recorded using 90 eggs (Destructive analysis). Moisture loss was calculated using the transfer egg weight, hatchability and chick yield from chick weight and hatched chicks. Chick quality was assessed using the Tona scoring method. The results showed that Egg categories significantly affected moisture loss ($p < 0.001$), with Standard eggs showing higher moisture loss than Premium* and Premium eggs ($p < 0.001$). Egg categories significantly affected chick weight ($p < 0.001$), where premium*eggs produced the heaviest chicks compared to premium and standard eggs ($p < 0.001$). Chick yield ($p = 0.518$), hatchability ($p = 0.167$), and chick quality ($p = 0.125$) were not significantly influenced by egg categories and a marginally non-significant effect on egg fertility ($p = 0.060$). Egg category significantly influenced yolk index ($p=0.002$) and shell thickness ($p < 0.001$), while no significant on shape index ($p = 0.896$), and albumen index ($p = 0.70$). Egg weight categories significantly influenced moisture loss ($p < 0.001$), chick weight ($p < 0.001$), yolk index ($p = 0.002$), and shell thickness ($p < 0.0001$), with Premium* eggs producing the heaviest chicks. However, hatchability ($p = 0.167$), chick yield ($p = 0.518$), and chick quality ($p = 0.125$) remained unaffected across categories. In conclusion, strategic selection and management of egg weight categories can optimize hatchery production efficiency in commercial broiler systems without adversely affecting core hatchery performance outcomes.

Keywords: Chick quality, Chick yield, Egg weight categories, Egg physical traits, Hatchability, Moisture loss,

Effects of different Intermittent Lighting Programs on growth performance and feed conversion efficiency, in broiler chickens reared in a Closed-House System

M.A.T.S. Munasinghe¹, H.D.A. Wimalaratne^{1*} and S.H.M.P. Senanayake²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka. ²JP Poultry Products (Pvt) Ltd, Walowitawatta, Badalgama, Sri Lanka.

* dilhananuradha@gmail.com

ABSTRACT

Lighting programs have emerged as effective tools for optimizing productivity in the poultry industry while simultaneously enhancing bird welfare. The present study aimed to evaluate the effect of different intermittent lighting programs on growth performance, feed conversion efficiency and mortality rate in broiler chickens reared in a closed-house system. The parameters assessed included body weight (BW), body weight gain (BWG), feed intake, feed conversion ratio (FCR) and mortality. The experiment was conducted using a Completely Randomized Design (CRD) with three lighting treatments. The control group was maintained under a single one-hour dark period per day. Treatment 1 consisted of two dark periods of 1.5 hours each (totaling three hours of darkness per day). Treatment 2 applied a single continuous three-hour dark period per day. Broilers were reared from day 4 to day 30 of age, with 100 birds per treatment. The results revealed that body weight at day 30 differed significantly among treatments ($p = 0.014$), with Treatment 1 recording the highest mean body weight ($1.588.00 \pm 31.11$ g), followed by Treatment 2 ($1.446.00 \pm 22.63$ g) and the Control ($1.445.50 \pm 14.85$ g). FCR also differed significantly among treatment groups ($p = 0.009$), with Treatment 1 showing the lowest FCR value (1.41). No significant difference was observed in motility among treatment groups. In conclusion, two dark periods of one and a half hours each, totaling three hours of darkness per day, can significantly improve broiler body weight and feed efficiency at day 30, offering a practical and economically beneficial strategy for broiler production.

Keywords: Broiler chickens, Closed-house system, Intermittent lighting programs, Light management



Track IV

Food Processing and Food Safety

Value Addition of Traditional Instant Rice Flour String Hoppers by Incorporating Mung Bean (*Vigna radiata*) Flour

J.A.D. Shehara^{1*}, D.M. Anil Gunerathne¹, M.C.N. Jayasooriya², and U.P. Weerasinghe³

¹Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Department of Food Science and Technology, Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka,

³Harischandra Mills PLC, Matara.

*dinithishehara1999@gmail.com

ABSTRACT

In Sri Lanka, traditional instant rice flour string hoppers are widely consumed due to their convenience and cultural significance. However, their nutritional value is limited, particularly in terms of protein and dietary fiber content. This study aimed to enhance the nutritional quality of instant string hoppers by incorporating mung bean (*Vigna radiata*) flour as a value-added ingredient. Mung bean is a well-recognized legume with high nutritional and functional properties, containing approximately 20-25% high-quality plant protein. Composite flours were formulated by blending rice flour and mung bean flour at different ratios: 100:0 (control), 80:20, 60:40, 40:60, and 20:80. Instant string hoppers were prepared using a standardized and well-established method. Sensory evaluation was conducted using a five-point hedonic scale, initially to screen the formulations and subsequently with a trained panel of 30 members to assess sensory attributes in detail. All formulations were evaluated to determine the most acceptable product. Sensory evaluation results indicated that the formulation containing 60% rice flour and 40% mung bean flour exhibited the highest overall acceptability. The best formulation (60:40) and the control sample were further analyzed for physicochemical properties, microbial quality, shelf life, and cost of production. Proximate analysis of this optimized formulation revealed improved nutritional composition, including protein ($10.6 \pm 0.20\%$), carbohydrates ($76.32 \pm 0.20\%$), crude fiber ($1.95 \pm 0.40\%$), crude fat ($2.9 \pm 0.10\%$), moisture ($3.35 \pm 0.10\%$), and ash content ($1.46 \pm 0.30\%$), all of which were higher than those of the control (100% rice flour). Physicochemical properties such as water absorption capacity (0.62 ± 0.02), pH (6.46 ± 0.01), and color parameters ($L^* = 72.10 \pm 2.58$, $a^* = 0.50 \pm 0.13$, $b^* = 12.58 \pm 0.58$) were within acceptable ranges. Microbial analysis confirmed that the selected formulation remained safe for consumption for up to three months under appropriate storage conditions. Furthermore, cost analysis demonstrated that the nutritionally enhanced product is commercially viable. Overall, the study concludes that incorporating mung bean flour at an optimal level of 40% is an effective approach to improve the nutritional value of instant string hoppers without adversely affecting their sensory properties.

Keywords: Composite flour, Instant string Hoppers, Mung bean flour, Nutritional value, Value addition

Development of a Nutmeg Pericarp-Infused BBQ Sauce: A Sustainable Approach to Waste Utilization

W.M.H.N. Jayasooriya^{1*} and S.T.C Amarasinghe¹,

¹*Department of Agribusiness Management, Faculty of Agricultural Sciences,
Sabaragamuwa University, Sri Lanka, Belihuloya, Sri Lanka.*

* wmhjayasooriya@std.agri.sab.ac.lk

ABSTRACT

The high demand for value-added and sustainable food products in the food processing industry has encouraged the use of food processing by-products. Nutmeg pericarp, which is discarded as waste in nutmeg production, has potential as a food ingredient due to its aromatic and functional properties. The pericarp, which accounts for approximately 80–85% of the total fruit weight, is discarded during processing. It has good flavor and health benefits but is underused in products, especially in the development of condiment products like barbecue sauce. The aim of this study was to develop a barbecue sauce infused with nutmeg pericarp and evaluate its physicochemical, sensory and consumer preference characteristics. The nutmeg seeds and mace were separated, the nutmeg skin was removed, the pericarp was washed thoroughly, cut into small pieces, and the pieces were boiled in water for 20 minutes. Barbecue sauce processing was carried out under controlled conditions, including heating at 85 °C for 20 minutes. Four barbecue sauce formulations were prepared, including a control (100% nutmeg basic mixture and 0% garlic powder), T1 (98% nutmeg basic mixture and 2% garlic powder), T2 (95% nutmeg basic mixture and 5% garlic powder), and T3 (90% nutmeg basic mixture and 10% garlic powder). The developed samples were analyzed for physicochemical properties such as pH (3.76 - 4.13), total soluble solids (°Brix) (43-53), salt content (1.70-2.06%), viscosity (9468.11- 9477.43), thickness 5min (15.16- 17.96), ash content (2.64-2.80) and cooking loss (29.33-31.10). A 35-member trained panel and a 5-point hedonic scale were used to evaluate the sensory attributes of texture, odor, color, flavor, thickness, aftertaste, and overall acceptability. As well as, 35-members assess consumer preference. Data were analyzed using mean comparisons were performed. The results showed that the inclusion of nutmeg pericarp mixture and garlic at different levels significantly affected the physicochemical properties of barbecue sauce, and measurable differences were observed among treatments. Sensory evaluation revealed that treatment sample T2 showed the highest mean scores for taste (3.8), thickness (4.48), aftertaste (4.31), and overall acceptability (4.54), as well as greater consumer preference. The findings indicate that nutmeg pericarp can be successfully incorporated into barbecue sauce. Shelf-life evaluation and biological stability assessment were not performed in this study. Further shelf-life studies and biological stability assessment under different storage conditions are recommended. In conclusion, barbecue sauce incorporated with nutmeg pericarp provides a sustainable approach to the management of nutmeg waste as a food processing by-product.

Keywords: *BBQ sauce, Food processing, Nutmeg pericarp, Physicochemical properties, Sensory evaluation, Sustainable*



Dietary Patterns and Lifestyle Behaviors among Academic Staff at Sabaragamuwa University of Sri Lanka

M.M.I. Mandawala¹, S.T. Sankalpa¹, D.S.L. Wimalawardana¹, A.M.S.D. Adikari^{1*}, O.H. Sandamali¹
and T.S.P. Jayaweera¹

¹*Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

*amsdadikari@std.agri.sab.ac.lk

ABSTRACT

Unhealthy dietary practices among academic staff in Sri Lankan universities remain understudied, despite growing concerns about lifestyle-related health risks. This study investigated dietary patterns and lifestyle behaviors of academic staff at Sabaragamuwa University of Sri Lanka, with the objective of identifying key dietary trends and factors influencing food choices. A convenience sampling method was used to administer a pre-tested, structured questionnaire among 32 academic staff members representing 7 faculties. Data were analyzed using descriptive statistics, and BMI was calculated from measured anthropometric data. Among those surveyed, 46.7% were male and 53.3% were female, with ages ranging from 25 to 62 years. Key findings revealed that 39.4% skipped meals, predominantly breakfast (51.9%), due to workload pressures, with 87.9% reporting that workload adversely affected their eating habits. Fruit intake was low, with only 27.3% consuming fruits daily, and 45.5% consumed fast food 2–3 times per week. Notably, 84.8% slept fewer than 6 hours daily, and 30.3% reported no weekly physical activity, indicating significant lifestyle health risks. The mean BMI was 23.7 kg m⁻², with 60.6% in the normal range, 27.3% overweight, 6.1% obese, and 6.1% underweight. Health conditions identified included vitamin D deficiency (6.1%), high blood pressure (3.0%), and elevated cholesterol (3.0%). Dietary supplement use (mainly vitamins) was reported by 27.3%, and only 18.2% felt the university provided adequate healthy eating resources. These findings highlight the urgent need for workplace nutrition programs, canteen improvements, and institutional health promotion initiatives to support healthier dietary behaviors among academic staff.

Keywords: *Academic staff, Dietary patterns, Food consumption, Sabaragamuwa University*

Water Intake and Beverage Consumption Patterns among Undergraduates in the Faculty of Agricultural Sciences of SUSL

N.H.G. Pramoda¹, E.G.P. Sandamal¹, J.M.J.B. Jayasooriya¹, B.L.S.L. Buthpitiya¹, K.R.C.P. Jayathilaka¹, M.S.S. Safna* and T.S.P Jayaweera¹

¹*Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

* msssafna@std.agri.sab.ac.lk

ABSTRACT

Studies have reported that inadequate water intake negatively impacts cognitive performance and physical well-being among university students. In the Pambahinna area, concerns over water quality due to poor filtration infrastructure have been documented, leading undergraduates to avoid drinking water and rely on alternative beverages. This study aimed to assess water intake patterns and beverage consumption habits among both female and male undergraduates in all four years in the Faculty of Agricultural Sciences at Sabaragamuwa University of Sri Lanka (SUSL). Specific objectives included evaluating daily water intake against recommended levels; identifying frequency of consumption of selected beverages (tea, coffee, soft drinks, energy drinks, and fruit juice); examining the influence of academic workload, lifestyle, and physical activity on beverage choices; and determining awareness and knowledge regarding adequate hydration. Data were collected using a structured survey questionnaire, reviewed by an academic supervisor to ensure clarity, relevance, and appropriateness of the questions. It was administered to 175 students (21.1% of the population), selected through stratified random sampling. The collected data were analyzed using descriptive statistical methods such as charts and graphical representations. The Results indicated that 55.4% of undergraduates consumed only 1–2 litres of water daily, significantly below the recommended intake (2-3 litres), with "thirst" being the primary motivator (22.4%), followed by habit (16.7%). The general recommendation of 2-3 liters of water per day is supported by guidelines from organizations such as the World Health Organization and the National Academies of Sciences. Only 33.3% believed they consumed sufficient water, while 83.3% acknowledged the health and academic benefits of proper hydration. Forgetfulness (19.5%) and busy schedules (21.3%) were the most frequently cited barriers. Additionally, 90.8% consumed other beverages regularly. Awareness of recommended water intake was high (82.8%), yet actual monitoring remained low. The study highlights a significant gap between hydration awareness and behavior, underscoring the need for improved access to clean drinking water and targeted interventions to promote personal hydration habits among undergraduates.

Keywords: *Beverage consumption, Hydration awareness, Sabaragamuwa University of Sri Lanka, Undergraduate students, Water intake*

A Study on Food Consumption Patterns and Nutritional Challenges among Pregnant Women in Pambahinna, Sri Lanka

N.G.T. Supunsara^{1*}, R.B.I. Madhuhansi¹, P.S.S. Pathirana¹, R.D.H.K.T. Kumara¹,
U.R.S.S. Rajapaksha¹ and T.S.P. Jayaweera¹

¹*Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

* ngtupunsara@std.agri.sab.ac.lk

ABSTRACT

Pregnant women in Sri Lanka face significant challenges related to dietary habits and maternal nutritional deficiencies, which influence fetal health and maternal health. However, limited information is available on food consumption patterns in rural areas such as Pambahinna. Therefore, this study aimed to assess the dietary patterns and nutritional challenges among pregnant women in the Pambahinna area of the Imbulpe MOH division. This study was conducted among 32 pregnant women selected using convenience sampling between April and June 2025. Data were collected using a pre-tested structured questionnaire, and dietary intake was assessed using a food frequency questionnaire. The collected data were analyzed using Microsoft Excel, and descriptive statistics were used to summarize the results. The majority of participants were in their third trimester and belonged to low-income households. The results indicated that 81.3% of the pregnant women took the usual three main meals per day, while 90.6% reported consuming snacks between meals. The legumes were the most preferred protein source. The daily consumption of animal-based protein sources such as eggs and dairy products was comparatively lower. Fish was consumed 2 to 3 times per week by 65.6% of pregnant women; none of them consumed meat daily. All participants consumed rice daily. 56.3% of pregnant women received adequate protein and energy from their diets, but 15.6% of them were not satisfied with both. High costs of nutritious food, lack of availability of different food varieties, limited access to nutrition information, poor awareness, inadequate education, and poor socioeconomic status were identified as major obstacles affecting proper food consumption. Improving nutrition education and enhancing access to affordable, diverse food options are essential to support better maternal health outcomes. However, the small sample size and descriptive nature of the study limit the generalizability of the findings.

Keywords: *Food consumption, Maternal nutrition, Pambahinna, Pregnant women,*

A study on the Effect of Fruit-Vegetable-based marinade Concentration Ratio and Marination Time on Quality Characteristics of Broiler Chicken Breast Meat

W.A.A.S. Umeshika¹, M.A.J.P. Munasinghe¹ and R. Mahindasiri²

¹Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, ²Crysbro group of companies, Farm's Pride (Pvt) Ltd, Gampola, Sri Lanka.

*sachiumeshika98@gmail.com

ABSTRACT

Marination is a preservation technique used to improve the quality characteristics of meat. This study investigated the effect of marinade concentration ratio (Unmarinated control, 50:50, 75:25) and marination duration (12 h and 24 h) on the quality characteristics of broiler chicken breast meat marinated with Raw papaya - Lime (PL) and Tomato - Beetroot (TB) marinades. Each marinade was evaluated separately under a 3×2 factorial completely randomized design. Weight standardized broiler chicken breast meat samples (65 ± 5 g), (n=36) were marinated with the immersion technique, randomly allocated for treatments, and stored at 4°C. Physicochemical properties and sensory attributes of the samples were evaluated. For all physicochemical parameters, the concentration ratio was the key significant factor. Marinade uptake was significantly influenced by the concentration ratio in both marinades ($p < 0.05$). PL indicated positive marinade loss while TB resulted in negative marinade loss. PL marinade significantly reduced pH ($p < 0.05$) and TB marinade also reduced pH ($p < 0.05$) but with high concentration and time. PL enhanced raw meat surface color lightness (L^*) and decreased redness (a^*). TB resulted in the highest redness (a^*) values. TB pigments were remained thermally stable after cooking. For sensory evaluation, the highest significant scores ($p < 0.05$) for color, aroma, flavor, tenderness, juiciness, and overall acceptability were resulted by TB 75:25. These findings indicate that concentration ratio affects the quality of marinated broiler chicken breast meat in both marinades but most of the physicochemical and sensory parameters are not affected by the marination time. This suggests that 12 h marination is sufficient.

Keywords: *Chicken breast meat, Marinating time, Marinating concentration, Natural marinades, Papaya-lime marinade, Tomato-beetroot marinade*



Track V

Agri- environment and Cropping System Modeling

Sustainable Future: Assessing Climate-Resilient Practices in Sri Lanka's Tea Plantations

W.V.T. Sewwandi^{1*}, and S.T.C Amarasinghe¹

¹*Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

**wvtsewwandi@std.agri.sab.ac.lk*

ABSTRACT

Sri Lanka's tea industry plays a vital role in the national economy and rural livelihoods. However, increasing climate variability poses serious threats to its long-term sustainability. There is limited empirical evidence on the adoption and impact of climate-resilient practices on sustainability in Sri Lanka's tea plantations. This study investigates the impact of agroforestry, organic fertilization, and water harvesting practices on the sustainability of tea plantations in Sri Lanka. A quantitative research approach was employed, using a descriptive and explanatory research design under a positivist research philosophy. Primary data were collected through a structured questionnaire administered to approximately 300 respondents, including smallholder farmers and estate sector workers, selected using stratified random sampling from major tea-growing districts such as Nuwara Eliya, Badulla, Kandy, Matara, and Ratnapura. Sustainability was measured using environmental, economic, and social indicators, including soil fertility, yield stability, education levels, and resource efficiency. Data were analyzed using descriptive statistics, correlation analysis, and multiple regression analysis with the support of SPSS. The results reveal that agroforestry has a strong positive and statistically significant impact on tea plantation sustainability ($\beta = 0.579$, $p = 0.000$), highlighting its effectiveness in enhancing soil fertility, biodiversity, and microclimatic regulation. Water harvesting practices also show a positive and significant effect on sustainability ($\beta = 0.222$, $p = 0.000$), demonstrating the importance of efficient water management in mitigating climate-induced risks. Organic fertilization exhibits a statistically significant but negative coefficient ($p = 0.000$), suggesting short-term implementation challenges or interaction effects rather than long-term unsuitability. The regression model explains 50.3% ($R^2 = 0.503$) of the variation in sustainability outcomes, indicating a substantial combined effect of climate-resilient practices. The study concludes that integrating multiple climate-resilient strategies, particularly agroforestry and water harvesting, is essential for enhancing the environmental and economic sustainability of Sri Lanka's tea plantations.

Keywords: *Agroforestry, Organic fertilization, Water harvesting, Climate-resilient agriculture, Tea plantation sustainability*

Soil Microbial Abundance as Influenced by Enriched Organic Fertilizer in Organic Tea Soils of Haputale

S. Jayasekara^{1*}, L.W.S. Alwis¹, N.M.H.I. Nayakarathne¹ and P.I. Yapa¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

* sjayasekara@std.agri.sab.ac.lk

ABSTRACT

Soil microbial abundance plays a critical role in soil health and nutrient cycling in organically managed tea (*Camellia sinensis*) systems. However, limited information is available on how enriched organic fertilizers influence microbial populations in Sri Lankan tea soils. This study evaluated the effect of selected organic fertilizer treatments on soil microbial abundance, with emphasis on bacterial and fungal populations. The experiment was conducted at an organic tea estate in Haputale, Sri Lanka. Four treatments were tested: commercial organic fertilizer (T0 250g block⁻¹), enriched compost with fish tonic (T1 enriched compost 1kg block⁻¹ and fish tonic 1L block⁻¹), enriched compost alone (T2 1 kg block⁻¹), and no fertilizer (T3). The enriched compost consisted of plant-based organic matter fortified with organic additives. Soil samples were collected from the rhizosphere (0–15 cm) 30 days after application. Bacterial and fungal populations were quantified using standard culture-based methods, and data were statistically analyzed after log transformation. Fertilizer treatments significantly affected fungal populations ($p < 0.001$), while bacterial populations showed no significant differences ($p > 0.05$). The highest fungal population was observed in the unfertilized treatment (T3), followed by enriched compost (T2), whereas the lowest was recorded in the commercial fertilizer treatment (T0). Bacterial populations remained relatively stable across all treatments. The treatment combining enriched compost with fish tonic (T1) resulted in the highest late-season tea yield. These findings indicate that organic fertilizer type influences fungal populations more than bacterial populations in tea soils. Importantly, the results highlight that enriched compost-based treatments can support crop productivity without significantly increasing fungal abundance beyond natural levels. This study provides useful insights for selecting appropriate organic fertilizer strategies to balance soil microbial dynamics and sustain productivity in organic tea cultivation systems.

Keywords: *Camellia sinensis, Enriched compost, Organic fertilizer, Soil Microbial abundance*

A Climate-Sensitive Model for Assessing Population Dynamics of Tea Tortrix (*Homona coffearia*) in Talawakelle area in Sri Lanka

K.R.P.N. Wijerathna^{1*}, A.M.P. Sammani^{2,3}, P.A.D.S. Sumathipala², J.D.B.A.P. Kumara¹, P.D. Senanayake², N. Mahadevan⁴, and J.P.S. Jayaneththi⁵

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka. ²Entomology and Nematology Division, Tea Research Institute of Sri Lanka, Talawakelle, Sri Lanka. ³Coconut Cultivation Board, Lunuwila, Sri Lanka. ⁴Plant Pathology Division, Tea Research Institute of Sri Lanka, Talawakelle, Sri Lanka. ⁵Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.

*rukshanwijerathna1999@gmail.com

ABSTRACT

Tea tortrix (*Homona coffearia*) is a seasonal pest in Sri Lankan tea plantations, causing significant damage to young leaves and reducing crop yield. Effective management of this pest depends on early detection of the pest population before they reach economically damaging levels. The study was conducted to develop a climate-sensitive prediction model to assess the population dynamics of Tea Tortrix in the Talawakelle area. Field data on larval populations were collected over three years from January 2023 to December 2025. In addition, meteorological data, including temperature, rainfall, relative humidity, and sunshine hours were obtained from the Tea Research Institute, Talawakelle. A parallel laboratory study determined that the pest's life cycle was approximately 47 days. Data pre-processing involved organizing the dataset chronologically and applying time series analysis by checking stationarity in weekly resampling. Linear interpolation was used to handle missing environmental data while maintaining biological accuracy for population counts. A Random Forest regression model was developed to predict larval population changes based on climatic variables. The dataset was divided into training (80 %) and testing (20 %) sets using a chronological split. Model performance was evaluated using Mean Absolute Error (MAE), Root Mean Square Error (RMSE), and the coefficient of determination (R^2). The inclusion of weather variables and lagged environmental factors improved model performance. The model demonstrated good predictive accuracy, with an R^2 value of 0.67, MAE of 1.76, and RMSE of 10.52, indicating strong agreement between predicted and observed values. The results suggest that seasonal climatic variations, along with ecological factors such as mortality and parasitism, influence pest population dynamics. This study highlights the usefulness of climate-based machine learning models in predicting pest outbreaks. The developed model can be used as a decision-support tool for integrated pest management (IPM), helping to reduce crop losses and optimize pesticide use in tea cultivation.

Keywords: Linear interpolation, Model development, Pest outbreak, Random forest regression, Time-series forecasting

Crop Modelling Approaches to Enhance Water Productivity in Rice (*Oryza sativa*): A Systematic Review and Preliminary Meta-Analysis

L.W.S Alwis^{1*}, M.R.F. Rasna¹, S.T. Wickramarathna¹ and A.S. Karunaratne¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka,*

* *sahanalwis.4967@gmail.com*

ABSTRACT

Conventional rice production heavily relies on continuous flooding (CF), consuming substantial amounts of freshwater. As global water scarcity increases, more efficient water management strategies are required for rice production. Crop simulation models evaluate these water-saving strategies; however, structural uncertainties of the models and environmental boundaries of the strategies remain poorly quantified. To address this gap, an N-Weighted global meta-analysis was conducted using 14 eligible studies with 22 simulation datasets. This analysis quantified the effects of alternative water management strategies on water productivity (WP) and rice yield relative to CF across the AquaCrop and CERES-Rice models. Both models proved highly reliable in simulating baseline yields ($R^2 \geq 0.96$). However, the water-driven architecture of AquaCrop and highly parameterized phenological structure of CERES-Rice simulated water stress differently. Under AquaCrop, alternate wetting and drying (AWD) resulted in a small but significant yield reduction of 3.77% while deficit irrigation (DI) resulted in a significant yield penalty of 16.31%. Under CERES-Rice AWD significantly reduced yields by 20.78%, whereas DI showed no statistically significant reduction. Considering the water productivity, DI significantly increased WP in both AquaCrop (24.99%) and CERES-Rice (51.34%), while AWD demonstrated a significant WP gain only under CERES-Rice (30.71%). Moderator analysis under AWD revealed that climate significantly influenced yield responses. Yield penalties were most severe in arid climates under both AquaCrop (16.80%) and CERES (32.49%) models due to high atmospheric demand. Regarding soil texture, AquaCrop showed larger yield penalties in coarse soils compared to medium and fine-textured soils. In contrast, soil texture effects in CERES-Rice were not statistically significant. Overall, these findings warn against generalized recommendation of water saving strategies, indicating that their success is highly dependent on the localized environmental conditions and the inherent architectural structure of the chosen model.

Keywords: *AquaCrop, CERES-Rice, Crop simulation models, Deficit Irrigation, Alternate wetting and drying (AWD)*

Assessment of Potential Nutrient Losses and Heavy-Metal Accumulation in Irrigated Water of the Paddy Ecosystems, under Biofilm Biofertilizer and Chemical Fertilizer Practices

P.G.U. Sammani^{1*}, S.N.B. Ekanayake², M. Premarathna², G. Seneviratne² and P.I. Yapa¹

¹ Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Microbial Biotechnology Unit, National Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka.

*uththarasammani0309@gmail.com

ABSTRACT

Paddy (*Oryza sativa* L.) ecosystems play a major role in nutrients, heavy metals and carbon (C) cycling, and their losses and toxic accumulations. This study evaluates nutrients, heavy metals and C in irrigated water under biofilm biofertilizer-based hybrid pellet fertilizer practice (BFP) and chemical fertilizer practice (CFP) for comparing their effects on the environment. Field trials were conducted in Monaragala and Ampara districts comparing the CFP [Department of Agriculture recommendation (340 kg ha⁻¹)], and BFP [pellet fertilizer (250 kg ha⁻¹ with organic matter, and major and micronutrients) + urea (115 kg ha⁻¹) + muriate of potash (30 kg ha⁻¹) + BFBF granules (25 kg ha⁻¹)] in two consecutive, uniform farmer field plots (0.4 ha each) in randomized block design. Water samples were collected at random positions of the plots at two-time intervals (two and eight weeks after planting) from the inlet (6 samples), within the plot (12 samples to represent the entire plot), and at the outlet (6 samples). Phosphate (PO₄³⁻), total C and total Nitrogen (N) were analyzed using the molybdenum blue method, and CHN elemental analyzer, respectively. K, Zn, and Mo were analyzed using ICP-OE Spectroscopy. Nutrient losses were calculated by concentration differences of outlet and inlet, and descriptive and inferential statistics ($p < 0.05$) were performed (t-test, ANOVA) using RStudio 4.6.9 and Minitab 21. Results indicated that there were significantly lower PO₄³⁻ net losses (18% and 81% at the two-time intervals, respectively) in the BFP compared to CFP. Within the plot, K, Zn, and Mo concentrations were significantly higher in the BFP than in the CFP at two weeks possibly due to microbial release of nutrients with the application of the pellet fertilizer. In conclusion, this higher nutrient availability provides quantitative evidence for the effectiveness and eco-friendliness of the BFP. However, further studies are needed to fully analyze the system.

Keywords: Biofilm-based hybrid fertilizer, Heavy metal accumulation, Nutrient loss

Development of an RGB Colour-Based Colorimetric Field Method for Rapid Estimation of Phosphate in Paddy Ecosystems

P.G.U. Sammani^{1*}, S.N.B. Ekanayake², M. Premarathna², G. Seneviratne² and P.I. Yapa¹

¹ Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Microbial Biotechnology Unit, National Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka.

*uththarasammani0309@gmail.com

ABSTRACT

Real time field-based measurement of nutrient dynamics is essential in accurate optimization of fertilizer in paddy ecosystems. Therefore, this study was conducted to develop a field-based method for estimating nutrient concentration using colourimetry. Phosphate (PO_4^{3-}) acted as the model nutrient in a field experiment. Trial consisted of two fertilizer practices; chemical fertilizer practice [Department of Agriculture recommendation (340 kg ha^{-1})], and Biofilm biofertilizer (BFBF)-based fertilizer practice [pellet fertilizer (250 kg ha^{-1}) + urea (115 kg ha^{-1}) + muriate of potash (30 kg ha^{-1}) + BFBF granules (25 kg ha^{-1}), applied to two consecutive, uniform paddy fields (0.4 ha each) in a randomized block design at Buttala and Nawamedagama. Water samples were collected at inlet, within plot and outlet, 6, 12 and 6 samples, respectively at 2 and 8 weeks after treatment application. Irrigation water was retained in the field for 10 days, while irrigated in two-week intervals. Molybdenum blue colour method was used to analyze PO_4^{3-} , and a parallel image-based procedure was developed. The colour developed samples by the Molybdenum method were measured using UV-vis spectrophotometer. The samples were also captured using a camera, and RGB colour values of the samples were recorded using image colour picker software. Regression analysis performed between RGB values and UV-vis spectral reading showed that green (G) colour was the most reliable indicator, exhibiting a strong negative correlation with PO_4^{3-} concentration ($r = -0.957$, $p < 0.01$). Regression model, PO_4^{3-} (ppm) = $739.8 - 5.560 \times G$, explained 92% of variation in PO_4^{3-} concentration, demonstrating high predictive ability. Results demonstrated that colourimetric technique of using RGB colour is a low-cost and convenient substitute of real-time field estimation of PO_4^{3-} in paddy ecosystems, even using a smartphone. For other nutrients, measured using colourimetry, the same technique can be employed under field conditions.

Keywords: Nutrient dynamics, Real time field-based measurements, RGB analysis

Evaluation of Rootstocks from Selected Crops on the Grafting Success in Salad Cucumber (*Cucumis sativus* L.)

D.M.D. Nipuni^{1*}, K.M.S. Kodikara² and A.D. Ampitiyawatta¹

¹ Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Regional Agriculture Research and Development Center, Bandarawela.

* nipunidineesha9916@gmail.com

ABSTRACT

Salad cucumbers are highly susceptible to soil-borne diseases and abiotic root stresses. Grafting is an effective method to enhance crop yield and quality by increasing the plant's tolerance to root related stresses. Therefore, this research was carried out to explore how different rootstocks affect the grafting success and early development of grafted salad cucumbers. The study was conducted at the Regional Agriculture Research & Development Center, Bandarawela, from February 2026 to March 2026. The experimental design was a Completely Randomized Design (CRD) with six treatments and four replicates, with six plants for each replicate. There were five different rootstocks and the scion was the salad cucumber of “Basimah F1” hybrid variety. The six rootstock treatments tested were T1: Pumpkin, T2: Bottle Gourd, T3: Ridge Gourd, T4: Ash Pumpkin, T5: Kakiri and T6: Cucumber without grafting (control). Grafting was done by the hole insertion method and the plants were kept inside a propagator for 15 days to heal after grafting. Grafting success rate was evaluated 10 days after grafting, prior to removal from the propagator. T1, T2, T3, T4 and T5 received 91.67%, 83.33%, 79.17%, 66.7% and 41.7% grafting success, respectively. The number of true leaves and the plant height were measured after 12 days and 20 days after grafting. At 12 days after grafting, initial differences in vegetative growth were observed among treatments, and by 20 days after grafting, Bottle gourd recorded the highest leaf number (2.00 leaves), while the greatest plant heights were observed in bottle gourd (11.75 cm) and pumpkin (11.38 cm). Statistical analysis revealed that rootstock type significantly affected leaf number ($p = 0.029$) and plant height ($p = 0.001$). Overall, Bottle Gourd and Pumpkin were the best rootstocks, while Ridge Gourd and Ash Pumpkin were moderately successful rootstocks and Kakiri is not suitable for cucumber grafting.

Keywords: *Bottle gourd, Cucumber, Early growth, Grafting, Pumpkin, Rootstock*

Comparative Evaluation of a Point-of-Care, Field-Deployable Soil Probe for Rapid Estimation of Soil Nutrient Status

W.C.S. Wedage^{1*}, E.M. Wimalasiri¹, and J.K. Jayawardena²

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka,* ²*Arthur C Clarke Institute for Modern Technologies (ACCIMT), Katubedda, Moratuwa.*

**chamodhi.sanjula99@gmail.com*

ABSTRACT

Accurate and reliable assessment of soil fertility is essential for sustainable agricultural productivity, particularly in smallholder farming systems where accessible, simple, and low-cost soil testing methods are required. The objective of this study was to evaluate the accuracy and reliability of a field-deployable electronic soil nutrient probe for measuring soil nitrogen (N), phosphorus (P), potassium (K), pH, electrical conductivity (EC), and moisture content, by comparing its measurements with standard laboratory methods under wet zone soil conditions. Thirty composite soil samples were collected from agricultural lands in the Ratnapura District at a depth of 0–15 cm using randomized sampling. A portable multi-parameter ion-selective electrode-based soil sensor was used as the probe, which simultaneously estimated N, P, K, pH, EC, and moisture directly without chemical reagents. Standard laboratory analyses were conducted for comparison. Descriptive statistics, normality testing, paired-sample t-tests, Wilcoxon signed-rank tests, and correlation analyses (Pearson and Spearman) were performed at a 0.05 significance level. In addition, measurement error between probe and laboratory values was evaluated using mean differences and relative deviations to assess the magnitude and variability of discrepancies across samples. Results showed a near-perfect positive correlation between probe and laboratory values for soil pH ($r = 0.999$), with no significant difference, indicating high accuracy and reliability of the probe for pH measurement. Moisture content also showed a strong correlation ($r = 0.989$), although probe values were significantly higher, suggesting systematic overestimation. EC demonstrated an almost perfect association ($\rho = 0.988$), despite a significant difference between methods, indicating consistent but biased measurements. Phosphorus ($\rho = 0.863$) and potassium ($\rho = 0.882$) were strongly correlated, though both were underestimated, indicating moderate agreement between methods. The probe was not reliable for nitrogen detection, as 29 of 30 samples showed zero readings, resulting in extremely high error and no meaningful correlation. Findings indicate that the probe is suitable for rapid pH estimation and can provide useful approximations for P, K, EC, and moisture with calibration, but it is unsuitable for nitrogen assessment. These results highlight the need for alternative nitrogen sensing technologies and improved calibration to enhance field applicability.

Keywords: *Ratnapura district, Soil chemical properties, Soil fertility assessment, Soil nutrient probe*

Spatio-Temporal Trend Analysis of Seasonal and Annual Rainfall, Temperature, Climate Extremes and SARIMA-Based Prediction in Anuradhapura District, Sri Lanka (1995-2024)

C.J. Lokuvithanage^{*1}, A.D. Ampitiyawatta¹ and G.K. Hendawitharana²

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka,* ²*Department of Meteorology, Sri Lanka.*

* *chamodyajanani92@gmail.com*

ABSTRACT

Climate variability has become a major challenge and understanding long-term climatic trends and predicting future climate patterns are vital for sustainable planning. Although climate trends have been widely studied, studies that integrate trend analysis, climate extremes and forecasting are limited. This study aimed to analyze trends and short-term predictions of rainfall, minimum and maximum temperature, within the Anuradhapura District. Daily rainfall data obtained from 12 stations and temperature data from 2 stations (1995-2024) were used to assess temporal variability and long-term changes. Descriptive statistical analysis and graphical trends were used to identify overall behavior in the climatic parameters. The Mann-Kendall test was used to identify statistically significant trends at the 0.05 level, while Sen's slope estimator quantified the magnitude of change. Seasonal Autoregressive Integrated Moving Average (SARIMA) model was applied to forecast future climate behavior. The results show notable inter-annual variability in rainfall with irregular fluctuations, indicating unstable rainfall patterns. Minimum temperature shows a significant increasing trend at both Anuradhapura ($p=0.013$) and Mahailuppallama ($p=0.019$), at 0.014°C and 0.013°C per year respectively, indicating nighttime warming. Maximum temperature shows no significant increasing trend. Extreme rainfall indices show increasing heavy rainfall events (Rx1day, R95p, R99p), indicating more intense rainfall. Extreme temperature indices show decreasing cold nights and diurnal temperature range. SARIMA models were developed to forecast short-term climatic patterns. The stationarity of time series was checked, and suitable model parameters were determined using autocorrelation and partial autocorrelation analyses. The developed SARIMA models were validated using hindcast analysis with past data and the results suggested the selected models accurately captured the climatic patterns. Forecast results show continued variability in rainfall with a slight increase in temperature over 2025-2029. Overall, this study provides essential conclusions about recent climatic trends and their short-term future climatic behavior, which can enhance the understanding of climate dynamics and support appropriate decision-making.

Keywords: *Climate variability, Mann-Kendall test, SARIMA model, Sen's slope estimator, Time series*

Impact of Erratic Rainfall on Bean Cultivation in Uva Province: A Feasibility Study on a Mobile Application for Knowledge Dissemination and Impact Management

D.M.D. Nipuni^{1*} and A.S. Karunaratne¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.*

* *nipunidineesha9916@gmail.com*

ABSTRACT

Beans (*Phaseolus vulgaris*) are a widely cultivated legume in Sri Lanka, valued for their high protein content and agricultural importance. Uva Province, due to its unique climatic conditions, is a prominent bean-growing region in Sri Lanka. Although the climate conditions are favorable, bean cultivation in Uva province is adversely affected by the erratic distribution of rainfall. Both extreme rainfalls causing waterlogging and mild drought conditions occur throughout the year. Therefore, the study was aimed at evaluating the impact of erratic rainfall distribution, adaptation and mitigation methods applied in bean cultivation. A structured questionnaire and interviews were used to collect data from 40 farmers. Farmers were selected using purposive sampling, targeting individuals actively engaged in bean cultivation in Uva Province who had direct experience with rainfall-related challenges. Approximately 67% of the farmers face waterlogging conditions and yield losses occasionally while 20% face frequently and only 13% had never faced waterlogging conditions. As solutions for this, 40% use raised beds and 33% use drainage channels. In contrast, 87% of the farmers experience wilting and stunted growth due to the drought conditions. As the mitigation methods, farmers have used resistant varieties, rainwater harvesting, mulching, effective irrigation and organic matter addition. The annual yield loss of bean cultivation can be reduced by addressing these problems successfully. As 87% of the farmers own a smartphone, 21% already use online platforms for farming and 93% showed willingness to use a mobile application to access agricultural solutions. Therefore, a mobile application was tested as a pilot study to disseminate necessary information as a user friendly and simple application that provides localized solutions for proper irrigation and drainage management practices. The platform seeks to bridge the knowledge gap between farmers and agri-experts by offering real-time, practical guidance tailored to the needs of bean cultivating farmers in Uva Province.

Keywords: *Drainage, Drought, Irrigation, Online platforms, Waterlogging,*

Evaluation of Sugarcane By - Product Based Organic Fertilization on Soil, Sugarcane Yield and Quality Under Rainfed Conditions

M.M.K. Arunoda^{1*}, B.R. Kulasekara², J.B.D.A.P. Kumara¹ and D.D.M.O. Dissanayake¹

¹ Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ² Crop Nutrition Division, Sugarcane Research Institute, UdaWalawe, Sri Lanka.

*kanthimanage50@gmail.com

ABSTRACT

Sugarcane (*Saccharum spp. hybrid*) is an important cash crop in Sri Lanka, but continuous inorganic fertilizer usage threatens soil fertility and agroecological sustainability. The sugar industry produces by-products that can recycle as organic amendments. With growing demand for organic products, this study was conducted to provide scientific information on commercial organic sugarcane cultivation. The field experiment was conducted at the Research Farm of the Sugarcane Research Institute, Uda Walawe from 2022 to 2026 including the plant crop and three ratoon crops. The study evaluated the effects of different levels of sugarcane by-product based organic fertilizer on soil chemical properties, growth, economic yield and juice quality under rainfed conditions. The experiment was a Randomized Complete Block Design (RCBD) with eight treatments and four replicates using the variety SL 96 128. Treatments included organic fertilizer levels of 55, 14, 4, 2, 1, 0.5 t ha⁻¹, 100% recommended inorganic fertilizer and zero amendments. The 55 t ha⁻¹ treatment showed the greatest improvement in soil nutrients increasing total nitrogen and organic carbon by approximately 64.4% and 34.4% (average of plant and ratoon crops) than initial soil. 100% recommended inorganic fertilizer recorded the highest exchangeable potassium with an approximate increase of 99.5% after treatments applying. Juice quality remained stable. Higher economic cane yield was observed in 14, 55 t ha⁻¹ and 100% inorganic fertilizer treatments with the yields of 60.6, 64.8 and 63.9 t ha⁻¹(average of 3 ratoon crops) respectively. Economic yield showed no significant effect ($p > 0.05$). Yield slightly declined from plant to later ratoons. Seasonal rainfall affected yield resulting in producing more water shoots in Ratoon1. 14 t ha⁻¹ is optimum level as it gave high economic yield, good juice quality similar to chemical fertilizer and lower cost. These results show the potential for commercial organic sugarcane cultivation in Sri Lanka.

Keywords: Organic sugar, Recycling, Soil chemical properties, Sustainability

Spatial Mapping and Severity Assessment of Nematode Infestation in Smallholder Tea Plantations in Imbulpe and Rathnapura Divisional Secretariat Divisions in Sri Lanka

K.W.D.B.W. Kobbekaduwa^{1*}, K.G.J.P. Mahindapala², J. B.D.A.P. Kumara¹, B.M.G.K. Godavita³, H.N. Dayananda⁴, and N.M.P.M. Piyasena⁵

¹Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, ²Tea Research Institute of Sri Lanka, Thalawakelle, ³Tea Research Institute – Low Country Station, Rathnapura, ⁴Central Environment Authority, ⁵GeoTech Hub, Faculty of Geomatics, Sabaragamuwa University of Sri Lanka.

*dasunkobbekaduwa89@gmail.com

ABSTRACT

Tea (*Camellia sinensis*) is a major commodity of Sri Lanka; spatially explicit information on plant-parasitic nematode infestation in smallholder tea plantations remains limited, restricting targeted management. Among the major nematode species associated with tea, *Pratylenchus loosi* and *Radopholus similis* cause root damage, stunting, and yield loss up to 40%. The current study assessed the prevalence, spatial distribution and severity of nematode infestation in high-risk Imbulpe and Rathnapura Divisional Secretariat (DS) divisions. A total of 136 and 242 composite soil and root samples were collected from Imbulpe and Rathnapura DS divisions, respectively. Nematodes were isolated using the Baermann funnel method, and further identification and characterization were carried out through microscopic analysis of their morphology. By using ArcGIS Pro software, a GIS-based spatial database was developed to classify Grama Niladhari (GN) divisions into six severity strata, such as non-detected, very light, light, moderate, heavy, and very heavy. The majority of samples in both DS divisions were classified as non-detected and very light suggesting that there was a general low infestation throughout the sampled locations. In the Imbulpe DS division, 41.2% of samples were non-detected and 40.4% were very light, while the corresponding values in the Rathnapura DS division were 45.9% and 44.2%, respectively. Light infestation was less frequent in Imbulpe (11.8%) and Rathnapura (7.9%), whereas moderate and heavy infestation occurred in only a few locations. *Radopholus similis* was not detected in the Imbulpe DS division, and was recorded in only 3% of samples in the Rathnapura DS division, indicating a limited distribution of this species in the study area. In conclusion, this research developed a GIS-based spatial database and severity maps for nematode infestation in these regions. These outputs provide a practical basis for extension officers and farmers to implement targeted, site-specific management strategies to safeguard tea productivity.

Keywords: GIS Mapping, *Pratylenchus loosi*, Severity Assessment, Smallholder Plantations, Tea (*Camellia sinensis*)

Survey on Farmers' Satisfaction and Engagement in Management of Magalla Tank Cascade System Based Major Irrigation Schemes

W.M.M.P. Wanninayake^{*}, and D.D.M.O Dissanayake¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya.*

^{*}*prabodyamadumi@gmail.com*

ABSTRACT

Magalla tank cascade system is a vital shared water resource system managed through the joint governance of the Central Irrigation Department and the Department of Agrarian Development, while Farmer Organizations (FOs) facilitate community participation and water distribution. However, increasing population pressure, climate variability, and uncertainty pose significant challenges to the sustainability of this governance system. This study aims to determine the farmer satisfaction in equity of distribution, their engagement in water management and key social and institutional factors which influence on satisfaction and engagement. In-person interviews were carried out on a total of 125 farmers whose agriculture predominantly relies on irrigation from the Magalla tank and selected through stratified random sampling. Chi-square test of independence and logistic regression were performed. The findings revealed that improper canal management was identified by most farmers as the most critical issue. Satisfaction with the *Bethma* system varied significantly ($p < 0.05$) among villages, with higher satisfaction reported in Heelogoma GND compared to Nikaweratiya South. Although water scarcity was relatively high in Kebellewa GND, farmers perceived water distribution as fair, whereas it was considered inequitable in Nikaweratiya South. Engagement in collective action was significantly influenced ($p < 0.05$) by membership in Farmer Organizations, while farmer satisfaction was primarily determined by the perceived fairness of water distribution. The results indicate that membership in Farmer Organizations enhances community engagement in participatory water management, while equitable water distribution is the key determinant of farmer satisfaction. However, responses may have been influenced by respondents' reluctance to express personal views due to concerns about potential impacts on their water access.

Keywords: *Bethma, Collective action, Community participation, Farmer organizations, Sustainable governance*

Transformation of Spent Mushroom Substrate (SMS) and Brewer's Spent Grain (BSG) into a Biochar-Enriched Organic Fertilizer

S.M.A.S.H. Maddumarachchi^{1*}, R.M. Dharmadasa², and P.I. Yapa¹

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Herbal Technology Section, Industrial Technology Institute, 503/A, Halbarawa garden, Thaladena, Malabe.

*smashmaddumarachchi@std.agri.sab.ac.lk

ABSTRACT

Sustainable management of agro-industrial wastes through nutrient cycling is increasingly recognized as an eco-friendly strategy. This research aimed to develop a biochar-enriched organic fertilizer using spent mushroom substrate (SMS) from *Pleurotus ostreatus* (oyster) and *Agaricus bisporus* (button) incorporated with brewer's spent grain (BSG) and to evaluate its effect on the growth and yield performance of radish (*Raphanus sativus*). Raw materials were cleaned, sun-dried, and ground. Physicochemical properties of raw materials, including pH, electrical conductivity, organic carbon, and nutrient composition (N, P, K, Ca, Mg, and Fe), were determined using standard analytical methods. The fertilizer was prepared using button SMS (40%), oyster SMS (30%), BSG (25%), and biochar (5%) on a weight basis. A pot experiment was conducted with four treatments: control (soil with no fertilizer, T₁), department of agriculture-recommended inorganic fertilizer (T₂), soil: organic fertilizer ratios of 3:1 (T₃) and 1:1 (T₄) using a completely randomized design. Recorded growth and yield data were analyzed using linear mixed models, ANOVA and non-parametric tests in R version 4.5.1. The raw materials showed complementary nutrient contents with organic carbon in oyster SMS (87%) and BSG (83%) and high phosphorus (1.78%) and potassium (1.30%) in button SMS. Electrical conductivity of the raw materials (19.79-49.91 mS/m) indicated suitable salinity levels. However, germination was delayed in the 1:1 ratio (T₄); later growth was not adversely affected. Organic fertilizer treatments (T₃, T₄) significantly enhanced plant height, leaf area, chlorophyll content, root weight, and fresh biomass ($p < 0.05$). The ratio 3:1 (T₃) consistently showed superior vegetative growth. T₃ and T₄ improved yield performance, matching or exceeding T₁ and T₂. The findings demonstrate that biochar-enriched SMS and BSG fertilizer serve as a sustainable nutrient source while promoting waste recycling aligned with the zero-waste approach.

Keywords: Biochar-enriched organic fertilizer, Brewer's Spent Grain (BSG), Organic waste recycling, Radish (*Raphanus sativus*), Spent mushroom substrate (SMS)

Assessment of Spatial Variation in Water Quality and Land Use Classification around the Terrestrial Boundary of Chilaw Lagoon, Sri Lanka

E.G.P. Kumarathunga¹, D.D.M.O. Dissanayake¹, N.D. Hettige^{2*}, Chandima Narangoda², and Shyamali Weerasekara²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Environmental Studies Division, National Aquatic Resources Research and Development Agency, Crow Island, Mattakkuliya, Colombo 15, Sri Lanka.

* nadeeshahettige83@gmail.com

ABSTRACT

Chilaw Lagoon located in the northwest coastal line of Sri Lanka, is a shallow estuarine ecosystem. There is limited understanding of how land use patterns around Chilaw Lagoon influence the spatial variation of water quality. This study aims to identify the land use patterns around the terrestrial boundary of Chilaw Lagoon and to assess their impact on the variations of water quality. Four surface water samples were collected from each of eleven sites representing different environments from January to December 2025. Physicochemical and biological parameters were measured in-situ monitoring and laboratory analysis. GIS-based land use pattern mapping of the area was done using Pavo land use classification to identify major land use patterns such as paddy lands, agricultural land, vegetation, and other land uses. Data was analysed to understand the spatial variations of water quality parameters. Results were subjected to Pearson's correlation analysis, Principal Component Analysis (PCA), hierarchical cluster analysis (Ward's method) and One-way ANOVA. PCA indicated that the first four components (PC 1- PC4) explained over 80% of the total variance. These components represent physicochemical conditions, nutrient enrichment, organic pollution, and localized pollution sources. Cluster analysis grouped the eleven sampling locations into three clusters. One cluster comprised most sites with similar characteristics, a second cluster included with moderately similar sites, third cluster represented distinct site with different water quality conditions. Location variation over the water quality was insignificant while the clustering indicated a significant spatial gradient in several water quality parameters. BOD, DO, water temperature, TDS, TSS and nitrite-N showed significant ($p < 0.05$) variations at different sampling sites, while phosphate, ammonium-N, pH, chlorophyll-a were not significantly different ($p > 0.05$) among clusters. This study highlighted that variation in water quality occurs as a gradual spatial gradient rather than distinct differences between individual sites.

Keywords: Biological parameter, Location runoff, Physicochemical parameter, Principal components analysis

Predicting Medicinal Phytochemical Composition in Green Tea Using Multi-Extractant Soil Electrochemical Analysis and Machine Learning

N.E.N.P. Wijerathne^{1*}, P.I. Yapa¹, L.H.T.N. Jayasuriya¹ and R. Gnanasekaran²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Stassen Natural Foods (PVT) Limited, Bio Tea Project, Haldummulla.

* nimasha.pabasarani@gmail.com

ABSTRACT

Green tea's medicinal quality is governed by its phytochemical profile which is directly linked to its antioxidant properties, human health benefits, and commercial market value. The traditional soil analysis, however, does not account for the electrochemical interactions that influence the secondary metabolism of plants. This research presents a predictive model, the PhytoSoil Nexus that combines the multi-extractant soil phytochemical profiling with the electrochemical analysis using machine learning. Experimental plots were maintained in Haputale, Sri Lanka, and tea leaves were subsequently processed into green tea under laboratory conditions. There were four treatments of fertilizers: unfertilized control, conventional NPK + biofertilizer, new organic fertilizer and new organic fertilizer + fish tonic, which were evaluated in a completely randomized design with three replicates. Five extractants (H₂O, 0.01 M CaCl₂, hot H₂O, 2 M KCl, and saturated paste) were used to measure soil pH and electrical conductivity. The seven electrochemical indices were obtained on the basis of ion exchange theory, variable charge surfaces, mobilization of organic matter, and mobile electrochemical equilibrium. Phytochemicals, such as total phenolics (Folin-Ciocalteu method), caffeine (UV-Vis spectrophotometry), free amino acids (ninhydrin assay), and ascorbic acid (titrimetric method) were measured. The model was trained using a global meta-analysis of 843 data pairs of soil and plant phytochemicals, which incorporates diverse environmental conditions, including seasonal variations, soil moisture dynamics, and long-term fertilizer effects, thereby addressing these factors within the predictive framework. All the bioactive compounds were accurately predicted by the partial least squares regression (PLSR) model (Q₂ = 0.85-0.92, LOOCV). The joint action of the new organic fertilizer and fish tonic showed a significant improvement in tea quality of 72%, 55%, 79%, and 68% of total phenolics, caffeine, free amino acids, and ascorbic acid, respectively, in comparison with the control. The results of this study confirm the importance of soil electrochemistry as an effective, non-destructive technique for predicting phytochemical content. The method enhances precision agriculture to enhance the medicinal quality and commercial value of the production of tea in a sustainable manner.

Keywords: *Camellia sinensis*, Green tea, Machine learning, Multi-extractant analysis, Phytochemical composition, Soil electrochemistry

Effect of Integrated Plant Nutrient Management on Growth of Green Chilli (*Capsicum annuum L.*) in Red Calcic Latosol Soil

S. Maanashee^{1*}, G.E.M. Wimalasiri¹, and A. Amirthalojanan²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Agriculture Research Station Thirunelvely, Jaffna, Sri Lanka.

smaanashee@std.agri.sab.ac.lk

ABSTRACT

Chilli (*Capsicum annuum L.*) is an important vegetable crop in Sri Lanka, but its productivity is limited by low organic matter and poor nutrient retention in Red Calcic Latosols of the Jaffna Peninsula. This study evaluated the effects of paddy husk biochar, cow dung, and inorganic fertilizer combinations on soil fertility and vegetative growth of green chilli. The experiment was conducted at the Agriculture Research Station, Thirunelvely, using a Completely Randomized Design with ten treatments, two replicates, and four plants per pot. T1 served as the control without fertilizers or biochar, while T10 received 10 t ha⁻¹ cow dung with 100% recommended NPK. Treatments T2–T5 received 2 t ha⁻¹ biochar with 10 t ha⁻¹ cow dung and different fertilizer levels: 100% NPK (T2), 70% NPK (T3), and 70% N applied as split urea with 70% TSP and 70% or 50% MOP (T4 and T5). Treatments T6–T9 received the same fertilizer levels but with 5 t ha⁻¹ biochar. Soil chemical properties were measured five weeks after transplanting, while vegetative growth parameters were recorded up to six weeks. Data were analyzed using ANOVA for soil parameters and the Kruskal-Wallis test for branch and leaf numbers in SAS software. Treatment T8 (5 t ha⁻¹ biochar + 10 t ha⁻¹ cow dung + 70% split urea + 70% TSP + 70% MOP) significantly improved soil fertility compared with T1, increasing total N (0.11 vs 0.04%), available P (50.2 vs 36.5 ppm), exchangeable K (178 vs 148 ppm), and organic matter (1.90 vs 0.88%). Plant height was higher (23.85 vs 16.5 cm). Branch number showed overall differences, while leaf number did not differ. Values are presented as means of two replicates. These results indicate that integrating biochar and cow dung with reduced inorganic fertilizers enhances soil fertility and vegetative growth of chilli.

Keywords: Biochar, Cow dung, Green chili, Integrated nutrient management, Red calcic latosol



Track VI

Crop Production and Postharvest Technology

Estimation of Leaf Phosphorus Content in Coconut (*Cocos nucifera* L.) Plantations through Multispectral Drone-Based Remote Sensing

W.T. Anuruddi^{1*}, T.D. Nuwarapaksha², Asha S. Karunaratne¹, and Anjana J. Atapattu²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Agronomy Division, Coconut Research Institute of Sri Lanka, Lunuwila Sri Lanka.

* aaajatapattu@gmail.com

ABSTRACT

The Coconut (*Cocos nucifera* L.) is cultivated across 443,528 hectares in Sri Lanka's varied Agro-Ecological Regions, contributing significantly to the national economy. Sri Lanka is the fourth-largest coconut producer globally. Plant nutrients are key limiting factors for coconut palms, influencing overall plant growth and yield. Multispectral drones use multiple wavelength bands to detect variations in plant nutrients with high spatial accuracy. Many Drone-based methods exist for estimating nitrogen and potassium in coconut palms, but reliable, validated, fast phosphorus estimation methods are still limited and many traditional laboratory testing methods are very slow and destructive. The study was conducted at the Makandura Research Center in Sri Lanka's low country intermediate zone. Fifty-six leaf sampling points were selected by considering the selected area's soil phosphorus range variance. The Vanda Molybdate Test was used for laboratory phosphorus analysis of leaf samples. Drone images were captured using a DJI Mavic 3M drone at 100 meters altitude. Those images were processed to generate five vegetation indices using Pix4D. Pearson's correlation analysis showed the highest positive correlation ($r = 0.61$) between leaf phosphorus content and Normalized Difference Red Edge Index (NDRE). The NDRE vegetation index was selected for regression analysis. Simple linear, polynomial, and quantile regression models were developed. Respectively, they were produced R^2 values of 0.61, 0.62, 0.61 and Root Mean Square Error (RMSE) values of 0.02, 0.01 and 0.02. Among them, Polynomial model performed moderately well, showing the highest R^2 (0.62) and the lowest RMSE (0.01) for predicting leaf phosphorus content. It was validated using randomly selected ten coconut palms across the research area and paired t-test, showing no significant difference between laboratory-measured and model predicted phosphorus values ($p=0.06$). Drone-based vegetation indices can estimate phosphorus levels in coconut palms to improve fertilizer management, but models must be validated across coconut age groups and environmental conditions.

Keywords: Coconut palms, Normalized difference red edge Index, Multispectral drone images, Regression models, Vegetation indices

Evaluation of Different Liming Materials on the Interaction of Soil pH and Phosphorous Availability and Growth of Lettuce (*Lactuca sativa* L.) in High P acidic soil

D.W.M.H.K.K. Delungahawaththa^{1*}, K.M.S. Kodikara² and P.I. Yapa¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.* ²*Regional Agriculture Research and Development Center, Bandarawela.*

* hirunikavindhya99@gmail.com

ABSTRACT

Lettuce (*Lactuca sativa* L.) is a widely cultivated leafy vegetable. Phosphorus is an essential plant nutrient for root development, energy transfer and plant growth. The availability of phosphorus in soil is strongly affected by soil pH. In acidic soils, the availability of phosphorus drops due to increased phosphorus fixation where, maximum phosphorus availability can be observed at near neutral soil pH. Calcium Oxide (CaO) and Magnesium Oxide (MgO) can be used as liming materials to increase soil pH and improve phosphorus availability in acidic soil. This study focuses on optimizing phosphorus availability in high P acidic soils through liming, with a comparative evaluation of CaO and MgO and their interaction with application rates on soil pH and phosphorus availability and lettuce growth performance under protected culture. The treatment included two liming materials (CaO and MgO) and five application rates (0, 500, 1000, 1500, and 2000 kg ha⁻¹). T1, T2, T3, T4 and T5 included CaO with five application rates and T6, T7, T8, T9 and T10 involved MgO with five application rates. Pots were arranged in Completely Randomized Design with three replicates under a two-factor factorial arrangement. Canopy diameter, number of leaves, shoot and root fresh and dry weights were recorded. Soil pH, electrical conductivity, and available phosphorus were also recorded. Soil pH, electrical conductivity and available phosphorus increased with increasing lime application rates and high value observed at higher levels. MgO showed higher phosphorus availability than CaO. MgO resulted in significantly greater canopy diameter ($p < 0.05$) compared to CaO, showing enhanced vegetative growth. Liming material has not significantly affected leaf number, shoot and root fresh and dry weights ($p > 0.05$). In contrast, lime application rate showed a significant effect ($p < 0.05$) on canopy diameter, leaf number, shoot and root fresh and dry weights with higher rates producing greater growth responses.

Keywords: *Calcium Oxide, Growth performance, Lime application rate, Magnesium Oxide, Protected culture*

Identification of the Suitable Lands to Expand Rubber Plantations in the North Central Province of Sri Lanka Using GIS Based Land Suitability Modelling

M.G.T. Madushani¹, L.A.T.S. Liyanaarachchi^{2*}, M.W.H. Gayan², and A.S. Karunaratne¹

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Soils and Plant Nutrition Department, Rubber Research Institute of Sri Lanka, Dartonfield, Agalawatta, Sri Lanka.

*sangeethliyanaarachchi@gmail.com

ABSTRACT

Rubber (*Hevea brasiliensis*) is one of the major plantation commodities, and its cultivation has a significant impact on the gross domestic product and export earnings of Sri Lanka. However, the production of rubber in the traditional regions of the wet zones is undergoing a rapid contraction, driven by significant constraints such as accelerated urban development, systematic land fragmentation, chronic labour shortages, a high number of rainy days, and an increase in disease incidents. To address these challenges, policymakers have promoted the planned expansion of rubber cultivation into non-traditional areas in the Dry and Intermediate Zone. Therefore, this study aims to identify suitable lands for rubber cultivation expansion in the North Central Province (NCP) of Sri Lanka, utilizing Geographic Information System (GIS) based approaches together with Multi-Criteria Evaluations (MCEs). Six environmental variables- elevation, slope, annual cumulative rainfall, minimum and maximum temperature and great soil group were selected based on the agronomic requirements of the rubber. Variable weights and class ranking were determined using the Analytical Hierarchical Process (AHP), and a land suitability index was generated through a Weighted Overlay model in a GIS environment. Results indicate that the majority of NCP falls within the slightly suitable (50.79%, 542,434 ha), while only 0.27% (2,873 ha) of the area is classified as the most suitable class. Hence, 136,044 ha of land in the NCP is under the not suitable class, while the Polonnaruwa district shows significant potential for rubber expansion, boasting the province's largest and most suitable area at 2,748 ha (0.79%) and 160,835 ha of suitably class. However, only a minor portion of the district 58,900 ha (16.99%) is categorized as unsuitable lands for rubber cultivation. The generated suitability map offers valuable preliminary information to policymakers in optimizing land allocation for rubber plantation expansion.

Keywords: Analytical hierarchical process, Environmental variables, Land suitability model, Multi-criteria evaluation, Weighted overlay analysis

Potentiality of a Using Locally Designed Soil Sensor for Rapid Estimation of pH and EC Under Rubber Growing Ultisols in Sri Lanka

R.S.A. Rathnayake¹, L.A.T.S. Liyanaarachchi^{2*}, M.W.H. Gayan² and P K Dissanayke¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka,* ²*Soils and Plant Nutrition Department, Rubber Research Institute of Sri Lanka, Darton-field, Agalawatta, Sri Lanka.*

**sangeethliyanaarachchi@gmail.com*

ABSTRACT

Rapid estimation of soil properties is essential for precision soil management and optimizing crop production. Use of portable and rapid estimation devices to obtain on-site data is a global trend. Therefore, this study was carried out to evaluate the potential of a locally designed soil sensor for rapid estimation of soil pH and Electrical Conductivity (EC) in Rubber (*Hevea brasiliensis*)-growing Ultisols. Soil samples (57) were collected from mature rubber land (32 samples), bare land (15 samples), and cover crop-established immature rubber land (10 samples) in Dartonfield estate, Agalawatta, Sri Lanka. These samples were taken for laboratory analysis of soil pH and EC. Field measurements of soil pH, EC, soil temperature and soil relative humidity were recorded using the aforementioned sensor from the same locations where samples were collected. The comparison between laboratory and the field measurements was analyzed using the Wilcoxon signed rank test. Results showed a statistically significant difference between the laboratory and soil sensor measurements for both pH ($p < 0.001$) and EC ($p < 0.001$). In mature rubber land (pH, $p < 0.001$), (EC, $p < 0.001$). In bare land (pH, $p = 0.002$), (EC, $p = 0.001$). Also statistically significant differences were observed in cover crop-established immature land (pH, $p < 0.001$) and (EC, $p = 0.002$). Pearson's correlation indicated the predictability of 49.7% for pH and 25.2% for EC. The study revealed the potential of the locally designed soil sensor to measure soil pH with moderate accuracy compared to electrical conductivity. Further studies need to determine the causes for variance between laboratory and the soil sensor readings on soil pH and EC. Calibration and improvements are also needed to enhance predictability for field measurements using this soil sensor.

Keywords: *Electrical conductivity, Hevea brasiliensis, Rapid estimation, Soil pH, Soil sensor, Ultisols*

Effect of Varying Potassium (K) and Silicon (Si) Levels on Brown Spot Disease Severity in Rice in Low Country Wet Zone of Sri Lanka

K.K.S. Rangika^{1*}, D.D.M.O. Dissanayake¹, and H.N.S. Fernando²

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Plant Pathology Division, Regional Rice Research and Development Center, Bombuwela, Sri Lanka.

* nishadishashi@yahoo.com

ABSTRACT

Brown spot disease (BSD) which is caused by *Bipolaris oryzae* has had a major impact on rice cultivation in the low-country wet zone in Sri Lanka. Its most observable damage is the development of numerous large spots on the leaves which can lead to the death of entire leaves, reduced photosynthetic efficiency, poor grain quality and in severe cases, complete yield loss. Considering its significance, the Department of Agriculture is expected to introduce appropriate chemical control measures in the future. However, nutrient management can enhance plant resistance to disease. Potassium (K) strengthen cell walls, suppresses disease development and reduces plant vulnerability, while silicon (Si) strengthens plant tissues and enhances biochemical defense mechanisms that limit pathogen infection. Therefore, this study was designed to evaluate the effect of varying levels of K and Si on BSD severity in rice in the low country wet zone at the Regional Rice Research and Development Center, Bombuwela, using the rice variety BW 367 during the 2025/26 Maha season. The study followed a two-factor factorial Randomized Complete Block Design with three K levels (K₁ –44kg/ac, K₂ –66kg/ac, K₃ –88kg/ac) and three Si levels (stabilized Ortho Silicic acid:2%W/V - Si₀ –0, Si₁ –60mL/16L, Si₂ –80mL/16L), with three replications. Disease severity was assessed according to the standard evaluation system for rice. Data were collected once a week for four consecutive weeks. Analysis of variance (ANOVA) was performed to analyze the data. Results revealed that both K and Si significantly ($P<0.05$) reduced BSD severity in rice. The lowest disease severity recorded at the highest potassium level (K₃ –88kg/ac) and the highest Si level (Si₂ -80mL/16L). No significant interaction between K and Si was observed. These findings highlight the importance of proper K and Si management in minimizing brown spot disease severity under low country wet zone conditions.

Keywords - *Bipolaris oryzae*, Disease severity, Nutrient management

Evaluation of Vermicompost Enriched Cocopeat Blocks on the Growth Performance of Local Chilli (*Capsicum annuum* L.) Hybrid Seedlings

K.W.A.D. De Silva^{1*}, D.M.P.S. Dissanayake², and P.I. Yapa¹

¹Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, ²Soil Science Division, Field Crops Research and Development Institute, Mahailupallama, Sri Lanka.

*avishkadesilva04@gmail.com

ABSTRACT

Successful crop production largely depends on the establishment of high-quality seedlings, which can be governed by the nutrient composition of nursery media. Cocopeat blocks are compressed cocopeat substrates increasingly used for seedling production in controlled environment agriculture. The inherently nutrient deficient nature of cocopeat causes these blocks to rely on synthetic nutrients, which is neither sustainable nor cost-efficient. This experiment evaluated the effect of commercial cocopeat blocks and vermicompost enriched cocopeat blocks on the growth of MI CH HY 01 Chilli (*Capsicum annuum* L.) hybrid seedlings. It was laid out in a completely randomized design (CRD) in a polytunnel located at the Field Crops Research and Development Institute, Mahailupallama. Seeds were sown in four treatments with three replicates: commercial cocopeat block (cocopeat + synthetic plant nutrients and additives) (T1), cocopeat + 10% vermicompost (T2), cocopeat + 20% vermicompost (T3), cocopeat + 30% vermicompost (T4). Growth performance of seedlings was assessed through plant height and leaf number measured weekly up to 30 days after sowing, biomass and root parameters at 30 days after sowing. Statistical analysis using ANOVA at 5% significance level followed by Tukey's HSD test showed that cocopeat blocks had a significant effect ($p < 0.05$) on seedling growth characteristics with the maximum total dry weight (0.57g), root volume (1.09cm³), total root length (39.1cm), number of leaves (6), plant height (10.83cm) recorded in T1. T2 to T4 showed a positive linear trend for most growth parameters, but did not surpass the performance of T1. In conclusion, commercial cocopeat blocks provided superior growing conditions for hybrid chilli seedling production and significantly increased seedling biomass compared to cocopeat blocks enriched with vermicompost proportions up to 30%. Hence, further research should focus on enhancing the nutrient composition and release dynamics of vermicompost incorporated in cocopeat blocks.

Keywords: Chilli, Cocopeat, Cocopeat blocks, Seedling growth, Vermicompost.

Responses of Soil Biological Properties and Enzyme Activities to Different Organic Fertilizer Inputs in Tea (*Camellia sinensis*) Nursery Soil at an Organic Tea Plantation in Haputhale, Sri Lanka

U.V.S.S Vithanage^{1*} and P.I. Yapa¹

¹*Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka,*

* uvssvithanage@std.agri.sab.ac.lk

ABSTRACT

Soil biological activity is an important indicator of soil health and nutrient cycling in organic tea nursery systems. However, the short-term effects of different organic fertilizer inputs on microbial activity and enzyme responses in tea nursery soils are not well understood. This study evaluated the biological and enzymatic responses of tea (*Camellia sinensis*) nursery soil to selected organic fertilizer inputs under organic plantation conditions. The experiment was conducted at Stassen Organic Tea Plantation using four-month-old TRI 2043 tea seedlings in a Completely Randomized Design with four treatments and six replicates. The treatments were Hyosung Pellet Powder, Super Compost, a newly formulated shrimp waste-based fertilizer (BioCore), and a control. Fertilizers were applied at 5 g pot⁻¹, and soil samples were collected at two-week intervals. Soil respiration, urease activity, and phosphomonoesterase activity were determined using standard procedures. Soil respiration was highest in BioCore-treated soil throughout the study, indicating sustained microbial activity and carbon mineralization. Urease activity was also highest in BioCore (0.483), followed by Super Compost (0.324), Hyosung Pellet Powder (0.207), and the control (0.024). Phosphomonoesterase activity differed significantly among treatments ($p = 0.00008$) and was highest in Hyosung Pellet Powder and BioCore, with mean values of 537.9 and 534.7 $\mu\text{g PNP g}^{-1} \text{ soil h}^{-1}$, respectively, while the control recorded the lowest value (243.8 $\mu\text{g PNP g}^{-1} \text{ soil h}^{-1}$). Overall, BioCore showed the strongest biological response under the nursery conditions of Stassen Organic Tea Plantation.

Keywords: *Camellia sinensis, Hyosung pellet powder, Phosphomonoesterase, Super compost, Urease, soil respiration*

Panel of Reviewers

Snr. Prof. A.A.Y. Amarasinghe <i>Sabaragamuwa University of Sri Lanka</i>	Prof. G.D.K. Kumara <i>Sabaragamuwa University of Sri Lanka</i>
Snr. Prof. D.M. A. Gunarathne <i>Sabaragamuwa University of Sri Lanka</i>	Prof. C.N. Walpita <i>Sabaragamuwa University of Sri Lanka</i>
Snr. Prof. D.A.M. De Silva <i>Sabaragamuwa University of Sri Lanka</i>	Prof. H.A.D. Ruwandeepika <i>Sabaragamuwa University of Sri Lanka</i>
Snr. Prof. M. Esham <i>Sabaragamuwa University of Sri Lanka</i>	Prof. H.S.R. Rosairo <i>Sabaragamuwa University of Sri Lanka</i>
Snr. Prof. P.M.A.S. Karunarathe <i>Sabaragamuwa University of Sri Lanka</i>	Prof. Sumith Magamage <i>Sabaragamuwa University of Sri Lanka</i>
Snr. Prof. M.L.M.C. Dissanayake <i>Sabaragamuwa University of Sri Lanka</i>	Prof. S.P. Jayaweera <i>Sabaragamuwa University of Sri Lanka</i>
Prof. P.K. Dissanayake <i>Sabaragamuwa University of Sri Lanka</i>	Prof. A.W. Wijeratne <i>Sabaragamuwa University of Sri Lanka</i>
Prof. R.K. Mutucumarana <i>Sabaragamuwa University of Sri Lanka</i>	Prof. S.H.P. Malkanthi <i>Sabaragamuwa University of Sri Lanka</i>
Prof. P.I. Yapa <i>Sabaragamuwa University of Sri Lanka</i>	Prof. R.M.A.S. Bandara <i>Sabaragamuwa University of Sri Lanka</i>
Professor A.D. Ampitiyawaththa <i>Sabaragamuwa University of Sri Lanka</i>	Professor B.T.G.S Kumara <i>Sabaragamuwa University of Sri Lanka</i>
Prof. S.K. Gunthilaka <i>Sabaragamuwa University of Sri Lanka</i>	Dr. S.T.C. Amarasinghe <i>Sabaragamuwa University of Sri Lanka</i>
Dr. Eranga Wimalasiri <i>Sabaragamuwa University of Sri Lanka</i>	Dr. J.B.D.A.P Kumara <i>Sabaragamuwa University of Sri Lanka</i>
Dr. M.A.J.P. Munasinghe <i>Sabaragamuwa University of Sri Lanka</i>	Dr. R.K.C. Jeewanthi <i>Sabaragamuwa University of Sri Lanka</i>
Dr. P.K.G.S.S Bandara <i>Sabaragamuwa University of Sri Lanka</i>	Dr. Sarath Patabandi <i>Sabaragamuwa University of Sri Lanka</i>
Dr. Anusha Wijesekara <i>Sabaragamuwa University of Sri Lanka</i>	Mr. G. Weerakkody <i>Sabaragamuwa University of Sri Lanka</i>
Dr. Nadeeka Perera <i>Sabaragamuwa University of Sri Lanka</i>	Mr. I.C. Hettiarachchi <i>Sabaragamuwa University of Sri Lanka</i>
Dr. W.S.M. Senevirathne <i>Sabaragamuwa University of Sri Lanka</i>	Mr. M.C.N. Jayasooriya <i>Sabaragamuwa University of Sri Lanka</i>



Dr. J.L.C.S. Perera <i>Sabaragamuwa University of Sri Lanka</i>	Mrs. Amanda Sanjeevani <i>Sabaragamuwa University of Sri Lanka</i>
Dr. Nuwan Weerawansa <i>Uva Wellassa University of Sri Lanka</i>	Ms. P.W.M. Tharindi <i>Sabaragamuwa University of Sri Lanka</i>
Dr. T.C. Kananke <i>Sabaragamuwa University of Sri Lanka</i>	Ms. B.M.R.L. Basnayake <i>Sabaragamuwa University of Sri Lanka</i>
Dr. P.G.I Dias <i>Sabaragamuwa University of Sri Lanka</i>	Ms. D.M.O. Dissanayaka <i>Sabaragamuwa University of Sri Lanka</i>
Dr. M.D.K.M Gunasena <i>Sabaragamuwa University of Sri Lanka</i>	

Index

Abeyasinghe, K.A.U.A.	3	Dissanayake, P.K.	14, 70
Adikari, A.M.S.D.	44	Dissanayaka, U.	33
Akurana A.G.T.M.	31	Dulanjaya S.K.K.D.	13
Alahakoon, A.M.K.D.	17, 18	Ekanayake, K.R.B.M.M.K.	22
Alwis, L.W.S.	50, 52	Ekanayake, S.N.B.	53
Alwis, N.S.M.	31	Fernando, H.N.S.	71
Ampitiyawatta, A.D.	55, 57	Fernando, W.K.A.D.S.	3
Amarasinghe, A.A.Y.	20, 25, 26	Fernando, W.S.H.	13
Amarasinghe, S.T.C.	8, 10, 43, 49	Gamage J.T.S.	39
Amirthalokanan, A.	65	Gamlath, G.R.H.P.	38
Anuruddi, W.T.	67	Ganewatta, S.D.	7
Arunoda, M.M.K.	59	Gayana, M.W.H.	69, 70
Atapattu, A.J.	67	Gunarathne D.M.A.	30, 42
Bandara, H.H.M.C.	31	Gunathilaka, G.S.W.	28
Bandara, S.M.I.N.	1	Gnanasekaran, R	64
Bandara, M.M.L.I.W.	25, 26	Godavita, B.M.G.K.	60
Basnayake, M.D.K.K.	9	Hansika, N.W.J.V.	21
Belungala, R.S.S.	26	Hansika, H.G.N.	34
Buthpitiya, B.L.S.L.	45	Harischandra, B.G.G.R.K.	30
Chamara, B.R.R.	11, 27	Harshani, K.G.C.	2
Chanchala, K.M.G.	16, 23	Herath, P.G.H.M.S.N.	17, 18
Chathuranga Watawala, Chamara	10	Hendawitharana, G.K.	57
Dayananda, H.N.	60	Hettiarachchi, I.C.	3
De Silva, K.W.A.D.	72	Hettige, N.D.	63
Delungahawaththa, D.W.M.H.K.K.	68	Jayaneththi, J.P.S.	51
Dewapriya, I.N.S.	22	Jayarathna, Y.V.A.H.M.	39
Dharmadasa, R.M.	62	Jayathilaka, K.R.C.P.	45
Dharmasena, P.K.T.M.	15	Jayasekara, G.S.D.	9
Dilshani, W.M.D.	36	Jayasekara, S.	50
Dissanayake, D.D.M.O.	19, 59, 61, 63, 71	Jayasooriya, J.M.J.B.	45
Dissanayake, D.G.H.M.K.	15	Jayasooriya, M.C.N.	42
Dissanayaka, D.G.U.M.	17	Jayasooriya W.M.H.N.	43
Dissanayaka, D.M.A.G.E.	11	Jayasuriya, L.H.T.N.	64
Dissanayake, D.M.P.S.	72	Jayawardane, E.I.W.	2
Dissanayake, G.H.U.S.	2	Jayawardena, J.K.	56
Dissanayake, M.L.M.C.	13, 17, 18, 22		



Jayaweera, T.S.P.	11, 28, 36, 44, 45, 46	Nethmini, L.N.	13
Karunadasa, S.H.S.H.	16, 23	Niroshani, P.A.H.	11, 28
Karunarathne, A.D.R.	25, 26	Nimrekha G.T.	13
Karunaratne, A.S.	52, 58, 67, 69	Nipuni, D.M.D.	55, 58
Kavindi P.M.	24	Nuwarapaksha, T.D.	67
Kekulandara, D.S.	21	Pabasara, K.N.K.	1
Kodikara, K.M.S.	55, 68	Patabandi, P.P.S.K.	31, 32
Kularathna P.S.P.	29	Pathirana P.S.S.	46
Kulasekara, B.R.	59	Pathmasiri, U.W.H.N.	13
Kumara Y.W.C.P.	30	Perera, R.N.N.	13
Kumarathunga, E.G.P.	63	Pramoda, N.H.G.	45
Kumarathunga, R.N.K.	13	Piyasena, N.M.P.M.	60
Kobbekaduwa, K.W.D.B.W.	60	Piyathilaka, E.A.R.	38
Kumara, J.D.B.A.P.	51, 59, 60	Premarathna, M.	54
Kumara, R.D.H.K.T.	46	Premathilaka, K.K.L.T.	4, 28
Lakruwan K.M.	13	Priyangika, A.P.B.	8
Lakmini W.D.	32	Priyadarshani, W.A.K.N.	18
Liyanaarachchi, L.A.T.S.	69, 70	Pubudu S.P.H.	35
Lokuvithanage, C.J.	57	Rajapaksha, U.R.S.S.	46
Maanashee, S.	65	Ramanayake, P.G.	13
Maddumarachchi, S.M.A.S.H.	62	Ranaweera, P.H.	17
Madhuhansi R.B.I.	46	Rangika, K.K.S.	71
Madushani, S.V.A.S.	11	Rasna, M.R.F.	52
Madusani, K.M.K.	20	Rathnayake, R.M.K.D.	14
Madushani, M.G.T.	69	Rathnayake, R.S.A.	70
Madushanka, D.N.	37	Ruvini Ranathilake.	8
Madushika, M.P.C.	16, 23	Saffna, M.S.S.	45
Mahadevan, N.	51	Sammani, A.M.P.	51
Maheesha, M.G.C.	6	Sammani, P.G.U.	54
Mahindapala, K.G.J.P.	60	Sampath, W.A.A.N.	27
Mahindasiri, R.	47	Sandamali, E.G.P.	45
Malkanathi, S.H.P.	1	Sandamali, O.H.	44
Mandawala, M.M.I.	44	Sandamali, W.H.P.	13
Marapana, M.K.A.D.	13, 19	Sandaruan, L.	35
Marasinghe J.P.	22	Sandamini A.J.A.	25
Munasinghe M.A.J.P.	33, 34, 35, 40, 47	Sankalpa, S.T.	44
Narangoda, Chandima	63	Sanjeevani B.T.M.	37
Nayakarathne, N.M.H.I.	13, 14, 19, 50	Sasanka, U.B.E.	2, 4, 5, 6, 7
		Senanayake, M.P.	37



Senanayake, S.H.M.P.	40
Seneviratne, G.	54
Sewwandi, B.K.D.	13
Sewwandi, I.P.I.	13
Sewwandi, W.V.T.	49
Shehara, J.A.D.	42
Silva, A.T.Y.	9
Silva, M.K.R.	24
Silva, T.U.K.	20
Somarathne, W.G.P.M.	13
Sudarshani, I.D.S.R.	5
Sumathipala, P.A.D.S.	51
Supunsara N.G.T.	46
Tharindi, P.W.M.	14, 15, 21
Thiranagamage, S.	37
Udari K.B.U.	16, 23
Umeshika W.A.A.A.	47
Vithanage, U.V.S.S.	73
Walpita C.N.	29, 31, 32
Wanninayake, W.M.M.P.	61
Wedage, W.C.S.	56
Weerasekara, Shyamali.	63
Weerasinghe, U.P.	42
Weerawardhana, W.M.L.A.	13
Wimalarathne H.D.A.	38, 39, 40
Wimalarathna W.	32
Wickramarathna, G.M.A.H.K.	11
Wickramarathna, S.T.	52
Wijerathna K.R.P.N.	51
Wijerathne N.E.N.P.	64
Wijerathne, Rangajeewa.	29
Wijesekara, W.M.A.U.K.M.	16, 22, 23
Wijesinghe, H.A.K.T.	33
Wijesingha, W.M.C.D.	10
Wimalasiri E.M.	24, 56
Wimalasiri G.E.M.	65
Wimalawardana, A.M.S.D.	44
Yapa, P.I.	50, 54, 62, 64, 68, 72, 73

<https://agsurs.agri.sab.ac.lk/>



Explore the World Through Research & Innovation
Faculty of Agricultural Sciences | Sabaragamuwa University of Sri Lanka

AGRICULTURAL SCIENCES UNDERGRADUATE RESEARCH SYMPOSIUM (AgSURS 2026)

“Fostering a Culture of Lifelong Learning through Innovation”

Our Proud Sponsors



9TH APRIL 2026
FACULTY OF AGRICULTURAL SCIENCES
SABATRAGAMUWA UNIVERSITY OF SRI LANKA