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FOR SUSTAINABLE AND RESILIENT PRODUCTION

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ICoP 2024

International Congress on Pineapple

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ICoP 2024
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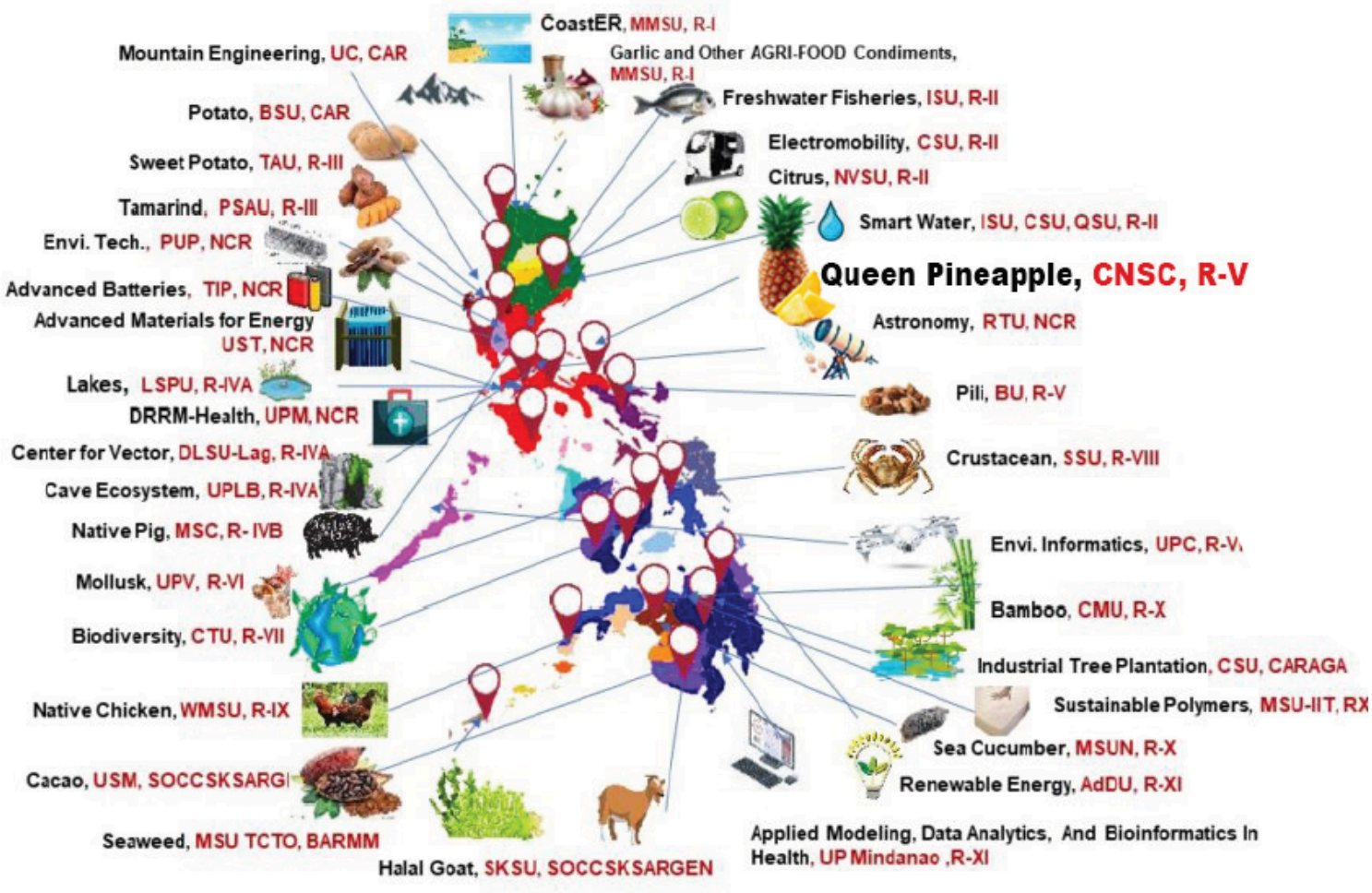
September 4-6, 2024 | Camarines Norte State College



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ICoP 2024
International Congress on Pineapple

KEYNOTE

Storability and Shelf-Life Extension of Pineapple through Post-Harvest Processing Intervention for a Long Transit Exportation

Dr. Anthony Conrad Andaya, MBA-MABM

Decco Italia S.R.L. Export Manager and Technical Support Asia Pacific

Email: antony.andaya@upl-ltd.com
Phone number: +39 331 6203017

ABSTRACT

An innovative post-harvest processing protocol designed to extend the storage life and shelf life of pineapple adhering to international safety and quality standard while ensuring safety for human consumption. The study focused intervention on a simulated export from Malaysia to Europe. Conducted in Malaysia, using MD2 pineapple variety and contracted MD2 pineapple growers to implement the protocol and facilitate exportation of pineapples via sea freight from Johor Bahru to Munich, Germany.

The primary objective of the study was to formulate a protocol that is both highly effective and compliant with stringent European standards, identifies the optimal detergents, and fungistatic treatments applied on cut edges of the pineapples. The proCOATocol's development involved extensive testing to ensure it preserves the fruit's quality and extend its shelf life during the extended shipping period.

The successful implementation of this protocol by Malaysian growers has significantly enhanced the marketability of their pineapples in international markets, particularly in Europe. By meeting the high standards and expectations of European consumers. This intervention provides a new opportunities for export growth and economic development Malaysian pineapple industry.

This research underscores a crucial advancement in post-harvest processing practices, highlighting the importance of innovation and rigorous adherence to international safety and quality standards. The findings have profound implications for global agricultural practices, offering a model for other perishable goods in the context of international trade.

KEYWORDS

Post Harvest, Pineapple, Shelf-life, Technology, Procoatocol

BIOGRAPHY

·B.S. Biochemistry, followed by Doctor of Veterinary medicine.
·Master's degree in Biochemistry in Universitat van Amsterdam (The Netherlands) – Cum Laude
·Double master's degree in Universidad Internacional di Valencia (Spain) and Rome Business School (Italy) MBA and master's degree in Agribusiness Management. – Cum Laude
·Double master's degree in international Trade and International Law and Business Economics in Universidad Isabel 1 (Spain) - Cum Laude
·Post Harvest Research Specialist for Tropical Fruits – Decco Worldwide
·Keynote Speaker Asia Smart Farming Conference 2023
·Keynote Speaker MAHA 2022 – Extending Shelf Life of Pineapples for Export
·Product Developer for Decco Airprotect, an innovative aerosol preservative with disinfecting capacity

RESEARCH INTEREST

·Technological Adaptation of Fruit Coatings for Extending Shelf Life in International Pineapple Export
·Evaluation of Detergent Efficacy in Post-Harvest Processing of Pineapples for Global Trade
·Innovative Materials for Post-Harvest Processing: Enhancing Quality and Longevity of Exported Pineapples
·Development and Application of Fungistatic Coatings in Post-Harvest Pineapple Preservation
·Optimizing Post-Harvest Protocols: Integration of Detergents, Fruit Coatings, and Fungistatic Treatments in Pineapple Export

KEYNOTE

Development, field trials and deployment of a Certified Organic Input phytoceutical for plant growth protection and enhancement.

Arthur V. Martin, Ph.D.

14311 Biscayne Blvd.
Miami, FL 33261-3625
843-368-7063

www.arthurvmar
Email: art@arthurvmartinphd.com

ABSTRACT

Detrimental fungal, bacterial and vector borne issues have affected crop growth worldwide for ages. Various geographic locations with varying climatic conditions have also been a significant factor in crop yield and ever-changing environmental conditions have made long term planning significantly more difficult. The widespread utilization of toxic fungicides, bactericides and virucides has had to be carefully measured and coordinated with any potential growth enhancers. All these combined factors can and do determine a country's ability to be either an importer or exporter of a particular crop. This directly impacts the lives of the population and the profitability of the growers. This brief presentation and discussion will examine how the development of an organic based anti-pathogenic solution primarily geared toward human wellness was diverted to the agricultural industry. Specific information related to field trials with pineapple here in the Philippines will be discussed. Information on how one country has begun implementation of product use that has led to incredible expansion of crop yield, putting it on a path from importing some crops to feed its own populace, to a positive outlook of exporting local grown crops to enhance the economic conditions of the country will be explored.

BIOGRAPHY

Dr. Martin, a distinguished scientist, engineer and author whose groundbreaking work on COVID-19 has earned him a Nobel Prize nomination, stands as a globally recognized authority in the realm of disease and infection control technologies. With a career spanning over three decades, he has gained a reputation as a highly sought after consultant and expert in the selection of the most efficient and effective HVAC technologies tailored to specific structures and applications. A prime consideration of Dr. Martins innovation is energy conservation and sustainability as well as pathogen control. Dr. Martin has lent his expertise to over 20 countries, various governments, and private entities. He attended Northeastern University and holds a Ph.D. in Engineering as well as a B.S. in Environmental Engineering.

Having previously held membership in ASHRAE, Dr. Martin boasts a remarkable track record, with his past projects earning him prestigious 1st place awards in categories such as Existing Health Care and Existing Institutional Buildings. One of his notable projects was hailed as the Most Efficient Building in the Nation. In his role as the Environmental Consultant to The Faisal Group of Companies in Riyadh, Kingdom of Saudi Arabia, he has played a pivotal role in addressing environmental challenges. Moreover, Dr. Martin serves as a valued member of the W.H.O. Stop TB board, a dedicated researcher at the Infectious Diseases International Research Initiative in Ankara, Turkey, and a collaborative researcher with Camarines Norte State University in Daet, Philippines.

Beyond his extensive international involvement, Dr. Martin also holds the esteemed position of Chief Scientist at a biotechnology company in Tianjin, China, and is affiliated with STIMANOVA INTERNATIONAL – FZCO in Dubai, UAE. His remarkable contributions have not gone unnoticed, as he was previously nominated for the W.H.O Kochon Prize in recognition of his innovative work on tuberculosis within buildings, which has significantly reduced treatment times and enhanced the efficiency of treating infected individuals.

In 2021, Dr. Martin's groundbreaking work on controlling the spread of COVID-19 in enclosed spaces through innovative HVAC engineering garnered a Nobel Prize nomination, highlighting his ingenuity and dedication to addressing pressing global health challenges. His pioneering efforts led to the conceptualization, development, testing, and production of Organic Based Technology capable of swiftly eradicating COVID-19 and a multitude of other pathogens in under two minutes. This innovative solution was specifically designed to target pathogenic bioaerosols and VOCs, mitigating their impact and preventing them from becoming respirable, thus contributing to a safer and healthier world.

Advancing Pineapple Research: Innovations, Milestones and the Path Forward for Collaborative Efforts

Fe M. Dela Cueva, PhD

Institute of Plant Breeding, College of Agriculture and Food Science, University of the Philippines Los Baños, Los Baños, Laguna, Philippines

Email: fmdelacueva@up.edu.ph
Phone number: (+63) 9674212042

ABSTRACT

Pineapple (Ananas comosus) is a crucial tropical fruit with substantial global economic and nutritional importance, ranking second only to bananas in fruit exports. Beyond its fruit, pineapple leaves produce high-quality textile fibers used in crafting traditional piña cloth, twines, and cordage. Research in pineapple has advanced significantly in areas such as genetic improvement, disease management, and cultivation techniques. At the Institute of Plant Breeding, UPLB-CAFS, the pineapple varietal improvement program emphasizes the collection, conservation, characterization, and evaluation of diverse germplasm. The program includes hybridization efforts using varieties such as 'Queen,' 'MD2,' Smooth Cayenne, and various F1 hybrids. These hybrids are being developed, tested, and evaluated for yield performance in key pineapple-growing regions of Luzon. Additionally, fundamental research focuses on gene mining, stress-resilience pre-breeding, and the application of genomics technologies, including comparative genomics, Targeting Induced Local Lesions IN Genomes (TILLING), and preliminary marker-assisted breeding. Ongoing studies aim to address resistance to major pineapple diseases. To accelerate advancements and enhance the impact of these research initiatives, it is crucial to foster stronger collaborations among academic institutions, research organizations, agricultural communities, and industry stakeholders. By integrating expertise and resources, the pineapple research community can drive progress, ensuring the sustainability and profitability of pineapple both locally and globally.

BIOGRAPHY

FE M. DELA CUEVA is a plant pathologist and has significantly contributed to varietal development of economically important crops with resistance to major diseases. Her works on pineapple include the identification of the causal organism of emerging diseases through polyphasic methods from cultural, molecular and sequence analysis. Through proper identification of important pathogens of pineapple, effective disease management strategies were employed.

Her efforts in pathogen detection paved the way for the development of post-entry disease indexing scheme for introduced varieties of sugarcane, which has been extremely useful in protecting the sugar industry from the incursion of unwanted quarantine pathogens. Her research on Bacterial Crown Rot (BCR) of papaya resulted to the identification, characterization, and sequencing of the full genome of Erwinia mallotivora, the pathogen of BCR. The inoculation protocols that aid in varietal screening have been established and sources of resistance to the disease have been identified.Further, the spread of the disease through seeds has been ruled out, which has an implication in papaya fruit export. Research on both mango anthracnose and stem end rot has given birth to an inoculation technique that is rapid and less laborious. She also identified sources of resistance to cercospora leaf spot and powdery mildew of mungbean, soybean rust and bacterial pustule, peanut stripe, and cowpea mosaic.

She is actively involved in the identification of local and introduced banana varieties with resistance to bunchy top virus, Fusarium wilt caused by Fusarium oxysporum f.sp. cubense Tropical Race 4, and the banana bract mosaic virus. She contributed significantly in the development of BBTV-resistant irradiated banana cv 'Mapilak Lakatan'. She is also actively working on integrated approaches in managing bugtok disease of banana caused by Ralstonia solanacearum.

Because of her hard work and dedication to the field of agriculture, she has published 87 journal articles, 3 books, training manuals, and 20 leaflets. She serves as a member of various committees and technical working groups in and out of the university. She also finds time to mentor students and researchers.

She believes that every good and perfect gift is from above, coming down from the Father of the heavenly lights, who does not change like shifting shadows (James 1:17). God continues to shower her with favor as she receives recognition from scientific organizations and other prestigious institutions. In 2013, she was chosen by the PhilFruits Association as an Achievement Awardee for Research, recognized as GO Ocfemia Outstanding Plant Pathologist in Research by the Philippine Phytopathological Society in 2016, and PMCP Pest Management Awardee in Research in 2019. She also garnered other awards: Best Paper (PPS 2017), Best Poster (PPS 2015, PFA 2008), Best Scientific Poster (NAST 2021, 2019, 2016), Outstanding Scientific Paper (NAST 2021, 2024), UPLB Outstanding Research Team (2019, 2022, 2023, 2024), and PFA Achievement Award in Technology Development (IPB Banana Team 2019). She became an outstanding researcher at the institute and college level in 2019 and 2020, respectively. She was a recipient of the Civilian Stakeholder Award by the 51st Engineer Brigade of the Philippine Army.

It was in August 2021 when Dr. Dela Cueva was nominated and fortunately given the opportunity to serve as IPB Director for a three-year term. As a leader, she always put emphasis on the importance of human resources towards the achievement of success as she believes that: "Our people are the greatest asset of the organization". She is a leader that empowers her team to give the best they could and pour their pure heart on what they do to better serve Philippine agriculture and Filipino farmers.

Spending years honing her craft and for her invaluable contributions, Dr. de la Cueva obtained a scientist position, Career Scientist II, under the country's Scientific Career System (SCS, 2022).

With all her accomplishments and achievements, Dr. Dela Cueva keeps her feet on the ground as she believes that "God opposes the proud but shows favor to the humble." Although she wears many hats, she enjoys her role as a wife, a mother, a public servant and a follower of JESUS CHRIST.

Identification Of Diseases of Queen Pineapple in Camarines Norte and It's Alternative Management

Arlene Cornel Alegre, PhD

Queen Pineapple Research and Development Institute
Camarines Norte State College F. Pimentel Avenue, Daet,
Camarines Norte, Philippines

Email:arlenealegre@cnsc.edu.ph
Phone number:09156853040

ABSTRACT

The Queen Pineapple (QP) is widely grown in Camarines Norte. It became popular because of its sweetness and aroma despite the small size. The crop is also resilient to typhoon suited to regions like Camarines Norte. There are four high producing municipalities namely Basud, San Lorenzo Ruiz, San Vicente and Labo where disease identification was performed.

There are four common fungal diseases observed namely, Pineapple blight (Fusarium sp.), Leaf blotch (Pestalotia sp), Leaf spot (Pyricularia sp.) and Pineapple mealybug wilt disease (PMWD). Among the diseases, PMWD has the highest incidence of 39% and most damaging. PMWD is an important disease of pineapple worldwide and management is difficult. Synthetic pyrethroids are commonly used to control mealybugs and ants but are no longer registered in most countries. Succeeding studies aim to find an effective and safe alternative in managing diseases of queen pineapple specifically to the most devastating PMWD without compromising the environment. Selected botanicals (Z. officinale, A. sativum, dishwashing liquid and organic anti-pathogenic solution) were tested for control. Results of in vitro evaluation revealed significant reduction in growth of all fungal diseases from zero to 2%. On the other hand, there was a significant reduction in all visual indicators of PMWD symptoms caused by PMWaV -1 and PMWaV-3 which is transferred by mealybug (Dysmicoccus brevipes) during feeding.

Other visual indicators of PMWD infection on pineapple plant were investigated to detect wilt infection since older plants develop symptoms in later growth stage. Recovery sometimes occurred but still produced small fruits.Small sized fruit production of infected plants ranges from 42%- 66% of total harvest. Average crown size of infected plants is either oversized or undersized as observed in all sites compared to non-infected ones.

The anti-pathogenic solution at different concentrations was applied during hardening of suckers, pre-planting, bi -monthly application up to 6 months and monthly application from 7-14 months. The treatment reduced the incidence of the D. brevipes at different maturity levels of QP fruit by 16%. Also, production of small fruits was reduced to 38%, medium and large sized fruits increased at 39% and 18% respectively compared to farmer's practice with 61% small, 27% medium and 9% large. The use of the solution as virucide provides effective alternative in managing the devastating effect of PMWD on queen pineapple and increasing the ROI to 71%.

KEYWORDS

Queen pineapple, Anti-Pathogenic Aerosol Solution, pineapple mealybug wilt disease, Dysmicoccus brevipes, Camarines Norte

BIOGRAPHY

ARLENE CORNEL ALEGRE is a plant pathologist and is currently an Associate Professor at the Camarines Norte State College. In 2016, she focused her researches on Queen Pineapple which is grown abundantly in her province. After collaborative research with other State University, she was the proponent of the program "Establishment of the Queen Pineapple Research and Development Center", (QPRDC) under the Science for Change program of the DOST. In October 2023, she was designated as the Director of the Institutionalized QPRDI. She would like to devote the rest of her stay in the institution as a QP researcher aside from being an educator. She hopes to see the QP farmers attain the quality of life they deserve through the industry they chose to love and depend.

DOST-PCAARRD's Queen Pineapple Industry Strategic S&T Program

Leilani D. Pelegrina, Kimberly Zarah B. Locsin, Danica Louise C. Sembrano*

Department of Science and Technology-Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development

ABSTRACT

The Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD) is one of the three (3) sectoral councils of the Department of Science and Technology (DOST) mandated to formulate policies, plans, programs, projects, and strategies for S&T development in the Agriculture, Aquatic, and Natural Resources (AANR) sector. It programs and allocates government and externally generated funds for its research and development (R&D) efforts, while its technical research divisions monitor R&D projects and generate external funds to support other R&D activities.

Among DOST-PCAARRD's priority commodities under its Industry Strategic S&T Programs (ISPs) is 'Queen' Pineapple or 'Formosa'—the sweetest pineapple variety in the Philippines. This typhoon-resilient variety is primarily cultivated in the Bicol and Eastern Visayas regions, contributing about 5% to the national pineapple production in 2014. The Bicol region yielded an average of 24.7 metric tons per hectare (mt/ha), while Eastern Visayas yielded 30 mt/ha for its commercial production.

Recognizing this potential, DOST-PCAARRD's ISP for Queen Pineapple aims to support the industry and address its challenges by delivering science and technology (S&T)-based solutions. The ISP specifically targets: 1) 71.5% increase in average yield from 24.7 mt/ha to 42.36 mt/ha; 2) 20% reduction in pest and disease damage; 3) 80% reduction in postharvest wastes; and 4) 20% increase in income through policy on grades and standards.

For the past 8 years, DOST and DOST-PCAARRD have supported and funded two (2) big-ticket programs and fourteen (14) projects with total funding amounting to P63.7 million pesos.

BIOGRAPHY

Ms. Leilani D. Pelegrina is the Director of the Crops Research Division (CRD) of the Philippine Council of Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (DOST-PCAARRD). She is an expert in agricultural research management with over 15 years of experience.

She graduated cum laude in Bachelor of Science in Agriculture with a major in Horticulture and earned her Master of Science in Horticulture, major in Crop Production and Management, minor in Environmental Science from the University of the Philippines Los Baños. Currently, she is pursuing her PhD in Horticulture, with minor in Entomology, Molecular Biology, and Biotechnology at the same university.

As the Director of CRD, Dir. Pelegrina is responsible for overseeing the management, coordination, and setting the overall direction for DOST-PCAARRD's national research and development (R&D) initiatives in the crop sector. She also supervises the implementation of various research management activities in the same sector that are prioritized under the Council's Industry Strategic S&T Program (ISP). Translated

in the programs under her purview, one of her advocacies is to make R&D/innovation outputs available and accessible to the intended stakeholders.

In the past decade, she served as the Section Head of CRD's Program Monitoring and Evaluation and Program-Based Information System (PME-PBIS), ISP Manager for Vegetables and Abaca, and Commodity Specialist for Coffee. She also played a pivotal role in overseeing DOST-PCAARRD's initiatives on other commodities that focus on fiber and industrial crops, papaya, sugarcane, and plant genetic resources (PGR). She has worked with international organizations such as the National Service of Agri-Food Health and Quality-Argentina, Australian Centre for International Agricultural Research, International Coconut Community, World Vegetable Center, Manila Economic and Cultural Office – Taipei Economic and Cultural Office, and Consultative Group on International Agricultural Research.

Adding to her line of significant contributions in the field of crops R&D, Dir. Pelegrina currently serves as the Vice President of the Crops Science Society of the Philippines (CSSP), a professional society that recently concluded its scientific conference jointly with the Society for the Advancement of Breeding Research in Asia and Oceania (SABRAO), DOST-PCAARRD, and Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA).

ORAL AND POSTER PRESENTER

Growth and Yield Performance of Queen Pineapple Using Different Combinations of Vermicast, Chicken Dung, Foliar Fertilizer, and Organic Concoctions in an Organic Production System

Eula D. Rada, Jyne E. Ramos, Jude Mike Castro, Segundo Sorita, Flor Angielyn B. Campita*

Department of Agriculture Regional Field Office 5, Camarines Norte Lowland Rainfed Research Station, Calasgasan, Daet, Camarines Norte

Email: euladipasupil@gmail.com
Phone number: 09289885566

ABSTRACT

Six field trials were conducted in Region 5 to identify the growth and yield performance of Queen pineapples using different combinations of organic fertilizers. The aim was to determine the most effective fertilizer combinations to contribute to the development of technology for Queen pineapple production under an organic farming system. Four combinations of organic fertilizers were tested: Vermicast + Organic (F1), Chicken Dung + Organic (F2), Vermicast + Organic Foliar (F3), and Chicken Dung + Organic Foliar Fertilizer (F4). The results of the experiment showed that combination F4 had a significant positive effect on the growth performance of Queen pineapples, improving plant height, width, and leaf count. Across all sites, F4 produced the highest average fruit weight at 977.89 grams, while F2 excelled in fruit length (16.36 cm) and sweetness (18.54 °Brix). The results also suggest that organic farming practices can extend the shelf life of Queen pineapples, potentially reducing waste and increasing marketability. A comprehensive cost and return analysis revealed significant differences in profitability among the treatments, with F4 achieving a return on investment (ROI) of 235%, and F2 closely following with an ROI of 233%.

KEYWORDS

Queen pineapple, Organic Fertilizers, Organic Farming System, soil fertility, growth and yield performance

BIOGRAPHY

Engr. Eula D. Rada, born on January 5, 1989, in Talisay, Camarines Norte, currently resides at Luisito Street, Brgy II, Daet, Camarines Norte. She holds a Bachelor of Science in Agricultural and Biosystems Engineering from Bicol University College of Agriculture and Forestry and is pursuing a Master's in Resource Management, majoring in Environmental Management at Central Bicol State University of Agriculture. With extensive experience as a Science Research Specialist II in the Department of Agriculture RFO5, Engr. Rada excels in managing and conducting agricultural research projects. She has led numerous studies on Queen Pineapple production and has earned recognition for her contributions. Engr. Rada is dedicated to advancing sustainable agricultural practices in the
Bicol Region.

RESEARCH INTEREST

Her work emphasizes developing new technologies to enhance crop yield and quality. Engr. Rada is also interested in the development and dissemination of innovative agricultural technologies and their adaptation to local farming conditions. Her goal is to improve the sustainability and profitability of agricultural systems in the Bicol Region, contributing to the overall advancement of the agricultural sector.

ORAL PRESENTER

Energy Balance of Queen Pineapple (Ananas comosus L. Merr.) Production in Camarines Norte

Rohilyn E. Colenares, Sherwin R. Reyes, Paul Medard P. Anchuelo, Jesus Mark C. Nape, Liezel Ann S. Rodavia*

Camarines Norte State College, College of Agriculture and Natural Resources

Email: rohilyncolenares@cnsc.edu.ph
Phone number:0967-3304-125

ABSTRACT

High market demand and strict export standard for Queen pineapple led to the intensive use of chemical inputs (i.e. pesticides, fertilizers, and plant growth regulators). These practices affect soil properties and nutrient availability leading to low agricultural productivity and sustainability relating to increasing carbon footprints and soil losses. Thus, to design sustainable development strategies suitable for Queen pineapple in the province, the energy-use of all of its production aspects was accounted for.

The total energy input in Queen pineapple production is 808,736.355 MJha-1 where 88.82% of which is contributed by nitrogen, 4.44% from P, and 1.94% from K. Planting materials (sucker) accounts for 4.34% of the energy input while the remaining portions are from herbicide, labor cost, fuel, and plant growth regulators. The total energy produced is 244,123.23 MJha-1 where 75.67% is from suckers, and 24.33% is from the fruits. Accounting the practices from various slopes and cropping systems, Queen pineapple production has an energy efficiency of 30.92%. Thus, strategies that could minimize the nitrogen use is recommended to ensure a sustainable Queen pineapple industry in the province of Camarines Norte.

KEYWORDS

Queen pineapple, energy efficiency, sustainable production, nitrogen

BIOGRAPHY

Ms. Colenares is an Associate Member of the esteemed National Research Council of the Philippines (NRCP), a distinguished organization of researchers and scientists. She is also a member of the Gamma Sigma Delta Honor Society of Agriculture (GSD-HAS), recognized for her consistent academic excellence since 2009. Her professional affiliations further include memberships in the Crop Science Society of the Philippines (2014) and the Philippine Association of Agriculturists (PAA). Her expertise spans across agronomy, particularly in rice and sugarcane production, as well as crop production and management with a focus on Queen pineapple. Ms. Colenares has a deep understanding of crop physiology, molecular biology, and biotechnology. Her research interests extend to energy balance in agriculture, sustainable agricultural practices, soil-plant relationships, stress physiology in plants, and postharvest management of crops.

RESEARCH INTEREST

Sustainable Queen pineapple production, biotechnology of Queen pineapple, QP characterization

ORAL PRESENTER

Green Life Extension and Inhibition of Endogenous Brown Spot in 'Smooth Cayenne' Pineapple (Ananas comosus L. Merr) Coated with Emulsified Virgin Coconut Oil

Kristopher M. Sulatorio, Joshua B. Mirabueno, Rona Kay G. Franco, Lester I. Balatian, Lilia M. Fernando-Corpuz and Wella A. Morales*

Institute of Plant Breeding, College of Agriculture and Food Science, University of the Philippines Los Baños

Email: kmsulatorio@up.edu.ph
Phone: 0997-8104-827

ABSTRACT

Pineapple ranks as the second most valuable export crop of the Philippines performing competitively in the global market. However, the short postharvest life and susceptibility to endogenous brown spot (EBS) when stored at low temperature, hinders its potential in reaching distant markets like Europe and the Middle East. With the increasing attention on the use of safe and naturally-occurring materials from renewable agricultural resources and/or food processing wastes, this study explored the potential of virgin coconut oil (VCO) as an edible coating. Newly harvested commercially mature 'Smooth Cayenne' pineapples were spray-coated with freshly prepared VCO emulsions of varying concentrations (5, 10, 25%). Coated fruits were air-dried and stored at 20±3℃. Quality parameters (weight loss, peel color, incidence and severity of EBS, and visual quality) were evaluated every other day. Physico-chemical attributes (firmness, total soluble solids (TSS), titratable acidity (TA), pH, and TSS/TA ratio) were measured on the 14thday of storage. Among the concentrations tested, 25% VCO exhibited a greater potential in extending the storage life of pineapples as demonstrated by its good moisture barrier and its effectivity in modifying the internal atmosphere of the fruit. Coating 'Smooth Cayenne' pineapple with 25% VCO significantly reduced weight loss, delayed shell degreening, and inhibited the development of EBS. The fruits were still highly marketable at the end of storage. The physico-chemical attributes of control and coated pineapples were comparable indicating that VCO coating did not impair the ripening of the fruits.

KEYWORDS

Edible Coating, Endogenous Brown Spot, Green Life, Pineapple, Virgin Coconut Oil

BIOGRAPHY

She graduated with a Bachelor of Science in Agriculture, majoring in Crop Science-Horticulture, from Central Mindanao University (CMU) in 2017. That same year, she passed the Licensure Examination for Agriculturists (LEA). Continuing her education, she earned a Master of Science in Horticulture with a specialization in Postharvest Physiology and a minor in Food Science from the University of the Philippines Los Baños in 2023. Currently,
she is a University Research Associate II at the Postharvest Horticulture Training and Research Center (PHTRC), University of the Philippines Los Baños (UPLB).

RESEARCH INTEREST

Postharvest preservation of fruits and vegetables such as coatings, waxing and other green preservation techniques.

ORAL PRESENTER

Meristem Propagation Of 'Red Spanish' Pineapple from Different Explant Grown in Varying Culture Media

Judy Ann V. Buñog, Evelyn P. Vedasto, Eva R. Orlina, and Michael T. Ibisate*

College of Agriculture, Forestry and Environmental Sciences Aklan State University, Banga, Aklan 5601 Philippines

Email: judyann.bunog@asu.edu.ph

ABSTRACT

This study employed a Completely Randomized Design (CRD) to determine the effects of different explant sources (suckers, crowns, and slips) and culture media (tapioca, sago, corn starch, and gelatine) on the growth performance of 'Red Spanish' pineapple through meristem culture at the Tissue culture Laboratory of the Aklan State University in Banga, Aklan. The study revealed that the source of planting material significantly influenced the survival percentage of the 'Red Spanish' pineapple explant. Explants from suckers exhibited the highest survivability rate at 76.67 %, followed by slips at 71.67% and crowns at 61.67 %. In terms of shoot formation, the highest number of shoots was observed in the tapioca and corn starch media with a mean of 1.76 shoots. Shoot length was longest in the corn starch medium at 2.30 cm but was comparable to tapioca starch (2.24 cm) and gelatine (2.13 cm). Root development was most pronounced in the tapioca starch medium with an average of 2.02 roots but similar with corn starch and gelatin, while the gelatine medium exhibited the lowest expenses (Php. 3,178.11).

KEYWORDS

Red Spanish pineapple, Tissue culture, rooting response, Culture media, Meristem culture.

BIOGRAPHY

JUDY ANN VEGA BUÑOG was born on January 12, 1997 at Joyao-Joyao, Numancia, Aklan. She is the second daughter among eight children of Mr. Joeren Mamburam Buñog and Mrs. Elisa Vega Buñog. She finished her elementary and secondary education at Numancia Integrated School (NIS), Poblacion, Numancia, Aklan in 2014. In 2018, she completed her Bachelor of Science in Agriculture (BSA) with Crop Science specialization from Aklan State University (ASU) in Banga, Aklan. In June 2018, she took and passed the Licensure Examination for Agriculturist (LEA) given by the Professional Regulations Commission (PRC) administered on June 24, 25 and 26, 2018 at Iloilo City. In her desire to acquire up-to-date knowledge and skills in his chosen field, as well as gain a competitive edge in the pursuit of his career, she took up Master in Crop Science Major in Agronomy at ASU, Banga, Aklan, and finished the degree in June 2024.

RESEARCH INTEREST

Tissue Culture, Integrated Pest Management, Agronomy

ORAL AND POSTER PRESENTER

Technology Adaptation of Pineapple-Based Farming System (Queen Pineapple + Taro + Corn + Peanut) in Camarines Norte

Dacillo, J.M., Manlangit, J.A.,Rada, E.M.,Villagen, J.M., Campita, F.A.B., Ollero, K.R*

Department of Agriculture Regional Field Office No V, Philippines
DA - Bureau in Agricultural Research.

Email: jasmindacilloda2017@gmail.com
Phone number: 0917-5557-540

ABSTRACT

In Camarines Norte, the primary commodity is the Queen Pineapple (Ananas Comosus) known as the sweetest variety. In this study has been able to determine the technology adaptation of a pineapple-based farming system that includes taro (Colocasia esculenta), corn (Zea mays), peanuts (Arachis hypogaea), and queen pineapples (Ananas comosus). Integrating these crops aims to increase farmers' profitability, sustainability, and productivity of the selected 80 farmer cooperators from Basud, Labo, and San Lorenzo Ruiz, Camarines Norte. The study emphasizes the advantages of intercropping, including enhanced resource efficiency, pest and disease control and maximizing the land. Field experimental trials, farmer group discussion, and yield assessments were used to gather data. According to the results, the intercropping strategy considerably gained additional income and output overall while lowering reliance on chemical inputs and labor costs. The study concludes that using this varied farming strategy can result in more resilient farming methods, enhancing food security and sustainable development.

KEYWORDS

Queen pineapple, Technology Adaptation, Intercropping

BIOGRAPHY

As a permanent Science Research Specialist I with the Department of Agriculture at Regional Field Office No. 5, my name is Jasmin M. Dacillo. I have been working in research and development for around seven years, specializing in rice, vegetables, and queen pineapple commodities. For the last six years, I have been assigned to DA□CNLRRS in Daet, Camarines Norte. In addition to being the project leader and study leader of the previously finished research titled "Development of Site Specific Nutrient Management for Improvement of Queen Pineapple in Bicol Region," I was promoted in November 2023 and assigned to the Regional Office. However, I am currently the project leader of the ongoing study titled "Phase 2: Site Specific Nutrient Management (SSNM) for Improvement of Queen Pineapple in Bicol Region."

RESEARCH INTEREST

Economic Improvement of Queen Pineapple Growers, Sustainable Farming System, Technology Adaptation and Transfer, Technology Commercialization.

ORAL PRESENTER

Exploratory Sequential Mixed Method Analysisof Gender Labor Allocation among Households of Small Queen Pineapple Farmers in Camarines Norte, Philippines

*Noel Cornel Alegre, MPD,MASoc, Ria Pascor Morales, MSSoc, Ronald Jalina Escasinas, MSSoc**

Camarines Norte State College

Email: ronaldescasinas@cnsc.edu.ph
Phone: 0910-4076-990

ABSTRACT

Camarines Norte is known for its Queen Pineapples (Formosa), which is the primary reason for the Piñasan Festival celebration in the province. However, beyond the grandiose celebrations to acknowledge the economic contribution of this crop, are the men and women QP farmers. Many of these are small-scale farmers, typically cultivating less than 2 hectares, as classified by the FAO (APCAS 2010) and Philippine law (RA 7607, 1992), with annual incomes below Php180,000. Campita's (2021) research outlines the Queen Pineapple's characteristics and improvements. However, there is a lack of studies on the gender division of labor among Queen Pineapple farmers in the Bicol Region. Aligned with CNSC QPRDC's goal to enhance the quality and postharvest handling of QP. A study exploring gender roles among these farmers is crucial for developing an effective research and extension agenda. This study employed an exploratory sequential mixed-method design, the qualitative phase involved focus group discussions (FGDs) with 96 small-scale QP farmers from Basud, Labo, San Vicente, and San Lorenzo in Camarines Norte. Participants were selected based on their small size plantations with a balanced gender representation. Household and farm activities were classified into "productive" (income-generating) and "reproductive" (household-maintaining), revealing the often- hidden economic contributions of women (Medagbe et.al. 2020). After determining 32 regular activities, this was followed by a quantitative survey of 833 men and 485 women across 12 municipalities of Camarines Norte. This survey validates the labor allocation within the QP households and statistically evaluates gender differences. The findings confirmed a gendered labor allocation: women predominantly handle reproductive tasks, while men are more involved in productive activities. Despite women's growing presence in farming, traditionalroles persist, impacting their financial independence and well-being. This study emphasizes the need for a more equitable approach and policy to agricultural labor, recognizing and valuing women's diverse contributions.

KEYWORDS

Small-scale QP farmer, productive & reproductive activities, gendered labor allocation

BIOGRAPHY

He earned a Master of Science in Sociology at Asian Social Institute, Inc., Philippines, a licensed educator (PRC Reg. No. 1442797) and currently serves as the Program Chairperson for the Sociology Department of CNSC. In addition, he serves as an assistant to CNSC Planning and Development Office. His administrative responsibilities include preparing the President's Report for BOT, ensuring compliance with external agency requirements, etc. As an instructor, he teaches courses in Sociology, such as Social Statistics, Research Methods, etc. He has been recognized with awards, including the CNSC Gintong Parangal Presidential Award the Best Creative Work Award in 2023 as one of the writers of Man, Bridge and Ladder (Copyright Registration and Deposit No. 02023-67). Moreover, he has experience as a co-researcher, on the Queen Pineapple Gender Study and Indigenous research on kinship terms and patterns among the Manide people in Camarines Norte

RESEARCH INTEREST

Environmental impacts and socio-economic dynamics of small- scale fisherfolk and farmers, including Indigenous communities, within the context of sustainable development and resource management.

ORAL PRESENTER

Mechanism Of Induction of Chilling Injury and Its Alleviation By Heat-Induced Expression of Heat Shock Proteins in Pineapple [Ananas Comosus (L.) Merr. Cv. Queen] Fruit

Maria Adela J. Lacao and Edralina P. Serrano*

Palawan State University

Email: malacao@psu.palawan.edu.ph
Phone number: 0917-3028-382

ABSTRACT

The mechanism of endogenous brown spot (EBS) development and its alleviation by heat treatment in the 'Queen' pineapple fruit were investigated. Fruits exposed to hypothermal temperature below the critical, EBS develops and severity of symptoms is positively correlated with the duration of cold exposure. The development of EBS (EBS severity = 4) was suggested due to the increased synthesis of phenolic (34 mg/100FW) compounds during cold storage coupled with the de novo synthesis of PPO which acts on the phenolics to form quinones that are the precursors for the formation of brown pigments. Ascorbic acid content (300 mg/100g) for two weeks was hig, hence, EBS (EBS severity = 1) symptoms are not severe up to this duration of cold storage. When ascorbic acid is fully utilized (50mg/100g), its concentration and activity also diminish, thus concomitant with severe EBS (EBS severity = 5.5). Ascorbic acid is found in great amounts in a normal pineapple fruit and the level does not diminish even on prolonged storage at ambient conditions, thus, EBS disorder does not develop. The optimal temperature-duration, 45°C at 10 min, helped in the alleviation of EBS symptoms which is suggested to be due to the induction and synthesis of small HSPs (5 to 40 kD and <10 to 30 kD acetone and TCA precipitates, respectively) that are considered to have a role of providing thermotolerance mechanism in many plants. The levels of these proteins are maintained up to the third week of storage in the cold corresponding to alleviation of EBS symptoms of about 50% relative to the non-heated fruits stored at the same cold conditions and duration. In non-heated cold stored fruits, the HSPs diminish in concentration and consequently their role in alleviating the symptoms of EBS on prolonged storage.

KEYWORDS

Chilling injury, endogenous brown spot, heat treatment, heat shock protein

ABBREVIATIONS

EBS – endogenous brown spot, HWT – hot water treatment, HSP – heat shock protein, AA – ascorbic acid, DHA – dehydroascorbic acid, PPO – polyphenol oxidase.

BIOGRAPHY

AMaria Adela Javarez Lacao is a biochemist with a double cognate in Food Science and Technology and Molecular Biology. She was born and raised in Palawan, where she attended Palawan State University for her primary and secondary education. She graduated from the University of the Philippines Los Baños (UPLB) with a Bachelor of Science in Agricultural Chemistry and a Master of Science in Biochemistry. For ten years, she worked as a researcher at the National Institute of Molecular Biology and Biotechnology as well as the Postharvest and Horticultural Research and Training Center at UPLB. She joined Palawan State University in 2012 and has taught biochemistry in the BS Medical Biology, BS Nursing, BS Education, and BS Marine Biology programs for the past eleven years. A trained researcher in biochemistry, biotechnology, postharvest science, and food science. For a year, she served as the University Research Director while also serving as the Operations Manager of the Palawan International Technology Business Incubator (PITBI). She is a university Intellectual Property agent who is also involved in technology transfer and commercialization.

RESEARCH INTEREST

Biotechnology, Postharvest, Food Science, Biochemistry

ORAL PRESENTER

Gender Roles among Small-Scale Queen Pineapple Farmers in Camarines Norte: A Thematic Analysis

Noel Cornel Alegre, MPD,MASoc, Ria Pascor Morales, MSSoc and Ronald Jalina Escasinas, MSSoc*

Camarines Norte State College

Email: riamorales@cnsc.edu.ph
Phone number: 0928-6983-242

ABSTRACT

Despite the essential contributions to pineapple production, Queen pineapple farmers managing farms under two hectares are often underrepresented in agricultural statistics and are overlooked in research. Most existing studies prioritize the technical aspects of pineapple farming, leaving a significant gap in understanding the socio- economic conditions and gender roles of these farmers. The research focuses on the gendered division of labor among small-scale Queen Pineapple farmers in Camarines Norte, a region that takes pride in its Queen Pineapples (Formosa), celebrated annually during the Piñasan Festival This study utilizes Focus Group Discussions (FGDs) as a primary method to investigate these dynamics. Conducted across four municipalities—Basud, Labo, San Vicente, and San Lorenzo Ruiz—the FGDs engaged 99 participants (51 males and 48 females), providing narrative-driven insights into the gendered allocation of labor. The findings reveal that while gender roles are increasingly shared, traditional divisions of labor persist. While women primarily handle reproductive tasks, such as household management and caregiving, men are more engaged in productive farm work. However, economic pressures and farm demands occasionally blur these distinctions, leading to role overlap. Using the feminist sociological perspective as an overarching concept this study highlights the social constructs that marginalize women's contributions in household and agricultural contexts. The complexities of gender dynamics in small- scale farming are highlighted, showing that women's labor, though critical, is often undervalued or invisible. Based on these findings, the study advocates for a collaborative effort between men and women to foster a more gender-inclusive approach to managing both farming and household duties. By providing resources, support, and continuous evaluation, the proposed initiatives aim to empower women, broaden their access to economic opportunities, and support the sustainable growth of the Queen Pineapple industry in Camarines Norte.

KEYWORDS

Small-Scale QP Farmer, Productive & Reproductive Activities, Gendered Labor Allocation, Feminist, Gender Inclusive

BIOGRAPHY

Assistant Professor 2 in Camarines Norte State College, she earned a Master of Science in Sociology at the Asian Social Institute, Inc., Philippines, Bachelor's Degree in Sociology in University of the Philippines Los Banos, served as the Program Chairperson of CNSC- Sociology Department from 2016- 2023. Instructor in the fields of Sociology (General Sociology, Social Psychology, Research Methods (Qualitative), Group Dynamics, Sociology of Deviant Behavior), ISO Internal Auditor for ISO 9001:20015 at CNSC (2017-2019), awardee as one of the most Outstanding Young Women Professionals of the Municipality of Daet (2019), Moreover, she has experience as a co-researcher, on the Queen Pineapple Gender Study and Indigenous research on kinship terms and patterns among the Manide people in Camarines Norte.

RESEARCH INTEREST

Lived experiences on Family and Relationships, Health and Illness, Culture including Indigenous communities, Social Inequality including Gender.

ORAL PRESENTER

Strategic Communicative Competence of Pineapple Growers as Negotiating Practices in Basud, Camarines Norte

Sharon T. Cabase, Juliet R. Nepumuceno, Alexandra D. Rodriguez;
*Co-Author: Margie B. Ocampo-Agawa, MLL**

Camarines Norte State College

Email: margieagawa@cnsc.edu.ph
Phone: 0910-0173-440

ABSTRACT

Pineapple farming as agricultural enterprise is considered valuable specially for small□medium farmers since they derive benefits such as income and. In third world countries like the Philippines, most smallholder farmers are characterized by poor market participation because they lack market information on pineapple marketing (Sigei, 2014). However, pineapple growers communicate with different players in pineapple farming, often adjusting to communicative difficulties they encountered. Thus, strategies to compensate for these communicative gaps are necessary. Focusing on Canale (1983) and Swain's strategic competence, this research determined the verbal communication strategies that are recalled to compensate for breakdowns in communication due to insufficient competence in one or more components of communicative competence. Specifically, it determined the strategic communicative competence used as negotiation strategies by pineapple growers in Basud, Camarines Norte. The data were taken from the recorded in-depth interviews with the pineapple growers and. This research utilized in-depth interview with pineapple growers, co-workers, buyers, years experience in planting pineapple and language used in business transaction Semi-structured questionnaires were used to collect data from small-scale pineapple farmers through face to face interview. Thematic coding was used to analyze the data gathered by researchers. The analysis of participants' responses showed the three strategic competences that pineapple growers employed as negotiation strategies: 1. asking for price; 2. setting an agreement; and 3. compensating breakdowns. Despite the increasing market value for pineapple, its communicative market discourses has not been fully studied. It is important to point out that strategic competence be studied further as a strategy to enhance the effectiveness of communication amongst small-cale farmers.

BIOGRAPHY

Ms. Margie B. Ocampo-Agawa is an academic with her expertise in the fields of language, literature, public administration, literacy development and community relations. Her almost 20 years of public service carrying equally important function along the areas of student services, financial assistance, public relations and the academe influenced her interest in giving hope, vying for sustainability and opting for change opportunities. As part of her advocacy for social justice, she volunteered in community activities and organized community livelihood projects. Currently, she is an Assistant Professor IV of CNSC College of Arts and Sciences and an faculty extentionist organizing livelihood projects for various communities. She is pursuing her Doctor of Philosophy Major in Language and Literacy development and earned her Master in Language and Literature at Ateneo de Naga University., Naga City She has also completed her academic requirement for Master in Public Administration. The achievement she earned reflects that is most passionate about promoting equity, equality, and social justice in the areas of language, literacy, education and community development.

ORAL AND POSTER PRESENTER

The Status of Postharvest Management Practices of Queen Pineapple (Ananas Comosus) in Camarines Norte, Philippines

Franz Andrew T. Tiangco, Imee C. Talavera, and Arlene C. Alegre, PhD*

Queen Pineapple Research and Development Institute

Email: sprinthort.p1@gmail.com
Phone number: 0917-6731-027

ABSTRACT

Camarines Norte is one of the provinces that supplies the country with Queen Pineapple (Ananas Comosus). The province is responsible for production of 164,162 metric tons planted in 4,166 hectares. The Queen Pineapple or QP variety is cultivated in the province with 70% of the farmers concentrated in Basud, San Lorenzo, Labo and San Vicente towns. Freshly harvested QPs are shipped to different centers in the Bicol region, and in hubs like the Balintawak Public Market. The study aimed to assess and investigate various harvest practices and loss management protocols of 211 farmer respondents. Preharvest losses are at 14.9%, which highlights the need for measures in minimizing the losses at the production level. Poor cultural management practices lead to pest infestation and disease which results in undersized and uncategorized pineapples. Farmer-respondents reported that high losses postharvest are attributed to their limited access to resources and financial capital which influences the efficiency in farm operations. Losses during postharvest comprise 47.82% of the total harvest. These are in the form of non-marketable and marketable rejects at 12.71% and 35.11%, respectively. Mechanical damage at harvest, rough handling during the sorting process, manual loading, and poor transportation conditions all contribute to these losses. The study also found out that some traders finance small farms and loan them capital. During harvest, traders dictate the price and harvest schedule based on demand that leads to lower quality produce. Several collaborations with industry stakeholders like Dizon Farms have been established where farmers directly supply fresh harvest to the company. Mitigation of losses in the 'Queen' pineapple value chain is important in ensuring the highest standard for the product is achieved. Likewise, this study urges the key players to prioritize technology development in handling and distribution, sustainable practices, and adoption of novel technologies.

KEYWORDS

Queen pineapple, horticulture, postharvest, value chain analysis .

BIOGRAPHY

Engr. Franz Andrew Tiangco is the Project Technical Assistant III of the Camarines Norte State College (CNSC) - Strategic Postharvest Research for Innovative and Novel Technologies for Horticulture Industry Development (SPRINT – Hort) Program under the Project Title of Postharvest Systems Improvement of Selected Horticultural Value Chains since May 2024. He started his career at the CNSC as an instructor at the College of Arts and Sciences teaching mathematics, physics & statistics and later joined the Queen Pineapple Research and Development Institute or QPRDI. Mr. Tiangco is a graduate of BS Chemical Engineering at the University of the Philippines Los Banos.

RESEARCH INTEREST

By-Product Utilization, Wastewater Treatment, Postharvest Practices, Value Chain Analysis, Innovative and Novel Technologies

ORAL PRESENTER

Training Needs Assessment of Queen Pineapple Farmers in Camarines Norte, Philippines

Mary Jane J. Ferrer, Riezalyn B. Taruma, Jeanny A. Nagrampa, and Manilyn V. Dasco*

Camarines Norte State College

Email: maryjaneferrer@cnsc.edu.ph
Phone number: 0909-3372-361

ABSTRACT

This study presents the training needs of Queen pineapple (Qp) farmers in Camarines Norte, Philippines to investigate the needs at the grassroots level as baseline information for appropriate extension interventions. Descriptive research was employed in this study. The data was gathered from 320 research participants through simple random sampling. Quantitative data was gathered using semi-structured survey questionnaires while qualitative data was gathered through focus groups to give meanings and contextual data. Data were analyzed through frequency counts, percentage, and weighted mean. Findings revealed that majority of Qp farmers are men (65.6%), aging 50-60 years (30.6%), mostly high school and elementary graduates (30%), more than 10 years in pineapple farming (56.3%), and land owner (35%) of pineapple areas with less than 2 hectares (84.7%). Majority (78.8%) are not members of any organizations and in marketing, traders and contract buyers are the main source of price information (73.8%). Results show that few (4.6%) attended training on various technologies conducted by various government agencies. The study revealed that the topmost training needs are research-based technologies (4.49), marketing (4.49), financial management (4.47), fertilizer application (4.44), record keeping (4.41), weed control (4.38), fruit processing (4.35), fruit enhancement (4.34), pest management (4.30), capacity-building (4.27), and organization and management (4.25). The preferred extension methods by farmers are farm and home visit (39.8%), seminar (20.8%), and broadcast media (44.4%). The major problems encountered by Qp farmers are the high cost of production inputs (4.59), lack of capital (4.45), and low or unregulated Qp farm gate price (3.27). Thus, the results show that pineapple farmers' needs are still on the increase in the production and enhancement of the quality of pineapple produce by addressing the production, marketing, and financial constraints they face with the constant technical assistance and policy regulation enforcement of various government agencies and other sectors.

KEYWORDS

Training needs, queen pineapple, farmers, extension method, extension interventions

BIOGRAPHY

MARY JANE JANUARIO-FERRER, a licensed professional agriculturist and Assistant Professor II at Camarines Norte State College (CNSC). She graduated Bachelor of Science in Agriculture major in Agricultural Extension (2010) and Master of Science in Agricultural Extension (2015) with Dean's List Award from CBSUA-Pili Campus. Currently, she is pursuing Doctor of Philosophy in Development Studies at the University of the Philippines Los Baños. She is a member of Philippine Extension and Advisory Services Network Inc. (PhilEASNet), Philippine Association of Agriculturists, Inc. (PAA, Inc.), and Philippine Association of Extension Program Implementors (PAEPI), Inc. A Project Leader of DOST-GIA Externally Funded Project under the QP-NICER Program; proponent/implementer of extension projects on e-BUKID sa Panahon ng COVID-19 (2020), Radio Program: Diskarte sa Pagsasaka at Iba Pa (2019-2020), Training on Vermicomposting Production (2019), and Container and urban gardening (2016); and resource person, paper presenter, radio guest, coordinator, and facilitator of various extension and research undertakings.

RESEARCH INTEREST

Social science research related to agriculture and marginalized sectors

ORAL PRESENTER

Detection of Pineapple mealybug wilt-associated viruses infecting Queen Pineapples [Formosa variety, Ananas comosus (L.) Merr.] from Camarines Norte, Philippines

Alexandra Marie R. Beniga,Anna Mae de Los Reyes, Arlene C. Alegre, Eureka Teresa M. Ocampo*

College of Agriculture and Food ScienceUniversity of the Philippines Los Baños, Institute of Plant Breeding University of the Philippines Los Baños, Queen Pineapple Research and Development Institute Camarines Norte State College*

Email: arbeniga@radup.edu.ph
Phone: 0998-5880-879

ABSTRACT

The Queen Pineapple, a cash crop in Camarines Norte, has shown reddening of the leaves, fruit size reduction, and mealybug infestation. These symptoms are indicative of mealybug wilt disease, which is believed to be caused by pink mealybugs that served as vectors for pineapple mealybug wilt- associated viruses (PMWaV). This study aim to detect the presence of PMWaV in the queen pineapple obtained from Camarines Norte specifically by conducting a reverse transcription polymerase chain reaction assay (RT-PCR) and doing nucleotide sequencing and phylogenetic analysis to verify the result. After conducting the RNA extraction and purification using modified CTAB extraction method (Sehat, 2021) and DNase treatment, an RT-PCR assay was conducted on 17 pineapple suckers using gene-specific primers amplifying the heat shock protein (HSP) 70 for PMWaV-1 and PWMaV-2, and the RNA-dependentRNA polymerase (RdRp) for PMWaV-3. Results revealed that among 17 samples, 14 testedpositive for PMWaV-1,none tested positivefor PMWaV-2, and all 17 samples testedpositive for PMWaV-3. Phylogenetic analysis showed that PMWaV-1 was closely relatedto Uganda and Ghana isolates, and PMWaV -3 was closely related to Australian isolates. Identifying the PMWaV variants associated with mealybug wilt disease in queen pineapples in Camarines Norte is essential for developing effective disease management strategies in the region. To our knowledge, this is the first report of the RT-PCR-based analysis confirming the presence of PMWaV-1 and PMWaV-3 in pineapple samples in the Philippines.

KEYWORDS

queen pineapple, pineapple mealybug wilt-associated virus, mealybug wilt disease

BIOGRAPHY

Alexandra Marie Beniga has a degree in Agricultural Biotechnology which she pursued due to her unyielding passion for nature due to being raised by aunts and uncles who are farmers. In high school, she led her team on winning First Place in the National Children's Science Congress 2016 presenting their study about the antimicrobial activity of Bamban(Donax canniformis). In 2020, she and her partner landed as a regional finalist in ASEAN Data Science Explorers with their project entitled the Agricultural Modernization through Agricultural Biotechnology. In 2022, she was also an intern at Queen Pineapple Research Development Center wherein she contributed her molecular knowledge and gained exposure to the QP industry of Camarines Norte. This has influenced her to pursue a queen pineapple-related study for her undergraduate thesis to honor her home province.

RESEARCH INTEREST

Agricultural Biotechnology, Molecular Markers

ORAL AND POSTER PRESENTER

Standardization of Planting Materials and Time of Flower Induction for Optimized Yield of Queen Pineapple

*Eula D. Rada, Flor Angielyn B. Campita**

Department of Agriculture Regional Field Office 5, Camarines Norte
Lowland Rainfed Research Station, Calasgasan, Daet, Camarines Norte

Email: angielyncampita12@gmail.com
Phone number: 0909-2535-998

ABSTRACT

Field experiments were conducted in Camarines Norte to determine the optimal size of planting material and timing for induced flowering to maximize the yield of Queen pineapple. The study employed a split-plot design with four replicates, assessing six sizes of planting materials as main plots and five different timings of induced flowering as sub-plots. Results showed that medium (T3) and large (T4) planting materials significantly enhanced growth parameters of Queen pineapple, such as plant height, width, and number of leaves, compared to smaller sizes of planting materials. Timing of flower induction significantly impacted fruit size and flowering efficiency, with induction at 9 to 10 months post□planting yielding larger fruits and higher forcing efficiency. Notably, medium and large planting materials induced at 9 months after planting not only enhanced growth and flowering percentages but also reduced the production period of Queen pineapple from 16.5 months to 13.5 months. These findings underscore the importance of selecting the best size of planting materials and precise timing of flowering induction to enhance Queen pineapple production.

KEYWORDS

Queen pineapple, planting materials size, flower induction, growth parameters, yield optimization.

BIOGRAPHY

Flor Angielyn B. Campita, based in Tierra Oriente, Brgy. Bautista, Labo, Camarines Norte, is an accomplished agricultural researcher. A license agriculturist and currently pursuing a Master of Science in Plant Protection, Major in Entomology at Central Bicol State University of Agriculture. With a Bachelor of Science in Agriculture, Major in Crop Science from Camarines Norte State College, she holds various non-academic qualifications, including certifications in Organic Agriculture Production and Agricultural Crop Production. Since March 2010, she has been with the Department of Agriculture RFO5, providing technical assistance in research projects. Her work primarily focuses on Queen Pineapple production, having led numerous studies and earned several awards for her contributions. Flor Angielyn's dedication to agricultural innovation and sustainability is evident through her extensive involvement in research and training programs, aiming to enhance agricultural practices in the Bicol Region.

RESEARCH INTEREST

Her research interests include the development of technologies for Queen Pineapple, corn, and vegetable production. She is dedicated to developing integrated pest management strategies, optimizing planting densities, and utilizing organic and site□specific nutrient management to enhance crop yield and quality. Flor Angielyn also explores the effects of cultural management practices on crop growth and productivity. Her research aims to advance sustainable farming techniques, promote environmental stewardship, and contribute to the agricultural development of the Bicol Region.

ORAL PRESENTER

Modified Atmosphere Packaging (MAP) and Low Temperature Storage Extends Shelf Life of 'Queen' Pineapple (Ananas comosus [Linn.] Merr.)

Jochelle Gilina G. Lontoc , Johannah I. Nuica , Arlan James D. Rodeo, Ramelo E. Ramos, Ryan Anthony O. Lualhati*

Postharvest Horticulture Training and Research Center (PHTRC), College of Agriculture and Food Science (CAFS), University of the Philippines Los Banos (UPLB), Institute of Crop Science, CAFS, UPLB ,

Email: angielyncampita12@gmail.com
Phone number: 0909-2535-998

ABSTRACT

The Philippines is a global leader in pineapple export, ranking second in terms of volume and value. Despite consistent growth driven by a strong demand for its premium-quality produce, the industry still faces challenges including high postharvest losses due to improper handling and storage, pathogenic diseases, and physiological disorders. One technology available to alleviate these challenges is Modified Atmosphere Packaging (MAP). MAP can mitigate mechanical hazards such as cuts and punctures, climatic problems like temperature and relative humidity fluctuations, and biological threats including decay and pest infestations. Despite its potential benefits, MAP is not widely adopted in the Philippine supply chain for transport, storage, and display. This study aims to explore the effectiveness of MAP using polyethylene (PE) bags in extending the shelf life and maintaining the pulp quality of 'Queen' pineapple when stored at different temperatures: 28-31°C, 20-22°C, and 10-13°C. Mature fruits of PCI 1 (full green) to PCI 2 (breaker stage, green with tinge of yellow at base) were detopped and stored for 30 days in MAP in combination with the aforementioned temperatures. Exposed fruits served as control. Each treatment combination was evaluated every three days. The external qualities of the fruit such as visual acceptability and change in peel color were monitored. Physicochemical quality including weight loss, firmness, pulp translucency, and internal browning, juice volume, titratable acidity, total soluble solids, pH, and vitamin C were also measured. MAP combined with storage at 10-13°C extended the shelf life of 'Queen' pineapple for 24 more days when compared to exposed fruits stored in 28-31°C. This extension was due to postharvest disease reduction and minimized cumulative weight loss. MAP alone maintained fruit firmness and juice content. Further research is needed to explore the effectiveness of different MA packaging options for various Philippine pineapple varieties.

KEYWORDS

low temperature storage, modified atmosphere packaging, physicochemical, pineapple, 'Queen'

BIOGRAPHY

Jochelle Gilina G. Lontoc is a 28-year-old researcher from Los Baños, Laguna. Her upbringing on a small homestead sparked her passion for plant sciences and horticulture. This interest led her to pursue a Bachelor of Science in Agriculture, with a major in Horticulture and a specialization in Landscaping, at the University of the Philippines Los Baños (UPLB). Following a brief stint in the landscaping industry, she continued her education at UPLB, earning a Master of Science in Horticulture with a major in Crop Physiology and a minor in Agronomy. Since 2021, Jochelle has been serving as aProject TechnicalAssistant at the Postharvest Technology Research Center (PHTRC) at UPLB. In her current role, she is engaged in developing low-cost cooling and storage systems for horticultural produce, aiming to enhance the efficiency and sustainability of postharvest handling.

RESEARCH INTEREST

Postharvest, Sustainable Agriculture

ORAL PRESENTER

Supply Chain Analysis of Pineapple in Sta. Maria, Laguna, Philippines

Anaylyn A. Cacal, Mark Allan L. Flores, MSA, Charmyne V. Sanglay, MM and Jayson N. Olayta, PhD*

Laguna State Polytechnic University – College of Agriculture Siniloan, Laguna, Philippines

Email: charmyne.sanglay@lspu.edu.ph
Phone number: 0965-3556-939

ABSTRACT

Pineapples are a key crop and top agricultural commodity in the Philippines, with the country ranking second globally in total pineapple production as of 2019. This study focuses on data collection through a survey questionnaire, employing a checklist method as the data collection instrument. The study involved 100 respondents, including 35 farmers/producers, 35 traders (wholesalers and retailers), and 30 consumers, primarily within the age groups of 20-30 and 31-40 years. Among the farmers, 22 were female and 13 were male, while among traders, 31 were female and 4 were male.Primary activities practiced by pineapple farmers include selecting planting material ("suhi")—exclusively the Hawaiian variety of pineapple—land preparation using single-row planting ("tanim isa"), fertilizer and herbicide application, and flower induction to ensure uniform flowering and harvesting, with Ethrel being the common agent used. The study identifies various problems and constraints within the pineapple supply chain, including pest infestation, poor quality, rotting, and susceptibility to natural calamities. In Sta. Maria, Laguna, farmers face challenges such as low profitability, lack of knowledge and skills in developing value-added products, and limited access to training and seminars. Traders (wholesalers and retailers) add Php5-20.00 as their profit for each pineapple size purchased from farmers/producers. However, the study does not provide information on the current yield of pineapple crops in Sta. Maria, Laguna. To address these challenges, the study recommends that both farmers and traders explore value-added products to increase profitability. It also emphasizes the importance of attending seminars related to pineapple farming and sales, as well as innovating new products to enhance understanding and knowledge of farming and sales.

KEYWORDS

Pineapple, Supply Chain, Traders, Value addition, Profitability

BIOGRAPHY

She is an exceptionally skilled academician. Her commitment to developing the minds of upcoming agricultural leaders is demonstrated by her employment as an Assistant Professor IV at Laguna State Polytechnic University (LSPU). At the heart of Charmyne's academic endeavors lies a passion for pioneering research and visionary leadership. Her role as the Project Leader at the LSPU Mushroom Research and Production Center epitomizes her commitment to pushing the boundaries of knowledge. Through her innovative initiatives, Charmyne is instrumental in shaping the future of agriculture, ushering in a new era of sustainability and growth. Currently, she is studying Doctor of Philosophy in Community Development at CPAF-UPLB

ORAL PRESENTER

Production and Marketing Strategies of Pineapple Growers in Calauan Laguna

Ryan Jay V. Acula, Rommel Octavius R. Nuestro, Mark Allan L. Flores, Jayson N. Olayta and Charmyne V. Sanglay*

]Laguna State Polytechnic University – College of Agriculture Siniloan, Laguna, Philippines

Email: jayson.olayta@lspu.edu.ph
Phone number: 0905-3154-485

ABSTRACT

Pineapple holds significant economic importance in the Philippines due to its widespread cultivation, prominent export position, and favorable climate. As a leading producer and exporter, the country makes a substantial contribution to the global market. This study primarily focused on data collection concerning the production and marketing system of pineapple in Calauan, Laguna, Philippines. The descriptive research design was used in the study covering the quantitative data gathered from fifty-two (52) pineapple growers utilizing checklist-based questionnaire. The study revealed that production of pineapple was established for more than 10 years in a one to two hectares of land generating an approximate income of PhP 100,000.00 to PhP 200,000.00 annually. Most common pineapple cultivar planted was Smooth cayenne or Hawaiian cultivars. Data revealed that the production systems undetaken by the pineapples were grown in a free draining loam soil applied with inorganic fertilizer every two months and regular weeding was done. Harvesting was done manually to maintain the quality of fruits. Direct marketing of pineapple showed helpful to the growers for easy generation of income after harvesting. Common preference on Calauan pineapple was based on its sweetness regardless of its size and mostly bought by the buyers and consumers in farm gate level. Pricing of pineapples were based on its size considering its class. Promotion and sales of pineapples were based on direct selling and wholesale and on cash basis. The study identified several challenges low demand of product, low supply of product, lack of planting materials and pest and diseases. To address these challenges, the study recommended that pineapple growers may explore biotechnologies through government intervention to increase the number of planting materials and production of quality pineapple. It also recommended that pineapple growers may attend trainings and seminars regarding marketing, bookkeeping and post-harvest for value adding technologies that will help to increase the income.

KEYWORDS

Production Systems, Marketing Strategies, Pineapple, Pineapple Growers, Hawaiian cultivars

BIOGRAPHY

A/Prof. Jayson N. Olayta is currently the Chairperson for Student Affairs and Services at the Laguna State Polytechnic University. He earned his doctorate degree in agriculture (PhD Agriculture) specializing Crop Science. He also earned his Masters degree in Rural Development in which he focused on agricultre and agri-ecotourism. As licensed agriculturist, he was engaged in instruction, research, extension and production over the years. With his hard work and dedication, he published several research articles related to agriculture and social researches in a peer-reviewed journals and continuously contributes to the development of his instituion served, the community and the country.

RESEARCH INTEREST

Agricultural technologies, Agricultural Extension & Rural Development, Crop Science

ORAL PRESENTER

Production and Marketing of Pineapple (Ananas Comosus) In Mabitac, Laguna and Pililla, Rizal

Rachelle Alcantara Aquino, Mark Allan L. Flores, Msa, Lolita L. Beato, PhD, Jayson N. Olayta, Phd, Charmyne D. Sanglay, MM*

Laguna State Polytechnic University College of Agriculture

Email: markallan.flores@lspu.edu.ph
Phone number: 0926-0079-020

ABSTRACT

Pineapples are one of the Philippines' most significant crops and agricultural exports, generating substantial foreign exchange earnings and providing employment for Filipino farmers. This study primarily focused on data collection concerning the production and marketing of pineapples, gathered through a survey questionnaire utilizing a checklist method. The survey involved 60 respondents from Mabitac, Laguna, and Pililia, Rizal. The findings revealed that most pineapple farmers were aged 46-54, with an equal distribution of male and female respondents. The majority were married and had completed high school as their highest educational attainment. The typical farm size ranged from 1 to 2.5 hectares, and most respondents had been cultivating pineapples for over 15 years, with annual incomes ranging from Php 50,000 to Php 100,000. In terms of production practices, 63.16% of farmers used draft animals to cultivate their land, while 57.14% preferred synthetic/commercial fertilizers, which they purchased commercially. They commonly employed side and top-dressing methods for fertilizer application. Meanwhile, for water management, 90% of respondents relied on rainwater for irrigation. Key players in purchasing pineapples were commuters, wholesalers, and retailers. Consumers predominantly paid in cash, with no preference for consignment payments. The study identified several production and marketing challenges, including quality issues, distance from markets, high farm input costs, pest infestations, natural calamities, and a lack of funding support. To address these challenges, the study recommended that farmers explore value-added products to increase profitability. It also emphasized the importance of attending seminars on pineapple farming and marketing and utilizing new technologies to reduce production costs and increase income.

KEYWORDS

Pineapple, Production and Marketing, Mabitac, Laguna, Pililia Rizal.

BIOGRAPHY

A dedicated academic with a strong background in agriculture. As an Instructor III at Laguna State Polytechnic University – Siniloan Campus, he combines his licensure as an Agriculturist with a passion for research and extension work. Holding a Bachelor of Science in Agriculture from Camarines Norte State College, he furthered his education through an international internship in Israel via AgroStudies and subsequent short courses at Ruppin Academic Center. He earned a Master of Science in Agriculture (Crop Science) from Laguna State Polytechnic University and is currently admitted for a Doctor of Philosophy in Horticulture at Institute of Crop Science, CAFS-UPLB. Currently, he serves as the Chairperson of NSTP and Program Chair for the Bachelor of Science in Agriculture program at LSPU Siniloan.

ORAL PRESENTER

Development of Queen Pineapple (Ananas comosus) Churros

*Lovewiserlyn O. De la Cruz * , Dr. Dolores C. Volante , Engr. Excelsa M. Fernandez , Brenda A. Castro, Ponciano J. Puse, Jr. , Graciella G. Sanglay*

Camarines Norte State College

Email: lovewiserlyndelacruz@gmail.com
Phone number: 0997-3088-260

ABSTRACT

This study was conducted to develop a product innovation of Churros. Churros is a sweet snack consisting of a strip of fried dough dusted with sugar or cinnamon and can also be dip in chocolate. Formosa or Queen Pineapple (Ananas comosus) has a distinct, very sweet flavor and highly nutritious fruit. Formosa variety known to prosper in Camarines Norte and can be a potential ingredient to incorporate in Churros. Camarines Norte State College as the Pineapple University of the Philippines, explore the potentials of the crop along variety enhancement and by-products development through research. It is believed that this study will be of great significance to the consumers as it offers an option for a better product in terms of quality, nutrition and variety. The product is a potential income generating project of the College and the Techno Hub in Camarines Norte. Thus, the researchers developed this product to determine its quality attributes in terms of aroma, flavor, and texture using organoleptic tests. This will be done to determine the acceptability of the product. The product testing will be done by the respondents from Camarines Norte State College, Food technology instructors and other experts of this college. Recommendations of the study includes further study on shelf-life, packaging and labelling of the product, cost analysis, mass production of the churros, technology transfer and finally the research product may be taken into consideration in the selection of food items produced in Camarines Norte in line with One-town-one product program of the government.

KEYWORDS

Queen Pineapple, Churros, Sensory Attributes, Product Development, Innovation.

BIOGRAPHY

"Love" is an esteemed faculty member known for her immense expertise and dedication in the field of Food Trades Technology and Instructional Technology. With a decade of teaching experience, she has shaped countless young minds and inspired students. She also served as the Campus Director of CNSC- College of Trades and Technology, a Trainor's Methodology trainer, mentor & adviser to students and student organizations, helping them navigate their academic and professional aspirations. Her research interest includes product development, which was also granted by IPOPHIL' various Utility Models includes Sweet potato-Malunggay Pandesal and Kropeck products (malunggay, squash, carrots and lapu-lapu). She is also involved in research related to Future's Thinking, thus providing her a wide array to immerse herself in research and extension activities. Beyond her dedication to teaching, passion for research and extension activities she is committed to fostering an engaging and inclusive learning environment for students.

RESEARCH INTEREST

Food product development

ORAL PRESENTER

Postharvest Handling Practices and Losses in the 'Smooth Cayenne' Pineapple Supply Chain in Silang, Cavite, Philippines

*Alexie Joy P. France *, Ma. Angelica R. Cañizares1, Grace Anne P. Alcantara, Leonisa A. Artes, Daphne Cassandra H. Gonzales, Neil Christian R. Sanjorjo , Matilde DV. Maunahan*

Postharvest Horticulture Training and Research Center (PHTRC), College of Agriculture and Food Science (CAFS), University of the Philippines Los Baños (UPLB), College, Laguna 4037

Email: apfrance@up.edu.ph
Phone number: (049) 536-3259

ABSTRACT

Pineapple is a major crop in the Philippines which is widely consumed fresh, processed, and used in various dishes. However, the industry faces challenges due to postharvest losses caused by pests, diseases, and the fruit's short shelf life. Despite its importance, research studies on the losses associated with 'Smooth Cayenne' pineapple remains limited. Therefore, a loss assessment analysis was conducted to determine the actual harvest and postharvest handling operations, and to assess the extent and nature of losses along the 'Smooth Cayenne' pineapple supply chain. This study was conducted in Cavite, the major pineapple-producing province of Region 4A which ranks fourth in pineapple production and area planted in the Philippines. The major postharvest handling operations for 'Smooth Cayenne' pineapple were as follows: harvesting, hauling, and transport at the farmer level; sorting, transport, storage, and marketing at the trader level (assembler-wholesaler); and marketing at the retailer level. At the farmer level, preharvest rejects accounted for 1.9% of the harvested fruits, primarily due to severe sunburn (fruits damaged by extreme heat) and severe rodent damage. At the assembler- wholesaler level, preharvest losses in pineapple fruits were 8.8% mostly from ripe fruits, slight sunburn, and slight rodent damage. Postharvest losses were 0.3% from mechanical damage (cuts). During the three-day retail period, pineapple fruits with bruising (30%), and mechanical damage (6.7%) were still marketable but sold at a lower price, while those with disease (53.3%) were no longer marketable. The results of this study will serve as a basis for interventions to be introduced to the identified stakeholders.

KEYWORDS

Loss assessment, preharvest loss, marketable rejects, mechanical damage, retail market

BIOGRAPHY

Alexie Joy P. France is a University Research Associate at the Postharvest Horticulture Training and Research Center (PHTRC) at the University of the Philippines Los Baños (UPLB). She is currently involved in the program "Strategic Postharvest Research for Innovative and Novel Technologies for Horticulture Industry Development" (SPRINT-Hort), which is funded by DOST-PCAARRD. She earned her Bachelor's degree in Agriculture, majoring in Horticulture with a specialization in Postharvest Science from the University of the Philippines Los Baños.

RESEARCH INTEREST

Agriculture, Horticulture, Postharvest, Loss Assessment

ORAL PRESENTER

Role Of Queen Pineapple Farmers' Cooperative in Addressing Gender- Divide Needs in Rural Communities Amidst Pandemic (Covid-19)

Arden Peejay L. Ezaki

College of Agriculture and Natural Resource, Camarines Norte State College, P2 Talobatib, Labo,Camarines Norte

Email: ardenpeejayezaki@cnsc.edu.ph
Phone number: 0969-1629-662

ABSTRACT

Although there were farmers cooperatives which address the needs of women, no studies have been done to determine the gender-divide needs of pineapple farmers in Camarines Norte and how farmers' cooperative addresses those needs. Furthermore, it is important to determine the issues and challenges that the FCs encounter in their way to address the needs and to identify issues for intervention gender roles in pineapple farming are not clearly defined. In terms of addressing the gender-divide needs and role of Farmers' Cooperatives, the researcher studied the strategic and practical needs of men and women, other needs of farmers, gender mainstreaming in cooperatives, and gender participation in farming production. Gender-bias among members of the cooperative was not observed yet women have limited role in farming due to other obligations in the family. Men's participation in pineapple farming production is greater than women. Opportunities for earning an income and sharing of child-care labor are among the gender-needs of men and women. Women involvement is higher only during post-production while both are participating in decision making in managing resources and activities. The respondents' main problem encountered during the pandemic is no marketing due to lockdown and borrowing money is the coping solution of most households. The FCs addressed the needs during pandemic through commitment to the economic development of both genders. They link farmers to market which increases the farmers' income, provide support to farmers equally and utilization of women involvement in business transaction of cooperatives is being practiced rather than in farming activities which still men's participation is large.

KEYWORDS

Pineapple farming, Gender-divide needs, Farmer's cooperative, COVID-19 Pandemic

BIOGRAPHY

I am Arden Peejay L. Ezaki, 34 years of age, born and raised in Labo, Camarines Norte, Phillipines. I graduated Doctor of Philosophy in Rural Development, Master of Science in Environmental Management and B.S. in Environmental Management. I am an Assistant Professor III at Camarines Norte State College – College of Agriculture and Natural Resources, Labo, Camarines Norte, Philippines. Research for me is a way to investigate and innovate, and I have been involved in research and extension, specifically related to agriculture, environmental science and gender and development for several years already. Being an educator at heart, I aim for continuous learning and spreading knowledge to the youth and the community. Having been teaching in the Environmental Science Department for more than 10 years, I have developed a great passion in advocating for environment, agriculture and gender equity. I believe that addressing environment and gender related issues is a key to a more established society.

RESEARCH INTEREST

Biodiversity, Environment, Rural Development

ORAL PRESENTER

Carbon Footprint Emission in Queen Pineapple Production

Rohilyn E. Colenares, Sherwin R. Reyes, Paul Medard P. Anchuelo, Jesus Mark C. Nape, Liezel Ann S. Rodavia*

Camarines Norte State College, College of Agriculture and Natural Resources

Email:sherwinreyes@cnsc.edu.ph
Phone number: 0912-6989-743

ABSTRACT

Production of queen pineapples has a carbon footprint that is influenced by a number of variables at various phases of growth and processing. Camarines Norte is the leading producer of Queen pineapple cultivar and fourth largest pineapple-producing province in the country (DA-CNLRRS, 2019). An indicator of anthropogenic greenhouse gas emissions expressed in CO2 equivalent is the carbon footprint. The quantification of agricultural operations is essential for identifying more sustainable practices because agriculture is one of the sectors that contributes to anthropogenic emissions of greenhouse gases. The highest emission of CFP coming from the use of fertilizer was in the Slope above 30% with a 5026.40 kg of CO2 ha-1 followed by Slope 0-8%, Slope 9%-18% and Slope 19%-30% with an equivalent of 2,968.26 kg of CO2 ha-1, 2,595.87 kg of CO2 ha-1, and 2,209.84 kg of CO2 ha-1 respectively. The carbon footprint (CFP) accounting in the Queen Pineapple production was distributed according to the following: application of fertilizer, hormone spraying, weeding, crop protection, and harvesting. The total emission, 6,587.83 kg of CO2 ha-1 equivalent per cycle which has 3,618.26 kg of CO2 ha-1 (54.90%) of its emission was from suckers followed by the chemical fertilizer with 2757.09 kg of CO2 ha-1 (41.86%), herbicide with 205.45 kg of CO2 ha-1 (3.12%), fuel with 6.87 kg of CO2 ha□1 (0.10%) and growth enhancer with 0.16 kg of CO2 ha-1 (0.02%). Thus, to produce 1 kg of fresh Queen pineapple it will cost 0.38 kg of CO2. This analysis helps address environmental challenges, meet market demands, and position producers as leaders in sustainable agriculture.

KEYWORDS

Fertilizer, Queen pineapple, carbon footprint, sustainable agriculture

ORAL PRESENTER

Comparative Study on Water and Nutrient Conservation Practices for Queen Pineapple Production under Various Slopes

Rohilyn E. Colenares, Sherwin R. Reyes, Paul Medard P. Anchuelo, Jesus Mark C. Nape, Liezel Ann S. Rodavia*

Camarines Norte State College, College of Agriculture and Natural Resources

ABSTRACT

This study evaluates the effectiveness of contour farming compared to traditional farm practices in conserving water and nutrients for Queen pineapple production across various slopes in the Philippines, specifically in San Lorenzo Ruiz, Basud, Labo, and San Vicente. The research focuses on key parameters such as soil moisture, infiltration rate, soil loss, nutrient content (N-P- K-pH), plant height, yield, and economic performance. Results indicate that while both farming practices maintained similar soil moisture levels, contour farming significantly reduced soil loss, especially in steeper areas like Labo and San Vicente. In these regions, traditional practices led to substantial erosion, which contour farming effectively mitigated. Plant height and yield outcomes varied across sites, with contour farming leading to better growth and higher returns on investment (ROI) in areas with challenging topographies. The study concludes that contour farming is a more sustainable and economically advantageous practice for pineapple production on sloping lands, offering critical benefits in soil conservation without compromising crop yield. These findings advocate for the broader adoption of contour farming in regions prone to soil erosion to enhance both agricultural productivity and environmental sustainability.

KEYWORDS

Contour Farming, Soil Conservation, Sustainable Agriculture

ORAL PRESENTER

Investigation of the Kinetics and Thermal Decomposition Behavior in the Co-Pyrolysis of Pineapple Crown Waste (PCW) And Polyethylene (PE) Plastic Waste in a Non-Catalytic Pyrolysis Process

Joselito A. Olalo, Floradelle A. Vega*

CNSC College of Engineering – Mechanical Engineering Department
CNSC College of Engineering – Civil Engineering Department

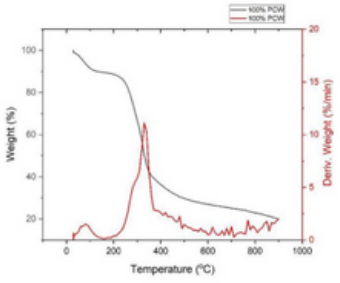
Email: joselito_olalo@yahoo.com
Phone number: 0907-1956-21

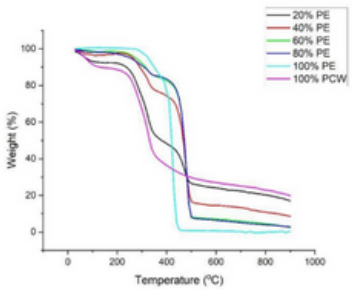
ABSTRACT

Unlike plastic, biomass can be converted into high-quality alternative fuel. This study investigated the co-pyrolysis of pineapple crown wastes (PCW) and polyethylene plastic (PE). The synergy between these two feedstocks was evaluated using thermogravimetric (TGA) and derivative thermogravimetry (DTG) analyses. The Coats□Redfern method was employed to determine the activation energy during synergy analysis. The results indicated that the activation energy ranged from 17 to 200 KJ/mol, depending on the composition of the co-pyrolysis mixture. The thermal degradation occurred in two stages: PCW degraded at temperatures between 170 and 400°C, while PE degraded at temperatures between 400 and 550°C. The co-pyrolysis of PCW and PE shows potential as an alternative fuel source and offers a solution to community waste problems.

KEYWORDS

Pineapple crown waste, PE, TGA, DTG, co-pyrolysis





BIOGRAPHY

Engr. Joselito A. Olalo is a licensed mechanical engineer who graduated from the Technological University of the Philippines – Taguig. Before pursuing his bachelor's degree in Mechanical Engineering, he worked as a technician in a semiconductor company in Laguna. After graduating, he took on a role as a mechanical designer and cadet design engineer at a Japanese firm. He later pursued a Master of Science in Mechanical Engineering, majoring in Energy Engineering, at the Technological University of the Philippines – Manila. While working towards his master's degree, he also taught as a mechanical engineering faculty member at TUPT. In 2015, he joined the faculty of Camarines Norte State College. After a year of service, he applied for a study leave to pursue a PhD in Energy Engineering at the University of the Philippines Diliman, which he completed from 2016 to 2021. He currently holds the position of Associate Professor IV in the Mechanical Engineering Department at the College of Engineering, Camarines Norte State College. Additionally, he serves as the Head of FabManLab, operating under the Office of the Vice President for Research and Extension.

RESEARCH INTEREST

His expertise spans energy engineering, mechanical design, chemical engineering, pyrolysis, and waste-to-energy conversion. He has published numerous papers in Scopus and Web of Science Indexed journals, with a primary focus on pyrolysis.

ORAL PRESENTER

Contextualizing Marketing Skill of Queen Pineapple Farmers Of Camarines Norte

Jesse O. Opeña Jr. Ph,D

Camarines Norte State College

Email: Jesse75sg12@gmail.com
Phone: 0917-6214-177

ABSTRACT

This comprehensive study delves into critical gaps in promoting Queen Pineapple farmers' marketing skills in the province of Camarines Norte. It reveals the marketing practices of both the Hard and soft skills in marketing specifically the pricing and collaboration skills of the queen pineapple farmers. It reveals the profound impact of existing marketing practices of Queen Pineapple Farmers, emphasizing the need for policy formulation and support mechanisms like cooperatives. Additionally, it identifies the obstacles Queen pineapple farmers face in pricing skills and collaboration skills for productivity and profit enhancement. The study covers the significance of marketing skills for successful pineapple farming, advocating for policies to bolster marketing proficiency in pricing and collaboration among farmers. Furthermore, the study sheds light on the challenges posed by traders' monopolies. It emphasizes the importance of marketing practices for QPFs' sustainable development and highlights the necessity of adopting Philippine National Standards (PNS) for grading Queen Pineapples to ensure industry resilience. By proposing targeted interventions focused on skill development, resource-sharing, and policy enhancements, the study aims to foster improved Queen Pineapple farmers' pricing practices and collaborative efforts among farmers. Ultimately, it strives to contribute to the creation of a more equitable and prosperous future for farming communities in Camarines Norte, Philippines.

KEYWORDS

Queen Pineapple, queen pineapple farmers, marketing skills, marketing practices, Philippine National Standards (PNS)

BIOGRAPHY

Born October 16, 1975, a native of Guinobatan, Albay but now residing in Daet Camarines Norte. A graduate of BSBA major in Management from Bicol University, Master in Management at Bicol University Graduate School, and PhD in Development Management at Bicol University Graduate School. Has been in the academe for 22 yrs working in Camarines Norte State College as Associate Professor II.

RESEARCH INTEREST

Management, Marketing, Agriculture, Policy

ORAL PRESENTER

Evaluation of Queen Pineapple Grades and Standards as Basis for Policy Formulation

Maria Cristina C. Azuelo, PhD, Jesse O. Opena, PhD*

CNSC Graduate School, College of Business of Public Administration*

Email: tazuelo@yahoo.com
Phone number: 0939-1084-070

ABSTRACT

This descriptive study examined the Queen Pineapple grades and standards as a basis for policy formulation. It identified the advantages and disadvantages of employing the Philippine National Standards (PNS) Grading System, while also assessing the acceptability of provisional policies related to pineapple grading and trading. Findings reveal that when the four trading practices such as the simberan, tamanyuhan, existing PNS, and the proposed PNS grading and trading standard are evaluated, the Proposed PNS for Fresh Queen pineapple would result in higher farmers' income. Further, in the proposed PNS for Queen Pineapple in Camarines Norte, the extra small size classification which ranges from 351 to 550 grams was added before the batterball size. The proposed addition of another siz e will fill the interval from a small size classification of 551-700 to batterball 350 grams in the approved PNS. Farmers stand to gain from this addition since they will be able to trade their queen pineapples for a higher price. The result of the study will serve as an input in the revision of the Philippine National Standard for Fresh Fruit-Pineapple (PNS/BAFPS 09:2004).

KEYWORDS

Evaluation, grades and standards, policy formulation, trading, cost and return analysis

BIOGRAPHY

Dr. Maria Cristina C. Azuelo is a native of Daet, Camarines Norte. In 1993, she graduated with the degree of Bachelor of Science in Business Administration major in Management at Bicol University. She earned her master's degree in Public Administration in 1999 at University of Nueva Caceres while her doctorate degree in Public Administration was completed in 2010 at Bicol University.She also earned the degree of Bachelor of Laws in 2015.

Currently, she is serving as a professor of Camarines Norte State College, College of Business and Public Administration and Graduate School. Her commitment to carry out her teaching responsibilities and in providing quality education to the students honed her in the said profession. She served also as resource speaker in various seminars such as Project Proposal Preparation, Preparation of Barangay Resolutions and Ordinances, Local Governance and others.

RESEARCH INTEREST

Governance, Public Policy, Policy Formulation, Business and Management

POSTER PRESENTER

Pineapple for Health Research: UPLB's Journey on Unraveling the Bioactive Potential of its Proteins and Peptides towards Functional Food Development

Jeric C. Villanueva[*1], Roneil Christian S. Alonday[2], Mary Ann O. Torio[3] and Antonio C. Laurena[4]*

Philippine Genome Center Program for Agriculture, Livestock, Fisheries and Forestry, Office of the Vice Chancellor for Research and Extension, University of the Philippines Los Baños, Laguna, Philippines 4031
Biochemical and Analytical Services Laboratories, Institute of Plant Breeding, College of Agriculture and Food Science, University of the Philippines Los Baños, Laguna, Philippines 4031 3
Institute of Chemistry, College of Arts and Science, University of the Philippines Los Baños, Laguna, Philippines 4031 4 Institute of Crop Science,
College of Agriculture and Food Science, University of the Philippines Los Baños, Laguna, Philippines 4031

Email: jcvillanueva3@up.edu.ph
Phone number: 0917-7033-919

ABSTRACT

Pineapple (Ananas comosus L.) is composed of active cysteine proteases called bromelain, which contribute to better digestive circulation and elicit anti-inflammatory, lipid-lowering, and antihypertensive properties. The UPLB Biochemistry Research team on pineapple unraveled the potential bioactive functions of its proteins and peptides. The 4-year journey of the research project focused on protein and peptide characterization using in vitro and in vivo approaches. Through the use of digestive enzymes, amino acids and peptides released during the hydrolysis reaction from the total proteins were tested for their bioactivity towards antihypertensive and cholesterol-lowering activities. The first phase of the project exhibited the in vitro antihypertensive activity of fruit parts of several pineapple varieties with percent angiotensin-converting enzyme (ACE) inhibition ranging from 47% to 72%, compared to Enalapril, a commercial ACE inhibitor with an average inhibition of 92%. The second phase of the project showed the in vitro antihypercholesterolemic and in vivo antihypertensive activities of pineapple proteins and peptides. These components showed an estimated 67%–100% bile acid binding capacity to reduce cholesterol formation. In addition, the in vivo antihypertensive activity through oral administration of pineapple bromelain extract resulted in the transient lowering of systolic and diastolic blood pressure in knockout spontaneously hypertensive rats. An apparent lowering was observed 30 minutes after administration and continued between 150 and 180 minutes post-administration of 50 mg/kg body weight of bromelain from pineapple, where the highest reduction of blood pressure was recorded. The possible peptides responsible for the observed bioactivities were determined using the HPTLC method. Further experiments are needed to verify peptide sequences and establish biomedical importance through clinical trials. The future of pineapple protein and peptide research in the Philippines, supported by advanced omics platforms, holds great promise for developing innovative functional foods that can significantly enhance the nation's nutritional and health outcomes.

KEYWORDS

Antihypertensive, ACE Inhibitor, Peptides, Blood Pressure, Functional Food

RESEARCH INTEREST

Analytical Biochemistry, Proteomics and Metabolomics, Environmental Science

ICoP 2024
International Congress on Pineapple

POSTER PRESENTER

Pili Pulp Oil: A Promising Natural Alternative Coating for 'Smooth Cayenne' Pineapple (Ananas comosus L. Merr) During Low Temperature Storage

Email: rgfranco1@up.edu.ph
Phone number: 0906-7322-65

ABSTRACT

Pili pulp oil (PPO) is a by-product of pili pulp which is an agricultural waste during nut processing, and has gained attention for its beneficial phytochemical properties. Given the growing concerns over the harmful effects of synthetic chemicals and the increasing demand for safer and healthier food options, this study explored the potential of PPO as a natural, alternative postharvest coating. Freshly harvested commercially mature 'Smooth Cayenne' pineapples were spray-coated with freshly prepared PPO emulsions of varying concentrations (5, 10, 25%). Coated fruits were air-dried and stored at 20±3°C. Quality parameters such as weight loss, peel color, incidence and severity of endogenous brown spot (EBS), and visual quality were evaluated every other day. Physico-chemical attributes, on the other hand, were measured on the 14th day of storage. 25% PPO emulsion exhibited a good moisture barrier property as it reduced fruit weight loss significantly, and appeared to modify internal fruit atmosphere resulting in retardation of peel color change thus the 2-day extension of green life. The pineapples attained only PCI 3 (turning stage, 2-3 layers of the eyes are yellow) on the 14th day, EBS development was inhibited, and fruits were highly marketable. The physicochemical attributes like total soluble solids (TSS), titratable acidity (TA), pH, and TSS/TA of control and coated pineapples were comparable indicating that PPO coating did not affect the normal ripening of the fruit. These promising results served as the basis in optimizing the composition of the PPO emulsion which is a potential natural coating for storage life extension of 'Smooth Cayenne' pineapples.

KEYWORDS

Edible Coating, Endogenous Brown Spot, Green Life, Pili Pulp Oil, Pineapple

BIOGRAPHY

Ms. Rona Kay Franco has been working as a researcher at the Postharvest Horticulture Training and Research Center – University of the Philippines Los Banos since 2017, focusing on the quality preservation of fresh produce. She is currently involved in projects on development of green preservation system, development of mobile solar-based precooler for horticultural produce, and postharvest and inclusive markets of Fruits and Vegetables for Sustainable Healthy Diets (FRESH) Program. She has also been involved in providing trainings on postharvest handling and management of fruits and vegetables to farmers, traders, agricultural workers, and the private sector. She obtained her master's degree in Horticulture major in Postharvest Physiology and minor in Food Science, and her Bachelor's degree in Agribusiness Management at the University of the Philippines Los Banos.

RESEARCH INTEREST

Postharvest Horticulture, Green Preservations System

POSTER PRESENTER

Gender Roles among Small-Scale Queen Pineapple Farmers in Camarines Norte: A Thematic Analysis

Noel Cornel Alegre, MPD,MASoc, Ria Pascor Morales, MSSoc, Ronald Jalina Escasinas, MSSoc*

Camarines Norte State College

ABSTRACT

Despite the essential contributions to pineapple production, Queen pineapple farmers managing farms under two hectares are often underrepresented in agricultural statistics and are overlooked in research. Most existing studies prioritize the technical aspects of pineapple farming, leaving a significant gap in understanding the socio- economic conditions and gender roles of these farmers. The research focuses on the gendered division of labor among small-scale Queen Pineapple farmers in Camarines Norte, a region that takes pride in its Queen Pineapples (Formosa), celebrated annually during the Piñasan Festival This study utilizes Focus Group Discussions (FGDs) as a primary method to investigate these dynamics. Conducted across four municipalities—Basud, Labo, San Vicente, and San Lorenzo Ruiz—the FGDs engaged 99 participants (51 males and 48 females), providing narrative-driven insights into the gendered allocation of labor. The findings reveal that while gender roles are increasingly shared, traditional divisions of labor persist. While women primarily handle reproductive tasks, such as household management and caregiving, men are more engaged in productive farm work. However, economic pressures and farm demands occasionally blur these distinctions, leading to role overlap. Using the feminist sociological perspective as an overarching concept this study highlights the social constructs that marginalize women's contributions in household and agricultural contexts. The complexities of gender dynamics in small- scale farming are highlighted, showing that women's labor, though critical, is often undervalued or invisible. Based on these findings, the study advocates for a collaborative effort between men and women to foster a more gender-inclusive approach to managing both farming and household duties. By providing resources, support, and continuous evaluation, the proposed initiatives aim to empower women, broaden their access to economic opportunities, and support the sustainable growth of the Queen Pineapple industry in Camarines Norte.

KEYWORDS

Small-Scale QP Farmer, Productive & Reproductive Activities, Gendered Labor Allocation, Feminist, Gender Inclusive

POSTER PRESENTER

Breeding ‘Queen’ Pineapple for Better Yield and Crop Management

Carolyn E. Alcasid , Gino R. Hernandez, Catherine R. Patricio, And Lolita Dc. Valencia*

Institute of Plant Breeding, College of Agriculture and Food Science,
University of the Philippines Los Baños

ABSTRACT

‘Queen’ pineapple is mainly cultivated as a local fresh fruit in the Philippines because of its high sugar content and unsuitable canning qualities. This variety is widely being grown in Region IVA, Bicol, Ormoc and Mindanao. The plant is dwarf with short and very spiny, dark purplish-green leaves, compact, and disease resistant than ‘Smooth Cayenne’. The fruit weighs from 600-800g, has a sweet crispy yellow flesh with tender core that is less fibrous than ‘Smooth Cayenne’. Despite the good quality of this fruit, the size is smaller than other varieties in terms of fruit weight and dimension. Hard leaf spines also make it difficult to manage culture through weeding, harvesting, and cultivation. The varietal improvement efforts to improve ‘Queen’ pineapple is currently being done at the Institute of Plant Breeding, University of the Philippines Los Baños. Seven cross combinations utilizing ‘Queen’, ‘MD2’, Smooth Cayenne, and two F1 hybrids as parents were done. Out of 179 hybrids, 27 have spines occurring at the top and/or bottom of the leaf while the rest have spines distributed along the margins. The selection was narrowed down considering the average fruit weight of ≥ 1,000 grams. Seventeen pineapple hybrids will be further tested in different locations to evaluate their field performance. Identified outstanding hybrids can be used as alternatives to traditional ‘Queen’ variety to improve yield and crop management.

KEYWORDS

Breeding pineapple, spines, Queen, varietal improvement

POSTER PRESENTER

Morphological Evaluation and In-Vitro Propagation of Promising 'Queen' Pineapple Selections

Catherine R. Patricio1 , Gino R. Hernandez and Carolyn E. Alcasid*

Institute of Plant Breeding, College of Agriculture and Food Science,
University of the Philippines Los Baños

ABSTRACT

For the past years, limited attention was given to varietal improvement of fruit crops due to its long juvenile period, asynchronous flowering, susceptibility to pests, and other undesirable factors. On-site selection of available accessions/varieties in the country is carried out as an immediate strategy while hybrids are being developed. Three breeding lines of 'Queen' pineapple had already been identified and were further characterized before its registration with the Institute of Plant Breeding-Germplasm and Technology Registration and Release Office (IPB-GTRRO). In 2021, 15 out of 52 Queen accessions were selected for having an average fruit weight of equal or more than 1000g. All had 90 degrees posture, open foliage, piping hard-to□break leaves, and stiff greenish to purplish spines which were arranged evenly along margins with ascending direction. During the second selection cycle, only three (3) of previous accessions yielded the desired fruit weight. These 'Queen' selections: 18-266, 18-236(20) and 18-190(2), share the same cylindrical and slightly tapered fruit shape, but the 18-190(2) have longer and cylindrical with a bunchy top crown while the other two have lengthy and conical shape. Accession 18-236 (20) had the lightest crown but with the thickest and heaviest peel. In terms of fruit flesh, all are yellow, sweet, and juicy with a fine and crispy texture but 18-190 (2) have the highest percent edible portion and 18-236 (20) is the sweetest among the three. Micropropagation of 'Queen' pineapple was also conducted to ensure availability of uniform and disease-free planting materials for farmer's participatory trial, varietal registration, and dissemination. Results showed that approximately 400 plantlets can be generated from a single sucker explant in 6 months. This was significantly higher than the average 10 suckers produced per plant of 'Queen' pineapple. The result of this study is in line with the Department of Agriculture's goals to increase the availability of safe and healthy fruits for our people and increase the productivity and profitability of our fruit industry.

KEYNOTE

GTRRO, Micropropagation, Pineapple Selections, Queen

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