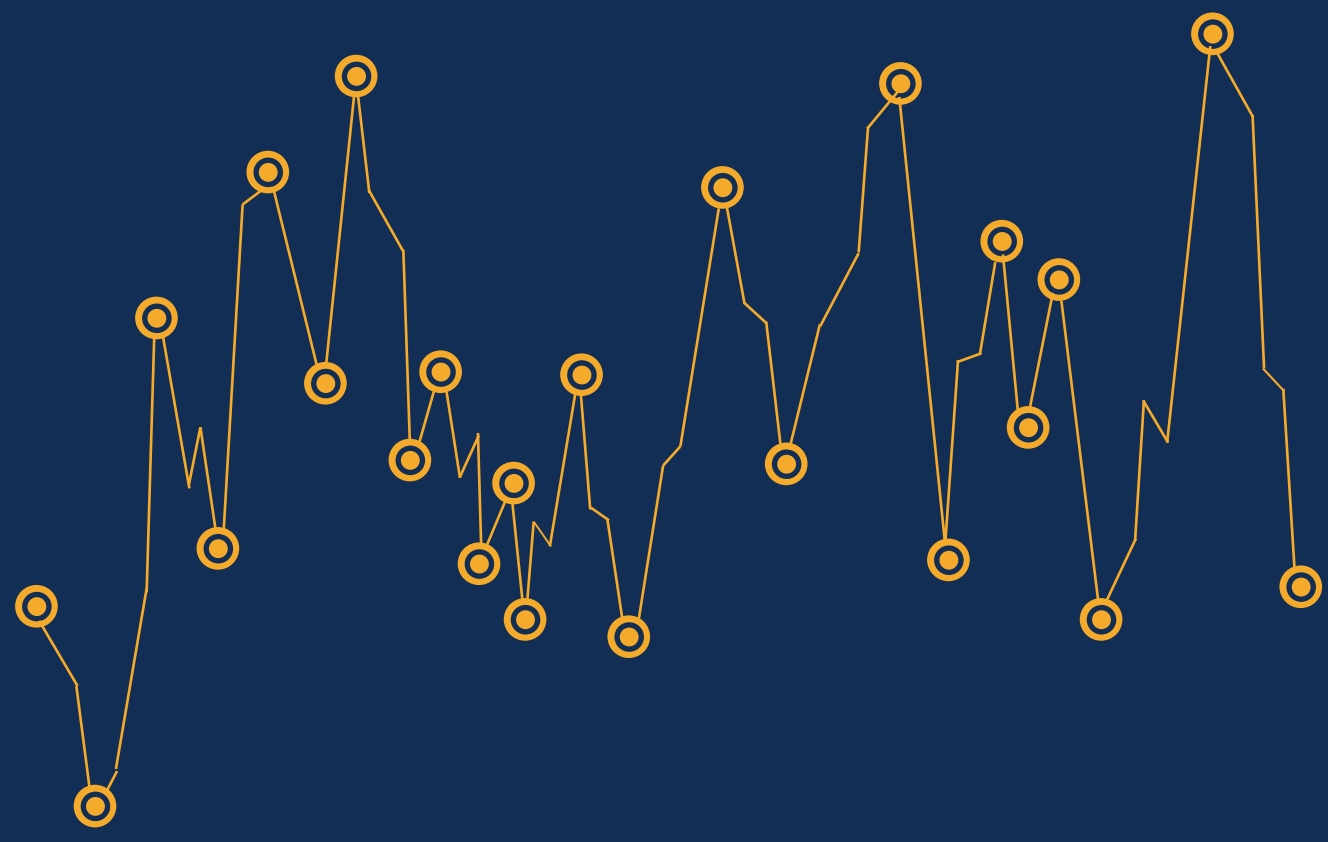

ABSTRACTS FROM

ICAEM2015

The 7th International Conference on Agribusiness Economics and Management

Waterfront Insular Hotel
Davao City, Philippines
14–16 October 2015

ABOUT THE CONFERENCE

ICAEM2015

The 7th International Conference on Agribusiness Economics and Management

Held in conjunction with ICOOP2015: The 2nd International Conference on Cooperatives

Every year, the International Conference on Agribusiness Economics and Management (ICAEM) brings together scholars working in the field of agribusiness from various parts of the world. Organized by the University of the Philippines Mindanao, in partnership with the UP School of Management, the conference provides a venue for scholars to present researches that deal with economic or management issues affecting the entirety or specific nodes within the agri-food chains, specifically those within the crops, fisheries, and livestock and poultry subsectors. The conference accepts papers on the following tracks:

- Environmental policy and resource management;
- Technologies for crop and animal improvement;
- Farm (crop/animal) and fisheries management;
- Value chain analysis and supply chain management;
- Food security, trade, and agricultural policy;
- Consumer studies;
- Agri-product development and innovation;
- Entrepreneurship and agri-industry development;
- Agricultural education and extension; and
- Women in agribusiness

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PLENARY SPEAKER

Dr. Matty Demont

Dr. Demont is a European agricultural economist currently working at the International Rice Research Institute (IRRI) as Senior Scientist on Market and Value Chain Research. He previously worked at the Africa Rice Center (AfricaRice) as Senior Value Chain Economist. He is a permanent board member of the International Consortium of Applied Bioeconomy Research (ICABR). His early work (1996–1999) included research on food marketing and farming systems in Côte d'Ivoire, for which he received the Xavier Bernard Award by the Academy of Agriculture of France in 1999. Before taking up his previous position at AfricaRice, he conducted his PhD and Post-doc research (1999–2007) at the University of Leuven, Belgium on the impact of biotechnology innovations and the EU coexistence policy on European agriculture. He has published widely in refereed journals, books and magazines and has contributed to a vast array of international conferences and workshops. Matty pioneered rice value chain research in Africa by experimenting how quality-based competitiveness of domestic rice can be improved in import-biased African markets. To this end, he conducted 13 experimental auctions throughout Africa involving more than 1,700 women which has provided unique insights into the bottlenecks in upgrading African rice value chains. In 2012, his value chain work was awarded the T.W. Schultz Award by the International Association of Agricultural Economists and the Louis Malassis International Scientific Prize by Agropolis Foundation, France.

Dr. Fermin D. Adriano

Dr. Adriano currently works as Senior Policy Adviser in the Conflict, Security, and Development Team of the World Bank Office in Manila, Philippines. He is the National Team Leader of a joint World Bank–International Organization on Migration technical support team to the Transitional Justice and Reconciliation Commission (TJRC), a body created by the Philippine government and the Moro Islamic Liberation Front (MILF) negotiating panels. He also serves as Senior Adviser of the Mindanao Jobs Report study.

Dr. Adriano's professional career has been marked by the application of the theoretical knowledge and insights he gained from the university and research work to actual development issues or challenges. In 2014, Dr. Adriano served as the WB's Lead Consultant in providing technical assistance in the formulation of the Bangsamoro Development Plan. In 2003, he was part of the team that conceptualized the community-driven development project called Kalahi-CIDSS by the Department of Social Welfare and Development, which was later scaled up to constitute the current National Community Driven Development Program.

Prior to that, Dr. Adriano served as policy advisers to three successive Agriculture Secretaries, two Agrarian Reform Secretaries, two Presidential Assistants/Advisers for Mindanao, and a Press Secretary.

During his years in the University of the Philippines, he served as a professor, a vice chancellor for planning and development, and director of the Center for Policy and Development Studies at UP Los Baños and a Director of Information for the UP System.

He received his Bachelor of Arts in Journalism and Master of Arts in Communication from UP Diliman, his Master of Philosophy in Development Studies from the University of Sussex, England, and his PhD in Sociology (minor in Political Economy) from the City University, London, England.

PROGRAM

Thursday, 15 October

Room & Session Chair	Time	
Agila 2&3 *The Blue Room* P.A. Alviola IV	8:00	**Registration**
	9:00	**Opening Program**
	9:10	**Message from the Chancellors**
		Dr. Sylvia B. Concepcion *Chancellor, UP Mindanao* Dr. Fernando C. Sanchez Jr. *Chancellor, UP Los Baños*
	9:30	**Message from the President**
		Hon. Alfredo E. Pascual *President, University of the Philippines*
Agila 2&3 *The Blue Room* D.P.T. Depositario	10:00	**Plenary Panel** *The Role of Asia and the Pacific in the Future of Agribusiness*
		Dr. Christie Chang *University of New England, Australia* Dr. Sahara *Bogor Agricultural University, Indonesia* Dr. Diana Chalil *Universitas Sumatera Utara, Indonesia* Dr. Khurram Saddozai *University of Agriculture-Peshawar, Pakistan* Prof. Korabandi Suhasini *PJTSAU, India*
11:00 Coffee break		
Agila 2&3 *The Blue Room* M.O. Montiflor	11:15	**Plenary Panel** *Strengthening Philippine Agricultural Cooperatives for Agribusiness Competitiveness: Moving Forward after a Century*
		Hon. Rico B. Geron *House of Representatives, Philippines* Dr. Eulogio T. Castillo *Cooperative Development Authority* Engr. Sylvia O. Paraguya *National Federation of Cooperatives* Mr. John Y. Gaisano *Davao City Chamber of Commerce* Atty. Koronado B. Apuzen *FARMCoop*
12:15 Luncheon		
Kalaw *The Green Room* P.A. Alviola IV	1:30	**Plenary Session 1**
		ICAEM-01 M. Demont *Increasing Sustainability of Rice Value Chains in Asia: A Look at Incentive Mechanisms*
2:30 Coffee break		
Kalaw *The Green Room* L.N. Digal	2:45	**Parallel Session A1-B1** *Sweet Potato Industry in Papua New Guinea*
	2:45	ICAEM-03 C. Chang *Understanding Market Demand for Sweet Potato in Papua New Guinea*
	3:00	ICAEM-04 D. Irving *Aspects of Postharvest Quality Required by Papua New Guinea Sweet Potato Consumers in the Main Port Moresby Markets*
	3:15	ICAEM-05 R. Villano *A Socio-Economic Analysis of the Factors Affecting Consumers' Willingness to Pay for Good Quality Sweet Potato in Papua New Guinea*
	3:30	ICAEM-06 J.L. Kewa *The Role of Village Entrepreneurs and Wholesalers in the Sweet Potato Value Chain in the Highlands of Papua New Guinea*
	3:45	ICAEM-07 A. Mais *Promoting Sweet Potato Processing in Papua New Guinea through the School Curriculum: A Pilot Study*
	4:00	Open forum

Thursday, 15 October *continued*

Room & Session Chair	Time	
Kuwago 1&2 ***The Crimson Room*** N.L. Laorden	2:45	**Parallel Session A2-B2** *Supply Chain Management*
	2:45	ICAEM-08 R.P.L. Gelvezon *Supply Chain Analysis for the Philippine Abalone*
	3:00	ICAEM-09 J.C. Lizada *Supply Chain Analysis of the Muscovado Sugar Industry in Antique, Philippines*
	3:15	ICAEM-10 K.I.Z. Bolotaolo *Supply Chain Analysis of the Palm Oil Industry in Selected Regions in Mindanao, Philippines*
	3:30	Open forum
	3:45	ICAEM-11 E.B. Duran *Supply Chain Assessment and Process Benchmarking of Coffee Industry in Selected Areas of Misamis Oriental, Southern Philippines*
	4:00	ICAEM-12 T.R. Acuña *Assessing the Supply Chain Performance of Dairy Goat in Selected Areas of the Davao Region and Northern Mindanao, Philippines*
	4:15	ICAEM-13 N.L. Laorden *Are Traders Good or Bad? The Role of Intermediaries in the Supply Chain of Falcata in the Davao Region, Philippines*
	4:30	Open forum
Kuwago 3 ***The Yellow Room*** D.dM. Dacera	2:45	**Parallel Session A3-B3** *Tuna Fisheries in the Philippines*
	2:45	ICAEM-14 D.dM. Dacera *Profiling of Heavy Metals in 'Kawakawa'* (Euthynus affinis) *and Seawater and Bottom Sediments in Sarangani Coastline, Mindanao, Philippines*
	3:00	ICAEM-15 A.G. Ellson *Assessing the Extent of Precarious Work Arrangements in Tuna Catching: The Case of General Santos City, Philippines*
	3:15	ICAEM-16 A.G. Ellson *Assessing the Role of Cooperatives in Resolving Labor Issues in Tuna Catching, General Santos City, Philippines*
	3:30	ICAEM-17 M.M. Castro *Consumer Preference of Canned Tuna in General Santos City, Philippines*
	3:45	Open forum
Vinta ***The Teal Room*** E.R.V. Bayogan	2:45	**Parallel Session A4** *Production and Postharvest Issues in Tropical Fruits*
	2:45	ICAEM-18 G.M. Estimada *Soil Characterization of Cavendish Banana Farms Infected and Non-infected with FOC TR4 in Davao del Norte, Southern Philippines*
	3:00	ICAEM-19 L.B. Secretaria *Yellowing and Granulation of 'Magallanes' Pummelo* (Citrus maxima *[Burm. ex Rumph] Merr) Fruit as Influenced by 1-Methylcyclopropene*
	3:15	ICAEM-20 A.T. Lacap *Visual Quality and Bruise Injury of 'Carabao' Mango in Samal Island, Philippines*
	3:30	Open Forum

PROGRAM

Thursday, 15 October *continued*

Room & Session Chair	Time	
Vinta ***The Teal Room*** E.R.V. Bayogan	3:45	**Parallel Session B4** *Mechanizing Agricultural Processing*
	3:45	ICAEM-21 A.B. Esmeralda *Prototyping a Solar Dehydrator for Beef Products*
	4:00	ICAEM-22 M.A. Bajet *Development of Fabricated Hammer-Type Milling Machine: An Assessment in Processing Livestock Feed Meal Ingredients*
	4:15	Open forum

Friday, 16 October

Room & Session Chair	Time	
Kalaw ***The Green Room*** P.A. Alviola IV	8:00	**Registration**
	9:00	**Synthesis of day 1**
	9:15	**Plenary Session 2**
		ICAEM-02 F.D. Adriano *Implications of Conflict to Sustainable Agribusiness in Mindanao, Southern Philippines*
10:15 Coffee break		
Kalaw ***The Green Room*** D.P.T. Depositario	10:30	**Parallel Session C1** *Production and Marketing*
	10:30	ICAEM-23 R.D. Tan *Benchmarking Sugarcane Productionand Management Technology for Muscovado Sugar in the Province of Antique, Western Visayas, Philippines*
	10:45	ICAEM-24 K.N. Saddozai *Technical Efficiency Analysis of Maize Growers in Muzaffarad District, Azad Jamukashmir, Pakistan*
	11:00	ICAEM-25 Sahara *Improving Small Farmers' Access to Soybean Processing Industry in Jambi Province, Central Sumatra, Indonesia*
	11:15	ICAEM-26 M.A.A.A. Limpoco *Measuring the Economic Impact of Weather Determinants on Aquaculture in the Davao Region, Philippines*
	11:30	ICAEM-27 K. Suhasini *Comparison of Contract and Noncontract Farming in Poultry Value Chain of Ranga Reddy and Mahabubnaar Districts of Telengana State, India*
	11:45	Open forum
Kuwago 1&2 ***The Crimson Room*** J.A.B. Madamba	10:30	**Parallel Session C2** *Value Chain Analysis*
	10:30	ICAEM-28 J.A.B. Madamba *Analyzing Pili Nut Value Chains in Sorsogon Province, Philippines*
	10:45	ICAEM-29 R. Yanuar *The Effect of Vertical Coordination on Indonesian Dairy Industry Performance on Quality: A Comparison of Two Regions*

Friday, 16 October *continued*

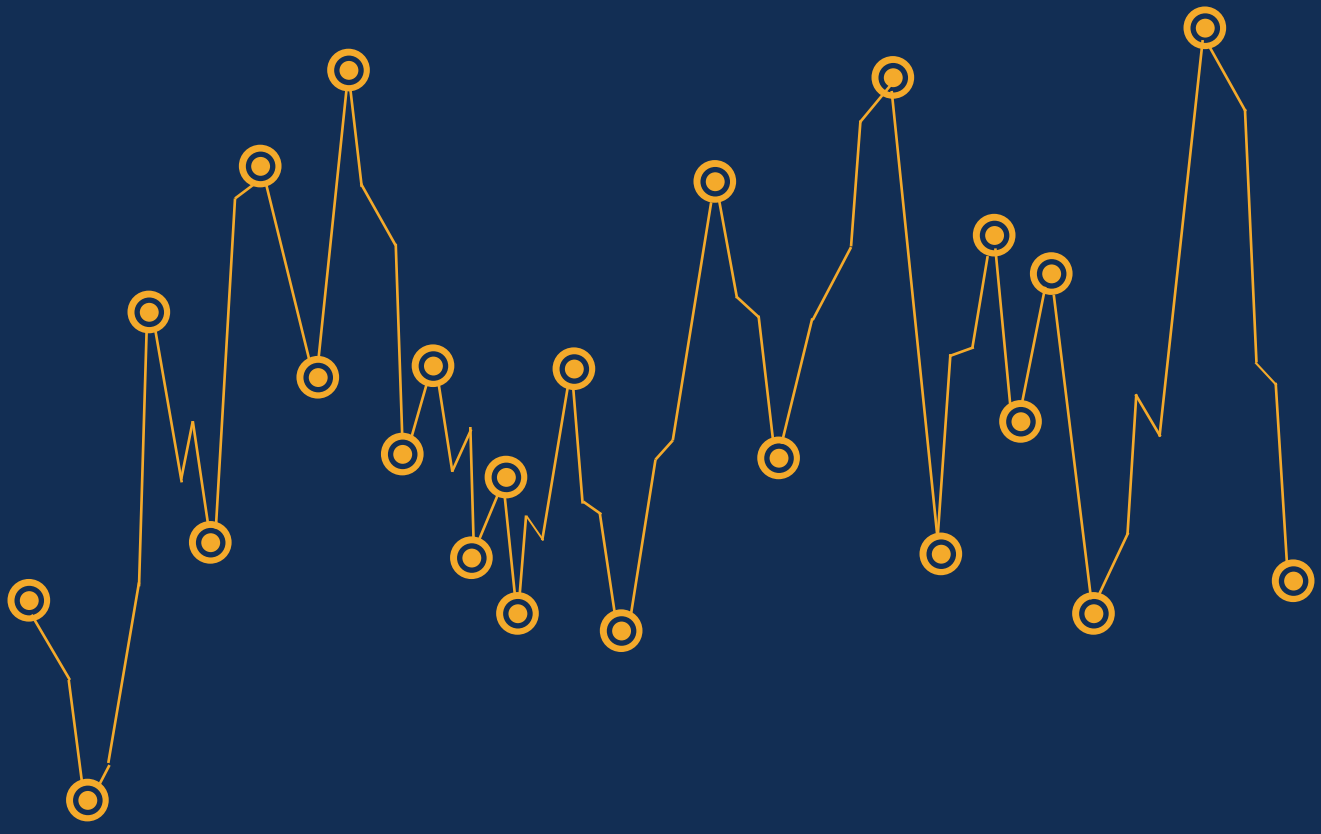
Room & Session Chair	Time	
Continued	11:00	ICAEM-30 N.E.P. Manipol *Analysis of the Production and Marketing Operations of Swine Enterprises in the City of San Jose del Monte and Santa Maria, Bulacan, Philippines*
	11:15	ICAEM-31 J.B. Medalla *Value Chain Analysis of Brewer's Spent Grain for Cattle Feed in Selected Areas of El Salvador City, Misamis Oriental, Philippines*
	11:30	ICAEM-32 G.P. Sarmiento *Value Chain Analysis of Mandarin in Nueva Vizcaya, Philippines*
	11:45	Open Forum
Kuwago 3 ***The Yellow Room*** V.A. Shuck	10:30	**Parallel Session C3** *Food Safety and Food Security*
	10:30	ICAEM-33 H.R. Oracion *Food Safety Concerns of Vegetable Consumers in Davao City, Philippines*
	10:45	ICAEM-34 N.L. Laorden *Willingness to Pay for Certified Safe Vegetables in Davao City, Philippines*
	11:00	ICAEM-35 V.A. Shuck *Willingness to Pay for Certified Safe Vegetables among Consumers in Cagayan de Oro City, Philippines*
	11:15	ICAEM-36 P.A. Alviola IV *Food Security among Vegetable Farmers: Implications to Talaandig Culture in Bukidnon, Southern Philippines*
	11:30	ICAEM-37 L.M. Aguanta *Consumer Awareness and Acceptance of Edible Insects in Marawi City: Potentials for Food Security*
	11:45	Open forum
12:15 Luncheon		
Kalaw ***The Green Room*** T.R. Acuña	1:30	**Parallel Session D1** *Assessing Agri-based Industries and Projects*
	1:30	ICAEM-38 T.R. Acuña *Developing Dairy Goat Industry as a Sunrise Industry in the Philippines: Issues and Challenges in the Davao Region and Northern Mindanao*
	1:45	ICAEM-39 K.C. Cimagala *Public Perception on Corporate Social Responsibilities of Various Agricultural Industries in Claveria, Misamis Oriental, Philippines*
	2:00	ICAEM-40 G. Gumanao *Taklobo Tours: Conservation, Tourism, and Livelihood Opportunities in the Island Garden City of Samal, Southern Philippines*
	2:15	Open forum
	2:30	ICAEM-41 J.P.R. Labindao *Performance and Challenges of Agri- and Non-Agri-Based Income Generating Projects: The Case of Pangasinan State University*
	2:45	ICAEM-42 I.T. Fajarito Jr. *Business Management Practices and Sustainability of Agricultural Income-Generating Projects of State Universities in SOCCKSARGEN, Southern Philippines*

Friday, 16 October *continued*

Room & Session Chair	Time	
Continued	3:00	ICAEM-43 E.C. Quinoñes *Organically Grown Rice Farming and Marketing Project: Assessing the Project Design and Irrigator Associations' Needs in Oriental Mindoro, Philippines*
	3:15	Open forum
Kuwago 1&2 ***The Crimson Room*** R.T. Aguinaldo	1:30	**Parallel Session D2** *Consumer Studies*
	1:30	ICAEM-44 C.Y. Azarcon *An Exploratory Study on Consumer Buying Intention for Organic Farm Produce: The Case of Iloilo, Philippines*
	1:45	ICAEM-45 J.V.B. Murcia *What Determines Customers' Willingness to Pay for Organic Food? A Multilayer Perceptron Neural Analysis*
	2:00	ICAEM-46 O.M.M. Entero *Factors Influencing Consumers' Willingness to Pay for Organic Food in Digos City, Davao del Sur, Philippines*
	2:15	Open forum
	2:30	ICAEM-47 M. Yu *Exploring Factors that Influence Consumption of Frozen Fish Products: The Case of Consumers in Iloilo City, Philippines*
	2:45	ICAEM-48 V.M. de Padua *Consumption Patterns for Selected Fruits in La Union, Philippines*
	3:00	ICAEM-49 J.B. Patosa *Consumer Awareness on Labeled Food Products in Digos City, Philippines*
	3:15	ICAEM-50 R.T. Aguinaldo *Vegetable Purchase Patterns of Consumers in Davao City and Cagayan de Oro City, Philippines*
	3:30	Open forum
Kuwago 3 ***The Yellow Room*** V.P. Obsioma	1:30	**Parallel Session D3** *Agri-based Product Development*
	1:30	ICAEM-51 J.A.E. Maternal *Nutrient Analysis and Shelf Life Study of Watermelon Rind Sports Drink*
	1:45	ICAEM-52 J.N.A. Alviola *Development of a Carbonated Guyabano Juice*
	2:00	ICAEM-53 V.P. Obsioma *Development of Fruit-flavored Glazed Watermelon Rind*
	2:15	Open forum
	2:30	ICAEM-54 C.L.U. Lumakin *Utilization of Sago Flour and Squash in the Production of Vegetable Kropeck*
	2:45	ICAEM-55 J.N.A. Alviola *Utilization of Sago Flour in Gluten-free Food Products*

Friday, 16 October *continued*

Room & Session Chair	Time	
Continued	3:00	ICAEM-56 M. Capiña *Arrowroot By-products into Fiber Resources*
	3:15	Open forum
	3:30	Break
Kalaw ***The Green Room*** N.L. Laorden	3:45	**Parallel Session E1** *Agricultural Trade and Governance*
	3:45	ICAEM-57 D. Chalil *European Markets Certification Demands and the Integration to Indonesia Crude Palm Oil Main Export Markets*
	4:00	ICAEM-58 L.N. Digal *Incentives and Disincentives to Produce Agriculture Products to Preserve Agro-biodiversity: Evidence from Ifugao and Lake Sebu, Philippines*
	4:15	ICAEM-59 M.O. Montiflor *The Politics and Materiality of Coordination: Philippine Village Leaders Responding to the Spread of a Global Plant Disease in Banana*
	4:30	Open forum
Kuwago 1&2 ***The Crimson Room*** V.A. Shuck	3:45	**Parallel Session E2** *Issues in Rice Production*
	3:45	ICAEM-60 J.P. Agudera *Field Trial of a New PhilRice Breeding Line against Three Public Hybrids in Magsaysay, Davao del Sur, Philippines*
	4:00	ICAEM-61 L.D. Nasibog Jr. *Comparing the Profitability of Hybrid, Inbred, and Organic Rice Production*
	4:15	ICAEM-62 V.A. Shuck *Factors Affecting Farmer's Decision to Remain in Organic Rice Production: The Case of Magsaysay, Davao del Sur, Philippines*
	4:30	Open forum
Kuwago 3 ***The Yellow Room*** J.A. Mantiquilla	3:45	**Parallel Session E3** *Palms as Underutilized Bioresources*
	3:45	ICAEM-63 J.A. Mantiquilla *Nutrient Status of Nipa from Semi-Wild Stands in Selected Areas of Mindanao, Southern Philippines*
	4:00	ICAEM-64 L.M.B. Estaña *Density Survey of Sago Palms in Sago-identified Areas of Mindanao, Southern Philippines*
	4:15	ICAEM-65 J.E. Acosta *Assessment of Potential Sago Starch Content in Sago Palm Forests in Mindanao, Southern Philippines*
	4:30	Open forum
Agila 2&3 ***The Blue Room***	4:45	**Closing Program**
		Closing Remarks Dr. Larry N. Digal *Joint Conference Co-Chair*



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Increasing Sustainability of Rice Value Chains in Asia: A Look at Incentive Mechanisms

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Keywords

Asia, coordination, contract farming, food security, rice, standards, sustainability, value chain governance

Abstract

Rice value chains in Asia are rapidly transforming due to (1) urbanization, (2) diet change, (3) agrifood system transformation, (4) rural factor market transformation, and (5) intensification of farm technology. However, although rice value chains have managed to provide food security for Asian populations since the Green Revolution, their sustainability is currently jeopardized. In the Mekong Delta, for example, strategies for increased production have mainly focused on intensified rice farming systems, high-yielding varieties, and increased use of agrochemicals. The overuse of fertilizers led to high pest and disease infestations and resulted in even higher usage of pesticides. In addition, the Mekong Delta has been identified as significantly vulnerable to climate change. We propose incentive mechanisms for the adoption of sustainable production standards throughout rice value chains by considering four possible entry points, i.e., (1) policy and regulation, (2) consumers, (3) credit markets, and (4) value chain governance and coordination. We focus on the last entry point and provide some preliminary evidence of a survey with Vietnamese rice exporters, who are increasingly coordinating with farmers through contract farming to govern rice production, quality, and value chains more effectively. We explore how contract farming can be deployed as a vehicle for the adoption of sustainable production standards. As the Vietnamese government is currently encouraging Vietnamese rice exporters to adopt contract farming, this research is timely as it identifies opportunities for internalizing sustainable production standards in rice value chains throughout Asia.

PLENARY SESSION

Implications of Conflict to Sustainable Agribusiness in Mindanao, Southern Philippines

Fermin A. Adriano

Senior Policy Adviser on Conflict, Security, and Development
The World Bank

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Keywords

agribusiness, Bangsamoro, Mindanao, sustainability

Abstract

Mindanao has had a long history on agribusiness given that the establishment of plantation agriculture and agricultural colonies served as the cornerstone of American colonial government's development policy. Hence, rubber, pineapple, abaca, and cassava plantations began operations in the early twentieth century. Despite conflict in some areas of Mindanao, particularly in the Bangsamoro region, I will show that there are successful agribusiness firms currently operating in the area. Key elements that allowed these firms to be successful are the following: partnership with an "enlightened" local strongman, knowledge and respect of the local culture and traditional leadership structure, provision of greater benefits to their farmer-partners compared to what the prevailing job opportunities in the area can offer, and self-reliance and flexibility in addressing unpredictable challenges that will arise from time to time due to the relative instability in the community. While violent conflict presents a difficult environment in which agribusiness firms can operate, the challenges it poses are not insurmountable as shown by highly profitable agribusiness companies operating in conflict areas. At present, there are strong interest indicated by other agribusiness firms to locate their operations in the Bangsamoro region, no doubt triggered by the optimism generated by the positive results on the on-going peace talks between the government and the Moro Islamic Liberation Front (MILF). I argue that there is a need for the passage of the Bangsamoro Basic Law (BBL) or any future arrangement acceptable to both parties that will allow greater self-rule among the Bangsamoro. If this happens, agribusiness can be a significant force that can contribute to uplifting the dismal socio-economic situation in Muslim Mindanao.

Understanding Market Demand for Sweet Potato in Papua New Guinea

Hui-Shung Christie Chang[1,*], **Rene Villano**[1], **Donald Irving**[1], **and John Lark Kewa**[2]

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Keywords

consumer survey, food demand, marketing, sweet potato, value chain

Abstract

Sweet potato is the most important food crop in Papua New Guinea, grown by the majority of households throughout the country. In recent years, it has become an important source of income for smallholder farmers in a developing market economy at a time when demand is rising in urban centers, especially in coastal cities such as Lae and Port Moresby (POM). A transformation from subsistence to commercial farming requires new skills and a change of mindsets from production orientation to market orientation. A starting point is better understanding of what the market wants. The objective of the study was to understand the market requirements in POM of both consumers and institutional buyers through a consumer survey (350 households) and informant interviews (25 institutional buyers), respectively. The results show that while the demand for sweet potato is increasing in some segments of the POM market, rice poses a serious threat to the longer-term prospects of the sweet potato sector. Furthermore, the majority of consumers surveyed indicate a clear preference for some sweet potato varieties and associated product attributes, but lack of product information leads to confusion and high search costs. By contrast, institutional buyers demand good quality products and consistency in supply. The conclusion is that the sweet potato sector must improve its product quality and supply consistency, as well as reduce the marketing cost, in order to compete with rice and other food crops by changing their current postharvest and marketing practices.

Aspects of Postharvest Quality Required by Papua New Guinea Sweet Potato Consumers in the Main Port Moresby Markets

Donald Irving[1,*], **Hui-Shung Christie Chang**[1], **and John Lark Kewa**[2]

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Keywords

consumers, marketers, postharvest quality, sellers, supply chain, sweet potato

Abstract

Sweet potato (known locally as *kaukau*) is a major subsistence crop grown in the highlands of Papua New Guinea (PNG) and sold in local and coastal cities such as Lae and Port Moresby (POM). As farmers transition from subsistence to commercial farming, it is very important for them to know what quality the market (consumers) require. With this knowledge, farmers can prepare their produce for the appropriate market (local or coastal city). This paper reports on the sizes that POM consumers require of fresh sweet potato based on samples purchased from 3 to 5 open markets in POM on 3 sample dates. Within each market, we randomly selected sweet potato from 2, 5, and 10 kina (PNG currency) heaps that sellers had constructed, approximately 3–5 heaps per market. The sweet potatoes were bagged, labeled, and brought to the laboratory in POM for measurements of the minimum diameter, maximum diameter, length, counts of root number per heap, and weight of the heaps. Calculations were made of price per kg and mean root weight in each heap. Results showed the K5 and K10 heaps contained larger sweet potato (diameter, length, and weight) than the K2 heaps and suggests in POM, the fresh sweet potato market prefers a medium-sized sweet potato (165–187 mm, 282–464 g). The smaller roots were sold in the K2 heaps. Although all sizes of sweet potato are marketable, for highland farmers to make a sustainable business from sending sweet potato to POM, it is the medium-sized sweet potato they should be grading and packing on farm and shipping without delay.

A Socio-Economic Analysis of the Factors Affecting Consumers' Willingness to Pay for Good Quality Sweet Potato in Papua New Guinea

Renato Villano[1,*], Hui-Shung Christie Chang[1], John Lark Kewa[2], and Donald Irving[1]

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Keywords

hurdle model, Papua New Guinea, quality, sweet potato, willingness to pay

Abstract

The increasing interest in health and nutrition has enhanced demand for quality of food products and subsequent desire by consumers to pay premiums for food quality. This study examines the influence of socio-economic and product quality attributes on consumers' willingness to pay (WTP) for good quality sweet potato in Papua New Guinea. Information collected from 356 randomly selected consumers from the capital city of Port Moresby is used in this study. Using a structured pretested questionnaire, the survey was conducted in different pre-identified market locations based on the results of initial reconnaissance survey, market survey, and inputs from market experts. Using a two-step double hurdle model, we estimate the determinants of the discrete willingness-to-pay decision and the premiums consumers are willing to pay for good quality sweet potato. Of the total number of consumers, 80% were willing to pay a premium for good quality attributes in sweet potato. On average, consumers are willing to pay a premium of 2.22 kinas per kg with a minimum of 0.96 kinas per kg and a maximum of 3.47 kinas per kg. The premiums consumers were willing to pay are influenced by factors such as education, place of origin (highland regions), number of years the household has been living in Port Moresby, as well as other quality attributes such as the physical appearance of the roots (freshness, cleanliness, shape, and size), maturity of roots, and the sweet taste. Our results highlight two important implications: the importance of improving the quality of sweet potato by incorporating good quality attributes into research and development of new or improved varieties that meet consumer demand, and consideration of various factors in developing interventions in the sweet potato industry to enhance incomes of different stakeholders.

The Role of Village Entrepreneurs and Wholesalers in the Sweet Potato Value Chain in the Highlands of Papua New Guinea

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Keywords

Papua New Guinea, sweet potato, value chain, village entrepreneurs, wholesalers

Abstract

Sweet potato (*kaukau*) is a major staple food crop in Papua New Guinea (PNG) that accounts for many households' food intake. The demand for *kaukau* has increased significantly over the years due to increasing urbanization in the country. Lae and Port Moresby, two of the major cities in PNG, get more *kaukau* produced in the Highlands because of the increased demand for it. To get a clear picture of the markets, key informants of the sweet potato supply chain were interviewed, including farmers, village entrepreneurs (VE), wholesalers, transporters, and buyers. This report focuses on the VEs and wholesalers operating in the main production areas in Western Highlands (WH) and Eastern Highlands (EH) provinces. Given the small number of VEs and wholesalers operating in high-production areas, all were interviewed, 3 VEs and 1 wholesaler in Hagen Central district in the WH, and 2 VEs and 1 wholesaler in the Daulo district in the EH provinces. Results show that VEs who buy *kaukau* and other vegetables from their own village faced problems in access to credit, transport, and storage facility, and many more, while wholesalers were much better resourced, had ready markets, and faced less problems. The constraints have resulted in fewer VEs coming on the scene. To address these issues, the government should put in place decisive policies to address these constraints and stimulate the growth of this industry. The government should also focus on building marketing infrastructure as well as adequately funding state agencies responsible for developing the fresh produce industry.

Promoting Sweet Potato Processing in Papua New Guinea through the School Curriculum: A Pilot Study

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Keywords

education, entrepreneurship, food processing, food security, innovations, sweet potato, value addition

Abstract

Processed sweet potato products have a marketing advantage especially when produced with locally available materials. However, there is no food processing culture in Papua New Guinea and little awareness of potential benefits of food processing. The objective of this research was to raise awareness of food processing in the wider community through the Making-A-Living (MAL) program of the primary school curriculum that focuses on developing practical life skills. In this paper, we outline how we worked with two primary schools in the Houn District, Morobe Province, to promote food processing. Key activities for the school project included (1) training teachers in sweet potato processing, (2) developing learning outcome strategies with teachers of MAL, (3) training students in sweet potato processing, (4) assisting students with their group projects on product development, (5) organizing product competition, and (6) promoting winning recipes and products to potential markets. Preliminary results show that the initiative has raised awareness of and generated significant interest in food processing, and it has enhanced students' ability and willingness to think and do things differently. Initially, sweet potato flour was supplied to one group of students in Bubia School. Later, the group scale up numbers to 8 groups and used up to 30 kg of flour in processing. It was supported by the school, community leaders, and families because it helped bring the community together. With this initial success, the next step is to work with the district and provincial authorities to formally incorporate the initiative into the provincial school program to promote good nutrition and food security and to foster innovation and entrepreneurship through outcome-based learning approach.

Supply Chain Analysis for the Philippine Abalone

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Keywords

Haliotis asinina, Philippine abalone, supply chain analysis

Abstract

Philippine abalone (*Haliotis asinina*) is the most abundant abalone species in the Philippines and is collected from the wild by either gleaning or diving. Abalone has a strong export potential especially to countries in East Asia. The country's highest volume of export was in 2004 with more than 600,000 kg valued at USD 3 million but the volume has continuously dropped. In 2012, the volume of abalone exports is only 300,000 kg valued at USD 1.5 million. This study examined the Philippine abalone industry using the supply chain analysis framework. This is a pioneering and exploratory research on the industry that surveyed 153 collectors from four major production areas in Iloilo, Palawan, Tawi-tawi, and Eastern Visayas; 41 traders; 29 trader-processors; and 7 exporters. Key informant interviews and focus group discussions were also employed. Results revealed that the abalone industry is solely dependent on supply from the wild and its sustainability is at risk given increased fishing activity due to increased demand in the world market, unregulated collection of brood stock and small-sized abalone, destructive collection practices, occurrence of natural calamities, and absence of policies on the management of abalone fisheries. Other findings are weak chain transparency and coordinative mechanisms, absence of common standards for classification and product processing, insufficiency of capital, and logistical issues. Policy recommendations are put forward to protect and increase the existing abalone stock from the wild alongside the development of abalone aquaculture.

Supply Chain Analysis of the Muscovado Sugar Industry in Antique, Philippines

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Keywords

muscovado sugar, performance indicators, supply chain

Abstract

In recent years, there is a growing preference for natural and healthy products resulting to increase in market demand for muscovado sugar in the domestic market and markets abroad. The Province of Antique, Philippines, used to be the key producer of muscovado sugar in the 1960s, producing 70% of the country's total muscovado sugar. Production of muscovado sugar has declined, attributed to factors like domination of refined sugar in the over-all sugar industry, decline in volume and quality of sugar due to neglect, inefficient milling practices, and underdeveloped milling channels. This paper documents the muscovado sugar supply chain in the province of Antique to provide basis for policy makers and industry players towards industry revitalization and eventually increasing its level of competitiveness. Data was gathered using key informant interviews and expert opinion. In addition, surveys were conducted in 7 sugarcane-producing municipalities in Antique with 79 respondents, determined using a two-stage random sampling. The paper maps out the supply chain of muscovado sugar in Antique showing the actors, key processes, flow of product, payment and information, logistics issues and concerns, and external influences along the chain. Appropriate recommendations were made in accordance to the objective of increasing the industry's level of performance and competitiveness. Specific participant-anchored and process-based strategies are recommended.

Supply Chain Analysis of the Palm Oil Industry in Selected Regions in Mindanao, Philippines

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Keywords

Internal rate of return, net present value, palm oil, return on expenses, supply chain analysis, tracing method

Abstract

This study analyzes the existing supply chains of the palm oil industry among the selected regions in Mindanao, Philippines. The established methods in assessing the six key questions for supply chain studies were utilized in the study. Seventy-two (72) oil palm growers, 3 oil palm millers/processors, and all traders identified through tracing were chosen as respondents. Findings of the study may help identify crucial areas of concern along the oil palm supply chain and thereby formulate and recommend, if possible, policies and mechanisms to address the issues and problems identified. Results show that the palm oil supply chain is quite simple with very few identified and legal middlemen. Returns on expenses (ROE), net present value (NPV), and internal rate of return in oil palm investment were all favorable. Processors, as one of the major key player in the industry, have the upper hand along the chain. For one miller, the issue of cheap crude palm oil smuggling or technical smuggling is a critical problem in terms of outbound logistics, while for another company, the low supply of oil palm fresh fruit bunches (ffbs) available to them served as the most crucial problem for inbound logistics. Prompt action is needed as the country needs to prepare for the ASEAN economic integration, which implies stiff competition among its member countries for its common goods, particularly oil-based products.

Supply Chain Assessment and Process Benchmarking of Coffee Industry in Selected Areas of Misamis Oriental, Southern Philippines

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Keywords

bench marking, coffee, efficiency, flexibility, product quality, supply chain assessment, responsiveness

Abstract

The Philippine's coffee production has now shifted to Mindanao, which accounts for 70% of the annual production. However, several gaps in its supply chain management are needed to be addressed. This study assesses the supply chain management practices of the coffee industry in selected areas of Misamis Oriental and identifies areas for improvement. It focuses on the following objectives: first, to map out the flow of the product; second, to analyze and assess the current state of the supply chain management performance of coffee; and lastly, to identify areas for improvement in the supply chain such as behavioral, institutional, and processes. Both primary and secondary data were used in the study. It uses simple random sampling method in selecting the respondents. Descriptive statistics is used in the analysis of data and chain performance analysis. Results indicate that the absence of market information and inconsistency of performance responsiveness in terms of price, volume, and quality of the products greatly affects the efficiency of the coffee industry's supply chain. The flow of price, supply, and technical information are more inefficient at the farmers' level than the traders. The overall performance of the coffee industry in the study needs further improvement in terms of efficiency (cost minimization), flexibility (customer satisfaction), responsiveness, and product quality.

Assessing the Supply Chain Performance of Dairy Goat in Selected Areas of the Davao Region and Northern Mindanao, Philippines

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Keywords

dairy goat, goat milk-based products, supply chain improvement

Abstract

Demand for dairy goat milk is increasing because of its nutritional values that are distinct from other dairy milk. Yet it has not been taken advantage by the local industry as dairy goat inventory remained low. A tracer methodology was adopted to analyze key performance areas in the supply chain of dairy goat in Northern Mindanao and the Davao Region as the fifth and sixth top goat-production regions in the Philippines. A total of 13 dairy goat raisers who regularly produce dairy goat milk in these regions were purposively selected as key respondents of the study. Results showed that profits from sale of fresh dairy goat milk were at marginal level due to low and unsustained volume of production. Profitability performance of dairy goat milk producers were affected by low productivity of milking coupled with inadequate technology to extend shelf life of fresh milk. Appropriate institutional interventions such as the continuing research and development to improve productivity, animal care management, technology and product development, capability development, and provision of financing support and incentives are needed to improve the supply chain performance of dairy goat.

Are Traders Good or Bad? The Role of Intermediaries in the Supply Chain of Falcata in the Davao Region, Philippines

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Keywords

falcata, market intermediaries, supply chain

Abstract

The wood industry in the Davao Region is characterized by lack of market information and dominance of market intermediaries. Stakeholders of the industry carry the conventional wisdom that traders are exploitative and should be eliminated in the chain. In this paper, we examined this notion by mapping the supply chain of falcata in the Davao Region and analyzing the role of traders along the chain. A Structure-Conduct-Performance approach to supply chain analysis was used to determine how market structure determines the behavior of traders in the supply chain, which ultimately determines the various aspect of chain performance. We found that there are a few number of traders along the falcata supply chain, and they have high market concentration on specific production areas. Tree growers perceive that traders possess some degree of buying power over them due to their inability to market falcata logs directly to wood processing plants. However, the profitability analysis reveals that marketing falcata logs entails huge cost in processing the permit to cut and transport, harvesting and hauling, transportation, and payment for SOPs. Traders significantly contribute to the value addition in the falcata supply chain by performing the main function of distribution. However, traders are misunderstood by other chain actors because they are not fully aware of the marketing costs entailed in performing the distribution function and the risks that traders carry along with it. As such, supply chain development interventions should recognize the key role of traders in facilitating the value-creation process within the chain.

Profiling of Heavy Metals in 'Kawakawa' (*Euthynus affinis*) and Seawater and Bottom Sediments in Sarangani Coastline, Mindanao, Philippines

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Keywords

bottom sediments, cadmium, effluent standards, *Euthynus affinis*, heavy metals, lead, mercury, seawater

Abstract

Heavy metals have the ability to accumulate in the human body and disrupt functions of some vital organs. These metals can find their way into humans by consumption of metal-contaminated fish. In this study, the presence of heavy metals was assessed in muscle tissues of 'kawakawa' tuna (*Euthynnus affinis*) from General Santos City Fish Port (GSCFP) and in Kiamba fish landing site, as well as seawater and bottom sediments along Sarangani coastline. The heavy metals cadmium (Cd) and lead (Pb) were analyzed using atomic absorption spectrophotometry; while for mercury (Hg) cold vapor atomic absorption spectrophotometry was used. Results revealed that heavy metals in the three 'kawakawa' samples from GSCFP had Hg concentration ranging from 0.045 to 0.108 $mg{\cdot}kg^{-1}$ which were below the limit set by the United States Food and Drug Administration. This implies that in general, the tuna samples do not pose a serious threat to the health of the consumers. Sediments obtained from Sarangani coastline showed presence of Pb at 62.27 $mg{\cdot}kg^{-1}$ which is below the 128 $mg{\cdot}kg^{-1}$ limit. Assessment of the pollution status of the study area revealed that the bottom sediments can be classified as unpolluted to moderately polluted from all levels of Cd, Pb, and Hg, which implies minimal heavy metal exposure of tuna species in the area. To ensure that no further contamination of seawater and bottom sediments occurs, possible sources of heavy metals such as the industries, should be regulated by implementing more stringent effluent standards.

Assessing the Extent of Precarious Work Arrangements in Tuna Catching: The Case of General Santos City, Philippines

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Keywords

benefits, employment,
General Santos City,
precarious work arrangement,
risk, tuna, tuna fishing

Abstract

Attaining global competitiveness is a major challenge in the business world nowadays. This challenge posed the need to produce goods and services with the highest quality and lowest cost of production. The need to reduce labor cost led to the adaption of precarious work arrangements (PWA). However, it is worth noting that PWA have existed in tuna catching even before the offshoot of the globalized economy. This research aimed to study the extent by which PWA is applied, the terms and conditions of employment, and other coping mechanism developed by both labor and management. Key informant interviews were done with three groups of catchers composed of *piado* (the vessel captain, master fisherman), assistant engine mechanic, *pokotero* (net maintainer), *bosero* (area checker/ guard), fishermen (fish hauler and crew), *kusinero* (cook), and other utility workers. The results revealed that the scheme is covered by a contract between the master fisherman (vessel captain) and vessel owner. There is no fixed rate of compensation. Wages and benefits would depend on the volume and value of the catch. There is no security of tenure, minimal fringe benefits, and high risk. Workers mobility (from one group to another) is dependent on the choice and reputation of the *piado*. Additional benefits were awarded by vessel owner to maintain loyalty of the workers. It is recommended that the contract of engagement must be improved to include workers protection, welfare, and insurance to reduce risk taking.

Assessing the Role of Cooperative in Resolving Labor Issues in Tuna Catching, General Santos City, Philippines

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Keywords

cooperatives, economic gains, General Santos City, labor issues, social gains

Abstract

Cooperatives are envisioned both as a social and economic enterprise. In the Philippine setting, cooperatives were organized to serve as labor provider for various industries, under the scheme of agency hiring, or declaring the hired workers as member/co-owner of the cooperative. The study aims to examine the economic and social gains, as well as the risk taking of the members and business partners. In particular, an assessment of the social gains (e.g., resolving labor issues, vulnerability of workers to exploitation, and workers capacitation) will be analyzed to probe the cooperative as a venue for workers' empowerment. Key informant interviews were conducted with the officers and members of two cooperatives: (1) type A – workers' cooperative organized by an agency (labor provider) and (2) type B – workers' cooperative organized by the workers themselves. The findings revealed that the type B cooperative generated more economic and social gains for both members and business partners, while the type A cooperative delivered less. Type A cooperatives did not resolve the labor issues while type B cooperatives enhanced worker entreprenuership, capacity building, and participation with increased compensation and benefits. It is recommended that concerned government agencies must strictly monitor the operations of cooperatives. Business partners must also be encouraged to deal with cooperatives who are organized to serve the interest of the workers.

Consumer Preference of Canned Tuna in General Santos City, Philippines

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Keywords

canned tuna, consumer preference, General Santos City, Probit, tuna

Abstract

Consumption for processed products has increased due to the changes in the eating habits of consumers. General Santos City, being a major tuna-consuming city and a top producer of canned tuna, plays an important role in maintaining the balance in the distribution of canned tuna in the domestic and international markets. This study aimed to determine the relative importance of various attributes (purchasing price, ecolabeling, flavor, and packaging form) on consumer preferences and how it influences their purchasing decisions for canned tuna. We used qualitative approach (focus group discussions) to identify the attributes and levels that are mostly considered by consumers; and quantitative approach (conjoint analysis) to estimate utility values of the product attribute and levels to the consumers. Results show that purchasing price (PhP15, PhP25, PhP35), packaging form (non-easy open can, easy-open can, pouch), presence of ecolabel logo (with dolphin safe, without dolphin safe), and flavor (natural tuna taste, spicy, local Filipino dish flavors) are considered when choosing processed tuna products. Overall, price (24.21%), packaging form (25.49%), ecolabel (24.79%), and flavor (24.98%) have fairly equal relative importance. Using cluster analysis, two segments of consumers were found. Of the two clusters, the first placed almost equal importance on all attributes while the other placed high importance on packaging forms. Probit analysis also showed that socio-demographic factors and purchasing information highly influence their association in the cluster. While consumers were aware of ecolabels, most had misinterpretations. The latter can be reduced by intensive information drive on promoting marine resource conservation to influence consumer preference.

Soil Characterization of Cavendish Banana Farms Infected and Non-infected with FOC TR4 in Davao del Norte, Southern Philippines

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Keywords

Davao del Norte, FOC TR4, Cavendish banana farms, Philippines, soil characterization

Abstract

In Mindanao, hectares of Cavendish banana farms are threatened by Panama disease caused by the soil-borne fungus *Fusarium oxysporum* f. sp. *cubense* (FOC) Tropical Race 4 (TR4), which cannot be controlled using fungicides and fumigants. FOC TR4 has the capacity to survive for decades in the soil. Hence, it threatens the million-dollar banana export industry and the livelihoods of people who depend on it. In this study, we determined the physical, chemical, and biological properties of soil from an FOC-infected and an FOC-free banana farm in Sto. Tomas, Davao del Norte, Philippines. Both farms vary in their physical characteristics as indicated in the soil textural analysis. In both farms, magnesium and zinc are more than the standard level, organic matter is below standards, and the soil pH is slightly acidic. We observed two bacteria colonies from the infected soil sample and one colony from the uninfected sample. However, we did not observe the fungi *Fusarium oxysporum* and *Ralstonia solanacearum* in the samples but found *Penicilium* sp. Root growth status was observed to be comparable in both infected and non-infected soils. In terms of plant parasitic nematodes, we found high populations of *Helicotylenchus* sp. in the roots and low populations of *Radopholus* sp., *Meloidogyne* sp., and *Hoplolaimus* sp. We also did not detect organophosphate, carbamate, pyrethroid, and glyphosate chemicals in both soil samples. The very low soil organic matter may imply suppression of soil organic dynamics. It may play a crucial role on the persistence of FOC TR4 in the soil.

Yellowing and Granulation of 'Magallanes' Pummelo (*Citrus maxima* [Burm. ex Rumph] Merr) Fruit as Influenced by 1-Methylcyclopropene

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Keywords

1-MCP, rind color change, vesicle drying, visual quality

Abstract

The yellowing, granulation, and other physico-chemical characteristics of 'Magallanes' pummelo [*Citrus maxima* (Burm. ex Rumph) Merr] fruit treated with 1-methylcyclopene (1-MCP) for 8 h at 0, 50, or 500 nL L^{-1}) were evaluated. L*, a*, b*, chroma and hue values gradually increased during 12 weeks of storage at ambient conditions (26.4 °C, 83.3% RH). Rind color became more vivid and yellow. Decay, juice content, and electrolyte leakage were similar among treatments. However, weight loss, visual quality, shriveling, pH, total soluble solids (TSS), titratable acidity (TA), and TSS:TA were affected by 1-MCP. Weight loss was lowered by 50 nL L^{-1} at 6 weeks after treatment (WAT). Treated fruit had better visual quality than control fruit at 6 and 9 WAT because of lesser shriveling. At 12 WAT, fruit treated with 500 nL L^{-1} exhibited highest %TA and lowest TSS:TA ratio. Granulation or vesicle drying was most frequently observed initially in the middle and stylar ends of fruit segments. Granulated samples exhibited higher pH and lower TSS than the non-granulated segments. 1-MCP but not storage period showed similar yellowing and granulation of 'Magallanes' pummelo as the control lot. 1-MCP maintained a good fruit visual quality longer.

Visual Quality and Bruise Injury of 'Carabao' Mango in Samal Island, Philippines

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Keywords

anthracnose, bruising, 'Carabao' mango, quality defects, stem-end rot

Abstract

The postharvest quality of 'Carabao' mango in Samal Island, Philippines, was assessed after harvest and fruit bruising through different drop heights (0, 1, 2, 3, 4, or 5 m) as well as combination of drop heights (0, 0.5, 1.0, or 1.5 m) and maturity (mature green, more yellow than green, turning or full yellow). Fruit were initially assessed after harvest and bruising then reexamined at table ripe stage (TRS). Of normally harvested mature green fruit, 80% had very good visual quality. However, at TRS, it declined to 47.1% while good and saleable samples were at 31.7%. Assessment of skin defects showed that blemish (55.2%) and scab (28.8%) were the main defects at harvest with the former observed to intensify at TRS (68.3%). Anthracnose (38.4%) and stem-end rot (29.4%) were high at TRS for mangoes under usual harvest practice. For fruit dropped from 0 to 5 m heights, there was an increasing trend in cracked fruit (6.7% to 80%) as drop height increased. Upon dissection, white mass in fruit pulp underneath the bruise surface was observed. At TRS, there was a distinct green color observed on the peel impact site. Weight loss and bruise percentage were higher in fruit dropped at 4 and 5 m than those dropped at lower heights. Similarly, weight loss and bruise percentage were also higher in fruit dropped at 1.5 and 1 m than 0.5 m regardless of fruit maturity when dropped. Diseases such as stem-end rot, sooty mold, and rot were high at TRS.

Prototyping of Solar Dehydrator for Beef Products

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Keywords

dehydrator, Philippines, renewable energy, solar, technology

Abstract

Today's world calls for innovations that utilize renewable sources of energy. This study aimed to design and develop a solar dehydrator and test its efficiency in terms of air temperature, drying rate, return of investment (ROI), and payback period for beef. Project method and experimental research design was used. The beef solar dehydrator is structured with acrylic plastic top cover that allows heat to pass through while securing the beef samples away from possible contamination. The insulator foam inside the drying chamber traps heat within, raising the internal temperature and removing excess moisture from the samples. Drying period is from 8 AM to 6 PM for two days. The air temperature and drying rate were monitored in two-hour intervals for three trials. Results show that the highest average air temperature was 57 °C registered at 2:00 PM, while the lowest was at 26.66 °C during the first hour of drying. From the original weight of 4 kg, the weight of the samples gradually decreased to a final dried weight of 1 kg. Using the solar dehydrator, an annual income of PhP373,561.05 and a return of investment of 5.53%, with a payback period of 0.0085 year (less than a month of operation), was determined. It is recommended that the solar dehydrator be enhanced before disseminating to meat vendors and other entrepreneurs for adoption and utilization.

Development of Fabricated Hammer-Type Milling Machine: An Assessment in Processing Livestock Feed Meal Ingredients

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Keywords

experimental research,
hog raising, livestock feed,
milling machine, technology

Abstract

Hog raising is very common to Filipino families both in the backyard and in commercial piggery production. Milling machine is seen as important equipment to grind the different type of feeds materials to complete desired feed formulation for hogs. The study focused on the development of a fabricated hammer-type milling machine and assessed the capacity in processing livestock feed meal ingredients. Project method was used in the fabrication, while experimental research was applied to test the performance in the production of feed meals. Evaluation of the machine focused on its production capacity per kilowatt hour (kWh), spout opening, grinding opening, and motor current drawn. The efficiency of the machine was evaluated in terms of its performance on production of granulated and pulverized dried feed meals ingredients. Return on investment (ROI) and payback period were also evaluated. Findings showed that the fabricated machine has 1.5 kW, 220 V, and have a normal full load current at 2.72 kWh. It has a spout opening of 40%, discharge grinding opening of 50%, and draw a motor current 12.45 A. Yearly production volume of the machine are as follows: pulverized yellow corn – 75,985.92 kg or 1,519.72 sacks; crack US Soya Hi pro – 217,105.92 kg or 4,342.11 sacks; and rice bran – 234,391.68 kg or 4687.83 sacks. Thus, the machine is capable of producing the required ratio of pulverized ingredients specifically for yellow corn (26.80 kg or 53.62%), U.S. Soya Hi pro (9.65 kg or 19.30%), and rice bran (2.75 kg or 5.5%) which composed 78.43% of the total feed composition requirements for a 50-kg grower mash for hogs. ROI was at 62.63% and the payback period was 0.083 years. It is recommended that hog raisers acquire their own locally fabricated milling machine to reduce the cost incurred in hog raising.

Benchmarking Sugarcane Production and Management Technology for Muscovado Sugar in the Province of Antique, Western Visayas, Philippines

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Keywords

benchmarking, indicators, performance metrics, muscovado sugar

Abstract

Long-term sustainability of industries such as an agri-food production system is essential in the light of pressures to satisfy diverse customer needs, comply with government regulations, and to maintain core competency as in response to stiffer market competition. This has led to the identification of best management practices for highly critical and important commodities as the case of muscovado sugar. This paper attempts to gauge the performance of sugarcane production and management technology for use in muscovado sugar production in the province of Antique vis-á-vis process-specific levels of sugarcane production technology as categorized by the Sugar Regulatory Administration. A survey was conducted in 7 sugarcane-producing municipalities in the Province of Antique with 79 respondents selected using two-stage random sampling. Results show that the industry is at par when it comes to best management practices along the areas of planting practices, planting material selection, closing in timing, harvesting practices, trash management, shuttle shaving, and variety programming. The industry in the province lags behind along the areas of soil preparation and fertilizer application. It is recommended that all interventions geared towards improving the industry performance be anchored on evidence-based research findings. Moreover, it is further recommended that to improve productivity in sugarcane production, the industry in Antique must capitalize on its strengths while working towards the improvement of critical areas mentioned.

Technical Efficiency Analysis of Maize Growers in Muzaffarad District, Azad Jamukashmir, Pakistan

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Keywords

food security, Pakistan, technical efficiency, stochastic frontier analysis

Abstract

This research endeavor was undertaken to estimate the technical efficiency of maize growers, which has future implication for food security in Pakistan. The study was conducted in four villages of the Muzaffarabad District of Azad Jamukashmir. Primary data was collected during 2013–2014 from 80 respondents selected through proportional allocation sampling design. This study utilized a Cobb-Douglas stochastic production frontier analysis. Results show that mean technical efficiency was estimated at 83%, implying that the farmers can still boost production by 17%. The estimates illustrated that seed, tractor-hours, farm yard manure (FYM), and labor days were significantly increasing maize yield. However, diammonium phosphate (DAP) and urea had insignificant effect. The results have demonstrated that maize is a lucrative crop in the study area, as growers had received increasing return to scale, i.e., 1.90 (Ep>1). Hence, economies of scale exist. The variance parameter λ and Γ both were significant indicating the good fit of model and inefficiency impact, respectively. The estimated gamma value of 0.77 underscores that 77% variation in the production frontier was explained by technical inefficiency effect, which includes farmer's schooling years, number of contacts with extension agents, farmer's age, and farm size. This study conclude that labor use and FYM utilization is highly significant. It is recommended that input prices should be controlled by the regulatory authorities to encourage the use of DAP and urea to enhance the maize yield and cope up with food demand.

Improving Small Farmers' Access to Soybean Processing Industry in Jambi Province, Central Sumatra, Indonesia

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Keywords

access, Indonesia, processing industry, small farmers, soybean

Abstract

Soybean is an important source of protein for Indonesian people. The soybean production in Indonesia is continuously declining and can only fulfill about 40% of its domestic demand. In order to increase soybean production, the Indonesian government has promoted soybean production in marginal areas. However, it is important to note that increasing soybean production should be followed by improved access of soybean farmers to markets, particularly the processing industries. This is because Indonesian consumers tend to consume products derived from soybeans that are produced by soybean industries. In such situations, linking small farmers to soybean processing industries is important. This study aims to identify the attributes of soybeans required by industries and the challenges faced by farmers in producing soybeans. The study area is Jambi Province in central Sumatra where there are many small farmers producing soybeans on marginal lands. Thirty respondents from soybean industries in the study area were purposively selected. To analyze the data, factor analysis and descriptive statistics were used. The results indicate that soybean industries have high quality requirements for soybeans. The characteristics of soybeans demanded by industries include big and uniform size, fresh, bright yellow color, free from disease, clean, low water content, high protein content, no damage, and available all year round. These results have important implications for policymakers on how to link small soybean farmers to soybean industries by introducing interventions so farmers can produce crops that meet industry requirements.

Measuring the Economic Impact of Weather Determinants on Aquaculture in the Davao Region, Philippines

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Keywords

aquaculture, humidity, net income, Ricardian approach, temperature, weather determinants

Abstract

Aquaculture is an important determinant of economic growth in the Davao Region in the Southern Philippines because it contributes towards increasing employment and agribusiness development opportunities. However, the industry faces various issues that affect farm productivity. One of these challenges pertains to welfare effects emanating from changing patterns of weather variables. Hence, this research aimed to measure the impact of weather determinants on aquaculture production's net income based on surveyed farms in the Davao Region. Based on the Ricardian approach, our econometric model specifies the dependent variable as net income (PhP/ha) and this is a function of weather variables such as precipitation, humidity, and agro-climatic and socio-demographic variables. From the results, weather and agro-climatic variability have statistically significant effects on aquaculture's net income. More specifically, a unit increase in the standard deviation of rain value increases net income by PhP12,730. However, an increase in one standard deviation of average air humidity decreased net income by approximately PhP2,940. Finally, unit increases in the standard deviation of soil moisture and soil temperature translate to increases in net income by approximately PhP16,150 and PhP16,170. Thus, given the results, strategies that would enable aquaculture farmers to mitigate and adapt to changing weather conditions should be implemented. Also, weather stations should be updated and upgraded in order to provide accurate readings and forecasts so that aquaculture farmers' decision making will be improved with regards to their farm practices.

Comparison of Contract and Noncontract Farming in Poultry Value Chain of Ranga Reddy and Mahabubnagar Districts of Telengana State, India

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Keywords

contract farming, European efficiency ratio, feed converstion ratio, integrators, performance efficiency factor

Abstract

Poultry is one of the fastest growing sectors (>10% per annum) in Telangana State, India. Contract farming emerged in the poultry value chain to mitigate price risk and solve the problem of hatcheries in selling their day-old chicks. Hatcheries (integrators) supplied day-old broiler chicks, feed, and medicines for free to farmers who have infrastructure, procured back, grown birds paying predetermined growing charges. Study focused on variables such as cost of infrastructure, production, rate of return, returns, and feed efficiency, etc., among small, medium, and large farms under contract and not under contract in the study area. The total sample size was 60, with 30 each for contract and noncontract farming and 10 each for small-, medium-, and large-sized farms. Mean production cost per bird was INR 46 in the noncontract farms without size variation. Cost was almost one-tenth of the above in contracts and was highest in small farms (INR 4.94) showing an inverse relationship. Return per rupee of investment is 1:0.48 for small farms under contract compared to 1:0.13 in noncontract farms. Feed conversion ratio (FCR), which is feed required to produce 1 kg of bird's live weight, was 1.84, 1.83, and 1.90 for all three size farms under contract, and 2.10, 2.14, and 2.09 under noncontract. Other FCRs such as PEF (performance efficiency factor) was at 102.13 and EEF (European efficiency ratio) was at 259.28, 237.79, and 219.56 for all three sizes under contract. But net returns obtained were INR 1.92 per bird by contract, less than noncontract, due to low production cost per bird. This was the major problem faced by contract farmers, and we recommend that the farmer groups should bargain and enforce their legal status.

Analyzing Pili Nut Value Chains in Sorsogon Province, Philippines

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Keywords

Canarium ovata, chain actors, net margins, pili nut, value chain

Abstract

The importance of the pili nut (*Canarium ovatum* Engl.) industry cannot be discounted due to its immense domestic potential in Sorsogon Province, Philippines, where 62% out of the total volume of canarium nut production in the Bicol Region is concentrated. This paper examined the pili nut value chain network in the study area. Supplemented by secondary data sources, primary data gathering was conducted involving interviews with 15 pili farmers, 30 processors, and 20 traders located in Sorsogon City and 5 other pili-growing towns in Sorsogon Province. Analytical tools such as descriptive and net margin analyses were used. Results showed that farmers, processors, processor-wholesaler-retailers, processor-retailers, wholesaler-retailers, and retailers comprised the value chain. Four pili pulp and shelled pili chains where processors were not participants were identified while 12 dried kernel chains were mapped out. Selling dried kernel pili during the lean season gives farmers the highest value at PhP147.94 per kilogram rather than selling raw or shelled pili where returns are only one-fifth of this value. Traders refrain from buying dried kernel pili from farmers since they prefer buying pili with pulp and shelled pili so they can do the processing themselves. Chain problems include the lack of technical, financial, and information support; scattered location of pili farms; and low levels of product innovation. Recommendations offered include forming a cooperative or consolidating group to assemble all harvests, justify the purchase of depulping and other processing equipment, hasten production and processing technology transfer, and increase competitiveness.

The Effect of Vertical Coordination on Indonesian Dairy Industry Performance on Quality: A Comparison of Two Regions

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Keywords

Indonesian dairy industry,
institutional arrangement,
institutional environment,
vertical coordination

Abstract

The changes in institutional environment that have occurred in the Indonesian dairy industry have influenced the approach taken by the industry in managing their partnership with dairy cooperatives and with Indonesian dairy farmers. Previous studies discovered that the increasing milk quality standard required by consumers is driving the industry to apply vertical coordination. This means that the industry (as a buyer) is more closely aligned with producers (seller). In relation to the issues above, this paper reviews the effect of vertical coordination on the performance of the Indonesian dairy industry especially on milk quality. The research is based on a comparative case study of the dairy value chain by comparing two regions in Indonesia, West Java and East Java. This study used the number of germ content (total plate count) as indicator of milk quality. By interviewing 29 key informant of the value chains, the study shows that there are strong differences in implementing vertical coordination of the milk value chain in each of two regions. In West Java, the seller (cooperatives) are more reluctant to close a contract with the buyers (industry) than in East Java. East Java has strong power to implement vertical coordination because this region has only one major dairy industry. Furthermore, vertical coordination has a positive effect on improving the quality of fresh milk in both regions, though the study found that East Java has higher milk quality than West Java.

SESSION C2

Analysis of the Production and Marketing Operations of Swine Enterprises in the City of San Jose del Monte and Santa Maria, Bulacan, Philippines

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Keywords

production and marketing systems, profitability analysis, scale of operation, swine enterprises, value chain analysis

Abstract

Analysis of the production and marketing operations of swine enterprises in two major hog-producing towns in Bulacan was done to assess their status and performance. Seventy-one respondents from the City of San Jose del Monte (CSJDM) and 74 respondents from Sta. Maria, Bulacan, were personally interviewed using a structured questionnaire. Descriptive research design and integrated analysis were employed. Profitability and value chain analyses were also done. Sow-herd and growing-finishing production systems were prevalent in CSJDM and Santa Maria, respectively. Most enterprises in CSJDM were small backyard while those in Santa Maria were small commercial. However, CSJDM swine farms had better production performance though the values in both towns were a little behind the national standard. Santa Maria farms had generally wider market reach than CSJDM farms. The intermediaries were narrowed to wholesalers and processors as production level advanced. Profitability analysis revealed increasing profit with increasing scale of operation. Medium commercial enterprises mostly prevalent in Santa Maria showed the highest average net income. Value addition increased from farm to primary intermediary with increasing scale of operation. Sow-herd farrow to finish enterprises were more profitable than growing-finishing farms. Recommendations to further improve the swine enterprises were formulated. For swine raisers, we recommend clustering municipal hog raisers and traders into a cooperative, increasing production volume, adopting a community-based approach in herd-health improvement, encouraging joint production of commercial and backyard swine farms, and increasing efforts to promote social awareness regarding environmental impact of swine production. For the government, we recommend providing low interest loans, regulating meat importation, increasing campaign against pork meat smuggling, and promoting consumption of locally produced pork.

Value Chain Analysis of Brewer's Spent Grain for Cattle Feed in Selected Areas of El Salvador City, Misamis Oriental, Philippines

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Keywords

brewer's spent grain, by-product, efficiency, Recklie's value chain model, supply chain

Abstract

In the Philippines, Asia Brewery Incorporated (ABI) is the second main producer of beer and generates a volume of 85% brewer spent grain (BSG) of the total by-product. Studies show that BSG is a good source of nondegradable protein and water soluble vitamins for both ruminant and some monogastric animals like pigs and horses. This study investigates the gaps on the distribution channels of BSG produced by ABI using community surveys and key informant interviews to gather the data. Due to time constraints and a limited number of BSG users, the respondents were purposively selected from current users in selected areas of El Salvador City, Misamis Oriental, Philippines. Recklie's value chain model was used to evaluate which particular activity adds value to the organization's products. Result shows that there are three major direct buyers of BSG, namely, beef cattle growers, milk cattle growers, and retailers. BSG can be purchased directly from ABI plant at PhP0.50/kg including labor and transportation costs. The direct buyers sells the product at PhP0.83/kg to the retailers (62.5% mark-up), and the retailers sells the by-product to the market at PhP1.40/kg (59.29% mark-up). It further shows that BSG is a good feed alternative and very economical for the farmers to use. The city government should endorse an ordinance that would address the concern of prioritizing the small buyers/farmers in the distribution of spent grain and make it more accessible to the small farmers as part of the company's initiatives under its corporate social responsibility.

Value Chain Analysis of Mandarin in Nueva Vizcaya, Philippines

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Keywords

Kasibu, mandarin, Nueva Vizcaya, value chain analysis

Abstract

Mandarin production and marketing has developed significantly in recent years. However, the mandarin industry in Nueva Vizcaya, Philippines, a well-known mandarin producer, could not meet local demand for mandarin in terms of quantity and quality. There is a definite need for government to intervene for the industry's growth and development. To be able to identify the specific intervention, value chain analysis (VCA) was conducted. Primary data was gathered by interviewing key players such as farmers and traders. Farmers were purposively selected from the three highest-producing municipalities. Tracer methodology was employed to determine the other key players along the chain. Secondary data were collected from different agencies. Results show that mandarin in Nueva Vizcaya has five chains. The value added from one node to the next one ranges from PhP2.26 to PhP25.00 per kilogram, with the last node, the retailers, getting the highest net margin. Kasibu, the municipality where the industry is more developed, reported farmers getting a higher value for their mandarin (PhP23.58) than farmers from the two municipalities, Diadi (PhP6.87) and Quezon (PhP10.21). Mandarin from Kasibu likewise had a longer chain, showing more marketing activities, and the mandarin reaching other provinces and regions. The study produced four recommended interventions: capability building of farmer associations, forming farmers into production clusters for standardized production and marketing practices, management by using a package of technology, and continuous R&D on the enhancement of the mandarin industry from input provision to postharvest practices.

Food Safety Concerns of Vegetable Consumers in Davao City, Philippines

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Keywords

consumer survey, food safety, vegetable supply chain

Abstract

Food safety has become a growing concern among vegetable consumers. Studies have shown changes in the purchasing pattern of consumers due to food safety concerns. In developed countries, food quality and safety have become increasingly important attributes being considered due to food-borne diseases. In this paper, we determined the consumers' level of food safety concern at various stages along the vegetable value chain and analyzed how it affects their purchase patterns. We conducted a mall intercept survey among 240 respondents at two supermarkets in Davao City, Philippines, using a structured questionnaire and organized focus group discussions (FGDs) to triangulate our findings. Slovin's formula was used to determine the sample size. Results showed that most of the consumers were extremely concerned with the amount of chemicals used in vegetable production, cleanliness of storage conditions, retail and entire market outlet, disposal of waste vegetables, quality of vegetables used in presliced packs, and quality of water used in washing vegetables. Ironically, despite their high level of concern on food safety, particularly on chemical residues, most of the respondents always purchase conventional vegetables and never purchase certified organic vegetables. This can be attributed to the wide price difference of certified organic and conventional vegetables. Based on FGD results, consumers emphasized the importance of certification as an assurance of safety. However, consumers demand that food quality and safety assurance should be delivered at a reasonable price. The challenge for stakeholders in the vegetable supply chains is to reduce the cost of certification while ensuring food safety and traceability along the chain.

Willingness to Pay for Certified Safe Vegetables in Davao City, Philippines

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Keywords

certified safe vegetables,
food safety, willingness to pay

Abstract

Safe vegetable production is being practiced in the Philippines to address food safety concerns on vegetables. In this study, we assessed the viability of producing and marketing certified safe vegetables in Davao City by estimating consumers' willingness to pay (WTP) for certified safe vegetables and analyzing the factors affecting it. The determinants of the consumer decision whether to purchase certified safe vegetables and WTP for certified safe vegetables were analyzed using logistic and Tobit regression, respectively. We found that most consumers in Davao City are willing to purchase (ranging from 82% to 91%) certified safe vegetables. The factors that significantly affect the likelihood of a consumer to purchase certified safe vegetables at the wet market are civil status, educational attainment, and frequency of purchase and the factors that significantly affect the likelihood of a consumer to purchase certified safe vegetables at the supermarket are gender and vegetable expense. On the average, Davao City consumers are willing to pay an additional PhP6.00/kg and PhP5.50/kg on top of the regular retail price for certified safe vegetables sold at the wet market and supermarket, respectively. These findings imply that there is a market for certified safe vegetables in Davao City as indicated by the consumers' willingness to purchase and willingness to pay. However, it should be noted that these consumers are willing to pay only a small premium above regular retail prices. Vegetable farmers and marketers can capitalize on this opportunity, but the cost of producing and marketing certified safe vegetables must not exceed its potential benefits.

Willingness to Pay for Certified Safe Vegetables Among Consumers in Cagayan de Oro City, Philippines

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Keywords

certified safe vegetables, Philippines, Tobit model, vegetable consumer, willingness to pay

Abstract

Nowadays, consumers are becoming more health conscious. The demand for vegetables that are "certified safe" is expected to increase in proportion to the products with "certified safe" labels. Hence, the development of such products may improve the economic condition of smallholder farmers who will adopt safe vegetable production. In this study, we explored the various factors that may significantly affect consumer willingness to pay (WTP) for certified safe vegetables in Cagayan de Oro City, Philippines, using the Tobit model. The factors considered were socio-demographic details, purchase patterns for the supermarket and wet market, attitudinal factors, and food safety concerns. A mall intercept survey of 110 respondents buying vegetables from the grocery was conducted. The study focused on the following vegetables: tomato, eggplant, sweet pepper, bitter gourd, and cabbage. Results showed that respondents are moderately concerned regarding the preharvest and postharvest production practices, while they are extremely concerned with retail-related attributes. Appearance, type of market outlet, and label were found to be the main determinants of the respondents' perceptions on whether the vegetables they purchase are safe or not. Majority agree that unsafe vegetables could cause immediate health problems and strongly agree that it could cause long-term health problems. In measuring the consumers' WTP, majority of the respondents were willing to pay more, by as much as 14% higher, for vegetables that are "certified safe." In conclusion, the demand for certified safe vegetables is reflected in the respondents' positive perceptions on the quality, environmental advantages, and benefits of consuming certified safe vegetables manifested by higher WTP.

Food Security among Vegetable Farmers: Implications to Talaandig Culture in Bukidnon, Southern Philippines

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Keywords

food security, multiple regression, ordered logit, Talaandig

Abstract

Food security is a vision for indigenous people who are known to survive and depend on the abundance of their lands. Achieving food security would enable them to the right to self-determination, which includes community building and ancestral domain development. Consequently, this affects their social, political, economic, and spiritual development. Songco is both the center of vegetable production and Talaandig culture in Bukidnon, Philippines. A total of 208 farming households were interviewed and focus group discussions were conducted in various groups to analyze food security among farming households. The Household Food Insecurity Access Scale was used to determine their actual food security level. Three scoring models were used, namely, food insecurity score, food insecurity scale, and self-assessment models; and then linear and ordered logistic regression models were employed. The study found that there is food insecurity even though households can produce enough goods and have abundant supply of vegetables. Also, the results reveal that the cash crop system has brought food insecurity to most farming households. Planting crops with relatively higher return such as celery and sweet pepper contributes to food insecurity. Thus, interventions that revive and enhance cultural practices are recommended in ensuring food security.

Consumer Awareness and Acceptance of Edible Insects in Marawi City, Philippines: Potentials for Food Security

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Keywords

awareness, insect-laden foods, perceptions, Philippines, potentials

Abstract

In the Philippines, entomophagy or the consumption of insects is not well accepted. However, in other parts of the world, insects are routinely eaten, being a great source of protein. In fact, experts are exploring ways to incorporate entomophagy in the global food system to replace common animal protein sources. In line with this global trend, entomophagy was promoted in Mindanao State University (MSU) in Marawi City, Philippines through Insect Eating Festivals (IEF) to educate students on utilizing insects as a food source. This study assessed entomophagy in terms of participants' perceptions, consumption of insect-laden foods, and change in awareness before and after IEF. Data from 90 participants was gathered using a structured questionnaire and analyzed with SPSS. The study revealed that IEF participants consumed predominately cassava cake with Chinese grasshopper (*Oxya chinensis*) toppings (37%), followed by horseradish *pulvoron* with rice and corn weevils (*Sitophilus oryzae* and *S. zeamais*) (22%), and horseradish *turon* with earwigs and ants (undetermined spp.) (21%). Increase in the participants' awareness level after IEF on insect edibility and as key food for nutrition suggests that IEF is an effective platform for educating people about the potentials of entomophagy. These initial findings point toward the possibility of using entomophagy to manage pest populations during outbreaks, provide alternative source for animal and fish feeds, and address problems in malnutrition due to low protein intake. However, these potentials need further multidisciplinary studies to address food safety issues and explore openness of potential consumers to integrate entomophagy in their diets.

Developing Dairy Goat Industry as a Sunrise Industry in the Philippines: Issues and Challenges in the Davao Region and Northern Mindanao

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Keywords

business model, core strategies, dairy goat, sunrise industry, SWOT matrix

Abstract

The government has embarked on a National Dairy Goat S&T Program to promote the dairy goat sector as a sunrise industry primarily to augment dairy supply, which is expected to continue to expand due to strong demand in food processing. Northern Mindanao and Davao Region are the fifth and sixth top goat-producing regions in the country. Yet they continuously experienced low and unsustained production that cannot meet demands. A SWOT analysis was conducted to identify key issues and challenges that beset the dairy goat industry in these regions. Focused group discussions with key industry players were also conducted to identify issues and challenges in the industry. Current operations of existing commercial raisers had not adopted a clearer business model to create value proposition that will take advantage of the high market demand for dairy goat milk products. There was also lack of government financing incentives to encourage capital investments that will expedite development of the dairy goat industry. Unmet demands imply a relatively strong economic indicator that pointed out to the potential growth of dairy goat industry. It must be addressed to ensure development of a sunrise industry in the dairy goat sector. A SWOT-generated strategy suggested a strong government-led collaboration among industry stakeholders to establish a roadmap that will roll out development objectives of promoting the dairy goat sector as a sunrise industry.

Public Perception on Corporate Social Responsibilities of Various Agricultural Industries in Claveria, Misamis Oriental, Philippines

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Keywords

corporate social responsibility, industries, Misamis Oriental, multinational companies

Abstract

Recent influx of multinational agri-companies (PMFT, Del Monte, Dole) has changed the socio-economic and agro-ecosystems dynamics of the municipality of Claveria, Misamis Oriental. Conventional cropping systems, such as vegetable and corn production, have been replaced by corporate-dictated commodities, namely, tobacco, pineapple, and banana. These firms operate with the corporate social responsibility (CSR) as the company's commitment to contribute to sustainable economic development, working with employees, their families, the local community, and society at large to improve their quality of life. However, to have a real impact among locals, CSR must be thoroughly understood and local perception must be gauged. A series of focus group discussions involving key stakeholders and local officials and a survey involving more than 200 respondents within the study site were conducted. Survey questionnaires were translated to local dialect, pretested, and administered. Responses were collated and analyzed using central tendencies (mean, median, mode) and revalidated. Results show that the companies' existence made a positive impression with the local government, but low to very low awareness on the issue of CSR within the general public was shown. Perceived awareness of any initiatives at improving social or environmental conditions in the community was indeed very low and most respondents claimed to have no idea at all. The community has not fully appreciated the efforts of these companies and failed to fully understand that the scope of corporate responsibility may operate beyond the companies' normal commercial environment or traditional business operations and can thus benefit the community.

Taklobo Tours: Conservation, Tourism and Livelihood Opportunities in the Island Garden City of Samal, Southern Philippines

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Keywords

advocacy, beneficiaries, collaboration, communities, conservation, ecotourism, endangered species

Abstract

Taklobo Tours was launched in 2013 at Adecor, Samal Island, Southern Philippines, to promote giant clam conservation, ecotourism, and provide livelihood to 19 fisherfolk beneficiaries. This is to address the observations that coastal communities in Barangay Adecor and other areas in Region XI have violated RA 8550 on the rules and regulations of the CITES-listed species, *Tridacna* spp., and that fisherfolk have low income. This study aims to determine the impacts of Taklobo Tours to conservation, tourism, and livelihood of beneficiaries. Qualitative and quantitative data from 2013 to 2015 were used to analyze and describe the impacts. On top of the existing in-situ conservation of giant clams in a marine protected area (MPA), capacity building, conservation advocacy, policy support, and site development were among the site interventions. To date, the beneficiaries have increased their level of participation as conservation advocates, violations are no longer observed in the *barangay*, and communities have shown strong support for the advocacy. Being the banner tourism project of the local government, it has an increasing number of guests from 284 per month in 2013 to 700 per month in 2015, but usually higher during peak months of April and May. A total of 11,611 local and international guests visited and contributed to the income from fees amounting to PhP835,195.00. This provided additional income of PhP50 to PhP700 per month in 2013 and PhP500 to PhP4,800 per month in 2015 to the beneficiaries and sustainability fund to the project. This remarkable journey was made possible through the strong partnership of academe with local government units of Island Garden City of Samal and Adecor for technical assistance, promotion, management, and legislations. Regular monitoring is recommended to ensure project sustainability.

Performance and Challenges of Agri- and Non-Agri-Based Income-Generating Projects: The Case of Pangasinan State University, Philippines

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Keywords

income generation, productivity, profitability, state universities and colleges

Abstract

The state universities and colleges (SUCs) are expected to be financially self-sufficient by utilizing efficiently their economic assets. However, Pangasinan State University (PSU) has no set strategy to accomplish such an objective as no review of policies and productivity has occured. The study was conducted to serve as benchmark performance evaluation on the overall income-generating projects (IGPs) performance relative to viability on production, marketing, financial, and organizational aspects from 2008 to 2009. Result shows that PSU has 57 IGPs classified as agricultural (e.g., swine, poultry, goat, aquaculture, mango, rice/corn, nursery seedlings) and non-agricultural (e.g. rentals, canteens, dormitory, and special projects). The objective of unifying all IGPs under one management was only partially attained due to loose organizational structure. The objective of providing food and accommodation services and support to national food production program were satisfactorily achieved. PSU has incomplete operational guidelines and experienced procurement delays. In marketing, customers are mostly university personnel and students. The "first-come, first serve" selling basis was adopted and prices are based on current market value. Agriculture-based IGPs contributed 70% to the total IGP revenues. Overall viability shows a decline in production, marketing, and profitability, but within acceptable levels. In general, PSU in its present management capability cannot attain financial self-sufficiency. To make the IGPs viable, PSU must restructure its IGP organizational structure in order to strengthen its management system. It is recommended that PSU revise the IGP guidelines, establish measures on monitoring and evaluation, install marketing strategies, and provide operational guidelines for specific IGPs and a comprehensive incentive scheme.

Business Management Practices and Sustainability of Agricultural Income-Generating Projects of State Universities and Colleges in SOCCKSARGEN, Southern Philippines

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Keywords

agricultural income-generating projects, business management practices, sustainability

Abstract

Two major challenges faced by state universities and colleges (SUCs) are budget cutbacks and strengthening its production or income-generation function. This study assessed the business management practices and the level of sustainability of agricultural income-generating projects (IGPs) of SUCs in SOCCKSARGEN, Southern Philippines. Due to limitations and unavailability, financial statements were not used to measure sustainability in this study. Instead, it used the descriptive-correlational research design involving 38 project managers. Results showed that the level of business management practices of project managers of SUCs' agricultural IGPs is considered to be highly practiced. Likewise, the level of sustainability of IGPs is considered high, which means the projects are oftentimes sustained. The profile of project managers in terms of the number of work-related trainings and number of designations aside from being a project manager significantly correlates with the level of project sustainability. Generally, the business management practices in terms of human resource, production, marketing, and finance significantly correlates with the level of sustainability. Similar studies with information technology and strategic management as indicators of business management practices may be conducted in the future.

Organically Grown Rice Farming and Marketing Project: Assessing the Project Design and Irrigator Associations' Needs in Oriental Mindoro, Philippines

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Keywords

irrigator's association, marketing, needs and design assessment, oriental mindoro, organic, Philippines, rice-based farming

Abstract

The Philippine Department of Agrarian Reform seeks to determine the feasibility of the organically grown rice farming and marketing project when implemented in Oriental Mindoro, Philippines. Using the qualitative study approach, two irrigators associations (IA) were assessed by holding key informant interviews and focus group discussions with IA officers and non-IA members. IAs' needs were assessed by, first, their organizational capacities, i.e., vision, mission, goal, structure, members' participation, fiscal resources, community network, and registration; and second, their enterprise capacities, responsiveness of proposed common service facility to needs, and nature of professional services to be provided. Suitability of design was assessed using the following: (1) quality and relevance of objectives and design; (2) potential sustainability and expansion; and (3) viability in terms of community participation, gender equality, and environmental sustainability. Results of SWOT analysis indicate common findings among the associations and their community. Both have initial experience with small-scale organic farming and are in proximity to potential high-end markets. However, there are characteristics distinct to each of the IAs. One IA has a perennial problem with its main water canal while the other has no other income stream aside from its limited membership fees. Given the results, some recommendations are drawn.

An Exploratory Study on Consumer Buying Intention for Organic Farm Produce: The Case of Iloilo, Philippines

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Keywords

certified safe vegetables, food safety, willingness to pay

Abstract

The increased attention given to "green" products due to consumers' growing concern for health and environmental issues have driven marketers to identify factors that influence consumer buying behavior. Using Ajzen and Fishbein's theory of reasoned action, this pioneering study aims to explore the influence of attitude and subjective norms on Ilonggo consumers buying intention for organic farm produce. Data were collected using structured questionnaire from 200 randomly selected respondents aging 18 years old and above and residing in Iloilo City, Philippines. Logistic regression analysis shows that attitude has a positive effect while subjective norms has a negative effect on the buying intention for organic farm produce. With both factors having significant influences, attitude and subjective norms explains 57% of the variability in the intention to buy organic farm produce. Test of differences indicate that consumer attitudes towards organic farm produce vary across age and sex. Older consumers have more positive attitude than younger ones, while females are more positive than males. However, there are no significant differences in the consumer attitude based on household income and educational attainment. In terms of subjective norms (i.e., the influence of other people), results show that there are no significant differences based on household income. Significant differences, however, are observed when respondents were classified according to age, sex, and level of education. Younger respondents have higher subjective norm scores than older ones; males had higher scores than females; and those who attained at least college had higher scores than those with at most a high school education. The findings of the study would be valuable inputs to the formulation of demand stimulation strategies for organic farm produce.

What Determines Consumers' Willingness to Pay for Organic Food? A Multilayer Perceptron Neural Analysis

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Keywords

consumer behavior, data mining, Digos City, multilayer perceptron neural analysis, organic food, willingness to pay

Abstract

This study intends to predict the amount the consumers are willing to pay for organic food and to identify the relative importance of the factors influential in consuming organic food. Such intention is possible with a data mining technique called multilayer perceptron network analysis, which can be used as an arbitrary function approximation mechanism that "learns" from observed data. The approach was used instead of a regression procedure since neural networks can identify the particular attributes, and their relative importance, that significantly contribute to observed willingness to pay (WTP). In this study, a household survey involving 400 random households in Digos City, Philippines, was conducted. To determine the weights of the factors, maximum likelihood estimation was utilized to estimate the actual values of WTP. Results of the estimations revealed that the observed WTP for organic food was PhP114.21 on the average. Three perceptron network models were produced and assessed for goodness of fit. WTP for these perceptron network models were PhP114.08, PhP107.94, and PhP117.96, respectively. In the final model derived, income accounts the highest relative importance (100%) among the factors, followed by years in school (52.8%) and motivation to consume organic food (28.8%). It is recommended that producers, suppliers, and retailers consider the estimations to develop pricing and promotional strategies in the context of the manufacture and distribution of organic foodstuff. They may opt to price organic food products within the PhP107.94 to PhP117.96 bracket.

Exploring Factors that Influence Consumption of Frozen Fish Products: The Case of Consumers in Iloilo City, Philippines

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Keywords

attitude towards frozen fish, extended theory of planned behavior, Iloilo frozen fish products, intention to consume, perceived behavioral control

Abstract

Due to the lack of existing knowledge about frozen fish consumption in Iloilo City, Philippines, a research was conducted to explore the factors that influence consumption of frozen fish products using the extended theory of planned behavior as research framework. With the use of structured questionnaire, data was collected from 271 randomly selected respondents in the study area. Descriptive statistics, tests of reliability, and test of differences were used to analyze data while multiple regression analysis was used to prove the validity of the research framework. Results indicate that intention to consume frozen fish products are determined by consumer attitude, social norms, perceived behavioral control, and knowledge about product quality. These factors explain 75.1% of the variability in the consumer's intention. Consumer attitude is significantly influenced by beliefs about the appearance and nutritional value of frozen fish products. On the other hand, consumer perceived behavioral control is significantly influenced by beliefs about suitability of frozen fish products in the preparation of delicious meals. Among the top identified influencers (parents, siblings, friends, and relatives), only the siblings have statistically significant influence on the subjective norms of the respondents. Intention and its determinant factors explain 46% variability in the consumer's behavior. This study proves that behavioral intention of consumers significantly affects their actual consumption behavior of frozen fish products. The results presented in this study may guide the formulation of business strategies designed to influence consumption and purchase behavior of Ilonggos.

Consumption Patterns for Selected Fruits in La Union, Philippines

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Keywords

consumption pattern, fruits, marketing practices

Abstract

With the economic, ethical, and environmental consequences of human consumption patterns, understanding its dynamics is essential in setting suitable development direction for industries and formulating environmental policies. Focusing on fruits, the study was designed to determine the consumption and marketing practices and factors affecting consumption, as well as analyze the demand and supply situation, of selected fruints in La Union, Philippines. The data, drawn from 150 consumers and 150 sellers who were randomly selected using the stratified proportionate random sampling, were statistically analyzed using central tendencies, correlation, and regression analysis. Results revealed that consumers preferred fruits that are fresh; classified according to size, color, or variety; and without chemical treatment, even at a high price. Among the major fruits produced in La Union (banana, mango, watermelon, and guapple), banana is most preferred by consumers and guapple the least preferred, while mango was perceived as the most nutritious. The average per capita consumption of these fruits in La Union at 7.69 kg is higher than the national average (6.90 kg). The factors that had significant influence on consumption included the socio-economic characteristics of consumers such as age, income, and education and the characteristics of the product such as taste and price. Based on market supply and demand analysis, there was a huge market shortage of these fruits, except for mango, throughout 2015. This suggests that domestic production can be intensified through the adoption of organic farming practices; grading and standardization according to size, variety, color, and freshness of products; the development of other value-added product forms for the industrial market; and the provision of support systems in the form of trainings, marketing, and financial assistance for farmers.

Consumer Awareness on Labeled Food Products in Digos City, Philippines

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Keywords

consumer awareness, cross-tabulation and chi-square test, labeled food products

Abstract

Food label information assists consumers to better understand the nutritional value of the food. This study was conducted to determine the consumer awareness on labeled food products. There were 115 respondents interviewed while shopping at various shopping stores in Digos City. An exploratory and descriptive design method was used and data was analyzed using a cross-tabulation method and chi-square test. Results show that the most frequently referred labeling information are the expiry date and list of ingredients. Consumers were motivated to read labeling information because they are health conscious and want to know characteristics of the food. High level of awareness on food labeling information was observed among female respondents. Furthermore, consumers' awareness of the information on the food labels is not determined by age, level of education, type of occupation, and gender. The level of education, gender, and type of occupation affect the extent of consumers' knowledge about the importance of food labeling. It was found that the high extent of knowledge was observed among respondents who had college education. On the other hand, respondents within the 31-to-40-year-old age bracket and those who attained college degree perceived food labeling as very important. Furthermore, the consumers' perception on the importance of food labeling information is affected by age, level of education, and type of occupation. Steps should be taken to improve food labeling, especially the labeling style, to provide clear, readable information, as well as develop consumer guidelines on purchasing labeled food products.

Vegetable Purchase Patterns of Consumers in Davao City and Cagayan de Oro City, Philippines

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Keywords

mall intercept, organic vegetables, purchase patterns, food safety

Abstract

The goal to increase farm productivity, attain food security and safety, and alleviate poverty among smallholder farmers has urged government and nongovernment organizations in the Philippines to develop and promote organic and safe vegetables. While these products are healthier and safer, previous studies have proven that these are more expensive than their conventional counterparts. A mall intercept using a structured questionnaire was conducted to survey 240 respondents in Davao City and 110 respondents in Cagayan de Oro City (CDO) in Southern Philippines. This is a qualitative research that aims to provide information about the current vegetable purchase patterns of consumers in both study areas and to identify its implications and opportunities for organic and safe vegetable producers. Results show that more than 50% of the respondents in both cities purchase vegetables in wet markets and supermarkets on a weekly basis. In terms of expenditure on vegetables, 85% of the respondents in CDO and 74% of the respondents in Davao City have expenditure on vegetables of at most PhP500 per week. The majority of consumers in both cities buy vegetables mostly from wet markets because vegetables are sold at a lower price, are fresher, and there is wider product assortment. Consumers in Davao City and CDO buy vegetables from supermarkets because of convenience and cleanliness, respectively. They purchase mostly tomatoes, eggplants, and cabbages. Based on previous studies, these vegetable purchase patterns of consumers have not changed for over ten years. Thus, this challenges organic and safe vegetable producers, as well as other vegetable industry stakeholders, to produce cheap but high-quality vegetables.

Nutrient Analysis and Shelf Life Study of Watermelon Rind Sports Drink

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Keywords

electrolytes, fruit, pH analysis, product development, sports drink, watermelon rind

Abstract

Sports drinks are the most common and by far the most efficient in replenishing electrolytes lost during exercise or heavy physical activity. Although there are a number of commercial sports drinks available, the electrolytes in these products are intentionally added. Watermelon contains natural vitamins and minerals both in its flesh and rind. Watermelon rind also contains citrulline, a compound that helps fight free radicals, may boost libido, and aid in weight loss. Although watermelons are abundant in the Philippines, the rinds are often discarded. This study developed a sports drink from watermelon rind (WRSD) and compared its nutrient content with two commercial brands. Nutrients studied were vitamins C and B6 and the minerals potassium and sodium. Shelf life study was done to determine the minimum number of days of refrigeration storage prior to fermentation. Methods of analysis used were the following: vitamin C – iodometric titration, vitamin B6 – high performance liquid chromatography (HPLC), potassium and sodium – atomic absorption spectrophotometry (AAS); and shelf life study – pH analysis. Compared to commercial brands, WRSD has the highest amount of potassium at 34.8 mg/100 g and significant amount of sodium at 45 mg/100 g. It is an excellent source of vitamin C at 192 mg/100 g. However, it is an insignificant source of vitamin B6 at <10 mg/100 g. As a natural drink, it is shown to be stable for at least 12 days. Study concludes that watermelon rind is a viable source of electrolytes and substrate for sport drink production. A value-added product from underutilized waste rinds may be developed where electrolytes are naturally available.

Development of a Carbonated Guyabano Juice

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Keywords

antioxidant capacity, consumer acceptability, guyabano, physicochemical properties, storage stability

Abstract

Soda is said to have "empty calories." Thus, a healthier carbonated beverage was produced using guyabano, which is rich in vitamins, minerals, and flavonoids. Guyabano syrup was prepared with sugar, water, guyabano juice, and calamansi juice. To optimize the final product, guyabano syrup was mixed with carbonated water in three ratios, namely, 2:17, 3:17, and 4:17. From a preference ranking test, formulations with 3:17 and 4:17 ratio were not significantly different, but the latter was chosen for the succeeding tests based on its low rank sum. A consumer acceptability test showed that panelists "moderately liked" the appearance, taste, and sweetness of the product. On the other hand, aroma, carbonation, and the overall acceptability were "liked very much." Physicochemical properties of guyabano juice, guyabano syrup, and carbonated guyabano juice were determined. The pure guyabano juice had 4.21 pH, 0.94% malic acid, and 15 °Bx while the guyabano syrup had a pH of 3.97, 0.69% malic acid, and 46.26 °Bx. The pH, TTA (total titratable acidity), and TSS (total soluble solids) of the finished product were 3.80, 0.21%, and 10.37 °Bx, respectively. An antioxidant capacity assay showed that the carbonated guyabano juice had 0.131 mg ascorbic acid equivalent-mL^{-1}. There was no significant change in pH and TTA after one week storage at ambient temperature. However, yeast and mold count significantly increased and TSS significantly decreased. Thus, it is recommended that the developed carbonated guyabano juice be stored at refrigerated temperature or added with a suitable preservative.

Development of Fruit-Flavored Glazed Watermelon Rind

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Keywords

consumer test, glazed fruit, processing waste, watermelon rind

Abstract

Watermelon rind constitutes about 30% of the waste product in watermelon juice/concentrate business. This study was conducted to add value to watermelon rind by converting it into glazed rinds. Glazed rinds were prepared and subjected to 1, 2, 3, and 4 hours of drying at 50 °C. Samples were subjected to preference ranking test and moisture content and water activity determination. The flavored glazed rinds were subjected to preference ranking and consumer testing. Crude fiber and crude ash contents of selected flavored rind was also done. Preference test results showed that the drying time had no significant effect on the preference scores. Except for drying for 1 hour, all others passed the standards for Intermediate Moisture Food. A two-hour drying period was chosen as the optimum drying time. This formulation was applied in making orange-, lemon-, melon-, and strawberry-flavored glazed rinds. The most preferred product was found to have 0.38% ash and 2.14% crude fiber. The color of the product packed in polyethylene bags was stable up to 7 days of storage at 4–6 °C, as indicated by L*, a*, and b* values. But yeast and molds count at day 7 exceeded the acceptable limit. Among the four flavors, strawberry was rated as "like extremely" for color, chewiness, and general acceptability. Sign test showed that all flavored rinds were within the acceptable range at 0.05 level of significance. This can be used in place of glazed fruits and bring down the production cost of certain bakery products.

Utilization of Sago Flour and Squash in the Production of Vegetable Kropeck

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Keywords

crackers, kropeck, proximate analysis, sago flour, squash, vegetable vitamin A

Abstract

This study was designed to produce a healthier and cheaper snack to take the place of seafood crackers, *chicharon*, and other junk foods. A vegetable kropeck that utilizes squash and sago flour, both inexpensive sources, will address the problem with vitamin A deficiency. Squash contains high amount of vitamin A, making it a good vehicle for nutrient enhancement and fortification. Meanwhile, sago has high levels of antioxidants and provides better quality crackers. A formulation of sago flour, all-purpose flour, and squash was tested via sensory analysis to determine the consumers' degree of liking the product and analyze the panelists' responses to appearance/color, texture (crispiness), flavor, and overall acceptability. Results revealed that the product is highly acceptable in all attributes at 95%. Using the Association of Agricultural Chemists's methods, the product was found to consist of 11.89% moisture, 2.61% crude ash, 0.31% crude fat, 2.30% crude fiber, 11.62% crude protein, 71.87% carbohydrates, and 15,245 IU/100 g of vitamin A. Also, the product costs only half the price of the commercial seafood-based kropeck. Utilization of sago flour and squash in the production of vegetable kropeck was determined to be highly feasible based on sensory analysis, chemical composition, and cost. We recommend testing the feasibility of increasing the amount of squash in the produced kropeck to also increase its vitamin A content.

Utilization of Sago Flour in Gluten-free Food Products

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Keywords

antioxidant content, celiac disease, cookies, gluten-free flour blends, Philippine crop, pretzels, tortilla

Abstract

A gluten-free (GF) diet is currently the only treatment for celiac disease. This disease is triggered by genetic factors, and ingestion of gluten found primarily in products containing wheat may result in lesions in the intestinal lining and lead to nutrient malabsorption. Sago is GF; hence, its potential as part of a GF flour blend was evaluated in selected food products, namely, cookies, pretzels, and tortilla. Flour blend tests showed that the preferred ratios were the following: for cookies, 50% sago: 50% cassava flour; for pretzels, 50% sago: 50% rice flour; and for tortilla, 40% sago: 60% nixtamalized corn flour. Consumers' rating of overall acceptability of the products ranged from "like moderately" to "like very much." Proximate composition differed from wheat-based counterparts; notably, protein content was lower since sago flour is mostly carbohydrates. However, an advantage of sago flour is its antioxidant content. Total phenolic content determination showed 2.81 mg gallic acid equivalent (GAE) per gram of cookies and 4.07 mg GAE/g of pretzels. Like other GF products, the texture of the dough and the final products was problematic. The dough was difficult to form, and products were denser and crumbled easily after one to two days of storage. Further studies need to be done on the use of dough conditioners or other additives that may improve the products' texture.

Arrowroot By-products into Fiber Resources

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Keywords

arrowroot, by-product utilization, fiber resource

Abstract

Arrowroot (*Maranta arundinacea*), locally known as *uraro* in Marinduque, is a minor crop that grows in hilly areas under coconut grooves. Almost 50% to 60% of its biomass and residues are wasted. With the foregoing expansion of production being very minimal, it cannot support the growing industry of arrowroot in the province. The study looked at the feasibility of arrowroot by-products utilization as fiber source for the production of paper, cardboard, and textile. During harvest, the stalks, leaves, and skin of rhizomes from arrowroot were collected, set aside, and measured. Results show that arrowroot biomass and residues wasted are the following: 45% rhizomes, 36% stalks, 18% leaves, and 1% skin of rhizomes. In the extraction process, recovery for starch ranged only from 13% to 20%, with 27%–35% rhizomes residues and 45%–60% water. Laboratory evaluation and analysis of stalk, leaves, skin, and rhizomes for paper and pulp was conducted by the Philippine Fiber Industry Development Authority. The analysis revealed that extracted fibers and pulp have poor formation properties, uneven thickness and surface roughness, and low bonding strength. Analysis of physical property of fiber sample also revealed that the stalk can be a potential source for fiber, showing a tensile strength of 11.37 kgf/g·m with 2.27% elongation (elasticity of fiber before rupture). The utilization of arrowroot by-products as fiber source may lead to increased cultivation of the plant and possible reduction of solid waste.

European Markets Certification Demands and the Integration to Indonesian Crude Palm Oil Main Export Markets

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Keywords

certification, certified sustainable palm oil, market integration, roundtable sustainable palm oil, seemingly unrelated regression

Abstract

Indonesia is the world largest crude palm oil (CPO) producer in the world, with nearly 80% of production exported. Therefore, Indonesia needs to consider the world market requirements. One of the requirements is the demand for sustainable products, which is certified by the Roundtable Sustainable Palm Oil (RSPO) certificate. The CPO (Certified Sustainable Palm Oil) demands mainly come from European countries, which individually are not the major Indonesian CPO importers but as a group (EU28) constitutes the second-largest importer. This study is conducted to analyze the integration of the European market with Indonesia's main export markets (India, China, and Bangladesh). The analyses use quarterly data of CPO free on board (f.o.b) and cost, insurance and freight (c.i.f.) prices, and import and export volumes from 2008 to 2014, covering exporter and importer countries, namely, Indonesia, Malaysia, China, India, Bangladesh, the Netherlands, Germany, Italy, and the EU28, with seemingly unrelated regression (SUR) and Eagle-Granger causality method. Estimation results are used to analyze the effect of the European countries' volume and price changes, both individually and collectively (EU28), to the changes in India's, China's, and Bangladesh's volume and price as the Indonesian CPO major importers, and to the changes in Indonesia's and Malaysia's volume and price as major exporters. The analysis is completed with policy implications that are expected to be inputs for relevant stakeholders.

Incentives and Disincentives to Produce Agricultural Products to Preserve Agro-biodiversity: Evidence from Ifugao and Lake Sebu, Philippines

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Keywords

agricultural biodiversity, agricultural products, interval regression analysis, Philippines, price premium, traditional varieties

Abstract

Philippines is one of the megadiverse countries in the world and considered to be a biodiversity hotspot as it is home to diverse species of plants, animals, and microorganisms. It is also home to myriad of globally important agricultural biodiversity, such as rice and rootcrops. An opportunity exists for the farming community to derive sufficient economic benefits from agro-biodiversity conservation as consumers recognize the importance of preserving traditional crop varieties. An electronic survey of 230 consumers in Luzon, Visayas, and Mindanao was done to examine this opportunity, particularly the demand and willingness to pay for ecolabeled products from these traditional varieties. Factors that affect the level of price premium were also analyzed using interval regression analysis. Data on production and marketing of farmers of traditional rice varieties and some rootcrops were also collected through household surveys in Ifugao and Lake Sebu. Most consumers are willing to pay for ecolabeled products, but the willingness to pay varies depending on the level of price premium. The willingness to pay decreases as price premium increases, which follows the normal demand curve. However, for most ecolabeled products except rice without organic certification, there is a kinked demand, which implies that there is a minimum price premium that most consumers are willing to pay. Certification fetches higher price and majority of the respondents are willing to pay price premiums ranging from 10% to 20% for ecolabeled products. Results show that gender, age, income, and being an organic product consumer significantly affect the level of price premium.

The Politics and Materiality of Coordination: Philippine Village Leaders Responding to the Spread of a Global Plant Disease in Banana

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Keywords

banana disease coordination,
micro politics, village leadership

Abstract

Leadership is the process of directing and influencing, and it involves taking actions and producing change, in both informal and formal settings. In the Philippines, there are village leaders elected in a political position. *Barangay*s (villages) are the smallest political administrative unit in the country and are led by a *barangay* captain. This paper investigates leadership, not only as an exclusive result of politics and social structures, but relates it to the problem-solving practices and managing interdependencies modified by a global plant disease in banana. The Philippine banana industry caters to both domestic and export markets, making it an important economic commodity. A virulent global plant disease in banana, *Fusarium oxysporum* f.sp. *cubense* Tropical Race 4 (Foc TR4), is threatening the producers in Philippine villages. Case studies of village leaders examine their actions in relation to nonconstituents, particularly with the Foc threat. Settings were four villages where export-oriented banana companies were present, mingling with local players. The common denominators in all these villages were the presence of export-oriented banana plantation and recorded incidence of Foc. The village leaders' handling of the gravity and importance of problem still leaned largely on how their political influencers perceived the problem. The multinational companies, on the other hand, were not able to fully articulate the importance of the problem to the village leaders. These companies kept muc of their researches and studies to themselves and shared only what was necessary. As a result, the village did not have complete information on how to treat or understand the problem.

Field Trial of a New PhilRice Breeding Line against Three Public Hybrids in Magsaysay, Davao del Sur, Philippines

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Keywords

hybrid rice, PhilRice breeding line, rice

Abstract

The average yield per hectare of rice in the Philippines is still low at 3 to 4 tons, which is not enough to feed its growing population. Hence, the country now resorts to rice importation, which is not a sustainable solution to the problem. In the quest for high-yielding lines/varieties, a field trial on the yield performance of Philippine Rice Research Institute's (PhilRice) breeding line PR40846-9-2-2 (highest yielder among the 64 lines versus 60 approved varieties tested in first cropping of 2013) versus the three known high-yielding public hybrid varieties, namely, PSBRc72H (Mestiso 1), NSICRc 202H (Metiso 19), and NSICRc 204H (Mestiso 20), was conducted in Magsaysay, Davao del Sur, Philippines, from November 2013 to October 2014 to compare their agronomic characteristics, yield, and yield components. The study was laid out in randomized complete block design replicated three times in 4-x-5-m plot spaced 1 m apart. Results showed that the breeding line outyielded (10,871.23 kg/ha) the three high-yielding public hybrids. The yield advantage was due to its higher number of filled grains per panicle (172.27) and more productive tillers per hill (20.67), which are two parameters that contribute to yield. It has comparable agronomic characteristics to the three hybrid varieties such as plant height and number of unfilled grains per panicle. This implies that the PhilRice breeding program successfully improved the yield of upcoming rice varieties in the Philippines. A package of technology should be developed to determine its maximum yield potential.

Comparing the Profitability of Hybrid, Inbred, and Organic Rice Production

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Keywords

hybrid rice, inbred rice, organic rice, profitability

Abstract

Rice is a staple food for most Filipinos across the country, with more than 90% of Filipinos consuming it on a daily basis. In the past two decades, annual supply of rice at 2.18% has not been enough to sustain the country's needs, whose annual population increases at 2.20%. One of the most significant programs of the government for the rice sector is to enhance provincial rice self-sufficiency through the use of proven farming technologies that not only increase yield but also raise farmers' incomes. Given the options to attain higher yields, this study investigated the profitability of certified inbred varieties, hybrid, and organic rice by determining the cost of production and net income of farmers and using partial budget analysis. Results show that rice farmers who ventured into hybrid rice production incurred the highest production cost per hectare per cropping (PhP37,428.521) compared to inbred (PhP26,717.64) and organic (PhP30,210.81) rice production. Hybrid rice production gave the highest income for farmers per hectare per cropping (PhP147,690.54) compared to inbred (PhP113,006.44) and organic (PhP84,785.46) rice productions. Partial budget analysis showed that additional income was gained by rice farmers shifting from organic to hybrid rice production per hectare per cropping (PhP43,195.25) and those shifting from inbred to organic rice production (PhP6,394.06). However, farmers shifting from organic to inbred rice production lost income amounting to PhP16,994.56 per hectare per cropping due to added cost such as farm inputs, labor, and low yield. To conclude, planting hybrid variety is recommended as it gives farmers the highest net income.

Factors Affecting Farmer's Decision to Remain in Organic Rice Production: The Case of Magsaysay, Davao del Sur, Philippines

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Keywords

cost-benefit analysis,
Davao del Sur, organic farming,
organic rice

Abstract

Only few farmers in the municipality of Magsaysay, Davao del Sur, continue to produce rice through organic farming. Although the price of organic rice is relatively higher compared to the conventional one, the majority of the organic rice farmers reverted back to conventional farming. Hence, this study was conducted to investigate the influences that affect the decisions of organic rice farmers in Magsaysay to remain in organic farming through logistic regression analysis. Moreover, this study employed cost-benefit analysis (CBA) to evaluate the benefits and costs associated with organic and conventional rice production. Sixty farmers participated in the survey; 20 were organic farmers (out of 21 members of MOFARMCO) and 40 (out of 124) were previously organic farmers who reverted back to conventional farming methods. The result of the logit model showed that family labor size, perception on organic farming, and age significantly influence the decisions of rice farmers to remain in organic farming. Meanwhile, the cost-benefit analysis revealed that although the yield per hectare obtained in organic farming was less, it was still more profitable due to higher selling price and lower cost of production. In order to expand the use of organic farming in Magsaysay, it is important for the local government units and nongovernment organizations to formulate an organic farming promotion policy taking into consideration the results of this study. Moreover, this study recommends policy formulation and regulation to strengthen market development as well as the conduct of research and development programs to increase yield from organic farming.

Nutrient Status of Nipa from Semi-Wild Stands in Selected Areas of Mindanao, Philippines

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Keywords

leaf analysis, macronutrients, micronutrients, *Nypa fruticans* Wurmb., soil analysis

Abstract

Nipa (*Nypa fruticans* Wurmb.) is a potential source of biofuel from its sap. Increasing sap yield requires understanding nutrient requirements of this palm necessary for cultural management practices. Hence, the nutrient status of nipa in its natural habitats (Western, Northern, Eastern, and Southern Mindanao) were determined to establish critical levels of essential elements using soil and leaf analyses. Results revealed that nipa palms thrived in a wide variety of soils from clayey, loamy to sandy clay loam types. Elemental variations were observed across sampling sites owing to their locations in the estuaries, human activities, and soil pH. Exchangeable bases Na, Ca, Mg, and K varied considerably across areas affecting leaf levels of nipa. However, leaf B levels were shown to be regulated even at toxicity levels of B in the soil. These growing conditions indicate that nipa palm can tolerate highly variable physico-chemical factors that exist in the estuaries. The critical levels of the essential elements in the leaf tissue are estimated as follows: 1.30±0.30% N, 0.13±0.03% P, 0.82±0.14% K, 0.12±0.29% Ca, 0.03±0.03% Mg, 0.16±0.13% Na, 0.53±0.10% S, 0.70±0.10 mg/kg Cu, 4.30±0.90 mg/kg Zn, 20.00±2.30 mg/kg Fe, 64.20±31.70 mg/kg Mn, and 4.40±1.70% B. These leaf nutrient levels will serve as a basis for fertilizer formulation in nutrient management in the future.

Density Survey of Sago Palms in Sago-identified Areas in Mindanao, Southern Philippines

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Keywords

economic enterprise, flour, growth stages, population density, transect method

Abstract

Sago palm, locally known as *lumbia*, is one among the many sources of flour. In the Philippines, especially in Mindanao however, it is an untapped resource. Thus, the density of natural sago stands in several areas of Mindanao was determined in this study. Sample locations were identified in several areas of Mindanao and were surveyed using the transect method to determine the population density of sago palms in various growth stages. The number of sago palms in rosette, bole formation, inflorescence, and fruiting stages were determined and categorized according to their age by counting the number of leaf scars and fronds in stand. Transect survey was conducted according to dry, wet, and submerged soil conditions. Further stratification was also done to delineate sago density in areas where local community used sago shingles for roofing and household business. Results showed that sago palms are very dense in Agusan del Sur and Agusan del Norte, and approximately 8,800 trees are in the stage of inflorescence which can be harvested within 1 to 2 years; a total of 209,000 stand in bole formation stage which can be harvested after 4 to 5 years; and about 6.5 million rosette in varying ages. These results indicate that the sago palm can be a potential economic enterprise for farmers within Mindanao.

Assessment of Potential Sago Starch Content in Sago Palm Forests in Mindanao, Southern Philippines

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Keywords

density, environmental growth conditions, palm forest, Philippines, sago, starch content

Abstract

This paper presents the results of the assessment of the potential yield of sago palms in Mindanao, Southern Philippines. Previous studies have characterized the growth parameters of sago palms as influenced by their environmental growth conditions and anthropogenic activities of the local residents in the area, thereby affecting the potential yield of starch. In this study, a total of 60 sago palms were harvested and cut into logs and brought to central facility where each log was manually debarked, stripped, solar dried, milled, and sieved. Samples were obtained from identified 3 environmental growth environments (dry, wet, and submerged soil conditions) and from undisturbed and disturbed areas where the local community utilized the leaves for roofing. The results showed that on average, starch yield was maximum in palms grown in wet environment and without anthropogenic disturbance. Furthermore, the results were consistent with previous works that starch is at the maximum at inflorescent stage (247.5 kg/palm), and in bole formation stage (127.1 kg/palm), and lowest at fruiting stage (63.1 kg/palm). With these results and utilizing the sago density data from a previous study, we conclude that 2,000 tons of starch can be harvested within 1 to 2 years and about 20,000 tons in another 4 to 5 years. Further study is recommended to include cost of production in the sustainability assessment.