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"Small and Medium-sized
Enterprises Competitiveness"

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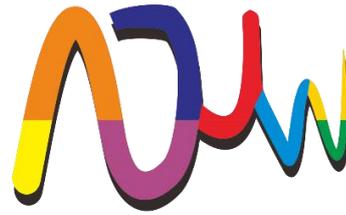
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AGRIBUSINESS
DEVELOPMENT FOR
HUMAN WELFARE

*“Small and Medium-sized
Enterprises Competitiveness”*



Agribusiness Development
for Human Welfare

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EDITOR FOREWORD

The economic integrations by ASEAN certainly have given a major influence on Small and Medium-sized Enterprises (SMEs). Beside economic integration in the form of free trade area (FTA) that has been going on since the early 2000s, economic integration in the form of ASEAN Economic Community (AEC) has been ongoing since the beginning of 2016. Through this integration, SMEs have opportunity to expand access to markets, technology, and capital. But at the same time SMEs are required to improve their competitiveness in order to survive in the market.

In order to explore ideas, concept, and innovations related to the competitiveness of SMEs, International Conference on Agribusiness Development for Human Welfare (ADHW 2016) was held in Yogyakarta on May 14, 2016. The conference organized by Department of Agribusiness Universitas Muhammadiyah Yogyakarta, in collaboration with Department of Agribusiness and Information System Universiti Putra Malaysia, Department of Agro-Industrial Technology Kasetsart University, Department of Agriculture Socio-Economics Universitas Gadjah Mada, Department of Agriculture Socio-Economics of Universitas Brawijaya, Indonesian Society of Agriculture Economics, Agribusiness Association of Indonesia. Hopefully proceedings of ADHW 2016 provide stimulus for increasing competitiveness of SMEs in ASEAN, especially in Indonesia.

Furthermore, we are grateful to Allah, the Sustainer of all word, who always makes it easy for our affairs. We would like to acknowledge with thanks to all the institution and individual who joined with resources and efforts in organizing the conference that resulted in the papers which are published in this proceeding. Special thanks to all authors and discussants who contributed with their intellectual capital and responded to our call papers. Thanks and acknowledgment are also due to all reviewers of the conference who helped in evaluating submitted papers; and to the members of the Organization Committee, who ensured smooth execution of the event.

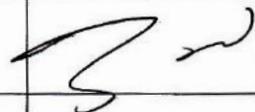
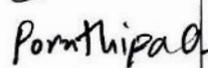
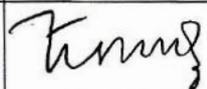
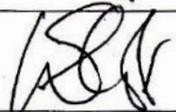
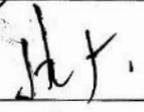
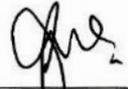
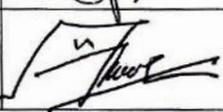
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PREFACE

Assalaamualaikum, Warahmatullaahi., Wabarakaatuh.
Dear Honorable Governor of Yogyakarta Special Province
Dear respectable Prof. Dr. Zainal Abidin Mohamed
Dear respectable Asist. Prof. Pornthipa Ongkunaruk
Dear respectable Rector of UMY Prof. Dr. Bambang Cipto, MA.
Dear all invited Guests, Speakers, and Participants of International seminar of ADHW 2016.

Alhamdulillah, all praise be to the Almighty God, so that we can be gathering here today at Muhammadiyah University of Yogyakarta in order to attend the Conference on Agribusiness Development for Human Welfare (ADHW) 2016.

Ladies and Gentlemen,

On behalf of the committee, I would like to say welcome to this International Conference on ADHW 2016 and thank you for attending our invitation.

Especially, we are grateful to invited speakers, Prof. Zainal Abidin Mohamed and Asist. Prof. Pornthipa Ongkunaruk, for their willingness to share information and thoughts in this conference. As a bit report, that this conference has been attended by 85 speakers coming from five countries.

This conference entitled "Small and Medium-sized Enterprise Competitiveness". ASEAN Economic Community is the largest economic integration that is going to be implemented at the beginning of 2016 (December 31, 2015). Through this integration, SMEs will have opportunity to expand access to markets, technology, and capital. But at the same time SMEs are required to improve their competitiveness in order to survive in the market. We expect that this seminar is capable of producing thoughts building SMEs within ASEAN, especially Indonesia, to face the free trade.

This event can be done by support and efforts from all sides. Therefore, I would like to say thank you to all committee members having worked hard to conduct this event. We, as the organizer committee, do apologize when there is a shortage in conducting this event.

Wassalamualaikum, Warahmatullaahi., Wabarakaatuh.

Chairman
International Conference on ADHW 2016



Dr. Aris Slamet Widodo, SP., MSc.

WORDS OF WELCOME

Assalamu'alaikum warahmatullahi wabarakatuh

Alhamdulillah, all praise be to Allah SWT, who has given us His blessings so that this International Seminar of Agribusiness Development for Human Welfare (ADHW) 2016 entitled "Small and Medium-sized Enterprises Competitiveness" can be conducted. This International Conference is held in cooperation among Agribusiness Study Program of Muhammadiyah University of Yogyakarta with Putra University of Malaysia (UPM), Kasetsart University (KU), Association of Indonesian Agricultural Economy (PERHEPI), and Agribusiness Association of Indonesia (AAI), Universitas Gadjah Mada (UGM) and Universitas Brawijaya (UB).

Countries of ASEAN members like Indonesia, Malaysia, and Thailand have more than 90% Small and Medium-sized Enterprises (SMEs). In general, SMEs play important role in economic developments such as in terms of employment, added value, improve foreign exchange, and economic growth. For Indonesia, the role of SMEs is limited to employment and added value, while the foreign exchange from SMEs is still low. According to the General Director of SMEs of Industrial Ministry, in 2013 the total SMEs being able to pass through export market is just under 5 percent. For that required many breakthrough and innovation so that the role of SMEs becomes real economic development, especially in Indonesia, and generally in ASEAN countries.

On behalf of Agribusiness Department of Universitas Muhammadiyah Yogyakarta, we would like to express our gratitude Putra University of Malaysia (UPM), Kasetsart University (KU), Association of Indonesian Agricultural Economy (PERHEPI), Agribusiness Association of Indonesia (AAI), Universitas Gadjah Mada (UGM) and Universitas Brawijaya (UB) for all supports, sponsors, and all committee members having worked so hard that this International Conference can be conducted.

Hopefully, these synergies coming from various parties can provide contribution for developing SMEs in Indonesia and other ASEAN countries as well.

Wassalamu'alaikum warahmatullahi wabarakatuh

Head of Agribusiness Department
Universitas Muhammadiyah Yogyakarta



Ir. Eni Istiyanti, MP.



Gubernur

Daerah Istimewa Yogyakarta

Sambutan

KONFERENSI INTERNASIONAL

“AGRIBUSINESS DEVELOPMENT FOR HUMAN WELFARE”

Yogyakarta, 14 Mei 2016

Assalamu'alaikum Wr. Wb.

Salam sejahtera untuk kita semua.

Yang Saya hormati :

- Rektor Universitas Muhammadiyah Yogyakarta;
- Para Narasumber;
- Hadirin dan Para Peserta yang berbahagia,

Puji dan syukur marilah kita panjatkan kehadirat Allah SWT karena hanya atas limpahan rahmat serta karunia-Nya, kita dapat hadir pada kesempatan acara **Konferensi Internasional “Agribusiness Development For Human Welfare”** ini dalam keadaan sehat wal’afiat.

Pada kesempatan kali ini, secara ringkas Saya akan menyampaikan mengenai industri kecil menengah nasional yang menjadi tema pada pembukaan Seminar Internasional “Agribusiness Development For Human Welfare” ini.

Hadirin dan Saudara-saudara sekalian yang Saya hormati,

Berdasarkan data BPS, pertumbuhan industri pengolahan nonmigas pada tahun 2015 secara kumulatif sebesar 5,04%; lebih tinggi dari pertumbuhan ekonomi (PDB) pada periode yang sama sebesar 4,79%. Pada periode Januari-Desember 2015, nilai ekspor produk industri pengolahan nonmigas mencapai USD 106,63 Milyar, dan nilai impor mencapai USD 108,95 milyar, sehingga neraca perdagangan industri pengolahan nonmigas pada periode yang sama sebesar USD 2,32 milyar (neraca defisit).

Usaha pemerintah untuk memperkecil defisit di atas, salah satunya dengan cara memberdayakan Industri Kecil dan Menengah (IKM) yang merupakan bagian penting dalam perkembangan industri nasional. Sampai saat ini, Industri Kecil dan Menengah

telah berkontribusi sebesar 34,82% terhadap pertumbuhan industri pengolahan nonmigas secara keseluruhan.

Angka ini dapat tercapai karena dukungan lebih kurang 3,6 juta unit usaha, yang merupakan 90 persen dari total unit usaha insutri nasional. Jumlah unit usaha tersebut telah mampu menyerap tenaga kerja sebesar 8,7 juta orang, yang tentunya berdampak pada meningkatnya ekonomi nasional serta mengurangi kemiskinan.

Industri Kecil dan Menengah (IKM) memiliki peran yang strategis dalam perekonomian nasional. Hal ini sejalan dengan Visi Pemerintah dalam Rencana Pembangunan Nasional Jangka Menengah (RPJMN) 2015-2019 yaitu *“Terwujudnya Indonesia yang berdaulat, mandiri, dan berkepribadian berlandaskan gotong royong”*.

Untuk lebih meningkatkan peran tersebut, Penumbuhan dan Pengembangan Industri Kecil dan Menengah diarahkan untuk memiliki tujuan jangka menengah guna mewujudkan industri kecil dan industri menengah yang berdaya saing, berperan signifikan dalam penguatan struktur industri nasional, pengentasan kemiskinan dan perluasan kesempatan kerja, serta menghasilkan barang dan/atau jasa Industri untuk keperluan ekspor.

Hadirin dan Saudara-saudara sekalian,

Awal tahun ini, kita telah memasuki era Masyarakat Ekonomi ASEAN (MEA). Dengan demikian, perekonomian nasional akan langsung bersaing dengan para pelaku pasar di kawasan ASEAN. Produk dan jasa termasuk investasi negara-negara anggota telas bebas memasuki pasar di kawasan ASEAN.

Dalam rangka menghadapi hal tersebut, Pemerintah mengambil langkah-langkah strategis berupa peningkatan daya saing industri dan mendorong investasi di sektor industri; di mana peningkatan daya saing industri itu sendiri dilakukan melalui penguatan struktur industri dengan melengkapi struktur industri yang masih kosong serta menyiapkan strategi ofensif dan defensif dalam akses pasar.

Pemerintah telah melakukan Penguatan Sektor IKM dengan strategi ofensif dan defensifnya melalui beberapa program pelaksanaan, diantaranya antara lain: Penumbuhan Wirausaha Baru; Pengembangan IKM melalui Pengembangan Produk IKM serta Peningkatan Kemampuan Sentra dan UPT; Pemberian Bantuan Mesin dan Peralatan Produksi; Perluasan Akses Pasar melalui Promosi dan Pameran; Fasilitasi Pendaftaran Hak Kekayaan Intelektual; Fasilitasi Sertifikasi Mutu Produk dan Kemasan; serta Fasilitasi Pembiayaan melalui Skema Kredit Usaha Rakyat (KUR).

Saya berharap agar berbagai program-program pemerintah tersebut dapat didukung secara sinergis oleh seluruh komponen masyarakat. Untuk itu, Saya berpesan kepada Saudara-saudara sekalian agar semua program pemerintah dalam bidang

Industri, khususnya dalam program pemberdayaan Industri Kecil dan Menengah, didukung dengan sepenuh hati, agar dapat lebih bermanfaat bagi masyarakat dalam rangka pengembangan industri kecil menengah.

Hadirin dan Saudara-saudara sekalian yang Saya hormati,

Demikian beberapa hal yang dapat Saya sampaikan. Akhirnya dengan memohon ridho Allah Subhanahu Wata'ala, seraya mengucap "*Bismilahirrahmanirrahim*", **Konferensi Internasional "Agribusiness Development For Human Welfare"** dengan ini secara resmi Saya nyatakan dibuka. Semoga Allah SWT memberikan petunjuk, bimbingan, perlindungan dan kemudahan dalam setiap langkah dan upaya kita. Amien.

Sekian dan terima kasih.

Wassalamu'alaikum Wr. Wb.

Yogyakarta, 14 Mei 2016
GUBERNUR
DAERAH ISTIMEWA YOGYAKARTA



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VALUE CHAIN OF PINEAPPLE IN MALAYSIA

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Abstract

The aim of this study focused to map out pineapple value chain actors and their roles. A well-structured close ended questionnaire via face-to face survey was used to collect primary data from 170 farmers, 20 wholesalers, 30 retailers, and 6 processors, while structured interview schedule was used to obtain necessary information from farmer officials. The result of the value chain mapping using value chain framework showed that the major actors in the study area are input suppliers, pineapple producers, middlemen, wholesalers, FAMA, retailers, processors, exporters and consumers. In this study, pineapple value chain is constrained by lack of access to credit, high inputs price, shortage of labor, pests and diseases, flood, unfair price quotation, poor market information, high transport cost, lack of demand, product perishability, aging farmers and poor governance. The corresponding value chain activities in the period of survey were input supply, production, marketing and consumption. Seven (7) factors identified as the factors affecting pineapple supply using factor analysis are credit access, pineapple varieties, market information, distance, extension services, cost of input, and farm input subsidy. Therefore, this study recommends the need for designing appropriate intervention mechanisms focusing on the aforementioned factors to improve pineapple value chain performance and uplift the status of smallholder pineapple farmers.

Keywords: Marketing channel, Pineapple, Quantity supplied, Value chain

INTRODUCTION

Pineapple (*Ananas comosus* L. Merr.) is a tropical, perennial, drought-tolerant, juicy, fleshy fruit with color ranges between yellow to creamy white with sweet taste and rich flavor. It is the leading edible member of the family Bromeliaceae with over 2,000 species (Bartholomew et al., 2003).

The Malaysian pineapple industry has been in existence for more than a hundred years ago. The industry is relatively small compared to palm oil and rubber industries, and managed and coordinated by Malaysian Pineapple Industry Board (MPIB), an agency under Ministry of Agriculture and Agro-Based Industry (MOA). Pineapple industry contributes significantly to the country's socio-economic development in terms of improving livelihoods of smallholder farmers through incomes generation. It contributes to the nation's economic development and growth of other

supporting economic activities such as packaging, transportation, labeling, and other value addition activities, particularly in Johor.

In Malaysia, pineapple is the first crop grown as a commodity or industrial crop with high export potential. This enabled her ranking as one of the top three pineapple producers in the world between the late 60s and early 70s; however, the ability to remain competitive suffered a great hitch (Othman and Buang, 2010). The decline in the pineapple plantation area was so obvious among the smallholder sector until 2007 when industry experienced increment (5,923ha) in the plantation area of the smallholder sector. Notwithstanding, the reduction in the pineapple plantation area continued yearly till 2011 when the plantation area was 1,310ha. Malaysian fresh and canned pineapple production was estimated around 96,957 metric tons and 17,165 metric tonnes (858,007

standard cases), respectively in 2011. Meanwhile, the export of fresh pineapple, canned pineapple and pineapple juice contributed about RM 63.4 million to the national economy in the same year (MPIB, 2013). Malaysian pineapples has high market demand in countries such as Japan, United Arab Emirates, European countries, Singapore, West Asia and others.

Value chain approach has been employed among development donor organizations, such as AusAID, DfID, GIZ, and USAID as an analytical tool through involving smallholders into the production of market oriented high value crops to boost the rural agricultural development and to increase the incomes of poor people in rural areas. Value chain approaches have also been used to analyze the dynamics of markets and to investigate the interactions and relationships between the chain actors (Nicholas and Jonathan, 2013; and Anandajayasekeram and Gebremedhin, 2009).

The concept of value chain refers to the series of activities involved in transforming raw materials and other inputs into final products or services delivered to end users. A 'value chain' describes the full range of activities required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers and final disposal after use (Kaplinsky and Morris 2001). Value chain is significant as it looks into the relationships between networks of input suppliers, producers, traders, processors and distributors (UNCTAD 2000).

According to Kaplinsky and Morris (2001), agricultural value chain analysis is considered as a heuristic device or analytical tool to clearly understand the organization, operation and performance of the chain actors. Agricultural value chain involves the flow of products, knowledge and information between smallholder farmers and consumers. It systematically maps chain actors and their functions in production, processing,

transporting and distribution and sales of products. Therefore, it is essential to understand the network, linkages, and the flow of products and information among the pineapple chain actors.

Despite the importance of marketing in the operation of agricultural commercialization, smallholders' participation in different markets could be hindered by transaction costs and other sources of market imperfections (Sadoulet and de Janvry, 1995 as cited in Moti, 2007). At the same time, there are many problems facing pineapple smallholders especially integrating smallholders into market opportunities. A study on establishing buyer-supplier relationships in Malaysian pineapple industry supply chain revealed the level at which pineapple farmers patronize different marketing channels. Their result showed that only a small percentage (4%) of the farmers were found having processors as their channel of distributing their produce.

Tsourgianisa et al. (2008) reported that, the profit made by farmers during the course of selling their products is determined by the chosen marketing channel. Therefore, there is need to explore how pineapple farmers have been utilizing the available marketing channels and what factors influencing their selection of buyers.

Different studies have been conducted on pineapple in the study area, however, study on value chain of pineapple has not been done specifically. Therefore, this study aims to analyze value chain of pineapple in Johor by providing the analytical structure of the chain in order to have a better understanding of the linkages between the farmers, traders and other actors, as well as challenges and opportunities along the pineapple value chain. In addition to this, since the value chain analysis also looks into market dynamic of the product, those factors affecting market supply of pineapple and market outlet choice of pineapple farmers worth investigating as it can provide the basis for interventions towards increasing production, farmers' income and

economic development. Therefore this study aim to map out pineapple value chain actors and their roles, to analyze the determinant factors of pineapple supply to the market; and to identify various marketing channels available for pineapple marketing with factors affecting the outlet choice decisions of pineapple producers.

METHOD

The study was conducted in the states of Johor due to its characteristic of largest pineapple planting area among other states in Malaysia (MPIB, 2013). This study adopted a cross-sectional study design to obtain required information about the study from the respondents at a single point in time. A cross-sectional study design also known as one-shot is the most commonly used design in the field of social sciences. It aimed at collecting data to find out the prevalence of a phenomenon, situation, attitude or issue, by taking cross-section of the population at a time (Babbie, 1989). A cross-sectional study is very simple in terms of design as it involves only one contact with the study population, inexpensive to undertake and easy to analyze compared to other designs.

Out of the expected sample size for this study, about 60% (175) were obtained due to unwillingness of the respondents to participate in this study. Five questionnaires were cancelled out of 175 and the remaining 170 were used for the analysis. Though, three (3) questionnaires were not returned. Pineapple wholesalers, retailers, and processors were selected based on availability and recommendation from individual trader who knows pineapple traders and out of convenience. Finally, the respondents for this study were 170 farmers; 30 retailers; 20 wholesalers; and 6 processors.

The questionnaire for the wholesalers, retailers, and processors took the following patterns. The first section was on the socio-demographic profile of the wholesalers, retailers, and processors such as age, gender, race, religion, education level and experience in pineapple business; the second section

focused on their buying activities; and the third section captured pineapple selling activities.

The structured interview schedule used for the farmer officers comprised of information about the roles of Malaysia Pineapple Industry Board in pineapple industry; trends of pineapple production and marketing; strengths, weaknesses, opportunities, and threats (SWOT) analysis to assess the internal and external factors affecting the performance of pineapple industry. The data collected from the survey were analyzed using the Statistical Package for Social Science (SPSS) software version 22. Descriptive analysis, factor analysis and multiple regression analysis were used to analyze the data collected from the survey. The tape-recorded interviews with quantitative data were put into written form and also presented using chart. Value chain mapping provides a visual movement of the product from conception to end consumer through various actors and presents different actors involved in the chain, their roles and linkages (McCormick and Schmitz 2002). Analysis of pineapple value chain highlights the interactions among actors and identifies constraints and possible solutions at different stages of the chain.

RESULT AND DISCUSSION

Socio-demographic Characteristics of the Respondents

Socio-demographic Characteristics of the Producers

Table 1 presents the socio-demographic characteristics of the pineapple producers. The results showed that about 30.0% of the total number of the respondents were aged between 51 and 60 years, 28.2% were aged between 41 and 50 years, while few (3.5%) of the total number of the respondents were between 21 and 30 years old. Majority of the respondents (87.6%) are males while the rest (12.4%) are females. This shows that there are more male pineapple farmers than female pineapple farmers in the study area. At the same time, majority

(95.3%) of the sample farmers are Malay, while (1.8%) and (2.9%) of the respondents are Chinese and other citizens.

Table 1: Socio-demographic Characteristics of the Pineapple Producers

Variables	Frequency (n=170)	(%)
Age		
21-30	6	3.5
31-40	32	18.8
41-50	48	28.2
51-60	51	30.0
61 and older	33	19.4
Gender		
Male	149	87.6
Female	21	12.4
Race		
Malay	162	95.3
Chinese	3	1.8
Others	5	2.9
Level of education		
No formal	5	2.9
Primary school	47	27.6
Secondary school	90	52.9
Diploma	18	10.6
University	10	5.9
City of respondents		
Pontian	77	45.3
Batu Pahat	18	10.6
Kluang	13	7.6
Muar	20	11.8
Johor Bahru	42	24.7

More than half (52.9%) of the respondents had secondary school education, 16.5% attained the level of education beyond secondary level, while only few (2.9%) did not attain any formal education. Majority (45.3%) of the respondents were from Pontian, followed by 24.7% from Johor Bahru, while the rest were from Muar, Batu Pahat, and Kluang with 11.8%, 10.6%, and 7.6% respectively.

Producers' Farm Profiles

Table 2 shows the producers' farm profiles. Majority (75.9%) of the respondents had less than 10 years of farming experience, (12.4%) had between 10 and 20 years of experience, while the

rest (11.8%) had 21 years and above pineapple farming experience.

Table 2: Producers' Farm Profiles

Variables	Frequency (n=170)	(%)
Years of Farming		
Less than 10	129	75.9
10-20	21	12.4
21 and above	20	11.8
Farm size (ha)		
Less than 2	121	71.2
2-3	22	12.9
4-5	23	13.5
6 and above	4	2.4
Land ownership		
Owned	129	75.88
Rented	25	14.71
Temporary occupation	16	9.41
Farming category		
Sole proprietorship	154	90.6
Partnership	14	8.2
Contract	2	1.2

Based on area of farmland owned by the respondents, about 71.2% of the pineapple farmers in the study area cultivate less than 2 hectares of land; some cultivate 2-3 and 4-5 hectares of land, accounting for 12.9% and 13.5% of the respondent respectively, while only few (2.4%) had farm size of 6 hectares and above. This indicates that majority of the pineapple farmers in the study area are operating on small-scale medium. About 75.9% of the respondents owned their farmland, 14.7% cultivate on rented farmland, while the rest 9.4% operate on temporary occupation land. Based on farming category, majority (90.6%) of the respondents operate their farm as personal business, 8.2% operate on partnership basis while, the rest 1.2% operate on contract basis.

Socio-demographic Characteristics of Pineapple Value Chain Members

Table 3, 4 and 5 presents the socio-demographic characteristics of the pineapple retailers, wholesalers, and processors. According to the results, about 46.7% of the retailers were aged

between 30 and 39 years, 40.0% of the wholesalers were aged between 40 and 49 years, while (50.0%) of the processors were also between 40 and 49 years old. Majority of the retailers and wholesalers (60.0%) are males, while the majority of the processors (66.7%) are females

Table 3: Socio-demographic Characteristics of Pineapple Retailers

	Retailer (n=30)	(%)
Age		
30-39years	14	46.7
40-49years	10	33.3
50 and older	6	20.0
Gender		
Male	18	60.0
Female	12	40.0
Race		
Malay	18	60.0
Chinese	6	20.0
Indian	6	20.0
Educational level		
Primary school	4	13.3
Secondary school	16	53.3
Diploma	4	13.3
University	6	20.0
Experience		
Less than 10	20	66.7
10-20	10	33.3

Table 4: Socio-demographic Characteristics of Pineapple Wholesalers

	Wholesalers (n=10)	(%)
Age		
30-39years	6	30.0
40-49years	8	40.0
50 and older	6	30.0
Gender		
Male	12	60.0
Female	8	40.0
Race		
Malay	10	50.0
Chinese	6	30.0
Indian	4	20.0
Educational level		
Primary school	-	-
Secondary school	10	50
Diploma	4	20
University	6	30
Experiences		
Less than 10	14	70
10-20	6	30

All the three chain members under this study are mostly Malay by ethnicities and over 50% of the both retailers and wholesalers had secondary school education, while majority (66.7%) of the processors had university education. Meanwhile, more than half of all the three chain members have been in the pineapple business for less than 10 years.

Table 5: Socio-demographic Characteristics of Pineapple Processors

	Processors (n=6)	(%)
Age		
30-39years	2	33.3
40-49years	3	50.0
50 and older	1	16.7
Gender		
Male	2	33.3
Female	4	66.7
Race		
Malay	4	66.7
Chinese	2	33.3
Indian	-	-
Educational level		
Primary school	-	-
Secondary school	2	33.3
Diploma	-	-
University	4	66.7
Experiences		
Less than 10	4	66.7
10-20	2	33.3

Value Chain Analysis of Pineapple

The Pineapple Value Chain

The flow of planting materials from input suppliers to the farmers and farm product to the end market takes place along the series of link of actors referred to value chains. As the product moves from chain actor to chain actor value addition takes place. More precisely, "a value chain describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final customers, and final disposal after use" (Kaplinsky and Morris, 2001). Value addition occurs from various value generating activities along the chain such

as cleaning, grading, bulking, packaging transporting, storing and processing (Anandajayasekaram and Gebremedhin, 2009). In the perspective of agricultural commodity production, value chain activities involve farm production activities, marketing of the commodities, and business support activities to enhance the operation of the different stages of the value chain and availability of the commodities to the consumers.

According to the methodology on Value Chain research, mapping of value chain is the first step involved in the process of value chain analysis, as the map provides visual networks for better understanding of connections between actors and their relationships. Value chain mapping provides a visual movement of the product from conception to end consumer through various actors and presents different actors involved in the chain, their roles and linkages (McCormick and Schmitz 2001). "Value chain mapping is often used to locate actors in the chain, understand interactions and identify constraints and possible solutions at its different levels" (Anandajayasekaram and Gebremedhin, 2009).

Pineapple Value Chain in Johor resembles the chains of other tropical fruits as it consists of the linkages of series of actors such as input suppliers, producers, traders, processors and consumers with their corresponding functions and relationships in the chain. Thus, the contemporary value chain map of pineapples in Johor is detailed in the figure1 below.

Actors and their Role in pineapple Value Chain

A commodity value chain consists of different actors whose involvement contributes directly and indirectly to the chain. The direct actors are those engaged in commercial activities in the chain such as input suppliers, producers, traders, and consumers, while actors such as credit agencies, business service providers, government, NGOs, cooperatives, researchers and extension agents who provide financial or non-

financial support services are considered as indirect actors (KIT *et al.* 2006).

Primary Actors

The primary actors in pineapple value chain in Johor consists of a number of participants such as input suppliers, farmers, wholesalers or assemblers, retailers, processors, Federal Agriculture Marketing Authority (FAMA), exporters and consumers. Value is added as the products move from one actor to the other and some actors play more than one role as some roles are played by more than one actor in the chain As we can see from the chart shown above, the roles of each actor is detailed below.

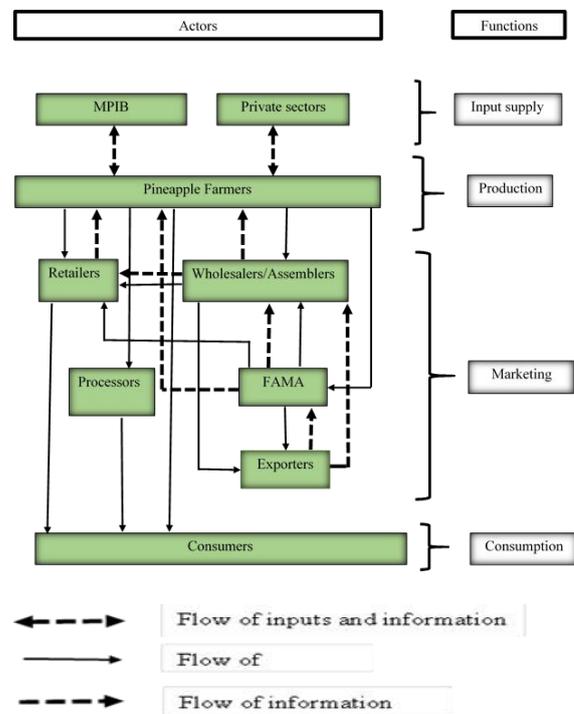


Figure 1: Pineapple Value Chain Map

Source: Own sketch from survey result, 2014

Input Suppliers

The production and productivity of agricultural product largely depends on the inputs and their sources. There are different value chain actors who function as agricultural input suppliers to the farmers in the study area. Such inputs are improved varieties of pineapple cultivar, fertilizers, herbicides, pesticides, hormones and other pineapple production

implements which are important at the production stage.

Table 6: Distribution of producers according to sources of planting materials

Sources of planting material	Frequency	(%)
MPIB	51	30.0
Private sectors	100	58.8
Others	19	11.2
Total	170	100

Table 7: Distribution of respondents according to sources of information

Sources of information	Frequency*	(%)
Fellow farmers	91	39.2
MPIB	46	19.8
Wholesalers	74	31.9
FAMA	21	9.1

*Multiple responses from respondents

The two main sources of agricultural inputs are Malaysian Pineapple Industry Board (MPIB) under the Department of Agriculture (DOA) and private sector suppliers. Over half (58.8%) of the sample farmers got their planting materials from the common private sectors, 30% of them got their planting material from Malaysian Pineapple Industry Board (MPIB), while the rest 11.2% got their own from other sources as shown in table 4.4.

Despite the role of Malaysian Pineapple Industry Board (MPIB) and Federal Agriculture Marketing Authority (FAMA) as sources of information regarding farming activities and marketing of farm produce to the producers, about 39.2% of the producers received information from their fellow farmers, followed by 31.9% who had wholesalers as their information source, while those who received information from MPIB and FAMA were 19.8% and 9.1% respectively. Although, some farmers received information from more than one source.

Farmers

Pineapple farmers are the key actors who play a significant role of pineapple production activities among the

members of the pineapple value chain. They are generally smallholder farmers having different land size with an average land holding of 1.47 ha only per household. Most of the value chain activities such as farm inputs procurement, production (ploughing, planting, fertilization, irrigating, weeding, pest/disease controlling, and harvesting), post-harvest handling and marketing are carried out by the farmers. Other value addition activities performed by farmers include cleaning, sorting, grading, bulking, transporting, and storing.

Table 8: Distribution of respondents according to sources of labor

Sources of labor	Frequency*	(%)
Family labor	71	38.4
Hired labor	114	61.6

*Multiple responses from respondents

Table 9: Distribution of respondents according to varieties of pineapple produced

Varieties of pineapple	Frequency*	(%)
Mauritius	94	55.3
Sarawak	13	3.5
Gandol	7	4.1
N36	15	8.8
Josapine	68	40.0
MD2	16	9.4
Others	32	35.9

*Multiple responses from respondents

Table 10: Distribution of respondents according to types of fertilizer used

Types of fertilizer	Frequency*	(%)
Inorganic fertilizer	74	40.0
Organic fertilizer	23	12.4
Mixed fertilizer	88	47.6

*Multiple responses from respondents

Table 11: Distribution of respondents according to membership in organization

Membership	Frequency	(%)
Member	128	75.0
Non-member	42	25.0
Total	170	100

The two groups of the farmers in the study area are independent farmers and contract farmers. The independent

farmers are those who owned their farmland and did not engage in any contractual agreement with other parties for the sales of their produce. They have all right and freedom to sell their pineapples to any buyer of their choices. The contract farmers on the other hand are those who engaged in contractual agreement mostly upon pre-determined price level with any marketing firm to have guarantee market for their products in the future FAO (2001). Contract farmers sold their pineapple to other parties such as Federal Agriculture Marketing Authority (FAMA), cooperatives or fruits processing companies upon agreement made. Only 1.2% of the sample farmers for this study operate on the contract basis. The two sources of labor for pineapple production in the study area family labor and hired labor, meanwhile, there are some farmers who combined both sources of labor.

Regarding the types of fertilizer usage, some farmers used only organic or inorganic fertilizer, while some used both organic and inorganic fertilizers on their farm. Based on the farmers' responses on table 4.8, about 40.0% of the respondents used inorganic fertilizers only, 47.6% used both inorganic and organic fertilizers, while only few (12.4%) used organic fertilizers only. The result also indicated that majority (75%) of the producers are members in organization which believed to have great importance on their farming and marketing activities. The result also shows that 59.8% and 25.9% of the respondents perform the value addition activities such as grading and sorting respectively, while only 14.3% perform cleaning before selling their pineapples.

The level of losses incurred by the farmers before marketing of pineapples seems somehow significant as the result from the survey reveals that about 61.7% of the farmers recorded less than 10% loss, 30% had 10 to 20%, followed by 6.5% with 21 to 25% loss, while only 1.8% recorded more than 25% of their total produce. During the course of marketing farm produce, pineapples are sold by the farmers to the private traders like wholesalers and retailers, processors or directly to the consumers at night and wet

markets. Very few members of the sampled farmers who engaged in contract deal sold their produce to FAMA.

Wholesalers/Assemblers

These are traders who participate in the pineapple value chain and play a role of linking farmers to market by buying pineapple and sell other actors in the chain. Assemblers, also known as primary wholesalers who normally move from one farm to another to buy pineapples at farm gate and sell to wholesalers and retailers. Sometimes, they sell to exporters based on the standard of quality. Wholesalers on the other hand mostly buy pineapples in larger quantity compared to assemblers and sell to retailers, exporters and consumers.

They also serve as source of market information to the producers and retailers, while they obtain information from Federal Agriculture Marketing Authority (FAMA) and exporters. The value chain roles performed by the wholesalers include buying, assembling, sorting, grading, transporting, and selling.

Retailers

Retailers are the key actors in the pineapple value chain who directly link the producers to the consumers. They include street vendors, groceries stores, hypermarkets, and those selling in the wet market and night market. They usually buy pineapples from wholesalers, Federal Agriculture Marketing Authority (FAMA) and sometimes, they could buy directly from the farmers. The value addition activities performed by the retailers include buying, transporting, sorting, grading, cutting and selling to the final consumers. The flow of market information occurs among retailers, farmers, wholesalers, and FAMA.

Federal Agriculture Marketing Authority (FAMA)

The Federal Agricultural Marketing Authority (FAMA) is responsible for the supervision, coordination, regulation and improvement of the marketing of agricultural products for domestic and export markets. FAMA as a major

intermediary in the value chain of pineapples buys directly from the farmers based on contractual agreement at the farm gate or collection center close to the farm area and sells to wholesalers, exporters, and sometimes retailers. Market information flows among producers, FAMA, wholesalers, and exporters. The value addition activities being performed by FAMA are grading and packaging.

Exporters

Pineapple exporters play a significant role as the main intermediary players in the chain who connect Malaysian pineapples to other countries such as Singapore, Middle East Countries such as Saudi Arabia, United Arab Emirates (UAE), Australia, Japan, Egypt, Brunei, Hong Kong and others. Assemblers, wholesalers, and FAMA are the actors that commonly supply pineapples to exporters based on the standard of quality required by those countries.

Processors

Pineapple processors also play a significant role in the pineapple value chain as they involved in the transformation of pineapple fruits into a diversified products in order to increase pineapple consumption globally. Processors usually prefer to plant their own pineapples rather than buying from farmers, meanwhile, they sometimes buy pineapples directly from farmers. This is based on the response from interview schedule conducted for the farmer officers in the study area. The value addition activities performed by the processor include bulking, cleaning, grading, packaging, transporting, storing and processing by turning pineapple into another forms such as canning, juicing, and drying among others.

Pineapple Consumers

Consumers are those at the end side of the chain to whom each actor in the pineapple value chain sell their products. Consumers buy pineapples directly from producers, retailers, processors, and

wholesalers however, the greatest number of the consumers buy from retailers.

Supporting Actors

Supporting actors are those who render supporting services to improve the operation of the different activities in value chain towards efficient performance of the entire chain. Such services include agricultural extension services, information services, financial services, and research services. Martin et al., (2007) found out that the level of success of value chain is influenced by access to information, technology and finance. The main pineapple supporting actors who play an important role in providing the stated services are Malaysian Pineapple Industry Board (MPIB) under the Department of Agriculture (DOA), Federal Agricultural Marketing Authority (FAMA) and micro finance.

Agricultural Extension Services

In addition, Malaysian Pineapple Industry Board (MPIB) also plays a role of agricultural extension services provider. Among the services rendered by Malaysian Pineapple Industry Board (MPIB) are trainings on farming activities and management, fertilizer application, and marketing connection and provision of subsidies both in kind and cash forms for the farmers who meet the requirement. The result of this study shows that 75.9% of the sampled farmers had access to agricultural extension officers at least two (2) times in a year while only 2.9% never had contact with extension officers (Table 12). In the case of extension services, 66.5% of the sampled farmers have been participating in the extension services such as planting methods and techniques, fertilizer application, harvesting, and post harvest handling of the crops organized by Malaysian Pineapple Industry Board (MPIB).

Table 12: Distribution of respondents according to frequency of contact with extension officers

Contact with extension officers	Frequency	(%)
Once in a year	10	5.9
At least 2 times per year	129	75.9
3 or more times per year	26	15.3
None	5	2.9

Financial services

The result of the survey reveals that 47 farmers out of the sampled farmers had access to credit.

Table 13: Distribution of respondents according to source of credit

Sources	Frequency	(%)
MPIB	26	55.3
Micro finance institute	18	38.3
Buyers	3	6.4

Table 13 shows that 26 farmers took credit from Malaysian Pineapple Industry Board (MPIB), 18 farmers took credit from micro finance institute, 3 farmers took from their buyers while the sampled wholesalers, retailers and processors depend on their personal credit.

Value Chain Governance

Governance within value chains reveals the distribution of power and information among various chain actors. Alternative types of vertical coordination emerge depending on the distribution of market power (the ability to set prices, quality standards and minimum delivery quantities), political power and information (on standards and alternate market prices) (Gereffi al. 2005). Kaplinsky and Morris (2001) define governance as the role of coordination and associated roles of identifying dynamic profitable opportunities and apportioning roles to key players. The flow of farm produce, marketing process and commodity price levels are coordinated by the chain actors. Based on the result, wholesalers happened to be the most patronized buyers by the farmers and majority of the

producers indicated that the commodity price setting is mostly determined solely by buyers or based on negotiation between producers and buyers (Table 14). The result suggests that the governance of the pineapple value chain is buyer driven.

Table 14: Distribution of respondents according to price setting

Price setting	Frequency*	(%)
Myself	51	27.7
Solely by buyers	72	39.1
Based on negotiation	61	33.2

*Multiple responses from respondents

Marketing of agricultural products is extremely important force of economic development and socioeconomic status of small scale farmers. Malaysian pineapples are marketed in the local, regional and international market. With the global increase in the demand for fruits due to rapid growth in the world's population and increase in the consumers' awareness towards the health benefits obtainable from fruits, the quantity supply of pineapple by individual producer to the market in the survey year is very important. Therefore, investigation about the determinant factors of pineapple market supply is important in order to identify factors constraining pineapple supply to market and improve the livelihood of smallholder producers. Factor analysis and multiple linear regression analysis were employed to identify and determine the factors respectively.

Factor 1: Credit Access. This factor explained about 13.932 per cent of the total variance with eigenvalue of 3.901. This factor consists of five items with the factor loadings ranging from 0.684 to 0.909 (Cronbach's Alpha = 0.910). Among the five items, the first item had the highest score of 0.909 while the fifth item had the lowest score of 0.684. This result shows that credit access is one of the factors affecting pineapple market supply by the farmers. This result is supported by Matsane and Oyekale's findings. They

reported that lack of access to credit is one of the important factors affecting vegetables marketing among the small-scale farmers (Matsane and Oyekale, 2014).

Factor 2: Pineapple Varieties. This factor explained about 10.909 per cent of the total variance with eigenvalue of 3.054. There are four items in this factor with the factor loadings ranging from 0.727 to 0.861 (Cronbach's Alpha = 0.869). This result shows that varieties of pineapple produced by farmers can influence the pineapple market supply by the farmers.

Factor 3: Market Information. This factor explained about 9.614 per cent of the total variance with eigenvalue of 2.629. This factor consists of six items with the factor loadings ranging from 0.574 to 0.721 (Cronbach's Alpha = 0.728). Among these six items, the last item only had the factor loadings of 0.574. This result shows that market information is one of the factors affecting pineapple market supply by the farmers. This result is supported by Yimer's findings. He reported that market information influenced the market supply of fruits positively (Yimer, 2015).

Factor 4: Distance. This factor explained about 8.518 per cent of the total variance with eigenvalue of 2.385. This factor had three items with the factor loadings ranging from 0.739 to 0.797 (Cronbach's Alpha = 0.787). This result shows that distance is one of the factors affecting pineapple market supply by the farmers. As reported by Yimer, (2015), distance to the market influenced the market supply of fruits negatively.

Factor 5: Extension Services. This factor explained about 7.583 per cent of the total variance with eigenvalue of 2.123. Three items were found significant under this factor with the loading factors ranging from 0.666 to 0.836 (Cronbach's Alpha = 0.709). This result shows that access to extension services is one of the significant factors affecting pineapple market supply by the farmers. This finding is also supported by the findings of Yimer, 2015, that the fruits market supply is influenced by the extension service.

Factor 6: Cost of Inputs. This factor explained about 7.374 per cent of the total variance with eigenvalue of 2.065. There are three items under this factor with the factor loadings ranging from 0.739 to 0.853 (Cronbach's Alpha = 0.729). This result shows that cost of farm inputs can affect the pineapple market supply by the farmers.

Factor 7: Farm Input Subsidy. This factor explained about 7.340 per cent of the total variance with eigenvalue of 2.055. This factor consists of three items also, with the factor loadings ranging from 0.699 to 0.841 (Cronbach's Alpha = 0.702). This finding shows that the support given by the government both in cash and kind can influence the pineapple market supply by the farmers.

The reliability test conducted revealed the internal consistency of each of the factors obtained from factor analysis. As we can see from the table 4.14 below, all the seven (7) factors had the cronbach's alpha values greater 0.7 which is considered acceptable (George and Mallery, 2003).

Table 15: Summary of factor analysis on factors affecting pineapple supply

Item	Factor Loading	
	F1	F2
Credit access		
Access to credit enhances acquisition of additional farm land	.909	
Access to credit enhances acquisition of production mechanization packages	.894	
Access to credit enhances my financial capability to buy farm inputs	.869	
Access to credit encourages the use of hired labors	.793	
Access to credit enhances my ability to acquire means of transportation	.684	
% of Variance	13.932	
Pineapple varieties		
Cultivation of disease resistant varieties reduces the problem of inability to meet market demand		.861
Planting of improved varieties gives me larger harvest		.808
Type of pineapple requested determines my market supply		.796
Planting of disease resistant varieties increases market supply		.727
% of Variance		10.909
Market information		
Price stability makes me increase my market supply	.721	
High price offer made me increased my market supply	.708	
Access to dynamic information about market demand increases my market supply	.629	
Access to reliable information about quality and grading of produce increases my market supply	.607	
I increased my market supply due to high price offered in the previous year	.600	
A reliable information about market price influences my market supply	.574	
% of Variance	9.614	
Distance		
Losses incurred through transportation increases due to far distance		.797
Cost of production increases due to far distance		.792
Short distance reduces the transport cost and time spent		.739
% of Variance		8.518
Extension services		
Acquired training on the use of fertilizers and pesticides increases my productivity	.836	
Adoption of new technology through extension workers increases my productivity	.744	
Acquired training on pre and post-harvest handling of pineapple increases my market supply	.666	
% of Variance	7.583	
Cost of input		
High cost of fertilizers discouraged me from using it		.853
High cost of improved planting material made me stick to traditional planting material		.763
I used family labor due to high cost of labor		.739
% of Variance		7.374
Farm input subsidy		
Provision of farming support attracted me to pineapple cultivation	.841	
Availability of fertilizers at low cost encouraged me to use it	.755	
Availability of improved seedlings and hormones in a subsidized price encouraged me to use it	.699	
% of Variance	7.340	
Cumulative %	65.266	

CONCLUSION

This study analyzes value chain of pineapple in Johor using the value chain framework to map the actors and their roles. The findings of this study concluded

that, pineapple value chain in the study area is experiencing hitches in terms of giving its maximum performance and the quality of competitiveness cannot be attained without intervention towards the above-mentioned problems. There are

many factors that affect the quantity supply of commodity to the market and smallholders' choice of different market channels which are credit access, pineapple varieties, market information, distance, extension services, cost of input, and farm input subsidy.

The descriptive statistics results also revealed that the choice of market channels by pineapple farmers in the study area was based factors such as price of product, grading, timely payment, mode of payment respectively, taking the first four factors following the rank order. Thus, it can be concluded that wholesalers, retailers and consumers have satisfied these conditions to some extent.

Based on the results of this study, it is therefore recommended that, the improvement in the attention given to the pineapple industry is required by focusing on those factors preventing the industry from contributing actively like its counterparts in the global market. Particularly, the factors such as credit access, farm inputs subsidy and other important factors are very crucial as they have direct effect upon the quantity and quality of farm produce.

The extension services should be also enhanced to educate and motivate farmers towards the productive and profitable farming practices. Research and development which is the basis of agricultural productivity should be strengthened for the achievement of a great potential of pineapple production resulting to the development of the pineapple industry.

Regarding the recommendation, upgrading of pineapple value chain is very important. The product upgrading which involves the introduction of new, improved or more profitable varieties as well as process upgrading which has to do with improving the efficiency of internal processes of chain are required. These interventions would generally improve pineapple farmers' standard of living due to increase in production, enhance the development of market linkages for pineapple fruits as well as strengthen the development of a sustainable value chain.

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DISCUSSION FROM PARALLEL SESSION

PAPER TITLE	Value Chain Pineapple in Malaysia
AUTHOR	Norsida Man, Nolila Mohd Nawi, Khadijat Jaji, Melissa Alina Yusoff
DISCUSSION	
QUESTION	-
ANSWER	-
SUGGESTION	Whould You Please To Explain More About Factors Affectly Cluting Outlet By Farmers Especially Trading's Variable



Agribusiness Development
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