



55TH ANNUAL
AARES NATIONAL CONFERENCE

Crown Conference Centre | Melbourne VIC | 8 - 11 February 2011

PRODUCER SEGMENTATION AND THE ROLE OF LONG -TERM RELATIONSHIP IN THE MALAYSIAN MILK SUPPLY CHAIN

Bonaventure Boniface
PhD Student
Global Food and Agricultural Business
School of Agriculture, Food and Wine
University Of Adelaide

Introduction

- Malaysia's dairy industry is changing rapidly
- Milk buyers seek information about their suppliers to secure regular and uninterrupted milk supplies (Boniface *et al.*, 2010).
- Good buyer-seller relationships promote efficient supply chains, improved profit and business performance (Batt, 2003; Gyau and Spiller, 2008; Ng, 2010; Spiller and Schulze, 2007)
- However, producers are heterogonous (Rosenberg and Turvey, 1991)
- This article explores producer's long-term relationship characteristics in the Malaysia's dairy industry

Malaysia's dairy industry

- Memorandum of understanding / Resource providing contracts

- Provides land and labor
- Do farm management
- Receives dairy cows from government

- Provides veterinary and services assistant
- Provides dairy cows
- Assist milk marketing
- Buying milk at predetermine and prices
- Milk quality testing

Predetermine price

Predetermine price

Market price

Market Price



Milk Processor



Milk agent



Restaurant



MCC

Research in the Malaysian dairy industry

Farm Management and Productivity

- Ways to reduce production cost through integrated farming (Wan Hassan, 1989)
- Computerised recording system (Pharo *et al.*, 1990)
- The impact of milk subsidies on dairy farmers development (Wells, 1981)
- The viability of large scale farming (Bhaskaran, 1999)
- Milk quality (Chye *et al.*, 2002)

Buyer and Seller Perspective

- Building producers' loyalty in the Malaysia's dairy industry (Boniface *et al.*, 2010)
- Relationship quality as the predictor of long term relationship (Boniface *et al.*, 2009)

The objective:

- Other scholars identified the economic and management profiles of the producers characteristic (Rosenberg & Turvey, 1991; Espinoza-Ortega *et al.*, 2007)
- We attempt to explore long-term relationship of the buyer-seller relationships in the Malaysian dairy industry

Methodology: Data Collection

Data Collection

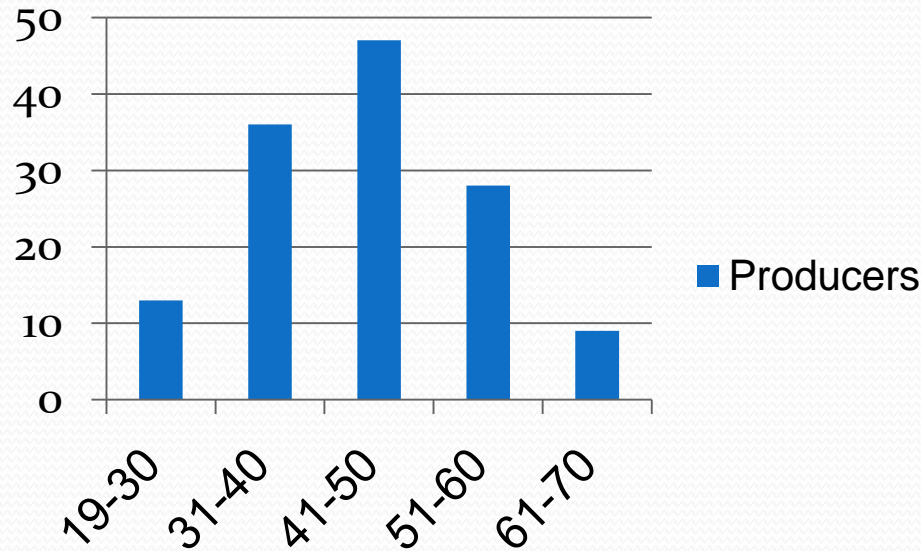


•133 producers were interviewed based on random sampling

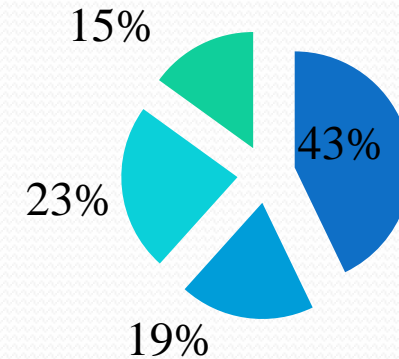
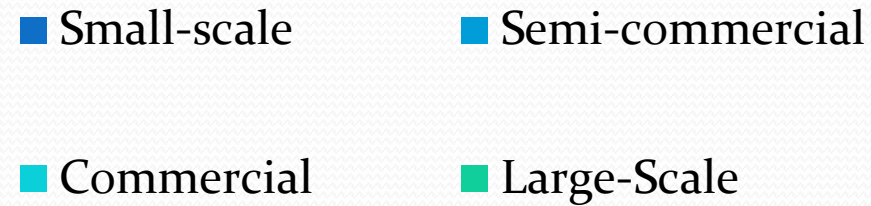
Respondent's profiles



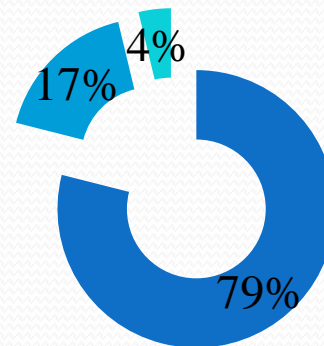
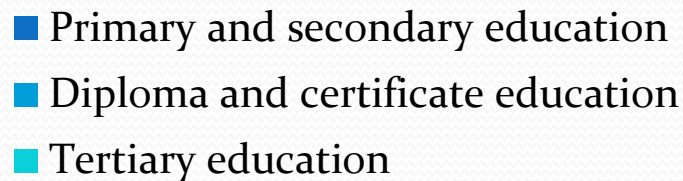
Producer's Age



Types of farm



Level of education



Methodology : Data Analysis

Factor and Cluster analysis approach

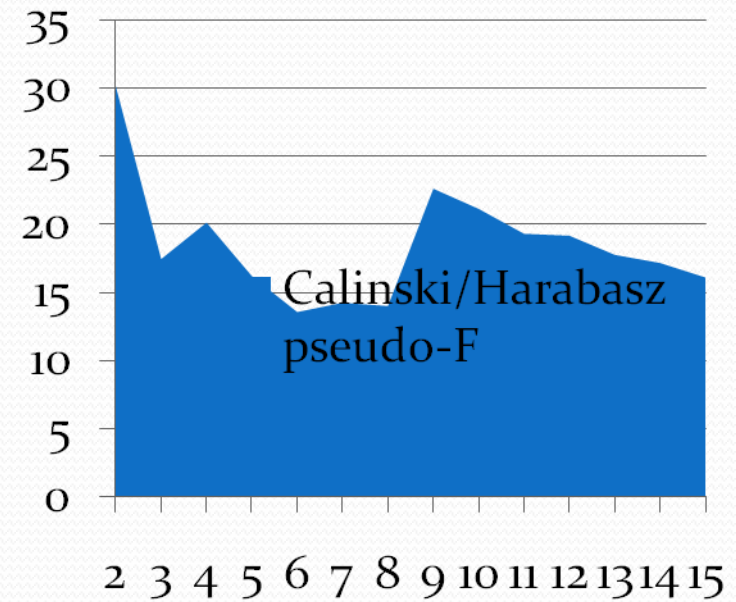
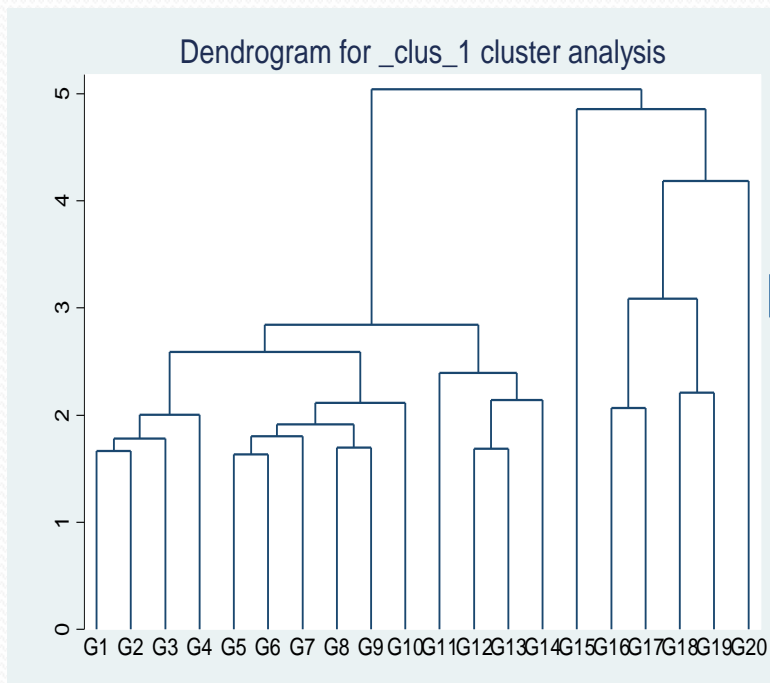
Factor Analysis

Variables and indicators	Factor Loading
Trust : KMO = 0.7089 , Cronbach's alpha = 0.7367	
My buyer promises are reliable	0.8015
I can trust my buyer	0.7742
I have trust in my buyer skill and expertise in the business	0.7251
My buyer cares for my welfare	0.6873
Satisfaction : KMO = 0.7369 , Cronbach's alpha = 0.7632	
My buyer often meets my expectations	0.7945
I feel satisfied doing business with my buyer	0.7829
My buyer treat me fairly and equitably	0.7592
My buyer is quick to handle my complaints	0.7215
Relationship Commitment : KMO = 0.7560 , Cronbach's alpha = 0.7470	
Our relationship is something that we are very committed to	0.7918
I want to maintain indefinitely our relationship	0.7830
I have maximum effort to maintain our relationship	0.7257
I want to improve my relationship in long term	0.7148
Loyalty : KMO = 0.7223 , Cronbach's alpha = 0.7663	
I will be happy to recommend my processor to other dairy buyer	0.8118
I will ask other dairy producer to seek assistance from my buyer	0.7682
My current buyer is much more convenience than other buyers	0.7437
I will continue to do more business with my current buyer in the next few years	0.7428

Factor Analysis

Variables and indicators	Factor loading
<hr/> Price Reliability : KMO = 0.6343 , Cronbach's alpha = 0.6412	
Milk price changes are communicated properly	0.8071
Milk price changes are communicated timely	0.7786
My buyer keeps all promise regarding milk price	0.7018
<hr/> Relative Price : KMO = 0.5000 , Cronbach's alpha = 0.5584	
Terms and condition of my buyer are better tailored to my needs than those of other buyers	0.8329
I am convinced that my buyer is the best choice	0.8329
<hr/> Price Quality Ratio : KMO = 0.7048 , Cronbach's alpha = 0.8007	
I get a good price-quality ratio	0.8378
I have the impression that I know what I am paying for	0.8303
I agree with the milk price and grading system	0.8685
<hr/> Price Fairness : KMO = 0.5943 , Cronbach's alpha = 0.6558	
My buyer does not take advantage of me	0.8544
My buyer always consistence with the same pricing formulas	0.7809
The buyer offer me fair and reasonable milk price	0.6695
<hr/> Price Transparency : KMO = 0.6700 , Cronbach's alpha = 0.7205	
My buyer milk price is clear, comprehensible and understandable	0.8285
Milk price information is complete, correct and frank	0.7604
Milk price information is understandable and comprehensive	0.8133

Hierarchical Cluster



(Milligan & Cooper, 1985; Calinski & Harabasz, 1974)

Result and Discussions

Long term Relationship Cluster

Relationship variables	Relationship group (RG)	Market-driven group (MDG)	t-stat
	=106 / 79.69%	n=27 / 20.31%	
	μ	μ	
Trust ($\alpha = 0.737$)			
My buyer promises are reliable	4.27	3.37	6.45 ^a
I can trust my buyer	4.35	3.37	5.35 ^a
I have trust in my buyer skill and expertise in the business	4.22	3.48	5.10 ^a
My buyer cares for my welfare	4.15	2.85	8.30 ^a
Satisfaction ($\alpha = 0.763$)			
I feel satisfied doing business with my buyer	4.24	3.37	6.17 ^a
My buyer often meets my expectations	4.17	3.30	6.40 ^a
My buyer treat me fairly and equitably	4.18	3.30	5.90 ^a
My buyer is quick to handle my complaints	3.85	2.85	6.20 ^a

^a. Statistically significant at 1%.

Relationship variables	Relationship group (RG) =106 / 79.69%	Market-driven group (MDG) n=27 / 20.31%	t-stat
Relationship Commitment ($\alpha = 0.793$)	μ	μ	
Our relationship is something that we are very committed to	4.25	3.74	4.09 ^a
I feel committed to my buyer	4.22	3.48	6.27 ^a
I want to maintain indefinitely our relationship	4.28	3.93	3.10 ^a
I want to improve my relationship in long term	4.28	3.78	4.13 ^a
I have maximum effort to maintain our relationship	4.25	3.85	3.59 ^a
Loyalty ($\alpha = 0.649$)			
If I have other alternative buyer, I will remain with this buyer	3.97	2.89	6.44 ^a
I will continue to do more business with my current buyer in the next few years	4.73	3.56	7.49 ^a
I am loyal to my buyer	4.75	3.81	6.82 ^a
I will ask other dairy producer to seek assistance from my buyer	4.35	2.81	9.24 ^a

^a. Statistically significant at 1%.

Result and Discussions

Price Satisfaction Dimension

Price satisfaction dimensions		Relationship group (RG) n=106 / 79.69%	Market-driven group (MDG) n=27 / 20.31%	t-Stat
Price Reliability ($\alpha = 0.641$)		μ	μ	
Description	Statement			
Price does not change unexpectedly and suppliers are informed timely (Matzler <i>et al.</i> , 2007).	Milk price changes are communicated properly	4.14	3.70	4.21 ^a
	Milk price changes are communicated timely	4.11	3.56	5.13 ^a
	My buyer keeps all promise regarding milk price	4.08	3.63	3.43 ^a
Relative Price ($\alpha = 0.587$)				
Price of the offer compared to that of competitors' offers (Matzler <i>et al.</i> , 2007).	Terms and condition of my buyer are better tailored to my needs than those of other buyers	3.62	3.04	3.72 ^a
	I am convinced that my buyer is the best choice	4.12	2.93	7.63 ^a
	I do not believe other buyer will have the same or even better milk price offer	3.45	3.15	1.49

^a. Statistically significant at 1%.

Price satisfaction dimensions	Relationship group (RG) n=106 / 79.69%	Market-driven group (MDG) n=27 / 20.31%	t-Stat
<p>Price Quality Ratio ($\alpha = 0.801$)</p> <p>The price receives from their I get a good price-quality ratio buyer reflecting the quality of I have the impression that I know what I am the product (Zeithaml, 1988). paying for I agree with the milk price and grading system</p>			
	3.94	2.89	6.87 ^a
	3.75	2.85	4.71 ^a
	3.89	2.93	4.57 ^a
<p>Price Fairness ($\alpha = 0.656$)</p> <p>Consumers gain satisfaction from a price of a product if they believe that the offered price is favourable and fair (Campbell, 1999; Diller, 2000).</p> <p>My buyer does not take advantage of me</p> <p>My buyer always consistence with the same pricing formulas</p> <p>The buyer offer me fair and reasonable milk price</p>			
	4.19	2.96	9.28 ^a
	4.06	3.48	5.94 ^a
	3.89	3.00	4.65 ^a
<p>Price Transparency ($\alpha = 0.721$)</p> <p>Clear, comprehensive, current and effortless overview about a company quoted prices (Matzler <i>et al.</i>, 2007).</p> <p>My buyer milk price is clear, comprehensible and understandable</p> <p>Milk price information is understandable and comprehensive</p> <p>Milk price information is complete, correct and frank</p>			
	4.08	3.67	4.49 ^a
	4.10	3.67	4.25 ^a
	4.21	3.63	5.13 ^a

^a. Statistically significant at 1%.

Result and Discussions

Demographic Characteristics and Group Membership

	RG n=106 / 79.69%	MDG N=27 / 20.31%	t-stat
	μ	μ	
Difference between states	1.55	1.67	-1.12
Average Age	44	46	-0.96
Level of Education :			
Primary and secondary school	84 / 79%	21 / 78%	-0.54
Diploma and certificate	19 / 18%	4 / 15%	
Tertiary Education	3 / 3%	2 / 7%	
Producer's main source of income			
dairy as main income	93 / 88%	22 / 81%	-0.390
other business as main income	7 / 7%	4 / 15%	
working with private/government as main income	6 / 6%	1 / 4%	
Number of years in the dairy business	12 years	18 years	-2.92 ^a
Farm Size			
Small-scale (1-30 cows)	45 / 42%	12 / 44%	-2.17 ^b
Semi-commercial (31-50 cows)	22 / 21%	3 / 11%	
Commercial (51 -100 cows)	25 / 24%	7 / 26%	
Large-Scale (101 and above cows)	14 / 13%	5 / 19%	
Average milk production	10 kilos	9 kilos	0.87
Producer's main buyer			
Public sector	82	22	1.13
Private sector	24	5	
Average farm profit	RM 3940	RM 10007	-2.10 ^b

^{a, b} Statistically significant at 1% and 5% , respectively

Producers' characteristics

Variable	Cluster 1 n=106 / 79.69%	Cluster 2 n=27 / 20.31%
Producers' trust in their buyers	High	Moderate
Producers' satisfaction toward the buyers	High	Moderate
Producers' relationship commitment toward the buyers	High	Moderate
Producers' loyalty with they buyers	High	Moderate
Price reliability	High	Moderate
Relative price	Moderate	Moderate
Price-quality ratio	Moderate	Low
Price fairness	High	Moderate
Price transparency	High	Moderate
Number of years in the dairy business	Relatively less	Longer
Firm Size	Small-Scale	Large-Scale
Average farm profit	Moderate	High

Conclusion and managerial implication

Producers characteristics in Malaysia's dairy industry

- The relationship group (majority of the respondents):-
 - They have high trust , commitment and loyal to buyer
 - Earning an average farm profit around RM 4000 monthly
 - Quite satisfied with the current milk prices (PR,PF,PT)
- The market-driven group (20% of the respondents) is likely to maintain their relationships but are able to switch buyers at any time
 - Interested in reliable and transparent milk prices.
 - Earning stable average monthly profits
 - More than 18 years in business

Policy Implications

- MCC - clear and transparent price formula- site testing
- Provides clear market and prices information

Acknowledgement;



- University of Adelaide, Australia
- Universiti Malaysia Sabah, Malaysia
- Prof. Randy Stringer, Dr Amos Gyau, Dr Wendy Umberger
- Global Food and Agricultural Business



Thank You...



Any questions?...