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Market potential of banana chips industry in Malaysia

(Potensi pemasaran industri kerepek pisang di Malaysia)

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Key words: banana chips, potential, marketing, snack

Abstract

A primary survey was conducted in 2003, involving entrepreneurs in processing banana chips. Results of the survey showed that 59% of respondents indicated that the demand for domestic market is good and 17% of them rated as very good. Thirty-six per cent of the respondents that are involved in exporting banana chips indicated that the demand for export market as good and 27% of them indicated as very good. Forty-two per cent of respondents indicated that they faced problems in peeling off the banana skins and 13% of them indicated that as a major problem. Seventy per cent of respondents indicated that their market for banana chips are presently increasing and 77% forecasted that their market would expand in the future. Therefore, as a strategy to boost the development of the banana chip industry, the promotion of the consumption of banana chips as a healthy food is needed. As the industry expands, there is also a need to develop a banana peeling machine to overcome the labour shortage.

Introduction

The snack food industry includes the manufacture of potato chips, corn chips, popcorns, pretzels, extruded snacks, seeds and nuts (peanuts) and chocolates. The locally produced savoury snacks are chips and *keropok*. In general, the demand for snack food in the world, including Malaysia, is expected to increase in the future, as there is an increasing number of working women who spent less time cooking. The number of working women in Malaysia has increased from 2.6 million in 1992 to 3.7 million in 2004, an increase of 42% within this period (Anon. 2005). This survey was undertaken to study the current status of the banana chip industry, to identify the problems and constraints that the industry is facing, and to suggest strategies in promoting the growth of the banana chip industry.

Methodology

The survey on banana chips' entrepreneurs was conducted in 2003. The methodology involved the collection of primary as well as secondary data. The primary data were collected via a survey of the banana chips' producers, while the secondary data, were collected from the Department of Statistics, Department of Agriculture and also through the Internet. The information on the number of chips producers, together with their addresses were gathered from the Department of Agriculture. All the accessible banana chips' producers in all the states in Peninsular Malaysia were surveyed.

Industrial overview

The common banana chips produced in the world are the banana figs, savoury banana chips and sweet banana chips. The most

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common banana chip produced in Malaysia is savoury banana chip. The global volume sale of chips/crisps grew at 3.6%, from 1,825,000 tonnes in 2000 to 1,890,600 tonnes in 2001. In terms of value, it increased by 2.3%, from US$13,943.1 million in 2000 to US$14, 268.5 million in 2001. The retail sale of savoury snacks in Malaysia increased from 16, 659.5 tonnes in 1998 to 19, 302.2 tonnes in 2002, an increase of 16% within that period. In terms of value, it increased from RM360.6 million in 1998 to RM426.8 million in 2002, an increase of 18% within that period (Anon. 2003).

Snack consumption

The snack food consumption is on the increasing trend. According to the American Snack Food Association survey done in 1996, potato chip was the most popular snack food exported to Canada, Western Europe, the Asia Pacific Rim and the Middle East. This was followed by tortilla chips, other corn-based products, pretzels, extruded snacks, and ready-to-eat popcorns (Anon. n. d.). The number of consumers who snacked between meals at least once a day was highest in the United States (80%), followed by Germany (74%), United Kingdom (69%), Japan (66%), Brazil (64%), Italy (62%), Spain (57%), and France (53%) (Anon. 1997).

In 1996, Japan had the highest per capita consumption in terms of value at US$70.6, but in terms of quantity, the United States had the highest per capita consumption at 8.6 kg. However, in the year 1997, in terms of value, the United Kingdom overtook Japan as the main consumer of savoury snacks. In the year 2000, the consumption of savoury snacks in Japan did not show a very encouraging trend because Japan was still suffering from the recession then. The consumers were still very cautious with their expenditures and there was also increased competition from fast foods. The recession and the competition from fast foods also affected the consumption of snack foods in the other Asia Pacific region (Anon. 2003). According to the Australian Trade Commission, nutritional snacks such as fruit rolls and yogurt bars have the opportunity to enter the Malaysian markets (Anon. 2002). Detailed consumption of per capita snack food is shown in *Table 1.*

Results of primary survey

Background of entrepreneurs

There were only 124 banana chips operators in the country. Of this, 24% are located in Kelantan, 16% each in Selangor, Johor and Kedah, 11% in Negeri Sembilan, 7% in Pahang, 6% in Perak and 4% in Melaka. Ninety-four per cent of them are owner operators, 4% are partnership and 2% are limited companies. The average business operating period was 9 years, ranging from 1 to 25 years. Twenty-eight per cent of them are involved in planting their own bananas to supply their banana chips factories. The average self-supplied operators was 47%, ranging from 2% to 100%. For those involved in the purchasing of raw bananas, the average percentage of purchase for their factory utilisation was 93%, ranging from 20–100%.

Production

The average production of banana chips per day by each entrepreneur surveyed was 54 kg. The average production day per month was 17 days while the total average monthly production was 918 kg. This resulted in the total monthly production of banana chips in Malaysia to almost 113.8 tonnes per month or 1,365.6 tonnes per year. At an average wholesale price of RM6.8 per kilogramme, the production value of banana chips in Malaysia was estimated to be RM9.3 million per year. Results of the analysis also showed that the average production capacity was 269 kg while the average production was 159 kg. That means 41% of the total production capacities were underutilised each day and that only 70% of the production days were utilised per month.

Marketing

All the banana chips entrepreneurs are involved in selling their products to the domestic markets. Ninety-seven per cent of the products

Table 1. Global consumption of savoury snacks by major markets: Per capita analysis 1996–2000

Country	Yearly per capita consumption				
	1996	1997	1998	1999	2000
Japan	70.6 (5.7)*	62.4 (5.6)	56.8 (5.5)	65.1 (5.5)	68.2 (5.5)
UK	65.9 (5.4)	71.8 (5.6)	75.2 (5.8)	74.2 (6.0)	70.0 (6.0)
US	54.9 (8.6)	57.5 (8.9)	59.9 (9.2)	62.6 (9.3)	67.0 (9.7)
Australia	44.5 (3.8)	43.7 (3.9)	39.4 (4.0)	44.0 (4.2)	41.0 (4.4)
Greece	42.5 (n. a.)	41.8 (n. a.)	43.0 (n. a.)	45.4 (n. a.)	41.6 (n. a.)
Netherlands	36.1 (5.3)	31.4 (5.4)	33.0 (5.6)	33.2 (5.7)	28.4 (5.8)
Canada	26.9 (2.8)	27.1 (2.9)	25.8 (2.9)	26.4 (3.0)	27.2 (3.0)
Taiwan	26.9 (n. a.)	24.1 (n. a.)	22.0 (n. a.)	22.7 (n. a.)	23.3 (n. a.)
South Korea	19.4 (2.0)	17.5 (2.0)	11.8 (1.9)	14.6 (2.0)	15.6 (2.0)
Mexico	16.1 (3.6)	24.1 (3.8)	20.1 (3.9)	22.7 (4.1)	24.2 (4.3)
Spain	14.2 (1.8)	12.6 (1.8)	13.3 (2.0)	14.6 (2.3)	13.1 (2.5)
Germany	13.8 (2.1)	12.0 (2.1)	11.7 (2.1)	11.3 (2.1)	9.2 (2.1)
South Africa	13.7 (1.8)	11.8 (1.8)	11.6 (1.8)	10.8 (1.8)	9.6 (1.8)
France	13.5 (1.9)	12.6 (1.8)	12.0 (1.8)	11.8 (1.9)	10.0 (1.9)
Colombia	10.9 (2.1)	12.6 (1.8)	13.1 (2.4)	13.1 (2.4)	12.7 (2.5)
Italy	8.6 (1.0)	7.8 (1.0)	7.8 (1.0)	9.1 (1.2)	8.6 (1.4)
Brazil	6.3 (0.6)	8.4 (1.0)	8.9 (0.8)	6.9 (0.8)	6.4 (0.7)
Philippines	5.7 (n. a.)	5.5 (n. a.)	4.3 (n. a.)	4.9 (n. a.)	4.8 (n. a.)
Indonesia	4.2 (2.5)	3.8 (2.3)	1.4 (2.2)	1.8 (2.3)	1.8 (2.3)
Russia	1.6 (n. a.)	3.1 (n. a.)	3.3 (n. a.)	2.8 (n. a.)	3.5 (n. a.)
China	0.6 (0.1)	0.6 (0.1)	0.6 (0.1)	0.6 (0.1)	0.6 (0.1)
World average	7.9 (1.1)	7.9 (1.1)	7.7 (1.1)	8.0 (1.1)	8.1 (1.2)

*70.6 (5.7), where 70.6 = US$70.60, and (5.7) = 5.7 kg/capita
Source: Anon. (2003)

produced are for the domestic market while only 3% are for the export markets. Generally, both the domestic and export markets are considered as good. Seventeen per cent of the respondents considered their domestic markets as very good, 59% as good, 20% as unsure, 2% as not satisfactory and 2% as not good. Only eight entrepreneurs are involved in exporting their products. They are mainly exported to Singapore. Twenty-seven percent of them cited their export market as very good. The details of the market situation are shown in *Table 2*.

Table 2. Market situations of the banana chips industry

Ranking	Marketing (% response)	
	Domestic	Export
Very good	17	27
Good	59	37
Unsure	20	9
Not satisfactory	2	–
Not good	2	27

Market performance

Results of the study indicated that the banana chip industry is a growing industry. The consumption of banana chips is expected to increase because there is a growing consumer concern towards ethnic food and healthy food. The lower fat and non-fat chips are becoming popular. Presently, consumers are looking for products with low fat and non-fat, rich in vitamins or made from organic ingredients with less or without preservatives (Anon. 2003). Based on the survey of producers on their last 5 years experience, 70% of them indicated that their sales showed an increasing trend at an average rate of 33%, ranging from 3–100%. Based on their business experiences, 77% of them forecasted that their sales would grow by 36% for the next 5 years. Further details on the market performance are shown in *Table 3.*

Prices

Results of the study revealed that 50% of the products were sold to wholesalers (who mostly collect the products from the factories) and the other 50% were for retailing. The average wholesale and retail prices of banana chips were RM6.80/kg and RM7.70/kg respectively. These bananas chips also included varieties made from 'Tanduk' and 'Nipah'. The wholesale prices for banana chips made from 'Tanduk' and 'Nipah' varieties were RM9.00/kg and RM5.00/kg respectively. At wholesale price, the salty cassava chips was the cheapest, followed by hot/chilly cassava chips, banana chips and others as shown in *Table 4*. The smallest marketing margin between wholesale and retail prices was for the hot/chilly cassava chips (dry), that is only 3%, while the others are as shown in *Table 4*.

Financial analysis

Financial analysis was conducted to analyse the viability of the banana chips production projects. The project analysis was based on the average industrial data, whereby 9 respondents (7%), were excluded in the analysis because they used deep fryers, which are very expensive (average RM23,000) as compared to frying pans (average RM700). The results of the analysis on the 'Tanduk' banana chips showed that the Net Present Value was RM5,002, benefit cost ratio at 1.08, Internal Rate of Return (IRR) >50%, and the payback period was 1 year. The 'Nipah' variety had a Net Present Value of RM9,925, IRR>50%, benefit cost ratio 1.37 and the payback period was 1 year. The 'Nipah' chips gave higher returns because of the cheaper raw materials which was easily available at a cost of only RM0.40/kg. While the lower returns from the 'Tanduk' banana chips were due to costly raw materials which was sold at RM1.70/kg and the low yield from the crop. The overall results showed that the banana chips industry is a viable project.

Production problems

The survey results showed that the industry, generally, does not face very serious production problems. However, among the problems they encountered were the machines used such as deep fryers, vacuums, and mixers

Table 3. Market performance (values) of the banana chips industry

	Growth performance (%)		
	Increase	Decrease	Static
Industrial growth performance for the last five years	70	12	18
Expected industrial future performance based on the last five years of experience	77	4	19

Table 4. The average selling price of traditional chips in Malaysia

Types of chips	Prices of traditional chips (RM/kg)		
	Wholesale	Retail	Marketing margin*
Banana chips	6.80	7.70	13
Salty cassava chips	5.70	6.50	14
Hot/chilly cassava chips (wet)	6.40	7.10	11
Hot/chilly cassava chips (dry)	7.20	7.40	3
Sweet potato chips	7.00	7.70	10
Custard apple chips	7.80	9.15	17
Yam chips	7.40	8.30	12

*% differences between wholesale and retail prices

which are relatively expensive, lack of raw materials (bananas), and unavailability of peeling machines. Generally, farmers refuse to sell unripe bananas because the price is too low. For example, the price of unripe 'Pisang Tanduk' is RM1.70/kg and 'Pisang Nipah' is RM0.40/kg. Details on the production problems faced by the entreprenuers are shown in *Table 5*.

Marketing problems

The producers did not encounter many marketing problems. They sell almost everything that they produce. They have their own markets. To them, the banana chip is not competing with the potato or tapioca chips. Their products are not easily spoilt and the product acceptance is good. This can be seen clearly in *Table 6.*

Marketing strategies

A TOWS MATRIX analysis *(Table 7)* is used to analyse the strength, weakness, opportunity and threat of the industry, in order to suggest the strategic direction for the development of the banana chips industry in Malaysia. From the TOWS MATRIX analysis, it was found that the marketing process of the Malaysian banana chips producers were very weak. They depend so much on the wholesalers to market their products. These wholesalers were not aggressively marketing their products. These wholesalers distributed their products to the retailers who are normally selling grocery products and tit bits in stalls located near bus stands, cinemas, and in petrol station shops. There is, therefore a need to strengthen the present marketing linkages in order to sustain the present markets and also to further increase the market share. The marketing strategies need to be further strengthened by establishing brands so that the banana chips can enter into the supermarkets.

So far, there is no advertisement to promote the consumption of banana chips in Malaysia. There is no public awareness towards the benefit of consuming banana chips as compared to other chips, which mostly contain mono sodium-glutamate. Besides containing sugar, carbohydrate, protein and

Table 5. Production problems faced by the entreprenuers

Problems	Problems (% response)			
	Main	Intermediate	Small	No
Banana chips machines are too expensive	14	33	20	33
Expensive wage rate	2	4	21	74
High rate of labour turnover	1	5	16	78
Inaccurate banana's harvesting index	2	8	21	69
Unavailability of peeling machine	13	42	11	34
Lack of machine utilization	8	25	26	41
Lack of raw materials (banana)	12	26	25	37
Lack of labour	2	5	21	72
Unsuitable machines	9	22	23	46
Raw materials are too expensive	6	22	27	45

Table 6. Marketing problems in the banana chips industry

Problems	Problems (% response)	
	Yes	No
Competing with potato chips	17	83
Competing with tapioca chips	27	73
Easily spoilt product	24	76
Not a good sale	19	81
Product acceptance not so good	6	94

Table 7. TOWS MATRIX analysis of banana chips industry

	Strengths-S	**Weaknesses-W**
	1. A financially viable project 2. Good demand domestically and for export 3. Good government support 4. Effective production and packaging techology 5. Good quality products 6. Long shelf-life 7. Good road and air transportation systems 8. Well accepted by domestic and Singapore markets.	1. Not attractive packaging 2. Lack of flavour variations 3. No promotion to increase consumption 4. Weak marketing agents 5. Weak marketing linkages 6. Lack of the 'Tanduk' variety bananas 7. Absence of peeling machine and cheap slicer machines 8. Absence of brands
Opportunities-O 1. Growing future demand, especially in the domestic and Singapore markets 2. Available technology generators to further modify the chips flavours 3. Producers have established good rapport with the wholesalers 4. As import substitution	**SO Strategies** 1. To be more competitive, there is a need to further improve the production technology and capability	**WO Strategies** 1. Provide many flavour variations of banana chips 2. Invent banana peeling machines and cheap slicer machines 3. Strengthen marketing linkages 4. Encourage more production of the Tanduk' variety 5. Improve packaging including expiry dates
Threat-T 1. Aggressive modification of other snack foods, e.g. Dorito 2. Established companies (snack food) have strong marketing linkages, example Sparta Foods, Inc. in the US with Rupari Food Services, Inc. 3. Less fat or no fat modification of other savoury snacks	**ST Strategies** 1. Produce less fat and salt banana chip	**WT Strategies** 1. Intensify promotional activities 2. Strengthen marketing strategies 3. Establish brands

fat, banana also contains vitamins such as vitamin A, B1, Niacin, B2, B6 and also vitamin C (Anon. 2000). Perhaps, the government agencies should help in making the public aware towards the consumption of the banana chips through campaigning in the mass media.

Normally, banana chips are packed in transparent plastics without labels and are not as attractive as those chips and other tit bits produced by giant companies. As a strategy to increase sale, there is thus, a need to improve the packaging so that they will look more attractive and impressive to the potential buyers and giving the products an impression of higher quality. Packaging size and design should suit the target market, whether it is for adults or children. Usually, large size packaging is for the adult market which is sufficient for the family. The small eye-catching packaging should target children or individual consumption. Expiry dates should be specified on the packagings.

There are many R&D institutions throughout the country. As a strategy to promote the growth of this industry, the technology generators need to be more innovative in creating more flavours for banana chips. The flavours should be more spicy and sweet as generally, Malaysians tend to have sweet tooth and enjoy spicy foods.

A banana peeling machine need to be invented as currently most producers peel the banana skins manually. As most producers are operating on a small scale, cheap banana slicer machines need to be invented. The inventions of these machines will increase the productivity of the banana chip industry. Utilisation of an efficient production technique, together with variations in flavours of banana chips will help boost the growth of the banana chip industry.

To further enhance the growth of the banana chip industry, the production strategy should be properly planned. There is a need to identify the production areas for growing bananas, either for fresh consumption or for factory utilisation. The market linkages between the farmers and the chips producers should be established.

Specifically, R&D is required to further increase the yield and productivity of the 'Tanduk' variety since the markets for 'Tanduk' chips are very good. Presently, the 'Tanduk' variety in Malaysia is of lower yield as compared to the other banana varieties in Malaysia. Efforts in increasing productivity of the 'Tanduk' variety will simultaneously create more jobs opportunity for the rural population, increase their incomes, and also for survival of the industry in the future.

There is also a need to develop a cost-saving technology for the production of 'Tanduk' banana chips for making the 'Tanduk' industry more lucrative.

Conclusion

The demand for savoury snacks, including the banana chips in Malaysia is increasing. The value of the retail sale of savoury snacks in Malaysia has increased by 18.4% from 1998 to 2002, which recorded an average growth rate of 4.6%. The chips/crisps, excluding the Tortilla and the corn chips recorded a 22.8% growth from 1998 to 2002, with an annual growth rate of 5.7% (Anon. 2003). Results of this study indicated that the annual average growth rate for banana chips was 6.6%. This indicated that the growth rate of the banana chips is higher than the average growth rate of the general savoury snack.

The results of the survey on the producers (based on their experiences), indicated that the banana chip industry will continue to grow in the future. The production and marketing problems highlighted need to be tackled in order for the industry to grow in future. To be more competitive, there is a need to further improve the production efficiency. There is a need to improve packaging and promote branding so that banana chips could be sold as a high quality product.

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Abstrak

Bancian primer dijalankan pada tahun 2003 terhadap usahawan kerepek pisang. Hasil kajian menunjukkan bahawa 59% daripada responden yang dibanci menyatakan bahawa permintaan tempatan adalah baik dan 17% menyatakan amat baik. Tiga puluh enam peratus responden yang terlibat dengan mengeksport kerepek pisang menyatakan permintaan bagi pasaran eksport adalah baik dan 27% daripada mereka menyatakan amat baik. Empat puluh dua peratus menyatakan mereka menghadapi masalah membuang kulit dan 13% menyatakan masalah membuang kulit sebagai masalah besar. Tujuh puluh peratus menyatakan bahawa pasaran mereka sedang berkembang dan 77% menjangka pasaran mereka akan meningkat. Oleh itu, sebagai strategi untuk membangunkan lagi industri kerepek pisang, promosi meningkatkan pemakanan kerepek pisang patut dilakukan kerana kerepek pisang tergolong dalam makanan kesihatan. Apabila industri berkembang, mesin pengupas kulit pisang perlu diadakan untuk mengatasi masalah kekurangan buruh.