

Awareness and implementation of food quality standards under MARDI's entrepreneurship programmes

(Kesedaran dan penggunaan standard kualiti makanan dalam program usahawan MARDI)

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Abstract

Consumers are increasingly concerned about food quality and safety. This is evidenced by consumer preferences towards products bearing standard logos related to food safety and quality, such as Halal, Good Manufacturing Practice (GMP), ISO 9001:2000 and Hazard Analysis Critical Control Point (HACCP). This study examined the awareness of the food-processing entrepreneurs towards food quality standards and its effects on business performance. This study involved 100 entrepreneurs who received consultative guidance from MARDI. The study revealed that more than 90% of respondents recognized the importance of food quality standards and its impact towards company's performance. However, only 70% of the respondent used this quality standard. The quality standards mostly used by the entrepreneurs were GMP (60%), followed by Halal (43%) and HACCP (14%). Consultative services and training on the implementation of quality standards such as GMP, Halal and HACCP were the main programmes provided by government agencies, including MARDI. The main factor that influenced entrepreneurs to implement the quality system was their self-motivation to ensure that their products would be accepted by consumers, followed by the advisory of the extension workers. This study also revealed that the main factor that prevented the entrepreneurs from implementing the quality system was the higher cost of getting the certificate and the development cost of the factory to meet the standards.

Introduction

The term quality is very universal in nature. In simple terms, quality can be defined as a good thing or something that meets someone's requirements (Juran 1999). A modern definition of quality is derived from Juran's fitness for intended use which says that quality is meeting or exceeding customer's expectations. Generally, quality

means meeting characteristics that are important to customers. Quality is usually perceived as the ability to fulfil specified expectations and needs by end users. It is an ongoing process of building and sustaining relationships by assessing, anticipating, and fulfilling stated and implied needs. The most progressive view of quality is that it is defined entirely by the customers or

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end users, and is based upon that person's evaluation or experience.

Quality assurance, on the other hand, is planned and systematic activities implemented in a quality system. The result is that quality requirements for a product or service will be fulfilled. It is a systematic measurement, comparison with a standard, monitoring of processes and associated with feedback loop that confers error prevention. Quality assurance is a promise by a product or service provider to its customers. Quality assurance includes the management of the quality of raw materials, assemblies, products and components, services related to production and management, and production and implementation process.

There are many quality assurance standards used by manufacturing, engineering, production and marketing companies such as ISO 9001, Good Manufacturing Practices (GMP), Hazard Analysis Critical Control Point (HACCP) and Halal certification. These quality standards are the international standards that identifies whether a product or service offered meets the specified requirements. Quality assurance system increases customer confidence and company's credibility, improves work processes and efficiency, and enables a company to better compete with others. For example, the ISO 9001 is an international standard that ensures the quality system is in place and carried out effectively in an organisation. Conformance to ISO 9001 guarantees that the company delivers quality products and services.

Quality assurance standard is very important to food-processing industries. It will determine whether the products are of high quality, and also safe for consumption. Food quality means the food is suitable and safe for consumption. This includes external factors such as its appearance, colour, texture and internal factors such as its taste, flavour and aroma. Food quality also deals with product traceability, such as its ingredients and source of raw materials. It also deals with the label so as to ensure

the correct ingredients and nutritional information is printed or published.

The terms "quality assurance" and "quality control" are often used interchangeably to refer to ways of ensuring the quality of a service or product. The terms, however, have different meanings as follows:

- **Assurance:** The act of giving confidence, the state of being certain or the act of making certain.
- **Quality Assurance:** The planned and systematic activities implemented in a quality system so that quality requirements for a product or service will be fulfilled.
- **Control:** An evaluation to indicate needed corrective responses; the act of guiding a process in which variability is attributable to a constant system of chance causes.
- **Quality Control:** The observation techniques and activities used to fulfil requirements for quality.

Taken together, this study aims to identify the awareness of the SMEs of food products towards quality system standard and its impact towards their company's performance. This study focuses on the entrepreneurs who had received consultative guidance and involved in the entrepreneurship programme organised by MARDI.

Food quality

Food quality is very important in food industries as it will determine whether it is acceptable by consumers and safe for consumption. Food quality results from quality of raw materials, quality processes of production, quality places during the production and quality people who are involved in the entire process of production and marketing of those products. As the definition of quality is meeting consumers needs and requirements, food quality also includes specific standards, such as nutritional requirements (kosher, halal

or vegetarian) or medical consideration (diabetes or allergies).

The Malaysian Food Act and Regulations identifies certain criteria and measure for food quality. The first category of food quality is critical attributes that affect safety, wholesomeness or legality. The second category is the additional quality characteristics of food products, called major and minor attributes. The major attribute is necessary for food but not essential from a safety and legal standpoint. It could be fat content of hamburger meat or the portion weight of green peas in a frozen prepared dinner. The minor attribute, on the other hand, is important but not essential or not easily determined. For example, the desired flavour properties of foods are highly subjective (depending upon the person who consumes it), not easily measured and should be a minor attribute. However, flavour defects that can reduce sales should be classified in the major category. Therefore, a control programme is the tool for the food processor to use to assure that quality targets are met.

The food quality, from the perspective of SMEs, refers to two categories: product as food, and product as commodity for trade. Product as food must meet two requirements: i) Product requirement (food safety, conformity to commodity standards, nutritional requirement and sensory requirements) and ii) Psychological requirements (production requirements and ethical issues). The analytical model defines food quality as a set of consumer requirements as presented in *Figure 1*.

This concept is schematically illustrated in *Figure 2*, in which the universe of quality is represented as a circuit going from consumers to producers and vice versa.

This model makes a fundamental distinction between characteristics and performances. Taken together, *Figures 1* and *2* imply that quality is not only a 'set' but also a 'flow' or a continuous process from raw materials until end products.

Food products and production processes have a number of specific characteristics that influence product quality and quality assurance (Ziggers and Trienekens 1999) as follows:

- Quality variation between different producers and between different lots of produce, due to weather conditions, biological variation and seasonality but also as a possible result of variations in production.
- Perishability of produce and fresh products. For many materials shelf-life constraints apply.
- Production yields are often uncertain due to, for example, weather conditions and quality variation within and between lots.
- There are special demands for storage and transportation, such as cooling facilities and hygienic measurements.

Food safety

Safety and wholesomeness are the most important attributes of food quality. Lack of quality as it relates to safety and wholesomeness can result in personal injury, sickness or death. Food-borne illness is an example of sickness or even death when unsafe foods are produced and consumed. Food safety refers to all those hazards, whether chronic or acute, that may make food injurious to the health of the consumer. Food safety is a scientific discipline describing the handling, preparation, and storage of food in ways that prevent illness. This includes a number of routines that should be followed to avoid potentially severe health hazards. Food can transmit disease from person to person as well as serve as a growth medium for bacteria that can cause food poisoning. According to Codex Alimentary, FAO/WHO 2001, food safety is the assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use. Codex-based standard is very important for food-processing industry

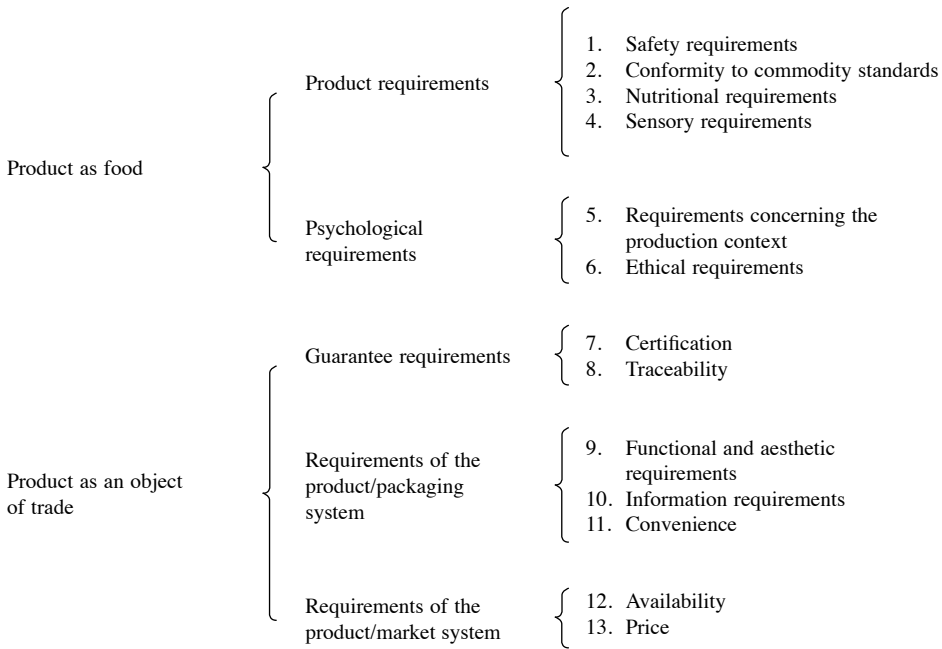


Figure 1. The categorization of food (Peri 2005)

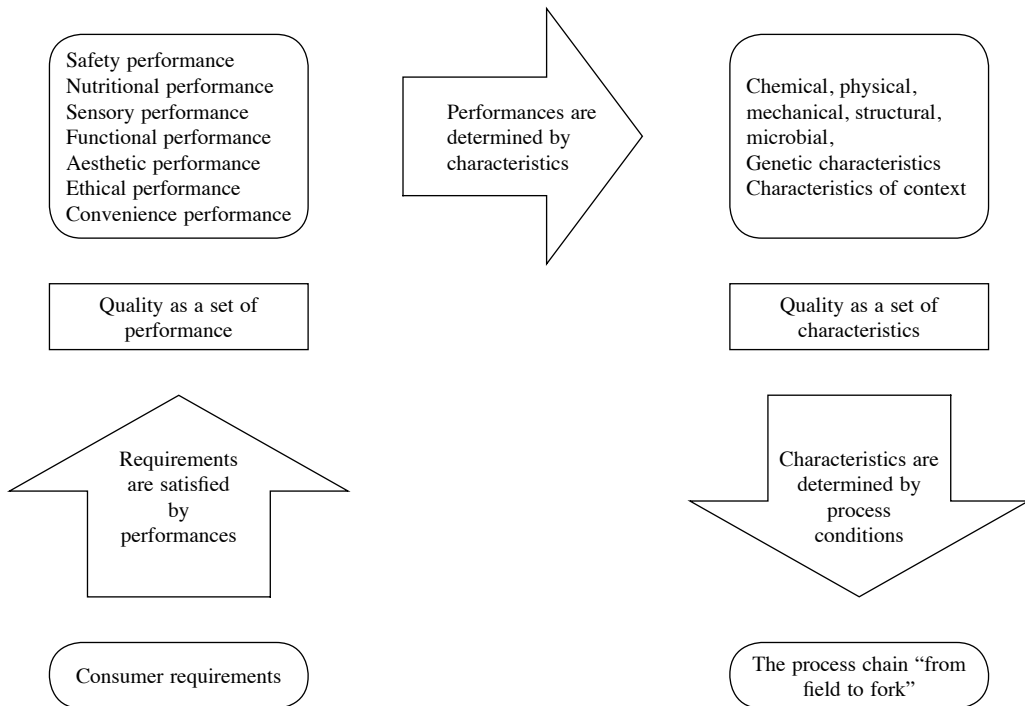


Figure 2. A dynamic model of food quality (Peri 2005)

as it will ensure that the food is safe for human consumption and give confidence to consumers.

Methodology

This study used the quantitative research paradigm, specifically the survey research methodology involving 100 entrepreneurs who received consultative services or guidance from MARDI. Respondents were selected from six zones: Northern, Southern, Eastern, and Central Peninsular Malaysia, Sabah and Sarawak. Face to face interview was conducted at the entrepreneur’s premise using a structured questionnaire. Respondents answered the questionnaire freely with some guidance by the enumerator, especially when they do not really understand the question.

Respondents were asked to answer questions related to their understanding about the quality standards, the implementation of quality standards at their premises, the issues and challenges in the implementation of these standards and the impact of quality standards towards their business performance. Data were also collected from books, thesis, journals, internet and government reports.

Results and discussion

This study revealed that more than 90% of the respondents were aware about the existence of quality standards and recognised the importance of food quality standards. Most of them have been exposed to the standards and understand the requirements for the implementation in their premises. However, only 70% of the entrepreneurs implemented this quality system in their premises. Good Manufacturing Practice (GMP) was the standard that was mostly used by SMEs (59.5%), followed by Halal Certification (43.2%) and HACCP (13.5%). The Total Quality Management (TQM) system on the other hand, was the standard that the SMEs least used. *Figure 3* shows the implementation of quality standards by SMEs. GMP was the most

popular and used by most SMEs as it is a basis for safety assurance programmes in food manufacturing, packing and holding facilities. It is the most common safety assurance standard used by SMEs and mostly required by food industries. GMP is usually referred to as practices and procedures performed by a food processor that can affect the safety of food products. GMP may refer to the people, equipment, process and the environment in the production process.

Source of information

In general, the entrepreneurs are relatively new in the food industries. The average age of an entrepreneur is 42 years old and most of them have been in the business for less than 15 years. They started their business from a small enterprise and grew year by year. As the standard for quality management is important for the food-processing industry, they seek information on the quality system standards and attended courses or training organised by government agencies or private firms. They obtained information on these standards from many sources. The most reliable source of information on quality standards is government agencies. This study showed that all entrepreneurs attended at least one quality standard course, while some of them attended three or four different courses. The entrepreneurs obtained the information and learned about the quality standards from extension workers of government agencies (87%), formal training or attend courses

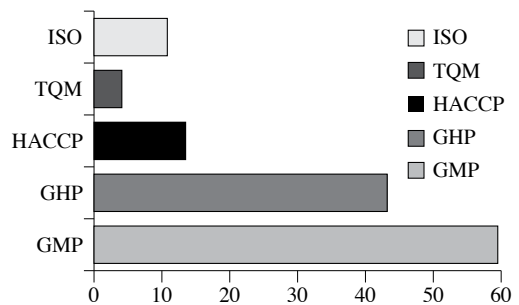


Figure 3. Quality system practiced by SMEs

(68%), internet (37%) and friends (35%) (Figure 4). The entrepreneurs understand the concept and recognize the importance of quality standards from the training sessions and during the meetings with the government extension workers.

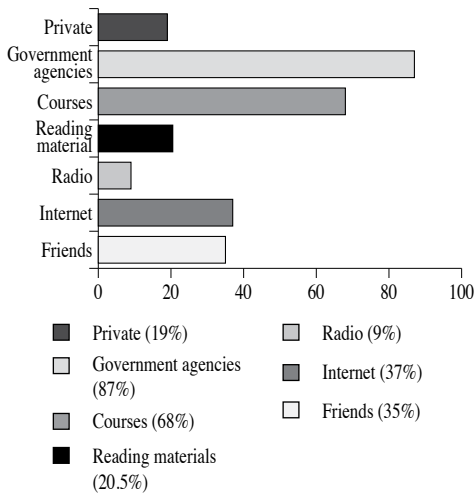


Figure 4. Sources of information on quality standards

Factors that influence the implementation of quality standards

Implementation of the quality system is very complicated, requires a lot of resources and is time consuming. It demands people who are very passionate about the quality system. It begins with understanding the procedures, followed by the establishment of standards and procedures, building of infrastructure that is required by the quality standards. The motivation to implement the quality system in their premises was mostly influenced by their goal of selling their products in the markets and the product satisfied the consumers. Table 1 shows the factors that influenced the entrepreneurs of the processed food industry to implement the quality system. The table showed that market force played an important role in influencing entrepreneurs to implement GMP, HACCP and ISO 9000. These international standards are the requirements for food products to be accepted by consumers. On the other hand, family members and friends also play a

Table 1. Factors that influenced entrepreneurs of the SMEs in processed food industry to implement the quality system

	Pearson Correlation			
	QMS	GMP	HACCP	ISO
Self motivation	0.231*	0.113	0.083	0.145
Sig. (1-tailed)	0.015	0.177	0.250	0.118
N	89	69	69	69
Influenced by friends	0.001	0.156	0.072	0.318**
Sig. (1-tailed)	0.497	0.137	0.307	0.011
N	69	51	51	51
Influenced by market force	0.056	0.293*	0.220*	0.220*
Sig. (1-tailed)	0.318	0.014	0.050	0.050
N	75	57	57	57
Influenced by family members	0.065	0.161	0.123	0.333**
Sig. (1-tailed)	0.30	0.132	0.197	0.009
N	68	50	50	50
Influenced by extension workers	0.004	0.122	0.050	0.242*
Sig. (1-tailed)	0.484	0.168	0.348	0.027
N	86	64	64	64

*Correlation is significant at the 0.05 level (1-tailed)

**Correlation is significant at the 0.01 level (1-tailed)

crucial role in influencing the entrepreneurs to implement the quality standard system. For example, friends influence an entrepreneur to implement the ISO 9001. This study, however, showed that even though government extension workers provided the entrepreneurs with the information, they were not able to convince them to implement it. In other words, the decision to implement or not to implement the quality system standard is influenced by monetary factors.

Issues and challenges in the implementation of quality standards

The implementation of quality system standard involves many procedures and entails various steps. Some of the activities carried out in the implementation of quality standards are:

1. Decision to implement quality assurance
2. Choice of certification Body
3. Education of staff on QMS
4. Implementation team
5. Defining scope and statements
6. Documentation
7. Audit process
8. Monitoring and growth

The implementation of a quality system is a comprehensive process. It demands full support of the top management and involvement and commitment of all people in the organisation. As the process takes a long time to complete, the people involved must be passionate about the implementation of the quality standards.

Each step presented various issues and challenges to be resolved by the management of the SMEs.

This study found that the issues and challenges faced by the entrepreneurs in the implementation of quality standards were higher cost of setting up the higher standard factories, lack of trained workers and the premises were not suitable for quality standard certification (*Figure 5*).

In general, the cost of setting up a factory that complies with the quality standards is very high depending on the

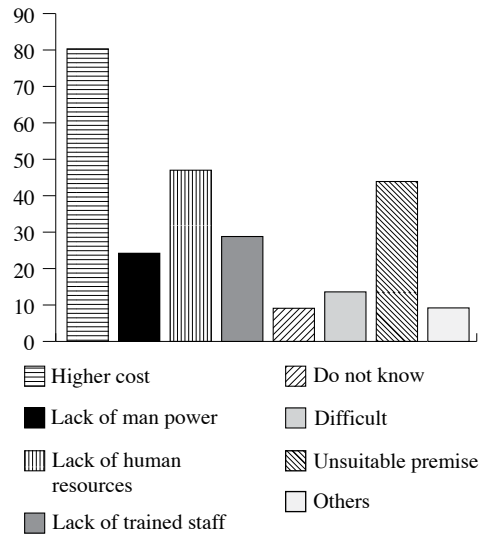


Figure 5. Challenges faced by SMEs

size of the factory, the machinery and the location. For example, the cost of setting up a GMP factory is about RM500,000 and HACCP is between RM650,000 and RM750,000. Furthermore, the cost of getting a certificate is also quite expensive for a small enterprise. For example, the fee to attend a HACCP course is between RM1,500 and RM3,000 and this is considered a burden to the entrepreneur. Finally, the implementation of quality standards requires the entrepreneur to engage with a consultant and this involves another cost. These are the challenges that an entrepreneur has to face before he or she can embark on a quality standard system.

Conclusion

In general, SMEs are aware and concerned about the importance of quality system standards. It helps them to improve the management of the business, enhance the quality of the product, and produce nutritious products that are required by consumers. However, high cost to obtain the certificate, lack of human resources and unsuitable premises hinder the implementation of quality standards in their premises. Government incentives in terms of financial support and guidance are crucial to ensure that the SMEs

in the food processing industry implement the quality system standards effectively.

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Abstrak

Pengguna semakin bimbang tentang kualiti dan keselamatan makanan. Ini dibuktikan oleh pilihan pengguna terhadap produk yang mengandungi logo standard yang berkaitan dengan keselamatan dan kualiti makanan seperti Halal, Amalan Pengilangan Baik (GMP), ISO 9001:2000 dan Analisis Bahaya Titik Kawalan Kritikal (HACCP) pada bungkusannya. Kajian ini bertujuan mengkaji kesedaran usahawan pemprosesan makanan terhadap standard kualiti makanan dan kesannya kepada prestasi perniagaan. Kajian ini melibatkan 100 orang usahawan yang menerima bimbingan perundingan daripada MARDI. Kajian ini mendedahkan bahawa lebih 90% daripada responden mengiktiraf kepentingan standard kualiti makanan dan kesannya terhadap prestasi syarikat. Walau bagaimanapun, hanya 70% responden yang mengimplimentasi standard kualiti di premis mereka. Standard kualiti yang paling kerap digunakan oleh usahawan ialah GMP (60%), diikuti oleh Halal (43%) dan HACCP (14%). Perkhidmatan perundingan dan latihan mengenai pelaksanaan standard kualiti seperti GMP, Halal dan HACCP ialah program utama yang disediakan oleh agensi kerajaan, termasuk MARDI. Faktor utama yang mempengaruhi usahawan untuk melaksanakan sistem kualiti ialah motivasi diri untuk memastikan bahawa produk yang dikeluarkan diterima oleh pengguna dan diikuti oleh nasihat daripada pekerja pengembangan. Kajian ini juga menunjukkan bahawa faktor utama yang menghalang usahawan daripada melaksanakan sistem kualiti ialah kos yang lebih tinggi mendapat sijil dan kos pembangunan kilang untuk memenuhi standard.