

## **Understanding the mushroom industry and its marketing strategies for fresh produce in Malaysia**

(Memahami industri cendawan dan strategi pemasaran untuk produk segar di Malaysia)

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Keywords: mushroom industry, marketing strategy, fresh produce

### **Abstract**

Mushroom is a new and small industry in Malaysia. This industry, however, is growing as one of the sources of food and a new source of wealth for farmers. This study was carried out to understand the potential of this industry, particularly the issues and challenges that could slow down its development from the perspective of growers. A qualitative research paradigm was applied involving 15 people who were involved in this industry. Specifically, a focus group discussion was used to gather information about their perception, expectation and experience in cultivating and marketing fresh mushroom in Malaysia. This study revealed that the three main issues of concern within this industry were related to production, marketing and government policies and initiatives. The production issues were related to managing the hot weather, supply of low quality seeds and the increase in production cost. In general, the demand for oyster mushroom is more than the quantity supplied by growers. Thus, there was no competition in marketing the oyster mushroom, especially in the Klang Valley area. The higher demand resulted in a higher price. The price of oyster mushroom is determined by marketers. However, the marketers still need to strategize the marketing effort by fulfilling the consumer needs and wants. This study also revealed that R&D on the production system to overcome the environmental issue, introduction of new seeds, training and subsidy on the production house are some initiatives required from the government. The mushroom industry has the potential to be developed due to higher demand from local and global consumers.

### **Introduction**

Marketing agricultural product is considered to be a very challenging and complex effort. It involves moving of products from farm-gate to retail consumers. It is a dynamic process and involves a number of ownership changes and economic activities such as harvesting, processing, storage, transporting and retailing. Furthermore, the marketing of agriculture food products requires some

public rules such as grading and standards, food-safety policies, market information and future markets.

The marketing of agriculture food products is very different from marketing of agriculture commodities in general. Some uniqueness of agriculture food products is their short shelf life, non uniform size, colour, physical shape and taste. The other important distinguishing characteristic of

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agriculture food products is the remoteness of the farms from the final consumers. Thus, these characteristics require special handling treatments and marketing strategies.

Cultivated mushrooms are one of the highest-valued crops in Malaysia. The Malaysian government has categorized mushroom as one of the seven high-value crops that will be commercially grown. The commodity will be grown intensively with government supports. The land area for mushroom cultivation will be increased from 78 ha in 2010 to 340 ha in 2020. The demand for mushrooms in local as well as the world market is high and increasing. This is reflected by the increase in importation of fresh mushrooms from 80.9 million tonnes in 2007 to more than 90.8 million tonnes in 2008 (FAO 2009). At the same time, the world demand for fresh mushrooms is projected to grow 15% a year due to the increase in population and consumption. In the local markets, the daily demand for fresh mushrooms is around 50,000 kg while the supply is only 24,000 kg (MOA 2010). The consumption per capita is projected to grow from 1.0 kg in 2008 to 2.4 kg in 2020. As a result, the total demand for mushrooms is projected to increase from 23,000 tonnes/year (2008) to 72,000 tonnes/year (2020).

However, information about the industry that includes the supply and demand of product, consumer perception and preferences towards fresh mushrooms is still lacking. Not much data are available for industry players and policy makers to make strategic decisions on production and marketing of fresh mushrooms in Malaysia. Hence, this study was conducted to examine the producers' perspectives towards the prospects of this industry, to understand the issues and challenges faced by industry players and identify marketing strategies for mushrooms in Malaysia.

### **Mushroom industry**

Mushroom is considered to be a new and small industry in Malaysia. This industry,

however, is growing as one of the sources of food and new source of wealth for farmers. Mushroom is a fleshy, spore-bearing fruiting body of a fungus, typically produced aboveground on soil or on its food source. Mushroom contains many essential amino acids, some unsaturated fatty acids; provides several vitamins such as B, D, niacin and riboflavin, and is ranked the highest among vegetables for protein content. This commodity is suitable for fresh consumption, pharmaceutical and cosmetic products.

In 2008, the number of farmers and companies involved in the cultivation of mushrooms was more than 850. However, the numbers have reduced dramatically to less than half. At present, there are around 320 farmers involved in the cultivation of mushrooms in Peninsular Malaysia (*Table 1*). Most of them are small farmers who produce 50 – 500 kg of fresh mushrooms a day.

More than 300 farmers and companies cultivated mushrooms in Peninsular Malaysia, with a total production of approximately 24,000 kg per day in 2012. Of the total farmers and companies, only six

Table 1. Mushroom growers by state (2012)

State	No. of growers	Production (kg/day)
Selangor	48	7830
Johor	67	7800
Kelantan	22	4565
Negeri Sembilan	30	1036
Pahang	50	550
Kedah	~9	455
Pulau Pinang	13	390
Melaka	16	360
Perak	30	345
Terengganu	29	265
Perlis	4	210
Total	318	23,806

Source: Department of Agriculture Malaysia (2012)

companies produce on a large scale of over 500 kg per day while around 60 companies produce in moderate scale (50 – 500 kg per day), and the remaining farmers are considered small-scale growers. Small-scale growers make up about 80% of the total population of mushroom growers, medium scale at 17% and big scale at around 3%.

### **Marketing strategies**

Marketing strategy is how a company reaches its marketing objectives, which is where the company intends to be in the future (Mercer 1999). The marketing strategy outlines the way in which the marketing mix is used to attract and satisfy the target market and achieve the company's goals (Eveans and Berman 1997). There are many factors that affect the marketing strategy, such as the volatility of the economy, versatile and changes of technology, the socioeconomic and lifestyle changes and political situation within a country. Thus, the company has to consider these factors when establishing their marketing strategies.

The marketing strategy involves many activities such as planning, budgeting, control of products, promotion, distribution and pricing (Lindgren and Shimp 1996). In these activities, the company has to analyse the market opportunities that includes the prospect customers in the market who need the product, how to satisfy their needs, the selection of target markets based on their special requirements and how to position the products for selected target markets.

The marketing strategy is a game plan, by which marketing objectives will be achieved through planning, budgeting and controlling the following factors:

- Product – production of products that suit the consumers want
- Price – the suitable and affordable prices
- Promotion (advertising) – getting the product known
- Placement – where the product is sold.

The process of marketing strategy is how a company uses these factors to reach

its consumers and achieve a competitive advantage. These factors are crucial and will lead to a successful business. The process can be divided into three steps (Lindgren and Shimp 1996). Firstly, the company has to analyse the market opportunities from consumers needs and wants. Secondly, the selection of a target market that the company has the competitive advantage. Thirdly, penetrate the market that can increase sales and market shares in the existing markets.

### **Methodology**

A qualitative research paradigm was used to collect the data. This qualitative research paradigm was used because of four reasons (Gubrium and Holstein 1997): naturalism (seeks to understand social reality in its own term), ethnomethodology (seeks to understand how social order is created through talk and interaction), emotionalism (concerns subjectivity and gaining access to inside experience) and postmodernism (emphasizes 'method talk'). Specifically, this study used focus group discussion. The focus group discussion aims to collect information and insights from a small number of people who are involved on the subject under study. The findings from the focus group cannot be generalised statistically, but it represents the general information or insight that can be used for further studies.

This focus group involved 15 participants, mostly from the industry, government sector and NGOs (Mushroom Association of Malaysia). The discussion was moderated by a senior research officer from MARDI. The main purpose of the focus group discussion was to explore the issues and challenges faced by the mushroom industries that include farmers/growers, NGOs, users, marketers and the government. The issues included the production, supply of seeds, rules and regulations, government initiatives and incentives, marketing and consumers behaviour towards fresh mushrooms. The

discussion was divided into three sections: the potential of the industry, the issues and challenges in production and the strategies for marketing the fresh mushrooms.

The moderator explained the purpose of the focus group discussion and highlighted the rules that the participants should follow during the session. The participation in the focus group discussion was on a voluntary basis, where participants can participate throughout or leave in the middle of the session. They were also informed that they had equal chances to speak and there were no right or wrong answers. They were encouraged to give ideas and share their opinions without any interference. The discussion was recorded and then transcribed verbatim. The contents of the discussion were analysed using the NVIVO Software, where frequent contents and key words were gathered to identify the trend. In other words, under the qualitative research paradigms, the findings of the study is shaped by the content analysis (Pamela and Susan 2008).

## **Results and discussion**

### ***Profile of respondents***

The focus group discussion involved 15 respondents, where 11 of them were Malays, 3 Chinese and 1 Indian. Majority of the respondents were growers, while 4 of them represented an association and government organisations. Most of the respondents have been involved in the mushroom industry for more than 15 years, and one of them had cultivated mushrooms for more than 30 years. Two of the respondents have been involved in the research and development of mushrooms.

### ***Cultivation of mushrooms***

The statistical data represented by the Department of Agriculture revealed that the number of active mushroom growers in Peninsular Malaysia had dropped from 488 in 2008 to only 318 entrepreneurs in 2012. About 25% of the growers were not active or cultivating mushrooms. However, it was

reported that some of them had the intention to be active in the cultivation of mushrooms due to the current higher demand and price in the markets.

There were more than 17 varieties of mushrooms can be cultivated in Malaysia. However, only 7 varieties were commercially cultivated, including white, pink and grey oyster, abalone, ganoderma, button, shiitake or black forest, monkey head and cauliflower. Among these varieties, grey oyster was the most popularly cultivated and marketed in local markets. Grey oyster was popular for household fresh consumption, while shiitake and button were for hotels and caterers. Oyster mushroom was popular because it is easy to grow and can be cultivated on low land, while shiitake and button mushrooms are only suitable for high land and in cold environments. In other words, not many areas can be cultivated with shiitake and button mushrooms. On the other hand, Lin Zhi is also a high-value mushroom. However, growers were not interested to cultivate this mushroom because of less demand from consumers. This mushroom is mainly for pharmaceutical products.

Grey oyster is becoming more popular in the world market as it contains higher nutritional value, and thus, will compete with the button and shiitake oyster in future. The focus group was asked the reasons on why they cultivated grey oyster. Majority of the respondents stated that they cultivated grey oyster because it was easy to market, there was a higher demand from consumers and the supply was never sufficient even for local areas such as the Klang Valley.

Cultivation of oyster mushroom was a great source of income for entrepreneurs. This is because not many growers were involved and thus, less competition. The other characteristic of this industry, according to the respondents, was the price of the products. The demand for fresh oyster mushroom was generally high in most local areas especially in the Klang Valley. However, the demand for fresh

oyster mushrooms was relatively lower at the bordering states like Kedah, Perlis and Kelantan because of competition from Thailand's mushroom. The higher demand led to a higher price. Generally, the price of oyster mushroom was determined by the marketers. For example, one of the respondents stated that:

"One day I sold a pack of 500 g grey oyster for RM8. The next day, I sold the same product for RM10. The other day I sold at RM15 and my customers never questioned me!" (Respondent No. 7)

This quote indicated that this industry is driven by the marketer and less competition. In other words, this industry offers great opportunities for entrepreneurs to get into the cultivation of oyster mushroom for local as well as export markets. This industry is a new source of wealth for farmers in Malaysia.

### ***Issues and challenges***

Generally, there are many issues and challenges faced by this industry due to its newness and therefore given less attention by the government. In general, mushroom is not a new commodity. People have consumed mushroom a long time ago, and they have collected wild mushroom from jungles and villages. At that time, mushroom had no monetary value and were consumed by people from the rural community. Only in the recent days, when the cultivated mushrooms were introduced to the markets, the issues and challenges started to come into sight.

The issues and challenges faced by entrepreneurs are listed in *Table 2*. In general, the issues and challenges can be divided into three categories, i) production, ii) marketing and iii) government initiatives.

The main issues and challenges of the mushrooms industry were related to production or cultivation and marketing of mushrooms.

### **Production strategies**

Production problem is the most important issue that must be addressed and resolved based on the findings of this focus group study. Research and development (R&D) is the driving force which can solve the production problem that inhibits the mushroom industry. Referring to the list of issues and challenges related to production, namely environmental stability, low quality of input and credulous, costs and technical standard procedure; the role of development in research and policies to further develop the mushroom industry cannot be denied.

Technically, the key aspect of running the mushroom cultivation requires a standard technical procedure. One of the important aspects that needs attention is the development of a standard mushroom house that meets the criteria and maximizes the production of mushrooms. This problem is clearly expressed by the growers with excerpts from the discussion that have been carried out; "Improper mushroom house coupled with the hot weather causes the mushroom to dry or die. We need a standard example of a mushroom house that can solve related problems." Thus, the development of standard technical procedures and related technologies are desperately needed. Solving this problem is closely linked with the development needs of ongoing research. The relationship between growers and researchers either from government or private agencies is essential for the development of this industry.

Mushroom seed problems also become grievances among the growers, particularly for the small and medium-scale ones. At present, there are leading suppliers of large-scale operators available which they can rely on. The main issue is, there is no special recognition and quality checks, particularly from the relevant government agencies for the production of these seeds. Although, in principle, the supplier will produce the best-quality seeds to keep their business in operation, specific recognition from government or private bodies would be able

Table 2. Issues and challenges faced by mushroom growers

Aspect	Issues and challenges	Relevant quotations
i. Production	Environmental suitability	<p><i>Malaysia is a tropical country and is very suitable for growing oyster mushrooms. So, we should focus on this variety. Cultivation of shiitake and button mushrooms requires cold environments, which is the main obstacle to this variety. On the other hand, cultivation of mushrooms in open hot weather can cause the media to dry and mushrooms to die. So we must understand the issue of the environment before embarking onto the cultivation of mushrooms (Respondent No. 3).</i></p> <p><i>Global warming affects the production and needs more research in the production system (Respondent No. 4).</i></p>
	Input quality (especially seeds)	<p><i>At present, the main issue is the seeds. We have to depend on private suppliers who sell it expensively, because the seeds sold by the Department of Agriculture were usually substantiated and of low quality (Respondent No. 4).</i></p> <p><i>Sometimes the seeds are very good and grow good mushrooms. Sometime they are very bad and never fertile at all and I lost! (Respondent No. 7).</i></p> <p><i>The University Malaya focused its research on the nutritional and pharmaceutical values. We thought that the issue of seeds should be the responsible of MARDI and the Department of Agriculture. They should come out with a new technique of breeding the seeds using tissue culture (Respondent No. 9).</i></p>
	Costs of production	<p><i>The cost of raw materials, especially saw dust is increasing every year. Sometimes, we have to buy saw dust from as far as Johor and have to pay a higher cost for transportation (Respondent No. 7).</i></p> <p><i>The competition to obtain saw dust is getting tougher. As a result, the price is increasing. Previously the price of saw dust was around RM300 for a 3 tonnes lorry, but now it has increased to around RM550 (Respondent No. 13).</i></p> <p><i>The price of input such as plastic bags, saw dust and the salary of workers is increasing every year (Respondent No. 12).</i></p> <p><i>Production and processing costs are very low in countries such as China and India compared to Malaysia. So we are not able to compete with countries that produce the processed mushrooms at low production cost (Respondent No. 1).</i></p>
ii. Marketing	Competition with products from Thailand	<p><i>Generally, there is no competition in the Klang Valley because of few suppliers. However, the competition is stronger in Kedah, Perlis and Kelantan, because of imported mushrooms from Thailand (Respondent No. 6).</i></p>

(cont.)

Table 2. (cont.)

Aspect	Issues and challenges	Relevant quotations
iii. Government policies and initiatives	Price competition from imported mushrooms	<i>The price of grey oyster mushroom in general is stable and competitive in the Klang Valley. However, we cannot compete with the price of mushroom from Thailand, which is cheaper than that of the local one because they sell low quality products (Respondent No 8).</i>
	Target area promotion	<i>Association strives to promote eating mushrooms to consumers. In essence, the Klang Valley had no problems. We have been working with the Department of Agriculture to create a campaign and plan to focus on areas that are still not marketed extensively (Respondent No. 8).</i>
	New grower	<i>The issue of no market for oyster mushroom is very isolated to new growers. They wanted to cultivate mushroom but are very shy to market the product. They do not want to explore the market (Respondent No. 4).</i>
	Cooperation between related agencies	<i>Agencies such as MARDI and Department of Agriculture should work together closely. In some cases, they seem to compete with each other, which is not good for the industry (Respondent No. 5).</i>
	Technical training	<i>Mushroom is a very technical industry and must be managed by a technical savvy person. Not all people can cultivate mushrooms. Government must control this industry by allowing people who have technical knowledge to operate it, or this industry will collapse. People who want to involve in this industry must get some technical training (Respondent 3).</i> <i>There are new growers involved in the cultivation of mushrooms without attending relevant courses and training. When there is a problem, they try to get advice from the Department of Agriculture. It is too late because they are already in financial difficulties (Respondent No. 14).</i>
	Government incentives	<i>The government should control the number of growers and continue to support the existing ones until they are very strong. At the same time, the government cannot simply offer any person who wants to be involved in the cultivation of mushrooms because they will mess up the industry (Respondent No. 5).</i> <i>I suggest that the government give incentives like road tax and toll exemption for companies that transport agriculture produce, and tax exemption of raw materials such as plastic bags. This will reduce the cost of production (Respondent No. 3).</i>
	Technology	<i>We are currently facing global warming. Thus, we need close house systems that use air conditioning controls for the internal environment. We hope MARDI and the Department of Agriculture will set up a team of researchers to develop this close house system (Respondent No. 8).</i>

to set standards of quality seed production of mushrooms. This recognition is a kind of security and reduces the risk to small operators. Furthermore, seeds produced by the government agency, is shoddy and not the preferred choice among producers.

Environmental stability is among the root of many other problems affecting the production of mushrooms. Environmental factors are independent dimensions that are very difficult to control, particularly for those who work on agricultural commodities. Technological developments and research from time to time, however, would be able to solve these problems. Controlling the temperature and humidity, and the amount of water are among the things that can solve the problem in production of mushrooms.

To solve the problems associated with transportation costs, the direct strategy that can be highlighted is the toll exemption for agricultural commodities throughout the country. The exemption directly saves transportation costs and indirectly provides an opportunity for operators to expand the domestic market for their produce. Government intervention is necessary for the development of the mushroom industry. Provision of incentives is one of the effective economic tools. Apart from the direct benefits to producers, incentives are capable of attracting people to be involved in this industry as long as other relevant policies are in line with the purpose of the incentives. Assistance from government agencies in terms of effective training and courses are also necessary. This can only be realized if close cooperation could be established between government agencies in addressing the problems of producers. The arrangement of a system for financial support that is transparent, responsive and efficient is also one of the dimensions that could contribute to counter the producer's problems. Currently, the growers were evidently not satisfied with the financial-aid system of government agencies for there is

not much help, particularly to the small and medium-sized growers

The strategies presented are the responses to the constraints and problems raised by producers. Overall, it can be concluded that what is currently facing many producers is closely associated with production problems and not marketing. The technology is still at its old notch, the inputs for the production of poor quality and other problems have been identified as the cause of retardation of the development of industry and unable even to meet domestic market demands. Ongoing research is capable of providing solutions and tonic to policy development and the industry as a whole. Strength of policy support that benefit the producers directly will eventually give an advantage to the consumers, as over time the market for the industry will develop stronger, organized and headed towards the competitive market.

## **Marketing strategies**

### ***Products***

Understanding a product preferred by consumers is important to any business. Generally, consumers prefer products that are available and affordable. This means, marketers focus on the superiority of products and low-price to consumers. Majority of respondents stated that grey oyster was the most popular and preferred mushroom by consumers in Malaysia. However, different ethnic group looked at the oyster mushroom's physical characteristic differently. For example, Malay consumers preferred big and thick head, and long body, while Chinese consumers like small head and short body. Thus, marketers need to offer different products to different ethnic groups.

### ***Price***

In general, the demand for oyster mushrooms is more than the quantity supplied by growers. The demand for fresh oyster mushroom was estimated around 50,000 kg/day, while the growers



were capable to supply only around 24,000 kg/day. The higher demand resulted in a higher price. The price of oyster mushroom is determined by marketers. The farm level price of oyster mushroom was ranged from RM7 to RM10/kg, while the retail price was between RM12 and RM15/kg and most of the respondents were satisfied with the price. This price was considered affordable to consumers and at the same time the growers sustained their profit margin. Even though the price is higher than that of the produce from Thailand (RM3.50 – RM4.50/kg), consumers prefer the local ones because of their higher quality. Thus, the price of fresh oyster mushroom should be in the range that is agreed upon by both growers and consumers.

#### ***Place of marketing***

Oyster mushroom is marketed at hypermarkets, supermarkets, wet markets, night markets, farmers' markets, wholesalers and grocery stores. The higher demand for mushrooms resulted in difficulty of supply to these distribution channels. In other words, the marketers were unable to supply consistent products to these outlets. Most of the respondents sell their products to middlemen who come to their farms. Only big companies sell directly to hypermarkets and supermarkets. One of the respondents stated that:

“If you want to market your mushrooms to supermarkets and hypermarkets at Klang Valley, the demand is higher during the weekend such as Friday, Saturday and Sunday because many consumers do their shopping during these days. You can sell at wet markets and night markets everyday” (Respondent No. 1)

This particular quote implies that besides knowing the place to market the fresh oyster mushroom, marketers must also consider the best time to sell their products.

#### ***Promotion***

Generally, the demand for fresh mushrooms is increasing every year due to increase in population and consumption. People are aware and recognize the nutritional content and benefits of consuming mushrooms. Special programmes and activities that can encourage more people to use this product will help to boost the industry. This role can be played by government agencies and NGOs that are involved in the development of this industry. For example, the Association of Mushroom Malaysia organizes promotional activities that can attract more people to use mushrooms. One of the respondents stated that:

“We the association organize programmes that can encourage more people to consume mushrooms. The programme includes distribution of recipes and how to cook mushrooms healthily. The programme is in collaboration with hypermarkets”.

This quote implies that promotion and information dissemination are an important effort that can help the marketers to market fresh mushroom effectively. The promotional and awareness programmes must be carried out continuously and should involve all parties in the supply chain of mushrooms in the market.

#### ***Conclusion***

This study was carried out basically to explore the main issues and challenges faced by mushroom growers and also to find out the constraints in the mushroom industry in general. Initial perception of the problem that exists is expected to revolve around things related to marketing. Nevertheless, this study successfully revealed some real problems and constraints faced by mushroom growers. Based on the feedback obtained, some general strategies have been proposed to solve the problems. Producers' perspectives would be very helpful in managing the future options and policies development.

The main constraints are found to be related with the ability of growers to meet local consumer demand. However, the exact nature of the predicate upon which the production process is inefficient and does not have the capacity to produce mushrooms in a large scale. Technological backwardness, poor seed quality and disputed, competition from neighbouring countries, researches that are not continuously done to solve the problems and unfriendly policy development to producers are the main contributors to the retardation of the mushroom industry.

Solving the problems in an effective and immediate response is needed. In line with National Agri-food Policy, which was formulated by the government, relevant agencies and authorities should jointly mobilize their efforts and formulating policies at the grassroots level to help this industry to continue to grow. The policies should be directed at moving forward technological enhancement by promoting new investments in affordable mushrooms' media and other technical aspects of this industry, and assisting the marketing skills in management. The R&D and training courses provision can improve the mushroom industry performance as these aspects are the anchoring dimensions to establish the efficient-commercialisation production cycle and setting up the market right.

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### **Abstrak**

Cendawan merupakan industri baru dan kecil di Malaysia. Walau bagaimanapun, industri ini berkembang sebagai salah satu sumber makanan dan sumber pendapatan baru kepada petani. Kajian ini telah dijalankan untuk memahami potensi industri, khususnya berkaitan isu dan cabaran yang boleh menghalang perkembangannya daripada perspektif pengeluar. Kajian ini menggunakan paradigma penyelidikan kualitatif melibatkan 15 orang yang berkecimpung dalam industri cendawan. Secara khususnya, perbincangan kumpulan fokus telah digunakan untuk mengumpul maklumat berkenaan persepsi, jangkaan dan pengalaman mereka dalam menanam dan memasarkan cendawan segar di Malaysia. Kajian ini mendapati, terdapat tiga isu yang perlu diberi perhatian iaitu pengeluaran, pemasaran dan polisi serta inisiatif kerajaan. Isu pengeluaran berkisar kepada pengurusan cuaca yang semakin panas, bekalan biji benih yang rendah kualitinya dan peningkatan kos pengeluaran. Secara umumnya, permintaan terhadap cendawan tiram adalah lebih tinggi berbanding dengan kuantiti yang dibekalkan oleh pengeluar. Oleh itu, tiada persaingan dalam pemasaran cendawan tiram terutamanya di kawasan Lembah Klang. Permintaan tinggi menyebabkan harga pasaran juga tinggi. Harga cendawan tiram ditentukan oleh pemasar. Walau bagaimanapun, pemasar masih lagi perlu merancang strategi pemasaran bagi memenuhi permintaan dan keperluan pengguna. Kajian ini juga mendapati bahawa penyelidikan dan pembangunan (P&P) berkaitan dengan sistem pengeluaran yang dapat menangani isu alam sekitar, pengenalan kepada biji benih yang baru, latihan dan subsidi bagi pembangunan rumah pengeluaran adalah antara insentif yang diperlukan daripada pihak kerajaan. Kesimpulannya, industri cendawan mempunyai potensi untuk dikembangkan berikutan permintaan yang tinggi daripada pengguna tempatan dan global.