

# RABBIT INDUSTRY IN SELANGOR STATE: REVIEW ON PRODUCTION AND CHALLENGES

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**Abstract:** The Selangor livestock industry, particularly that part pertaining to rabbit, has increased due to demand, there is need in improvement for a productivity which been focused on the production systems and nutrition. Rabbit industry is very new in Malaysia but has become popular since many campaigns and encouragement are given by the government towards the development of this industry. It is the intention of the government to see that rabbit meat can substitute up to 20 percent of poultry meat consumption (Dahlan, 1993). In 1988, Malaysian small holder farmers and entrepreneurs were encouraged to go into rabbit farming for both export and local consumption (Raharjo Y.C., 2016). Currently, farmers are aware about this opportunity and interesting features of the animal, but they are still cautious and skeptical to get involved in the industry because there is no market assurance of the products. As it may involve niche market such as shop selling “satay” (a local delicacies based on meat). Rabbit is still perceived as pet and the meat consider not well preferred by many due to culture, social and norms of the people. There are key components in developmental aspects of the rabbit industry with regards to collaboration between authority such as DVS and farmer association as well as entrepreneurs. However, the industry constant face up many challenges and many factors contribute to this downfall. Most farmer run their rabbit farming in a micro- and small-scale operation (Raharjo, 2008). In term of production, the cost of commercial feed is very expensive and not specifically tailor to meet the nutrition requirements of the rabbit according to physiology and age. The type of breed and its suitability to meet the management type of local farmers as well the investment and market size is questionable. This paper discussed some aspects of the status of the rabbit industry, production aspects and its challenges regarding farmers located in Selangor state.

**Keywords:** rabbit industry, production, challenges, Selangor, development.

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## INTRODUCTION

Rabbit industry is very new in Malaysia but has become popular since many campaigns and encouragement are given by the government towards the development of this industry. This rabbit industry divided into 3 groups which consist as pet animals, meat consumption and laboratory usage for research purpose. Initially, breeds such as Rex and Angora as pet animals and New Zealand White and California for meat production. In 1980s, rabbit industry development as pet animals and it is the early of 1990s, the rabbit has been reared as alternative toward livestock's meat. After 20 years in the development stage, the industry has sustained and independent as niche market existential, community group formed, promotion event started. According the current statistics regarding the industry, there are 24,987 does with 600 farmers who registered with DVS District Office. The rabbit meat has been seen demand as well, due to few marketers who involved in "Satay" production requesting almost 1,200 kg per month basis. This figure indicates the demand is more than the production. Initially, this industry develops as poverty eradication programmes in rural areas, has been picked up as commercial scale production. It is the intention of the government to see that rabbit meat can substitute up to 20 percent of poultry meat consumption. Currently, farmers are aware about this opportunity and the interesting features and demand of the animal to be involve in the industry as commercial entity. And, some people are still cautious and skeptical to get involved in the industry because there is no market assurance of the products. The potential of the rabbit meat production industry still viable, if few measures taken with sustainable approach. The turnover for meat production is good if the cost of production is low. The production cycle is shorter than any other livestock production. Few government agencies such as FELDA has shown increase interest in this production. For the disease aspects, the no major disease reported except Melioidosis and Rabbit

Hemorrhagic Disease if the management is poorer. In the National surveillance programmes, the rabbit disease is not inclusive as no reported disease nationwide (DVS source). Recently, the industry development looks interesting and policy makers shifting their attention toward rabbit production as the new modern farming concept. Few programmes such as Youth Entrepreneur Development under Ministry of Agriculture & Agro Based Industry (MOA) has been keen in encourage the applicants for this rabbit production.

## **CURRENT SITUATION**

The rabbit meat is still new to Malaysians and the cost of commercial feed is still very expensive due to manufacturer overhead cost as the volume is small. Many companies not interested to formulate or involved in the rabbit pellet production; and if so, the production cost is high. Thus, few industry players such as Cooperative are in talking to enable them to formulate and commercial their own feed to the members so that the industry sustainable.

The livestock's sector is of great importance for the sustainability of rural economies and many ecosystems; however, it also has a high environmental impact. Due to growing demand for animal products, there is a need to design new livestock production systems that allow the combination of food security and sustainability. Within this context, organic livestock may be useful strategy to achieve such a pivotal goal. However, rabbit production projects have been successful and had the expected catalytic effect and others have heavily commercialize or completely transformed. It would be a good idea to pinpoint the reasons for these small successes

and seek the most future appropriate solutions. The constraints may concern: social, cultural and economic factors: customer acceptance of rabbit meat and ease of marketing; resources available for balanced, profitable, low-cost, locally adapted rations; the existence of rabbit housing and management styles that exhibit the range of rabbit territorial, social, sexual, material and feeding behaviours; no presence of diseases representing a set of syndromes. The price offer now is RM 35.00 – RM 45.00/kg for a carcass with average weight 1-1.2 kg. The price for liveweight is RM 13.50 per kg from the farm gate. This price is considered expensive according a study conducted by DVS “Malaysian Preferences to Rabbit Meat”. As well the availability, affordability and acceptance toward rabbit meat still needs to be studied. The meat price high due to operation cost still not cheap. The cost of feeding imported or locally produced is expensive; thus, cost of production is higher. And, the appropriate approach by relevant government agency such as DVS would be a sustainable one; farmer and breeder training, special aid for the industry and right policy making. The farming system practised is intensive, which can be semi-commercial or commercial depending on the scale.

In Selangor state as the most populous state (5.46 million), the demand for protein source is huge. The urbanization rate is almost 91.4% as the more immigration and development taking place. The consumption is increasing tremendously for meat-based products. Based on the demographic, Malay population is majority and the consumption of satay is huge. Initially, few projects have been initiated under Program Azam Tani in District of Kuala Selangor as poverty eradication programme in year 2011. Thus, family with earning of less than RM 430 a month consider below poverty line has been given the fund and assistance by relevant agencies to be involve in production. This approach is to increase the income per capita of the families and as

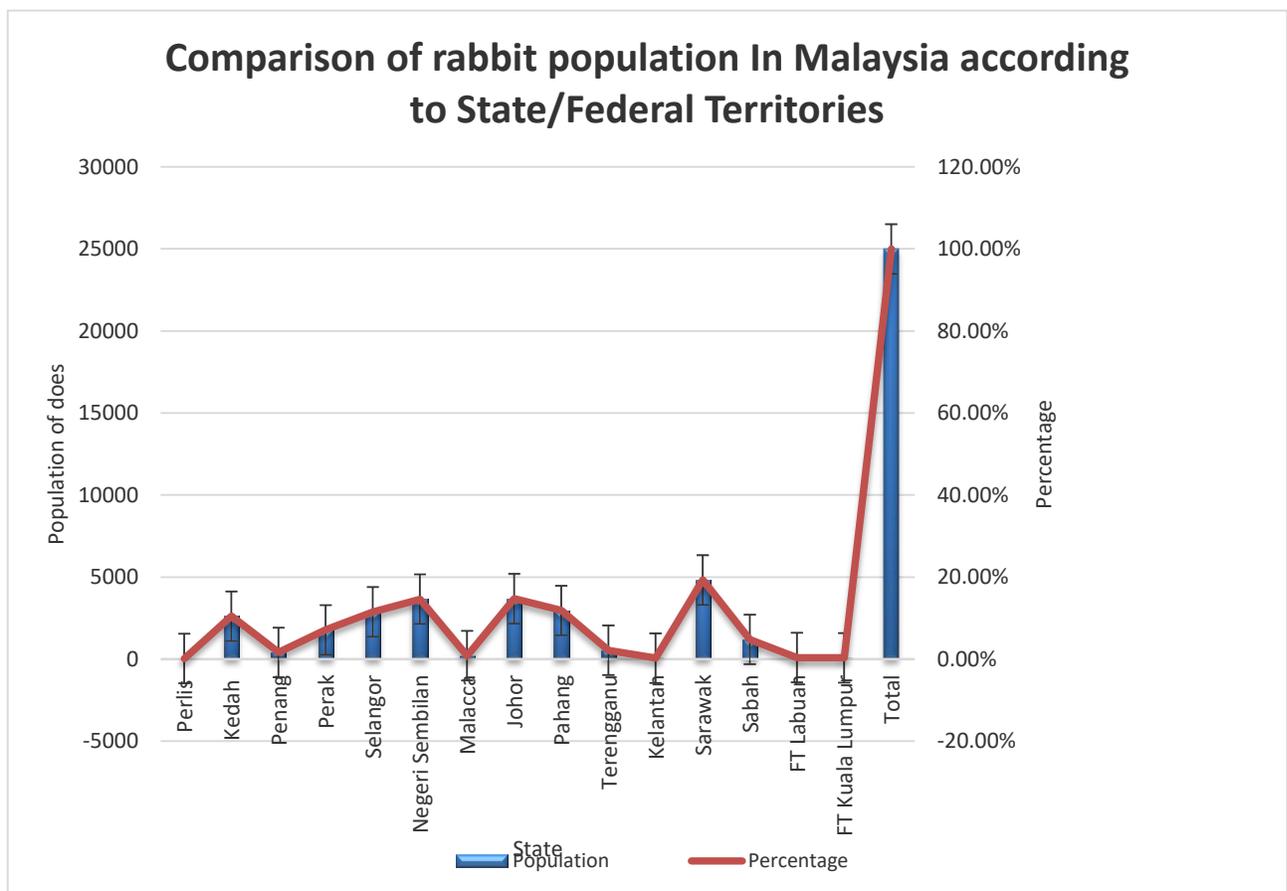
way of living. Project "Ternakan Arnab Program Peningkatan Pendapatan Golongan Sasar (PPPGS) 85 Keluarga Azam Tani di Parlimen Tanjung Karang, Kuala Selangor" Selangor Darul Ehsan has been a categorised as small scale ventures initiated by Government. The project feasible as utilization of local resources and faster growth rate of the rabbit and reproduction indicator is good.

According current statistics as *Diagram 1: Rabbit Population in Malaysia*; the number of 44 farmers in Selangor state consist of 11.51% (with population of 2,876 does). The total population is 4,764 (including 1390 male kitten and 1392 male kitten). The number of farmers varied according to the source of information. As the source from MARBA reveal 44 farmers and other data stipulated as 97 farmers (source from GAPS). In the year 2018, there was 11 farmers who has registered with DVS with total does 1459 head. The number of farmers in Selangor state in previous years quite low as in 2017 (3 farmers) and 2016 (7 farmers). From the source of our census, around 27 farmers have generated valuation almost RM 999,396.00.

State	Population	Percentage
	30	0.12%
Kedah	2,616	10.47%
Penang	412	1.65%
Perak	1,782	7.13%
Selangor	2,876	11.51%
Negeri Sembilan	3,651	14.61%
Malacca	205	0.82%
Johor	3,683	14.74%
Pahang	2,958	11.84%
Terengganu	533	2.13%

Kelantan	57	0.23%
Sarawak	4,825	19.31%
Sabah	1,193	4.77%
FT Labuan	87	0.35%
FT Kuala Lumpur	79	0.32%
Total	24,987	100.00%

**Diagram 1:** Rabbit Population in Malaysia (according to State)



**Diagram 2:** Comparison on the population according to state in Malaysia

The Diagram 2 reveal the comparison of rabbit population in Malaysia based on number of does.

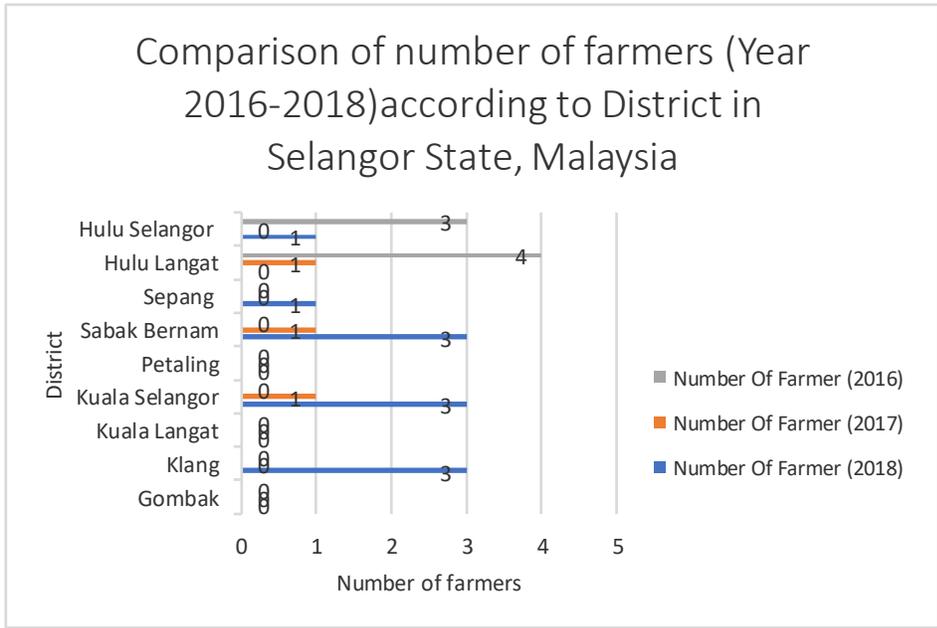
Selangor state is the 5<sup>th</sup> largest population of rabbit does for meat production. This number

expected to increase as the market and supply chain concentrate in Klang Valley which much nearby to Selangor State. Some big farms locate in Sepang and Puchong is a strategic place for marketing aspects. Niche market existed also more in Klang Valley region such as Satay Hj. Samuri, processing of burger, and other downstream activities.



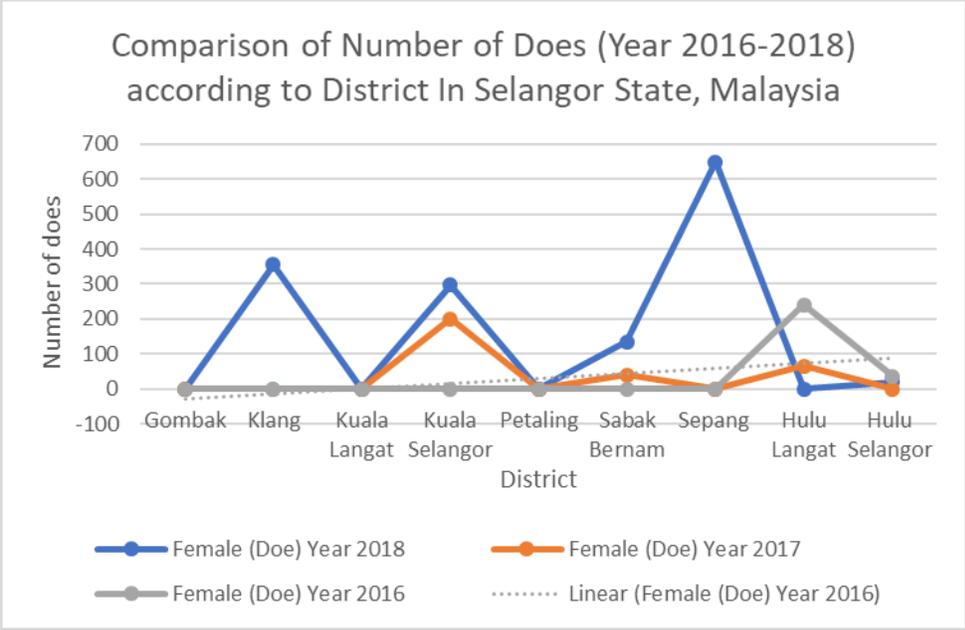
**Diagram 3: Population of rabbit (according to District) in Selangor State, Malaysia.**

This diagram of rabbit population has been schematized according to district in Selangor state. The number of does and buck increase as the number of farmers increase gradually. The highest number of does in Sepang District because of location near Klang Valley and market is much available in these areas. There is 1 commercial farm in this region who may contribute for that.



**Diagram 4: Comparison of number of farmers (Year 2016-2018) according to district in Selangor State, Malaysia.**

The number of farmers has increase significantly in year 2018 compare the previous years; but not steadily in the district that recorded high number of farms in year 2016. The is new farms opened in the other district such as Sepang, Kuala Selangor, Klang and Sabak Bernam. The growth of new ventures can be seen in this industry indicating the demand growing.



**Diagram 5: Comparison of Number of Does (Year 2016-2018) according to District in Selangor State, Malaysia**

The comparison of number of does is the highest in the year 2018 and district Sepang recorded 650 does in year 2018. District such as Hulu Langat has decrease of does perhaps due to closure of some farms as well the transformation of farmers to other commodities. One of the biggest players, Good Tree Garden has been consistent and had population of 3150 rabbits. This consist of 100 buck and 650 does, as well as 2400 kitten. The average does per farmer range between 50 to 650 does (which is macro scale). As the 2018 data, each farmer will have 132 does as average.

By the year 2010, the world population will have risen from the present 5.4 billion to 7.2 billion, moving past nine billion by 2025. This increase will be felt mainly in the developing countries, where the corollary will be sizeable growth of the peripheries of urban conurbations, increased pressure on available land and major changes in the composition of animal populations. There

will also be substantial impact on available natural resources and on the future demand for livestock products. This will have a profound effect on the choice of feed resources and livestock systems. More land will have to be allocated for food production, reducing the feed resources (natural rangeland, pastures, forage) available to feed this growing population, as can already be seen in Asia. Even so, appropriate technology can release additional harvest residues and agro-industrial by-products which can be used for livestock feed. Clearly, enhanced food production requires more efficient utilization of natural resources and the development of alternatives such as rabbit husbandry.

The Selangor livestock industry, particularly that part pertaining to rabbit, has increased due to demand, there is need in improvement for a productivity which been focused on the production systems and nutrition. Rabbit industry is very new in Malaysia but has become popular since many campaigns and encouragement are given by the government towards the development of this industry. It is the intention of the government to see that rabbit meat can substitute up to 20 percent of poultry meat consumption (Dahlan, 1993). In 1988, Malaysian small holder farmers and entrepreneurs were encouraged to go into rabbit farming for both export and local consumption (Raharjo Y.C., 2016).

An update thus became imperative considering the major new developments and progress in rabbit husbandry in the last ten years. Malaysia do develop the industry especially the pellet feed for commercial players as well the breed stocks available. For example, MARBA (Malaysian Rabbit Breeders Association (since 2009) has been involve in the commercial activities as well to upbringing the right breeds of rabbits for commercial purpose. Other than that, more

promotion platform has been used to cultivate the consumers awareness toward the rabbit meat as well the industry in large scale. Such as, big player like Goodtree Garden doing urban farming is much be a model of display for the industry. Malaysia ARBA Rabbit show held give a good exposure the rabbit as pet animal. This boost more players into the business due to the versatility of the industry.

The 12<sup>th</sup> Malaysia Rabbit Show (Arba Sanctioned Show) held being a good platform of promotion for the industry experts collaborate with local farmers. This year as the International Conference on Rabbit Production in Tropical Climate and 4<sup>th</sup> ASIAN Rabbit Production Association Conference is a landmark on the development of the industry. The theme given “Rabbit as Future Livestock’s for Sustainable Development” is very positive indicator for the future development of the industry to fulfil the need for protein source (in the form of rabbit meat) with increase in population. Event such as International Rabbit and Cavy Show 2019 have showcase rabbit petting zoo and small animal display is a good event to attract the younger generation positive outlook. MARBA National Cavy Show 2016 for intended exhibition have been held successfully.

The whole industry has been raised as rabbits perceived as pets and there is huge demand of meat as well. Selangor state as central region do have huge part for the upbringing of the industry. The ideal small-scale rabbit production in Selangor state has been transformed as alternative and commercial entity for protein source. The future of the production is adaptation of highly productive breeds to our climate as well management style. And, also based on renewable farm resources that embodied the greatest potential for achieving a favourable,

sustained impact (chiefly nutritional and economic). There should be a development project planning tool by huge players or the cooperative as well the association.

In Selangor state, the sustainability issue of meat rabbit production profoundly depend on ecological (e.g. renewable natural or on farm resources), economical (e.g. investment and operating costs and market outlets), and sociological (e.g. sensitivity and community participation) aspects as external factors of rabbit production in Malaysia. Another few aspects involve the dimensions of project development: feasibility, design, implementation, monitoring, and evaluation. Internal factors that influence the production components (i.e. genetics, materials for housing and equipment, diet quality, health management and other factors) are likewise critical. The entire production system as urban and organic farming should be enhanced as land is scarce and urbanization level is high. Thus, State government should share a common mission of promoting appropriate – environmentally-friendly, economically sound, and socially acceptable production to rabbit meat industry in Selangor state. This would be a strategy to meet the forecast of increasing pressures on natural resources and greater demands for food for the rising population in Klang Valley and Selangor state. Thus, the meat rabbit production, in part, indeed sustained humanity if the industry has right approach, fundamental and developmental aspects. Selangor strategic location and the perception of community to accept the “Satay Arnab” and few other products do promise a growth in the industry.

In some farms, the integrated approach being carried out where rabbit farming together with poultry farming. This is to optimize the land usage and to increase the productivity. A typical small scale or backyard rabbit production system in rural setting (which may qualify as organic

farm), the enterprise may or may not be sustainable. This is because the poor farmer training or improper feeding practices could well lead to abandonment or failure of the rabbit enterprise.

Another element which can promote is organic livestock farming; which may be a useful strategy to overcome the challenges of the agricultural sector such as sustainability, food security, and food safety while matching with consumers' tendencies on good animal welfare, better health, environmental benefit, etc. (Alfredo, 2015). Animal welfare awareness among consumer is at large in Selangor state, and the industry need to be attentive to this. Conceptually, to produce organic livestock or products such as meat, eggs or milk, animals must eat only organic feeds. Ideally, the feed will be grown on-farm; it is required that livestock's graze organic pasture. In Selangor, we do have Napier planting projects, home plot support system, and huge green pasture for this purpose. Producers prevent illness in their farm animals by providing good nutrition, sanitation, and a low stress environment. While rabbit similar to livestock also provide manure, a very important source of fertility in traditional farming systems, as organic fertilizer and an excellent means of recycling nutrients within a crop rotation. Response to the challenges posed by global warming and the declining availability of most non-renewable resources will require a paradigm shift in the practice of agriculture and in the role of livestock within the farming systems (Nguyen Van Thu 2015). Thus, rabbit farming systems should aim to maximize plant biomass production from locally available diversified resources, processing the biomass on the farm to provide food, feed, and energy, and recycling all waste materials.

The situation in Malaysia has create unique potential of the rabbits as it provides the opportunity for rabbit industry development. Rabbits form an integral part of the complex farming activities.

Its multitude farming activity is characterized by small to medium in scale, limited capital investment, limited knowledge of technical farming operation, and in some areas lack of ability to market products and also huge cooperation among raisers such as association related to the industry. In this last 4-5 years, rabbit farming has been gaining its popularity in Selangor, Malaysia. A significant increase, not only in rabbit population, but also in numbers of areas and farmers interested in raising rabbits is recorded. A shift from improving family health and nutrition, through rabbit meat consumption, to an increased income-oriented farming occurs almost everywhere. It is a profitable farming practice, with the Benefit/Cost ratio that varies from 1.1 to 2.7 depending on the system and scale of farming. Scale of farming varies from 5 to 200 does, with different farming system operations. At micro- (<20 does) to small-scale operation (20-50 does) a self-forage-providing is very common, while at larger scale operation (>50 does) a combination of forages and commercial feed is practiced.

For micro and small-scale operation, especially in a new growing area, where market is initially less available, a strong cooperation of farmers has been a resolution. A strategic development, as partly applied to an area in Selangor state, involving a group of farmers or entrepreneurs arise such as Rabbit Meat Entrepreneurs Cooperative Selangor Berhad is considered successful. This strategy includes training of member-farmers, village breeding, strengthening the program and management of the organization, creating market, involvement in the industry and promotion of rabbits. This paper discussed some aspects of the status of the rabbit industry, production aspects and its challenges regarding farmers located in Selangor state.

## **DETAILS OF RABBIT MEAT INDUSTRY IN SELANGOR**

Currently, farmers are aware about this opportunity and interesting features of the animal, but they are still cautious and skeptical to get involved in the industry because there is no market assurance of the products. As it may involve niche market such as shop selling “satay” (a local delicacies based on meat). Demand for rabbit meat from entrepreneurs of food outlets such as Hj. Samuri Satay maybe will create a good potential downstream activity. Thus, some farm has established slaughterhouse to process carcass which fetch better price as well good market as consumer or buyers well preferred. Rabbit is still perceived as pet and the meat consider not well preferred by many due to culture, social and norms of the people. There are key components in developmental aspects of the rabbit industry with regards to collaboration between authority such as DVS and farmer association as well as entrepreneurs.

## **CHALLENGES FACE BY THE INDUSTRY**

However, the industry constant face up many challenges and many factors contribute to this downfall. Most farmer run their rabbit farming in a micro- and small-scale operation (Raharjo, 2008). In term of production, the cost of commercial feed is very expensive and not specifically tailor to meet the nutrition requirements of the rabbit according to physiology and age. In some medium scale farms, the use of commercial diet has become more and more common, especially when the availability of forages is limited due to a competition to other livestock’s sector which consume more. The type of breed and its suitability to meet the management type of local farmers as well the investment and market size is questionable. There are few challenges such as:

1. One of the major challenges in the rabbit breeding industry is the perception that people cannot eat rabbit because they see rabbits as pets. This is supplemented by the condition of the carcass of a rabbit that looks like another pet (cat) after being groomed. Animal welfare awareness since 2015 with Animal Welfare ACT (2015) and the activity of promotion may raise a need for rabbit been consider as animal that need to be given the 5 freedom.
2. Prices are considered to be expensive by the public for one kilograms of meat compared to other meat sources.
3. The rabbit meat supply is scarce for the community. This is because rabbit meat is not marketed in places that are easily accessible to the public such as shopping malls and shops. They even had to contact the breeder to get supplies.
4. Whereas breeders also have trouble marketing their products as they do not have access to market their products especially small breeders – small. Unless a formation of Cooperative and marketing entity does not foresee the customer specification and special needs, the industry may deem.
5. Most of the people who want to get involved in this industry are the ones who are not skilled in rabbit breeding and are causing problems with the management and health of rabbit on their farm. This can also result in high production costs or high rabbit mortality rates.
6. In addition, potential breeders also face capital constraints to start their breeding due to lack of capital to start rabbit breeding in terms of infrastructure provision and breeding of rabbits.

7. Since rabbits are not native to Malaysia, rabbits need to adapt to the hot and humid climate of Malaysia throughout the year, which may lead to lower rabbit productivity and possibly other problems such as heat stress.

8. In recent times, there has been an outbreak of rabbit outbreaks in several countries, especially in the North American continent of Rabbit Hemorrhagic Disease. The disease is a highly contagious and potentially fatal disease, it is also one of the most compulsory diseases reported by the OIE because of its impact on the industry.

9. In order for rabbit meat to be sold at the appropriate mall or supermarket or exported to the international market, rabbit farms must have a DVS accreditation certificate. However, rabbit farms in Malaysia do not have such accreditation because factors such as slaughtering are not allowed in the field.

## **OPPORTUNITIES AND FUTURE DEVELOPMENT RABBIT INDUSTRY IN SELANGOR STATE**

The strategy as what has been formed in neighbouring country such as Indonesia; which involved as 'Rabbit Village Concept', includes training of member farmers, village breeding, strengthening the program and management of the organization, creating market and promotion of rabbits through collaboration with government bodies such as FAMA (Federal Agriculture Marketing Agency). For the training, there should include useful theory and solid practical apprenticeship for newcomers', inexperience farmers, young agropreneurs and women

participation. Programme such as MYAGROSIS to cultivate the interest the young graduate's participation in the rabbit production. For the financial assistance, platform such as MOA Incorporated, Malaysia Cooperative Commission (SKM), AGROBANK, TEKUN need to be enhanced. Grants and incentive programmes to assist the industry players to expand the scale of production to meet the demand. Loan availability for new farmers and young entrepreneurs need to scale up the farm size or new ventures. Financial could be from the members or from other source, including Government, Bank, etc. A cooperative group formed must be assist by the relevant bodies to have a good marketing plan, training, and technology advancement. Perhaps the appointment of first-generation trainees to become "cadres" and mechanism to fortify the industry development in more sustainable ways. Other few things are:

1. Rabbit has the potential to become one of the niche markets for people like Wagyu meat on the market for having its own fan base.
2. Rabbit meat also has the potential to be marketed internationally, especially in European countries where rabbit is one of their food menu.
3. In addition, rabbit meat has better chewing content than meat - other meat especially lower cholesterol content should be considered as one way to increase the potential of rabbit meat in the community.
4. There are not many studies on the rabbit industry in Malaysia.

In term of management, a combination of limited concentrate diet with ad lib forages is more profitable than feeding concentrate diet alone.

## - **SUSTAINABLE FARMING CONCEPT IN SELANGOR STATE**

Urbanization may possess' threat to other livestock industry as land availability is getting limited, the necessity for technology advancement, higher productivity,

For the aspect of the status of the rabbit industry, number of farmers, production in sustainable ways (e.g. breeds and breeding, feeds and feeding), important diseases and suitable management and integrated production systems that exist in the country.

### - **Production of rabbit feeds and formulation (with intense R& D)**

The cost of production can be reduced if the feed cost reduce and tailor made to suit the requirement of the rabbits for production purpose. This can be done through collaboration of agency and Cooperative to benefits the commercial scale farmers. The local resources can be utilizing such as crops as cassava, sugar cane, and various oil palm species, produce forage (high quality), extractable sugars, or juices, fruits or roots, which mainly suitable as feedstuff for rabbits. Cereals grain production industry can contribute too by reserving the agriculture by products for the feed mill processing the rabbit pellets. The cheaper cost and availability is the ultimate reason for the feed formulation.

### - **Production in Optimum Way**

Local rabbit production system needs to yield higher output involving limited off farm purchases that would supply inexpensive meat, improve farm productivity, and increase the sale of surplus 'stock'. The valuable expertise to offer better opportunities for small scale rabbit farming as well commercial scale farming, need to be enhanced through cooperation with academicians, researchers, government agency, and farmers cooperative.

### - **Marketing Enhancement**

The production can be increase based on the demand, and the industry need to be versatile in the approach to reach customers. The market plan ned to have and cooperation with main players in supply chain is a must. Agency such as FAMA can contribute for the development of the market which readily available and scattered.

### - **Urban Farming**

New concept of vertical farming can be introduced to the rabbit production with application of eco environment rearing style and management aspects.

## **CONCLUSION**

Cooperative/Association based on rabbit industry and government agency such as Department of Veterinary Services, FAMA (Federal Agriculture Marketing Agency), and financial bodies such as Agrobank must work closely to plan a strategic sustainable goal and also the expansion of the niche market. The expertise in processing and marketing need to be enhance. Certification and accreditation such as MyGAP, MyOrganic and Halal Compliance need to be in the strategic plan so that the product is quality assurance and may increase the confident level of the consumers as alternative protein source.

The market research such as feasibility study, economic status of farmers, market potential, market size, product type, and etc., need to be collectively gathered to determine the way

forward of the industry. Questionnaire need to be highly specific to get the input of consumers in large scale as well determine the actual demand for the meat.

The sustainability of the industry is based on the breeding activity of the rabbits, rabbits as pet animal and rabbit meat for consumption. As vertical farming and modern farming is developing, rabbit maybe a good choice to strategically cultivate for urban farming, as many good farmers are around the cities. Integration of other livestock's and optimization of land need to be attained, as Selangor state as urbanizing state and increase of population may have huge demand for the rabbit meat.

Thus, rabbit production can be enhancing in Selangor state with proper planning, identification of the niche markets, analyzing economic aspects as well promoting in well manner. Bu understanding the demographic of Selangor state, there is much anticipated interest in young generation to like rabbit meat in the future.

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